No. 8

パキスタン回教共和国
機械加工技術開発協力事業
アフターケア調査団報告書

1994年2月

国際協力事業団

序　　文

パキスタン回教共和国は、中小企業の育成に資するため、工業省傘下の既存「パキスタン工業技術支援センター（PITAC）」に対する機械加工技術の移転により鋳型及び金型製造部門の技術レベルアップを図ることを計画し、我が国にプロジェクト方式技術協力を要請してきた。

この要請を受けて我が国政府は、国際協力事業団（JICA）を通じて1982年3月に実施協議調査団を派遣して討議議事録（Record of Discussions）の署名を行った。

本件プロジェクトは、同討議議事録に基づき、1982年9月29日から3年1か月間（1か月のフォローアップを含む）にわたり技術協力を実施した。

その間、日本側は長期専門家2名、短期専門家7名を派遣し、研修員7名を受け入れ、約2億円相当の機材供与を行った。

本アフターケア調査団は、プロジェクト引き渡し後のパキスタン側運営状況について調査するとともに、移転された技術の、より円滑な普及のための支援方法について協議を行うことを目的に1994年1月24日から2月1日まで派遣された。

本報告書は、同調査団の調査結果をとりまとめたものである。

ここに、本調査団の派遣に関し、ご協力いただいた日本・パキスタン両国の関係各位に対し深甚の謝意を表するとともに、併せて、今後のご支援をお願いする次第である。

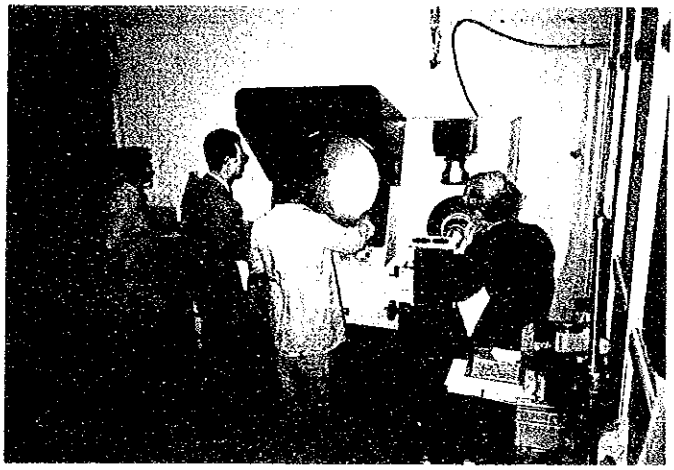
1994年2月

国際協力事業団
鉱工業開発協力部
部長　柿　沼　宇　佐

▲ PITAC外観

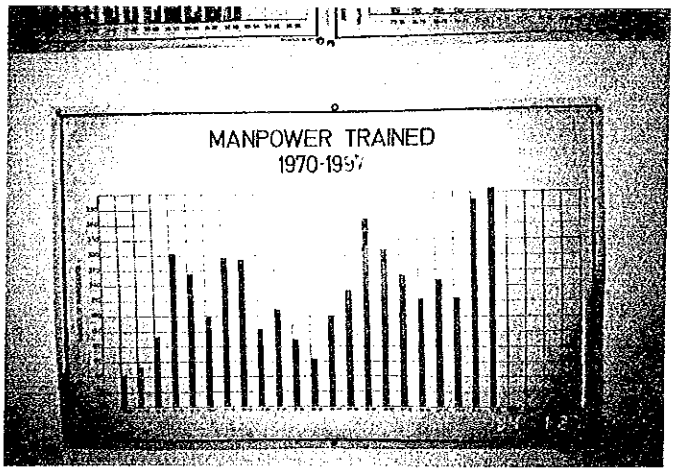
▲ ミニッツ署名

▲ 供与機材状況（JICAルーム内）



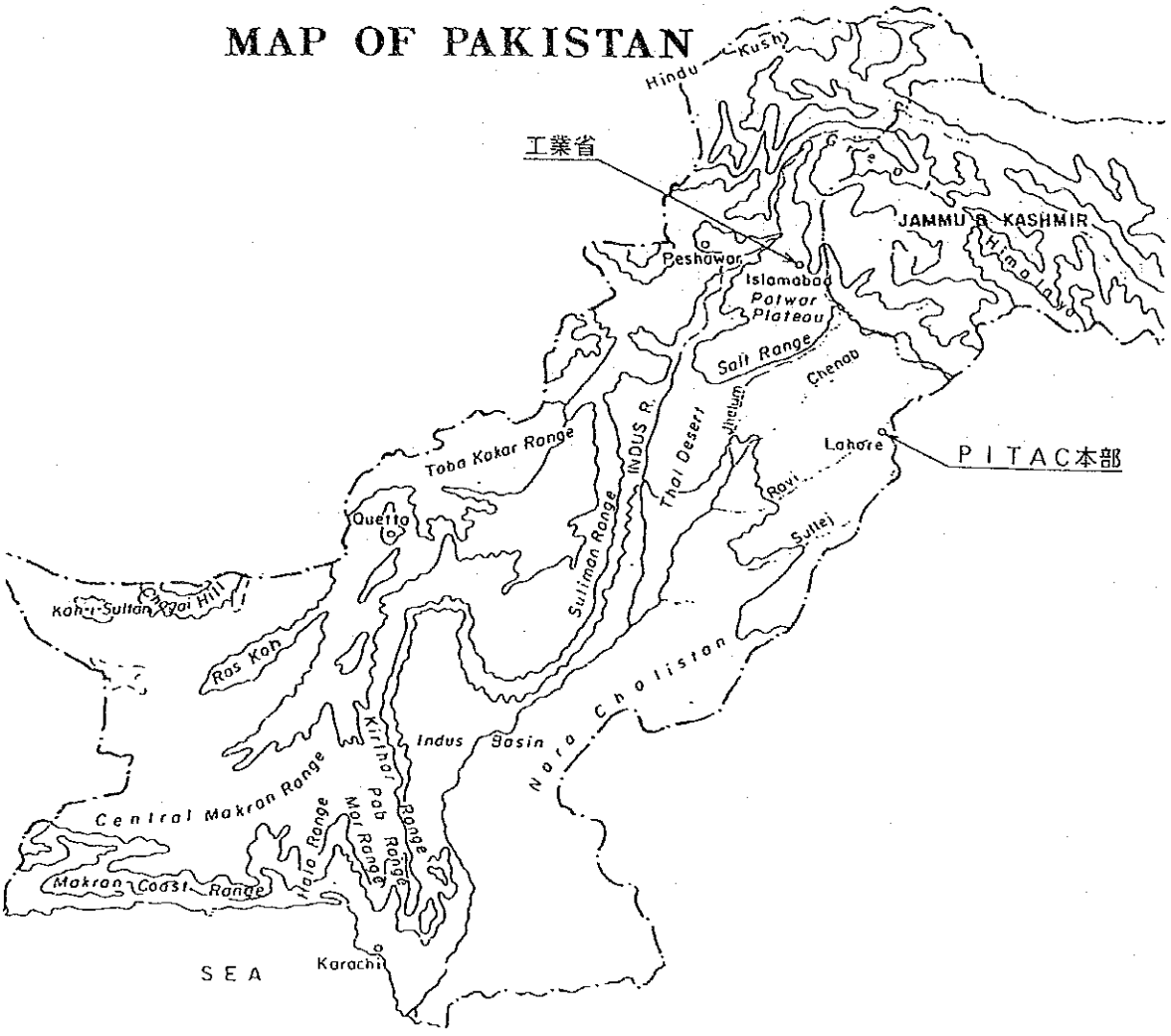
▲ 供与機材状況（測定機器）

▲ 製品例

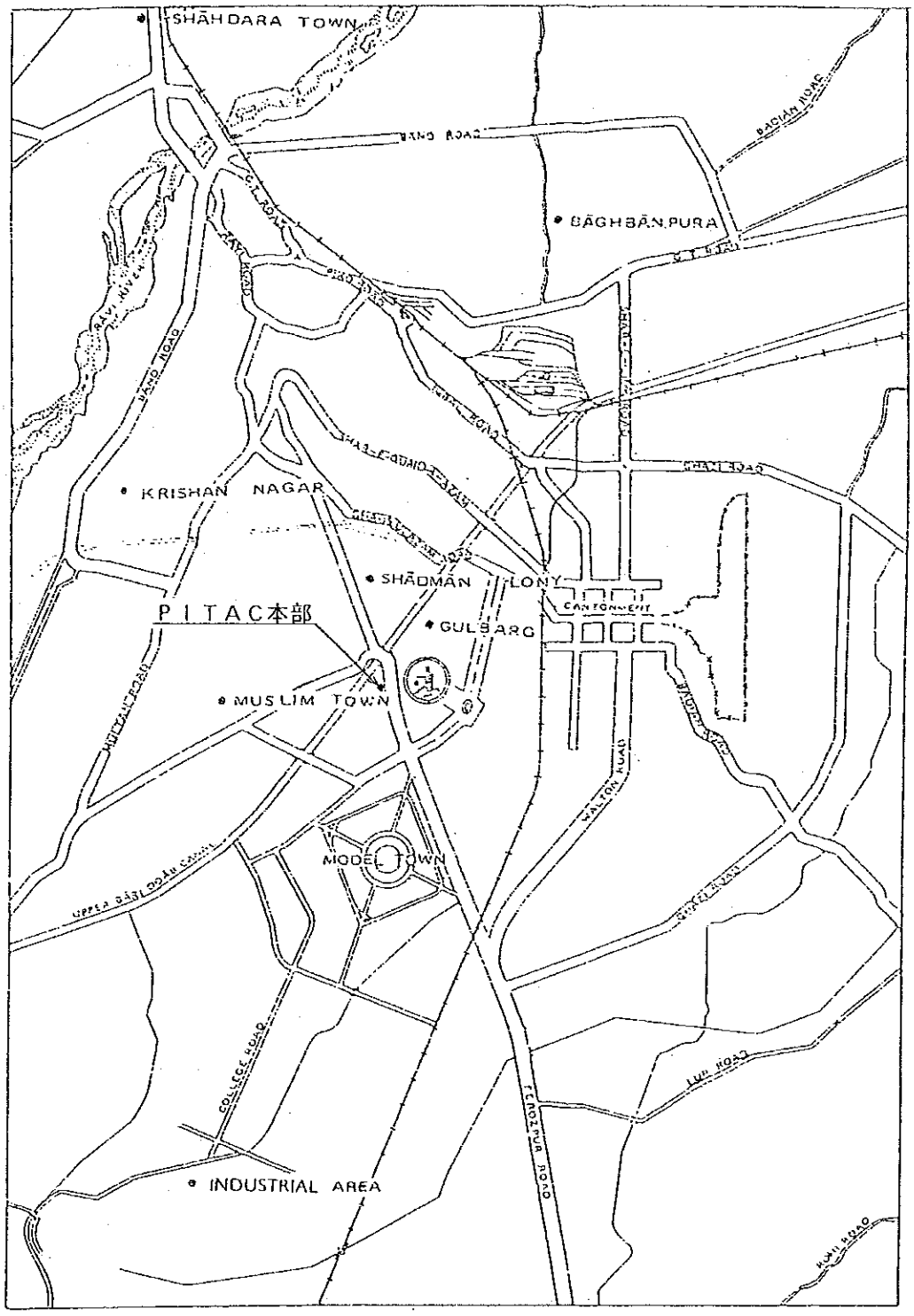


▲ トレーニングコース開催状況

MAP OF PAKISTAN



SKETCH MAP OF LAHORE



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1. 調査結果の要約

1985年10月のプロジェクト協力終了後、現在までの8年4か月間に、プロジェクト協力中と同様に訓練コース、セミナー等が頻繁に実施されており、パキスタンのみならず、中東、アフリカ諸国から受講者を受け入れている。

現在、当センターは、パキスタンの工業技術支援センターとして機能しているが、今後も、日本から更なる協力を得て発展していきたい旨の希望があった。

一方、パキスタン国側の本プロジェクト終了後に対する予算額及び本プロジェクトの職員配置数に関しても適切に対応されていることが確認された。

以上の結果から、当該プロジェクトに関するアフターケア協力の妥当性は高いと判断された。

2. アフターケア調査団派遣

2－1　調査団派遣の経緯と目的

「パキスタン工業技術指導センター（PITAC）」に対するプロジェクト方式技術協力要請は、1978年6月にパキスタン回教共和国政府から日本国政府に対して正式要請された。

この要請を受けて我が国政府は、国際協力事業団（JICA）を通じて1982年3月に実施協議調査団を派遣して討議議事録（Record of Discussions）の署名を行った。

本件プロジェクトは、同討議議事録に基づき、1982年9月から3年間にわたる技術協力が開始された。そして、1985年9月のプロジェクト終了に先立ち、1985年9月に評価調査を行い、協力実績及び成果をレビューし、技術協力目的の達成度を評価し、その後の協力方針を討議した。評価の結果、本プロジェクトは当初の目的を達成したが、残余協力期間中に現地に到着した供与機材の据付け・操作の指導が必要であると判断され、引き続き1か月間のフォローアップを実施し、1985年10月に3年1か月間の協力を終了した。

現在、当センターの自主運営は順調に行われているが、スペアパーツ不足や機材運転の支障などの報告があり、今般、パキスタン側よりアフターケア協力の要請があった。

プロジェクト終了後、約8年4か月を経過した現時点において、JICAはプロジェクトの運営状況の確認及び今後のプロジェクトの発展性についてパキスタン側関係者と協議を行い、協力内容の一層の定着を目的として、アフターケア協力計画（Aftercare Program）を策定することを主な目的として、1994年1月24日から2月1日までアフターケア調査団を派遣した。

2－2　調査団の構成

団　　長	飯塚　潔	通商産業省機械情報産業局鋳鍛造品課 課長補佐
機材計画	高松　英次	（財）素形材スンター テクニカルアドバイザー
精密機械	河野　晋	㈱日立精機品質管理部ＣＥセンター 専任次長
プロジェクト 運営管理	岩本　雅道	国際協力事業団鉱工業開発協力部 ジュニア専門員

2－3 調査日程

派遣期間　1994年1月24日～2月1日（9日間）

月　日（曜）	調　査　内　容
1月24日（月）	東京発（PK753）　イスラマバード着
25日（火）	JICA事務所（表敬、打合せ） 日本大使館（表敬） 経済局（表敬） 工業省（表敬）
26日（水）	イスラマバード発（PK603）　ラホール着 PITAC（表敬、協議）
27日（木）	PITAC（ミニッツ案協議、機材調査）
28日（金）	調査団内打合せ、資料整理 PITAC主催晩餐会
29日（土）	PITAC（最終協議、ミニッツ署名交換） 調査団主催晩餐会
30日（日）	ラホール発（PK380）　イスラマバード着 JICA事務所（報告） 工業省（報告） 日本大使館（報告）
31日（月）	イスラマバード発（PK778）　バンコク着 バンコク発（JL718）
2月　1日（火）	東京着

2－4　主要面談者リスト

パキスタン側

(1)　PITAC

Mr. M. A. Jabbar Khan	PITAC所長
Mr. S. A. Ali Khan	シニアマネージャー
Mr. Sarfraz Ahmad	マネージャー
Mr. Javed Sheikh	マネージャー
Mr. M. Shakeel Choudhry	マネージャー

(2)　工 業 省

Ms. Nighat Parveen	ジョイントセクレタリ

(3)　経 済 局

Mr. Shahid Humayun	デュプティセクレタリ

日 本 側

(1)　在パキスタン日本大使館

田野井雅彦	一等書記官
小川　　潔	一等書記官
平木場弘人	一等書記官

(2)　JICAパキスタン事務所

新垣　和成	次　長
石橋　隆介	次　長
塩野　広司	所　員

3. 調 査 結 果

3－1 プロジェクト終了後の現状

1985年10月28日に当プロジェクト方式技術協力事業が終了してから本アフターケア調査団派遣までに、ほぼ8年3か月が経過し、この間に実施された活動及び供与された機材の使用状況については以下のとおりである。

1) 組織、人員配置、予算状況

本プロジェクトの実施機関はパキスタン工業技術支援センター（PITAC）であり、工業省管轄の機関であったが、現時点でも、その位置付けに変化はなかった。

また、センターの人員は、所長以下350人であり、プロジェクト終了時とほぼ同数であった。

そして、本センターの1994年度の運営予算は確保されているとともに、本件アフターケア協力を実施するための必要経費は支出可能とのことであった。

2) セミナー、トレーニングコース開催状況

プロジェクト協力期間終了後も、極めて順調に運営されている。日本等で研修を受けたカウンターパートは、帰国後、必ず該当分野についてのセミナー開催を義務付けられている。トレーニングコースのプログラムとスケジュールの一例を巻末資料3.として添付する。

3) 供与機材の使用状況

プロジェクト協力期間中に供与された機材は、全品大切に使用され、また、よく管理されており、現在でも機能性能の劣化が少なく、有効に使用されている。

故障中の倣いフライス盤は、今回持参した部品の交換では修復ができなかった。さらに、機械メーカとの技術情報の交換を図り原因を詰め、修理のためのエンジニアが必要と判断された場合は、短期専門家として派遣することになろう。なお、本機材の手動による運転は現在でも可能であり、現に稼働している。

派遣前、故障していると判断されていたＣＮＣ旋盤は、油圧ホースの経年劣化による油漏れを起こしているだけであることが判明した。

電鋳機は、消耗品のシリコンラバーの現地調達ができないため、現在、使用が中止されている。

3－2　将来計画及び今後の発展性

パキスタンの機械工業の現状としては、日本の主な自動車メーカーが現地工場を設立し、生産したりしているが、ほとんどが組立工場であり、部品生産の分野では、まだ発展の余地を残している。このような状況の中、工業省ではパキスタン工業界全体の生産性の向上を目指しており、PITACが指導的な役割を果たすことを期待している。

これを踏まえ、PITAでは、盛んにセミナー、トレーニングコースを開催しており、パキスタン国内のみならず、広く中近東、アフリカ諸国からも研修員を受け入れている。これは、当センターの評価の高さを裏付けるとともに、今後も近隣諸国全体に対する機械加工技術の人材育成に貢献できると期待される。

4. アフターケア協力計画の策定

調査結果の要約にも記載したとおり、本プロジェクトは日本側協力後も順調に推移しており、必要なアフターケア協力を実施すれば、更に効果を上げることが期待できると判断された。

アフターケア協力計画を以下に列記する。

4－1　協力分野と協力期間

協力分野は、アフターケアのスキームで対応できる、1）機材保守・点検、2）金型作成、3）熱処理、の3分野で双方が合意した。また、協力期間は、討議議事録に署名交換した1994年1月29日から1995年3月31日までとした。

4－2　専門家派遣計画

パキスタン側より、上記の1）機材保守・点検、2）金型作成、3）熱処理分野の専門家の派遣の要請があった。機材保守・点検については、現在故障中の倣いフライス盤の修理に専門家派遣が必要か否か未定のため、調査団から優先順位を付けさせ、柔軟に対処できるようにした。さらに、供与機材がパキスタン側に到着する時期に鑑み、短期専門家の派遣は1994年10月ごろからとした。

また、同専門家にかかわるＡ１フォームは、1994年3月末までに提出することとした。

4－3　研修員受入計画

パキスタン側からは、上記協力分野に関する研修員の受入れの要望が出されたが、調査団からは、アフターケアのスキームでは対応できないことを説明し、了解された。

しかしながら、パキスタン側は研修員の受入れの代わりに、専門家から、なるべく長期間にわたって指導を受けたいとの希望が出され、調査団からは、できるだけ考慮すると回答した。

4－4　機材供与計画

パキスタン側の最優先機材は、供与済みの機材のスペアパーツであり、今回の調査で、その詳細について先方意向、必要度を検討し、調整を行った。

その他については、金型作成用機材、金型試験用機材、パキスタンの電力供給状況を考慮して発電機等の要請があった。調査団からは、スペアパーツを最優先として、日本側予算内で対応できる範囲としたうえで、優先順位を付けさせた。

また、Ａ４フォームは1994年3月末までに提出することで、双方合意した。

4－5　パキスタン側投入計画

本件は、アフターケア協力であり、特に新規の協力のための機材などを投入するわけではないので、パキスタン側が新たに準備しなければならない予算、カウンターパート（C／P）の配置は無い。

ただし、短期専門家を派遣した際には当然技術移転の対象となるC／Pの配置が必要となるが、これら要員は既に配置されているものの、専門家派遣時には、間違いなく専任C／Pとして指名されることを確認した。

5. 調査団所見

PITACは、工業省所属の政府機関であり、収入の約90％を政府予算、残りを金型、簡単な工作機械等の販売、トレーニングコースの受講料などで賄っているが、両者とも毎年順調に伸びてきており、政府の当センターに対する期待の高さ、堅実な運営状況を裏付けるものと思われる。

本アフターケア協力に対しても、スキームの制約をよく理解し、そのなかで、どのような機材供与、専門家派遣が現在のPITACにとって最も効果的かを考慮して調査団との協議に当たっており、好感がもてた。

また、実際にPITACのワークショップを見学した印象では、日本から供与した機材のみならず、30年以上前にアメリカから供与された機材も良好に整備、活用されており、開発途上国で常に問題になるところの維持管理体制が技術レベル、意識レベルの両面から既にかなり高いレベルにあることがうかがえた。日本から供与した機材についても、今後長年にわたって使用されることが容易に想像されるが、消耗品、寿命部品の購入ルートがパキスタン国内では全く無い状態であり、この点についての助言も必要である。

PITACは、パキスタン国内のみならず中近東、アフリカ諸国の工業技術支援センターとしての役割を果たしているが、現在の世界的な機械工業界のレベルからすると、日本から供与されている機材でさえ既に時代遅れになっていることは否めない。本センターが今後も機械工業界の指導的役割を担うためには、優秀な人材、管理体制を十分に機能させるに必要不可欠な機材は、ぜひ必要であろう。日本側の本アフターケア協力にとどまらない積極的な協力を考慮することも大きな意義があると思われる。

6. 先方側との主な協議事項

1) 機材の供与に関しては、当初PITAC側は、かなり多めのスペアパーツを要望していたが、アフターケアのスキームの制約の説明を受け、スペアパーツを必要不可欠なものだけに減らし、代わりに現在のPITACの弱点であるプラスチック成形金型の作成、試験についての機材を供与することで合意した。

以前供与した機材は、当時のPITACの技術と市場が要請する金型の需要を考慮してプレス板金金型を主体として計画されており、プラスチック成形金型との生産比率は8：2であった。その後、PITACの金型製作技術の向上と、市場の要請が日用雑貨品等のプラスチック成形金型に移ってきたことにより、その比率は4：6と逆転している。このような金型市場の変化に伴い、今回の機材を選定した。

また、現在、パキスタンでは1日5時間半の停電が、30分から2時間の単位で数回に分けて計画的に実施されており、放電加工機、ワイヤカット機のように長時間の連続運転が必要な機材については、自家発電機の必要性が高いとの要望が出され、優先順位は低いものの、供与機材のリストに加えた。

2) PITAC側は、将来計画として特にCAD／CAM分野に重点を置いてセンターの機能を強化したいとの意向をもっており、既にPITAC本部とペルシャワールの支部の機能強化に関する協力要請を提出していた。調査団としては、所管事項ではないことを説明し、概要を聞くにとどまった。

資料1. ミ ニ ッ ツ

MINUTES OF DISCUSSIONS
BETWEEN
THE JAPANESE AFTERCARE SURVEY TEAM
AND
THE AUTHORITIES CONCERNED OF THE GOVERNMENT
OF
ISLAMIC REPUBLIC OF PAKISTAN
ON
THE JAPANESE TECHNICAL COOPERATION
FOR
PAKISTAN INDUSTRIAL TECHNICAL ASSISTANCE CENTRE

The Japanese Aftercare Survey Team (hereinafter referred to as " the Team ") organized by the Japan International Cooperation Agency (hereinafter referred to as " JICA ") and headed by Mr.Kiyoshi Iizuka, Deputy Director, Machine Parts and Tooling Division, Machinery and Information Industries Bureau, Ministry of International Trade and Industry, has visited Islamic Republic of Pakistan from January 24 to February 1, 1994 for the purpose of working out the details of the aftercare program for the Project on Pakistan Industrial Technical Assistance Centre in Islamic Republic of Pakistan (hereinafter referred to as " the Program ").

During their stay in Islamic Republic of Pakistan, the Team has conducted a field survey and held a series of discussions with the authorities concerned of Government of Islamic Republic of Pakistan in respect of the desirable measures to be taken by both Governments for the successful implementation of the above-mentioned Program.

As a result of the survey and the discussions, the Team and the authorities concerned of the Government of Islamic Republic of Pakistan agreed to recommend to their respective Governments the matters referred to in the document attached hereto.

Lahore, January 29, 1994

飯塚 潔

Mr. Kiyoshi Iizuka
Leader,
Japanese Aftercare Survey Team,
Japan International Cooperation Agency,
Japan

Eng.Mr. Muhammad Abdul Jabbar Khan
General Manager & Project Director,
Pakistan Industrial Technical Assistance Centre,
Ministry of Industries,
Islamic Republic of Pakistan

Ms Najma Siddiqui
Deputy Secretary
Ministry of Industries and Production
(Industries Wing)
Government of Pakistan
Islamabad

Farhat Hussain
Joint Secretary
Economic Affairs Division
Government of Pakistan
Islamabad

THE ATTACHED DOCUMENT

1. COOPERATION BETWEEN BOTH GOVERNMENTS

The Government of Japan and the Government of Islamic Republic of Pakistan cooperate with each other in implementing the Program for the purpose of furthering the effect of the Project on Pakistan Industrial Technical Assistance Centre (hereinafter referred to as " the Project ") through the Program on technical cooperation and thus contributing to the promotion of the machining technology in Islamic Republic of Pakistan.

The both Governments will make any necessary arrangement for the successful implementation for the Program.

The Program will be implemented in accordance with the Tentative Schedule of Implementation as shown in ANNEX-1.

2. MEASURES TO BE TAKEN BY THE GOVERNMENT OF JAPAN

In accordance with the laws and regulations in force in Japan, the Government of Japan will take, at its own expense, the following measures through JICA according to the normal procedures of its technical cooperation scheme:

2.1. DISPATCH OF JAPANESE EXPERTS;

If necessity arises, the Government of Japan will provide the services of the Japanese experts as shown in ANNEX-2.

The above-mentioned Japanese experts will be granted in Islamic Republic of Pakistan the privileges, exemptions and benefits no less favorable than those accorded to experts of third countries or of other international organizations performing similar missions in Islamic Republic of Pakistan.

2.2. PROVISION OF EQUIPMENT;

The Government of Japan will provide such equipment, spare parts and other materials (hereinafter referred to as " the Equipment ") necessary for implementation of the Program as shown in ANNEX-3.

The Equipment will become the property of the Government of Islamic Republic of Pakistan upon being delivered c.i.f. to the Pakistan authorities concerned at the ports and/or airports of disembarkation, and will be utilized exclusively for the implementation of the Program in consultation with JICA office in Pakistan.

29.1.94

2.3. TRAINING OF PAKISTANI COUNTERPART PERSONNEL IN JAPAN;

Training of Pakistani counterpart personnel in Japan is not included in the scheme of the Program.

3. MEASURES TO BE TAKEN BY THE GOVERNMENT OF ISLAMIC REPUBLIC OF PAKISTAN

In accordance with the laws and regulations in force in Islamic Republic of Pakistan, the Government of Islamic Republic of Pakistan will take, at its own expense, the following measures:

3.1. SUBMISSION OF THE APPLICATION FORM;

The Government of Islamic Republic of Pakistan will make necessary arrangement for requesting the dispatch of Japanese experts and the provision of the Equipment as mentioned in 2.1. and 2.2. above by submitting the application forms (A-1 Form and A-4 Form) through the proper channel to reach Japan by the end of March, 1994.

3.2. MACHINERY AND EQUIPMENT;

The Government of Islamic Republic of Pakistan will supply and/or replace machinery, equipment, instrument, vehicles, tools, spare parts and any other materials necessary for the implementation of the Program other than those provided through JICA under 2.2. above.

The Government of Islamic Republic of Pakistan will take necessary measures for tax exemption, custom clearance, and internal transportation of the Equipment as mentioned 2.2. above as soon as it arrives at the ports and/or airports of disembarkation.

3.3. PAKISTANI COUNTERPART;

The Government of Islamic Republic of Pakistan will allocate the necessary numbers of suitably qualified personnel corresponding to each Japanese expert to be dispatched by Government of Japan as specified in ANNEX-2 for the effective and successful transfer of the technology under the Program.

3.4. ALL RUNNING EXPENSES ;

The Government of Islamic Republic of Pakistan will take necessary measures to meet all running expenses necessary for the implementation of the Program.

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3.5. SUSTAINED OPERATION OF THE PAKISTAN INDUSTRIAL TECHNICAL ASSISTANCE CENTRE;

The Government of Islamic Republic of Pakistan will ensure that the technical skills and knowledge acquired by the Pakistani nationals through the technology transfer by the Japanese technical cooperation will utilized in a manner which will contribute to the economic and social development of Islamic Republic of Pakistan and that operation of Pakistan Industrial Technical Assistance Centre will be sustained during and after the implementation of the Japanese technical cooperation.

4. CLAIMS AGAINST JAPANESE EXPERTS

The Government of Islamic Republic of Pakistan undertakes to bear claims, if any arises, against the Japanese experts mentioned in 2.1. above engaged in the Program resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in Islamic Republic of Pakistan except for those arising from the willful misconduct or gross negligence of the Japanese experts.

5. TERM OF COOPERATION

The technical cooperation for the Program mentioned in this Attached Document will be implemented before the end of March 1995 (within the Japanese fiscal year 1994).

ANNEX-1 Tentative Schedule of Implementation

Calender Year	1994												1995		
Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Dispatch of The Survey Team		*													
Dispatch of Japanese Experts											*********		****		
Provision of the Equipment (1)Local Acquisition by JICA Pakistan Office								*****							
(2)Acquisition in Japan									******						
Preparation of A-1 form and A-4 form				*											

Note:

1. A few Japanese experts on repair and maintenance of the Equipment will be dispatched if necessity arises.

2. The dispatch of the Japanese expert and the provision of the Equipment are subject to the recruitment of the expert and the budgetary condition of JICA.

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ANNEX-2 Japanese Experts

If necessity arises, a few Japanese experts will be dispatched to render such technical guidance as follows according to the priority indicated.

1. Short-term experts in the field of;

   (1) Repair and maintenance of the Equipment provided by the Government of Japan (priority A)

   (2) Mould Making Technique (priority B)

   (3) Heat Treatment Technique (priority C)

2. Scope of technical guidance;

   (1) Repair and maintenance

   (2) Mould Making

   (3) Heat Treatment

   To train the Pakistani counterpart personnel and to transfer necessary technology for the operation, maintenance, check-up and repair and effective application of the Equipment provided by the Government of Japan.

ANNEX-3 Provision of the Equipment

The Equipment to be provided by the Government of Japan through JICA is shown in the Equipment List attached hereto.
The Equipment will be provided within the budgetary limitation of JICA according to the priority indicated in the Equipment List, and will be subject to the procurement condition in Japan.

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List of the Equipment

1. Programming Unit E-Japt (Priority A,Japan)

(1) Cassette Magnet Tape interface board	1
(2) Key board interface board	1
(3) Cassette Magnet Tape driver unit	1
(4) Printer driver board	1
(5) Printer assembly unit	1

2. Profile Projector PH-600 (Priority A,Japan)

(1) Half mirror 20X only mirror (172-367)	3

3. CNC Copy Milling Machine Model No.AGIIUX(MAKINO) (Priority A,Japan)

(1) Multipole resolver A-290-0601-T804-4x with Tacho Generator	1
(2) Multipole resolver A-290-0601-T803-3x with Tacho Generator	1
(3) Power supply unit for FANUC accurateral-II type A 14 B-0061-B002-02	1
(4) Connection Bolts	24
(5) Digitizer	1
(6) HSS Ball end mill cutters (1.5,3,4,5,6,8,10,12.5mm)	2sets
(7) Collet chuck with collets (1/4,5/16,3/8,1/2,5/8,3/4,7/8,1,1 1/8,1 1/4inch)	1set

4. CNC Turning Machine Model No.4NEII-600 (HITACHI SEIKI) (Priority A,Japan)

(1) Pulse coder 2500 type A 860-0300/3	2
(2) DC Power supply unit model A5F250H2-B	1
(3) DC Power supply unit model A12F250H2-B	1
(4) Tachometer generator TG21 DC 20/1000 rpm(Fuji Electric) for Spindle motor	1
(5) Tape reader for FANUC control 3T-D	1
(6) FAPT Turn (English version)	1
(7) Battery UM-1S/1.5V/Size ID R-20 Toshiba for FANUC	12
(8) Battery UM-3S/1.5V/Size(AA) R6	10
(9) PCB Seiki PT.TSS1	1
(10) PCB Seiki PT.G2V	2
(11) Micon-8 Key board	1
(12) A Set of Flexible Hydraulic Hose Pipe	1set

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5. Maintenance Tools (Priority A,Japan)

(1) IC-Tester	1
(2) Transistor checker	1

6.Induction Hardening Unit (Priority A,Japan)

(1) Instrument current transformer COM-40-30-400/5A	1
(2) Cell trap TNR 821 KO158	3
(3) Resistor RDI/2P-1005-J	6
(4) Condenser (Dip type) Polyster 100WV 0.1 UF	6
(5) Resistor PSN ICP 5M	8
(6) Resistor EF-2-100K-J	2
(7) DC Over current relay Reset coil AC100V OL-400 6-14 ADC	1
(8) Oscillator tube (NFC) 9T71	1
(9) Condenser OP 4OT-I	1
(10) Coils L1,L2,L4 Special Design	1set
(11) San driver PDT-803E-10	1
(12) Solenoid valve PVS-10-210(100V)	1
(13) Variable Resistance FA100W 0-10Kohm Btype	9
(14) Timer 0.01s to 99.99s OMRON H5AN	3
(15) Tachogenerator for feed motor	1
(16) Spiral pipe for cooling water	1set

7.Salt Bath Furnace(NACHI) (Priority A,Japan)

(1) Thermo couples R-type Straight Max1500C	12
(2) Temperature controller(CHINO) model DK161 type55 YO69	1
(3) Diamond Penetrator for Rockwell C Hardness Tester	12

8.EDM Wire Cut Machine JAPAX LU3B with E-JAPT Program (Priority A,Japan)

(1) Pulse coder for the axis driver motor ROD-436,001,(5000p/r)	2
(2) LAP-5 EDMAS Bottle	12litter
(3) JEMS-1C Bottle	12litter
(4) Battery cadnica (SANYO) Model UN-500 AA 4.8V 450 MAH 001	2
(5) Data Cassette tpe (Blank) for JAPT NC	10
(6) Paper roll for E-JAPT Printer	40rolls
(7) System Disk E-W43 02-1406 (0)	1
(8) System Disk E-W43 02-1406 (1)	1
(9) Lower Energizing rollers	2
(10) Die Guides 0.2mm up (No.SSX 1106)	10
(11) Die Guides 0.2mm down (No.SSZ 2106)	10
(12) Energizing pin (Square type) MGS 1122	10
(13) Energizing pin (Cam type)	10

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9.Electro Forming Machine (Priority A,Japan)

(1) Silicone rubber with hardener (TSE350) (1Kg Packing) 20Kg

10.A/V Equipment (Spare Parts)(Priority A,Local)

(1) VCR Multi System (VT-39EM) Head & Remote Control Unit 1
(2) Colour Television (CMT2083) Remote Control 1

11.CNC Milling Machine (Priority B,Japan)

(1) CNC Milling Machine 1

X - Longitudinal Travel	560mm
Y - Transverse Travel	450mm
Z - Vertical Travel	450mm

12.Plastic Injection Mould Machine (Priority C,Japan)

(1) In-Line Screw Type Plastic Injection Mould Machine 1
having the following parameters

a) Clamping force Approx.	150tons
b) Shot weight/injection capacity Approx.	250grams
c) Day light dimension capacity Approx.	800mm
d) Platen size capacity Approx.	700x700mm
e) Screw dia. capacity Approx.	45-50mm

13.Generator (Priority D,Local)

(1) Generator (100KVA) 1

14.A/V Equipment (Priority E,Local)

(1) VCR (New Model) 1
(2) Video Camera (New Model) 1

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資料2. 質問状と回答

MI 545 号(2/4)

QUESTIONNAIRE FOR THE AFTERCARE PROGRAM ON THE TECHNICAL COOPERATION PROGRAM FOR THE MODERNIZATION OF MACHINING TECHNOLOGY OF PAKISTAN INDUSTRIAL TECHNICAL ASSISTANCE CENTER

December 10, 1993

To : the Authorities Concerned of the Government of the Islamic Republic of Pakistan

From : the Authorities Concerned of the Government of Japan

I. Concept of the Aftercare Program

The Aftercare Program is one of the Technical Cooperation Programs implemented by the Japan International Cooperation Agency (hereinafter referred to as "JICA ") in order to promote the effects of the projects which already finished by extending supplementary technical cooperation within the following scope.

1. Taking additional care of the machinery and equipment already provided by the Government of Japan.

   (1) by dispatching short-term experts for repair and maintenance
   (2) by providing necessary spare parts and consumables

2. Supplementary technical cooperation within the scope of the Record of Discussions (hereinafter referred to as "R/D")

   (1) by dispatching short-term experts
   (2) by providing necessary machinery and equipment

3. The duration of the Aftercare Program on the Technical Cooperation for the Modernization of Machining Technology of Pakistan Industrial Technical Assistance Center (hereinafter referred to as "the Project") is two Japanese fiscal years (April 1, 1993 - March 31, 1995).

JICA plans to implement the Aftercare Program on the Project from the Japanese fiscal year 1993 to ~~1995~~ 1994, and to send an Aftercare Survey Team (hereinafter referred to as "the Team") within the Japanese Fiscal year 1993.

The purpose of the Team is to survey the present situation of the Project and to work out the details of the Aftercare Program on the Project through a series of discussions with the authorities concerned of the Government of the Islamic Republic of Pakistan.

In order to make the activities of the Team as effective as possible, JICA needs to get relevant data and information on the present situation of the Project by asking some questions mentioned below. It would be much appreciated if the authorities concerned of the Government of the Islamic Republic of Pakistan prepare the answers by the end of December, 1993.

II. Questions for the Implementation of the Aftercare Program on the Project

1. Request for obtaining additional care of machinery and equipment provided by the Government of Japan

(1) Request for repair of the machinery and equipment provided by the Government of Japan and that for providing spare parts and consumables.

a. Present condition of the machinery and equipment provided by the Government of Japan.

b. Name of the machinery and equipment needed to be repaired by the Japanese experts.

c. Name of the spare parts and the consumables needed to be provided with the priority order.

*Please make sure whether these equipments could be purchased in the Islamic Republic of Pakistan or not.

d. Other relevant information

(2) Request for the supplementary technical cooperation

a. Themes within the scope of R/D which need supplementary technical cooperation by the Japanese short-term experts and the detailed contents of the task for the said experts.

b. Name of the machinery and equipment needed to be provided in order to transfer the technology on the theme.

*Please make sure whether these equipments could be purchased in the Islamic Republic of Pakistan or not.

2. Organization in charge of implementation of the Aftercare Program

(1) Present activities of Pakistan Industrial Technical Assistance Center (hereinafter referred to as "PITAC")

(2) Present organization chart, function and staff assignment of PITAC

(3) Relations with other governmental organizations, which will support the Aftercare Program

3. Other Related Items

(1) Budgetary condition of PITAC and perspective of its defrayal of local cost expenses for the implementation of the Aftercare Program.

e.g. * expenses for the internal transportation for the machinery and equipment to be provided by the Government of Japan

* expenses for the supply of the machinery, the equipment and other materials necessary for the Aftercare Program other than those provided by the Government of Japan

* all the other running expenses for the Aftercare Program

(2) Present positions and activities of the former counterpart personnel and major changes since completion of the Project.

بسم الله الرحمن الرحيم

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PITAC

PAKISTAN INDUSTRIAL TECHNICAL ASSISTANCE CENTRE

GOVERNMENT OF PAKISTAN
MINISTRY OF INDUSTRIES

MOULANA JALAL - UD - DIN ROOMI ROAD, LAHORE - 54600
TEL: 5864171-72 - 5862151, FAX: 042-5862381 GRAMS: "PITAC"

No. PITAC/SMO/JICA/001/93-94

Lahore, the 23rd Dec. 1993.

Mr. Hiroshi Shino,
Asstt. Resident Representative,
JICA Office,
ISLAMABAD.

Fax No: 92-51-217410

Subject:- **Reply to Questionnaire on Aftercare scheme of Project type Technical Cooperation for PITAC.**

Reference:- Your letter No. JICA/1104/Admin/93 dt.15-12-93.

Attention: MR. SOHAIL AHMAD.

Dear Sir,

With reference to your above cited letter please find enclosed herewith the reply to the questionnaire duly filled in as desired for further necessary action at your end.

Thanking you,

Sincerely yours,

(S. AHSANALI KHAN)
Senior Manager (O&W)

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AFTERCARE PROGRAMME ON THE TECHNICAL COOPERATION FOR THE MODERNIZATION OF MACHINING TECHNOLOGY OF PAKISTAN INDUSTRIAL TECHNICAL ASSISTANCE CENTRE (PITAC)

REPLY TO QUESTIONNAIRE

1. **Request for extension in additional maintenance of machinery and equipment provided by the Government of Japan.**

(1) Request for repair of the machinery and equipment provided by the Government of Japan and also for providing spare parts and consumable.

a. Present condition of the machinery and equipment provided by the Govt. of Japan.

All the machinery and equipment provided by the Govt. of Japan to PITAC as per enclosed list "A" is in good running condition except the followings:

1. CNC Turning Centre 4NE-II-600.
   (Hitachi Seiki Ltd.)

2. Automatic Copy Milling Machine.
   (AGIIUX - 85 MAKINO Machine Co.).

b. Name of the machinery and equipment needed to the repaired by the Japanese experts.

Japanese Experts are required to repair above mentioned two machines.

c. List of the required spare parts and consumable with specifications in order of priority.

List of spare parts and equipment's required is given at Annex - 'B'.

** Please confirm whether these equipment could be purchased in the Islamic Republic of Pakistan or not.
· not available

d. Other relevant information about the machinery and equipment.

(2) Request for Supplementary Technical CO-operation.

a. Themes within the scope of Record of Discussions (R.D) which need supplementary Technical Co-operation by the Japanese short term experts and details of their tasks.

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With the development and expansion in the industry of the country it is becoming more and more difficult for PITAC to attend to their ever-increasing problems without qualitative and quantitative improvement in the facilities. The experience of about 35 years gained in providing the technical would go waste if this organisation is not expanded to be in step with the increase both in sophistication and volume of the needed assistance. This organization must modernize in order to provide advanced technological support for sound development of the Industry. The machinery and equipment supplied by JICA in 1983-85 has been effectively used during last 10 years and has now become old and obsolete as new technologies have been developed in the world. These machines have however been fully utilized for the purpose of training and production work. Precision machines when used for training do not remain true and need immediate replacement.

Additional equipment is essential for balancing and modernization in view of the advanced techniques in the world in the field of machine tools and metal industries. Japanese Experts are required to survey the needs and arrange to provide the necessary machinery equipment under supplementary technical cooperation as per PC-I of PITAC BMR scheme which has been duly approved by the CDWP & Government of Pakistan. As per recorded discussion which is evident from the joint evaluation report page No. 10 of the JICA Project 1983-85, a request was made from Pakistani side for the supply of spare parts and equipment. Hence this is being requested now under supplementary Technical Co-operation.

b. Nomenclature of the machinery and equipment needed to be provided in order to transfer the technology on the theme.

List as per Annex 'C' is enclosed.

** Please confirm whether these equipment could be purchased in the Islamic Republic of Pakistan or not.

The spares and equipment's are not available in Pakistan.

2. Organization in-charge of implementation of the Aftercare Programme.

M. A. JABBAR KHAN
GENERAL MANAGER,
PITAC, LAHORE.

1. Present activities of Pakistan Industrial Technical Assistance Centre(PITAC).

The following is a brief account of PITAC activities.

a. Training & HRD

PITAC conducts 92 regular training courses per year in different metal trade disciplines. In addition tailor-made courses are arranged for sponsors. PITAC has the credit to undertake training of staff of PMTF, TIP, P.T.C., PEL, Millat, PACO, Packages and 150 vendors of the country at their execution stages. Thus PITAC contributed its due share as institution builder.

The quality of the training imparted in PITAC has been acclaimed internationally. Trainees sponsored by international agencies and belonging to China, Nepal, eleven African countries were imparted training of one year to two weeks duration. A third 10 weeks course in the series for Commonwealth countries is in progress at PITAC, and participants from Eleven countries are attending.

The courses constantly remain under review and revision in the light of evaluation by trainees and their sponsors. New topics and fields are added to broaden the scope of training programmes. Courses on low cost automation and supervisory training have been started under UNDP / ILO Projects.

b. Tool Product and Process Development Activities.

Advanced Training for skill development is only possible if development of new design and modern techniques used in the manufacture of precision production tools, dies, jigs, fixtures, gauges, machinery components, machines and machine aids are adopted as training media. Routine exercise type of manufacturing work does not create enough interest in the technical people working in the industrial concerns. Development of design and precision manufacturing techniques are extremely rare in the country and are badly needed. In order to help the industries increase production, improve quality reduced wastage and manufacturing cost , properly designed standard production tools are made for them besides extending precision machining and other allied facilities that PITAC has.

Technological level of PITAC remained higher than industry during the 60s. Since no addition of modern equipment was made in PITAC and the industry continued to grows, PITAC's technical facilities fell short of industry's demands. The PITAC equipment gradually worn out due to excessive use in training. With more precision introduced in production tooling, the existing equipment cannot cater to the industry's demand. The installed equipment in PITAC is of conventional type and is outdated compared to today's technology.

c. Advisory and Consultancy Services.

In order to increase the productivity in industrial enterprises it is necessary to give direct instructions to those actually carrying out a job in a plant or factory. The Centre's experienced Engineers utilize their expertise in their own field to sort out pre-production problems and provide solutions on the spot. Such services have proved to be of immense value as the engineers also dwell on how to improve quality of the product, introduce quality control methods, curtail waste, start maintenance programmes for machinery, change layouts, maintenance of good housekeeping, ensure safety measures and above all try to inculcate the productivity consciousness among industrial personnel. All these factors, though do not look gigantic but do play their part in the overall improvement of productivity at micro level.

d. Dissemination of Modern know-how.

Seminar and Group Discussions are organised with the collaboration of international and national organizations for implementation of productivity promotion activities in the country. Participants, and delegates hailing from all over the country attend such meetings. Literature and printed material, is distributed.

e. National Productivity Council (NPC).

As per decision of the cabinet PITAC is to be converted into N.P.C. of the country. Necessary steps are being taken by Government

2. Present organization chart, function and staff assignment of PITAC.

Organization chart is enclosed which is self-explanatory APPENDIX - 'D'.

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3. Relationship with other governmental organizations, which will support the Aftercare Programme.

Educational institutions such as Universities, Polytechniques, Technicians Training Centres, Small Industries, Cottage Industries, Agricultural Research Centres, Ministry of Manpower Development, Ministry of Good and Agriculture, Ministry of Science and Technology, Telecommunication and other Metal Trade Industries will support Aftercare Programme but will not be in a position to provide any financial assistance.

3. Other Related Items.

1. Budgetary condition of PITAC and perspective of its defrayal of local cost/expenses for the implementation of the Aftercare Programme.

e.g.* expenses for the internal transportation for the machinery and equipment to be provided by the Government of Japan.

* expenses for the supply of the machinery, equipment and other materials necessary of the Aftercare Program other than those provided by the Government of Japan.

* all other running expenses for the Aftercare Program

Budgetary Condition of PITAC.

Government allocates adequate additional funds separately for the implementation of the project only. In JICA Project case also Government allocated separate funds. Till it remained as a project of PITAC. After the completion of the project it became a wing of PITAC as such no operating funds are being allocated for this purpose and now expenditures are met under PITAC Annual Budget Grant which reads as under :

Year wise Budget covering grant-in-aids and own receipts of PITAC as a whole organization.

S. No.	Financial	Grant-in-aids by Govt.	Own receipts through services	Total PITAC Budget.	Year
1.	1986-87	13,861,000/-	1,723,157/-	15584157/-	
2.	1987-88	14,977,000/-	2,321,058/-	17298058/-	
3.	1988-89	13,851,000/-	2,714,385/-	16565385/-	
4.	1989-90	14,850,000/-	3,544,330/-	18394830/-	
5.	1990-91	15,210,000/-	3,353,681/-	18563681/-	

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6.	1991-92	19,460,000/-	4,000,000/-	23,460,000/-
7.	1992-93 (anticipated)	20,195,000/-	4,500,000/-	24,695,000/-
8.	1993-94	21,204,000/-	4,500,000/-	25,704,000/-

Govt. of Japan has to provide Foreign Exchange component in the shape of machinery and equipment while the local currency requirements will be met from Federal Annual development Programme. Since it is a training institution basically as such it will be exempted from import duties and custom charges etc.

2. Present Position and activities of the former counterpart personnel and major changes since completion of the project.

List as per Annex - 'E' is enclosed.

List of Equipment donated by JICA

Name of Project MODERNIZATION AND BALANCING OF WORKSHOP FACILITIES AT PITAC LAHORE

Management No.	Name of Equipment	Model and Manufacturer	Number	Year of Acquisition	Arrival Date At Port	Arrival Date At Site	Date of first Operation	Value (KENS ...)	Classification of Equipment Condition *	Remarks
01.	Optical Projection Profile Grinding Machine	GLS-130 A ,Wasino Machine Co.Ltd. Japan.	01	1983	-	01.03.83	05.06.83	12,200,000	A	
02.	4 NEII-600 CNC Turning with FANUC 3T-D Control	4NEII-600,Hitachi Seiki Col.Ltd. Japan	01	1983	-	01.03.83	10.09.83	15,800,000	H	
03.	Electroforming Machine JAPAX	HEF 50 JAPAX incorporated Japan.	01		-	03.04.85	02.05.85	15,600,000	A	
04.	Electric Discharge Machine JAPAX with power supply Unit.	DP-20 -do-	01		-	03.04.85	02.05.85	13,200,000	A	
05.	Wire Cut Machine(JAPAX)	LU3B with control Unit JAPT3F	01	TO	-	07.09.84	05.12.84	16,500,000	A	
06.	Automatic Copy Milling Machine MAKINO	AGIIUX-85 Makino Machine Co. Japan.	01		-	07.09.84	05.12.84	20,225,000	A	
07.	Universal Measuring Machine	TSUgami Model,T-ULM500-D TSUGAMI Co. Japan.	01		-	05.11.84	01.12.84	07,067,000	A	
08.	Surf Test MITSU Toyo	Mst-III, MITSU TOYO, Japan.	01		-	05.11.84	01.12.84	01,030,000	A	
09.	Roundness Testing Machine Mitsutoyo	RA-2, -do-	01	1985	-	05.11.84	06.04.85	03,430,000	A	
10.	ULTRASONIC FLAW DETECTOR TOKYO KEIKI	SM-90-D TOKYO KEIKI, Japan	01		-	02.03.85	04.05.85	01,740,000	A	
11.	Optical Dividing Head Musashino	10PM-3 Musashino, Japan	01		-	02.03.85	04.05.85	03,180,000	A	
12.	Profile Projector MITSUTOYO	PH.600 MITSUTOYO, JAPAN	01		-	06.08.85	05.09.85	08,531,000	A	

* Please follow the attached identification chart and give appropriate identification mark in the column.

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List of Equipment detailed by JICA

Name of Project _____ Date _____

Message-sent No.	Name of Equipment	Model and Manufacturer	Number	Year of Production	Arrival Date: At Port	Arrival Date: At Site	Date of Start Operation	Value (YEN)	Classification of Equipment Condition *	Remarks
13.	Induction Hardening Machine	JHS-80 D JEOL Tokyo Japan	01	1985	-	01.08.85	01.10.85	YEN 37,004,845	A	
14.	Salt Bath	Nachi HP-090616 Nachi-Fujikoshi Corpn Japan.	01	1985	-	01.08.85	01.10.85		A	
15.	Heavy Duty Precision Engine Lathe	TAL 600 TAKISAWA	01	1985	-	01.03.85	15.03.85	75,53,032	A	
16.	Tungsten-Carbide Tool Grinder	DW-315 WAIDA	01	1985	-	16.05.85	12.06.85	69,419	A	
17.	DATSUN Motor Vehicle 12 Seater	NISSAN 51DYGE23.SFUCI	01	1985	-	Sept.83	Oct.83	15,97,217	A	

* Please follow the attached identification mark and give appropriate identification mark in the column.

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LIST OF SPARES FOR JICA MACHINES

Programming unit E-Japt (Japan).

i) 5V AVR Type ES-11-5
ii) 12 V AVR " ES-10-12
iii) 24V AVR " ES-10-24
iv) 15V AVR " ES-10-15
v) CRT Driver PCB " PC-045A
vi) CMT Interface Board.
vii) Key board I/F board.
viii) CPU Board.
ix) Memory Board.
x) CRT Interface Board.
xi) FDU
xii) CMT Driver.
xiii) Printer driver Board.
xiv) Printer Assembly.
xv) Key Board with PCB

2. ROUNDNESS MEASURING MACHINE RA-2 (MITUTOYO)

i) Power supply board type MP 44302
ii) AMP Board type MP 43701
iii) A/D, A/O Converter Board type MP 43801
iv) CPU Board type MP 43902
v) I/O port Board type MP 44001
vi) PCB type MP 44102
vii) Key Board PCB type MP 44202

3. i) SURFACE FINISH MEASURING MACHINE (MITUTOYO)

i) PCB for surftest-III type MP.02903
ii) Stypus head for surftest-III No.334147
iii) PCB for surf corder.
iv) Recording paper. = 5 rolls.

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4. UNIVERSAL MEASURING MACHINE (TSUGAMI)

i) PCB for linear scale counter type VRZ 175.070

ii) Pre-amp Board for the above linear scale.

iii) PCB for comparator (Mercer-122 M)

iv) Dimension Recorder. = One No.

5. ULTRA SONIC FLAW DETECTOR (TOKYOKEIKI) SM 9001

i) Printed circuit boards used in the Ultrasonic flawdetector.

ii) Recorder ---- One No.

iii) Ultrasonic Mould Polishing equipment with assorted lapping tools. one No.

6. TAPE PREPARATION UNIT (PUNCHER KRS SYSTEM DP-8200)

Printed circuit used in the punching unit DP-8200 video terminal & RS -232 interface etc.

7. PROFILE PROJECTOR PH-600.

i) Printed circuit boards used MITUTOYO G-series linear scale counter model GLP-170100

ii) Half mirror 20 X (172 - 367) = one.

iii) Halgen lamp 24V - 150 W = 21 Nos.

iv) Halgen lamp 24V - 240 W = 4 Nos.

8. CNC COPY MILLING MACHINE (MAKINO)

i) Multipole resolver A-290-0601-7804-4x - One No.

ii) Multipole resolvdr A 290-0601-7803-3x - one No.

contd.....

iii) Linear Scale SM-505W = One
iv) " " SM-405 W = One
v) " " SM-855 W = One
vi) Power supply unit for FANUC accurateral-II type A 14 B - 0061-B002 - 02= One
vii) PCB -035 Type A20B - 0006-380/03A = one for Fanuc accurateral-II
viii) Connection Bolts. = 24 Nos.
ix) Digitizer. = One
x) End Mill cutters (Radius end for assorted sizes i.e. 3, 6, 12& 18 mm dia. = 2 sets.
xi) Collet chuck with collets & cutters for sizes ranging for 1/4" to 2" ø in step 5 of 1/16" = One set.

9. CNC TURNING MACHINE HITACHI SEIKI.

i) Pulse coder 2500 type A 860-0300 -T002/3 =2 Nos.
ii) Interface unit fitted in the interface =02 Nos. Lot No.A43L Toko Incorporative.
iii) Micon -8 =One
iv) Power supply 0915 = One
v) PCB A20B-0009-0320/05B = One
vi) PCB Seiki PT t SSI = one
vii) Tachometer generator TG 20 = One DC 20/1000 rpm (Fuji Electric) for Spindle motor.
viii) PCB Seiki PT G2V =02 Nos.
ix) PCB A 20 B-0009-0890-03B =One
x) Tape reader for FANUC control 3T-D = One
xi) FAPT Turn (English version) = One
xii) Rechargeable Battery UM-IS/1.5V/Size ID) R-20 Toshiba. =10 Nos.

M1-375
19/21

10. MAINTENANCE TOOLS.

i.	IC-Tester.	= One.
ii)	Transistor checker.	= One

11. INDUCTION HARDENING UNIT.

1.	Instrument current transformer	CoM-40-30-400/5A	=1
2.	Auto Breaker.	NF 400-S	=1
3.	Pilot lamp	RCa-470-ZMWT 440	=6
4.	Pilot Lamp.	RCa-470-ZMWT 110	=6
5.	" "	RCa-470-ZMGT-110	=6
6.	" "	RCa-470-ZMWT 220	=6
7.	Square light.	SL25-1111-R-W	=6
8.	Push Button Switch.	AH-30 FR-11	=2
9.	" " "	ADN N121	=2
10.	" " "	AH 30 FYII	=2
11.	AC Volt meter.	Full scale 600VA (PT.440/110V) WSR-85F Fe.	=1
12.	AC Ammeter.	Full scale 400AAC Fe WSR-85 F(CT400/5A)	=1
13.	AC Voltmeter.	Full scale 300 VAC WSR-85F Fe.	=1
14.	Rotary switch.	1 circuit 7 contact 200V 50A	==1
15.	Phase voltage selector	RC 310-IVO	=1
16.	Phase current selector	RC-310-1A20	=1
17.	Cell trap.	TNR 821 K0158	=3
18.	Resistor.	RDI/2F-1005-J	=6

M1-3P6
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19.	Condenser (Dip type)	Polyster 100 WV 0.1 UF	= 6
20.	Thyristor stack with C.R. absorber.	FTS 150 PWK-24	=3
21.	Resistor	PSN ICP 5M	=8
22.	"	EF-2-100K -J	=2
23.	Door switch.	Z-15GW 2-B	=4
24.	Temperature controller switch.	SWS-3050F3	=1
25.	DC Over current Relay.	Reset Coil AC100V OL-400 6-14 ADC	=1
26.	DC Ammeter.	Full Scale 1.5 ADC Red marking 12A WMR-85F	=1
27.	Lamp	KH-200IB Red marking mouth piece E-12 100V-5W	=1
28.	Switch H-I	Special design	=1
29.	Oscillator tube (NEC)	9 T 71	=1
30.	Condenser	0.01UF TV30KVDC	=6
31.	"	HESZ5 S 0.05UF	=1
32.	"	HES30EP 0.5UFx2	=1
33.	"	RDF-80C-500PF	=1
34.	"	RDF-140C 1000PF	=1
35.	Condenser.	OP 40T-I	=1
36.	Coils LI,2,4	Special Design	=3
37.	San driver.	PDT-803E-10	=1
38.	Travel Micro switch.	Z-15GW22B	=12
39.	Limit switch.	WICA2	=1
40.	Solenoid valve.	PVS-10-210 (100V)	=1
41.	Variable Resistance 0-10 Kohm Btype	FA 100W	=9

42. Timer 0.01S to 99.99S OMRON H5AN =3

43. Tachogenerator for feed motor. =1

44. Gear Hardening attachment.

12. Salt Bath Furnace (NACHI)

1. Thermo couples.
2. Temperature controller (CHINO) = One.
   Model DK 161 Type 55 Y069
3. ATR 2 - 1400°C = one
4. Opening timer. 210 Mint. = One.
5. Self start timer. 56 Hrs. = One.

13. EDM WIRE CUT MACHINE JAPAX LU3B WITH E-JAPT PROGRAMME.

1. Printed circuit Boards for the axis drive units.
2. Tube coder for the axis drive motor.
3. LAP-5 EDMAS 500 ml. Bottle. =24 Nos.
4. JEMS-IC 250 ml. Bottle. =48 Nos.
5. Battery codnica (Sanyo)
   Model UN-500 AA4.8V 450 MAH 001 =2 Nos.
6. Pressure gauge 10 Kg/Cm^2 =2 Nos.
7. Data Cassette for JAPT NC =10 Nos.
8. Paper Roll for E-Japt Printer. =40 Rolls.
9. System Disk No.1 W43(o) 8(1) =2 sets.
10. Lower Enesgizhiz rollers. 42 Nos.
11. Die Guides o.2 mm Ø up (No. SSX 1106) =10 Nos.
12. Die Guides 0.2 mm Ø down (No.SSZ 2106) =10 Nos.
13. Energizing pin (Square type) MGS 1122 =10 Nos.

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14. ELECTRO FORMING MACHINE.

Silicone rubber with. hardner
(1 Kg. Packing) = 20 Kg.

15. A/V EQUIPMENT.

1. VCR Multi system. =one
2. Video Camera (FA2) = one.

APPENDIX-C

PAKISTAN INDUSTRIAL TECHNICAL ASSISTANCE CENTRE LAHORE

TOOL ROOM MACHINERY AND EQUIPMENT.. required under supplementary De Cooperation.

1. PRECISION JIG GRINDER WITH ALL ACCESSORIES STANDARD & SPECIAL. — 1 NO.

Work Table size	300 x 600 mm
With Digital read out 0.00001" / 0.00001 mm resolution.	Table travel longitudinal- 450 mm cross wise - 300 mm

2. JIG BORER WITH ALL STANDARD ACCESSORIES. — 1 NO.

Work table size	300 x 600 mm
With digital read out.	Table travel longitudinal - 450 mm Cross wise - 300 mm

3. PRECISION TOOL ROOM SURFACE GRINDER WITH PENTOGRAPH STANDARD & SPECIAL ACCESSORIES. — 2 NOS.

Work Surface Table	450 x 150 mm
Longitudinal Traverse of Table (Hand & Hydraulic)	480 mm
Cross Traverse of table (Hand & Hydraulic)	200 mm

4. DECKEL FP 4 NC MILLING MACHINE WITH DIGITOR & PHONOGRAMMING SYSTEM WITH — 1 NO.

X - (Longitudinal Traverse)	560 mm
Y - (Transverse "	450 mm
z - (Vertical)	450 mm

5. VERTICAL MILLING MACHINE (B.P.TYPE) WITH SWIVAL HEAD — 1 No.

Work Table size	300 x 1200 mm
Table travel Longitudinal	750 mm
Cross wise	300 mm
Vertical	400 mm

6. ULTRASONIC LAPPING & POLISHING MACHINE FOR GAUGES. — 1 NO.

	From-To
For 1) Plug gauges	0-50 mm dia x 150 mm long
2) Ring gauges	0-50 mm Internal dia X 150 mm long.
3) Gap/Snap gauges	0-75 mm gap size

7. SET OF STANDARD GAUGES,SLIP, SQUARE BLOCK. — 1 SET EACH

Cont'd---2.

M 335

8. CONTINUOUS GAS CARBORIZING & HARDENING FURNACE WITH AUTOMATIC CONTROL FOR ANNEALING, NORMALISING & CARBORISING. — 1 No. 19/2

Max. temp. 2000°F

Capacity 250 Kg/charge

9. BOX TYPE ELECTRIC FURNACE AUTOMATIC CONTROL. — 1 No.

Max. temp. 2500°F for tool steel hardening

Charge size 24" x 24" x 18" height

10. PYROMETERS DIRECT READING UPTO 2000°F — 2 NOS.

11. IN-LINE SCREW TYPE. — 1 No.

Plastic Injection Moulding Machine having the following parameters.

a) Clamping force Approx - 150 Tons

b) Short weight/Injection capacity approx. - 250 grams

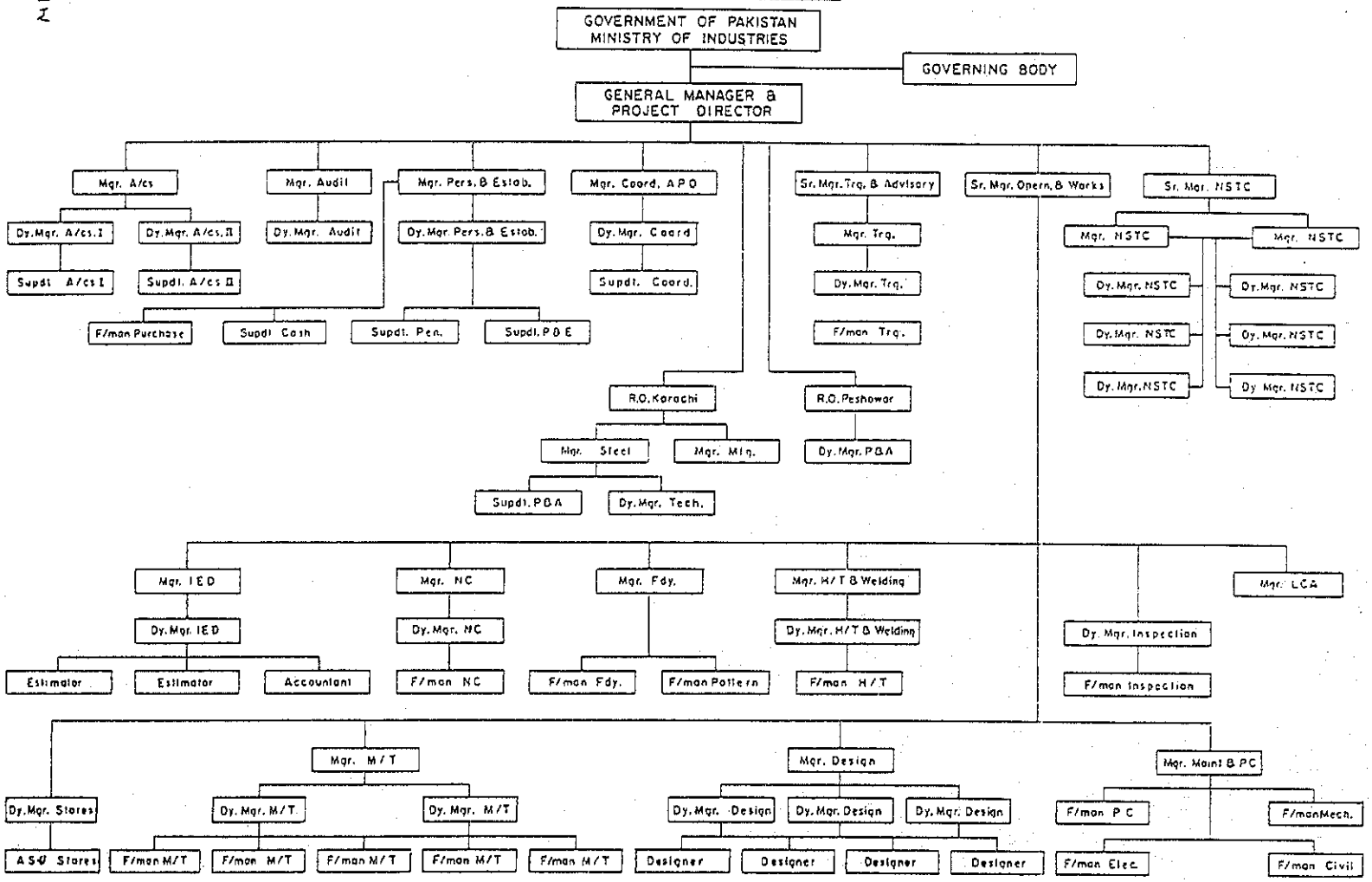
c) Day Light dimension " - 800 mm

d) Platen size " - 700 x 700 mm

e) Screw dia " - 45 - 50 mm

PAKISTAN INDUSTRIAL TECHNICAL ASSISTANCE CENTRE

ORGANIZATION CHART



ANNEXTURE-E

2). Name of Counterparts and Present Position.

1.	2.	3.	4.	5.	6.	7.
Mr. Arshad Javed	Mr.Shakeel Ch.	Mr.Javed Sheikh	Mr.Amanullah Khan	Mr.Habib A Mirza	Mr.Javed Siddique	Mr.M.Aslam Bhatti

3). Position/Field

Machining Technology for Programmed Machines.	Machining Techgy. for Programmed Machines.	Maintenance of Electronic Machine Tools.	Spark errosion & Elec.Forming Technology.	Modern Measuring Instruments & Equipments & Q.C.	Machining Techgy for Programmed Machines.	Induction Hardening Process.

4). Training Period in Japan :

21-3-83 to 16.7.83	21.3.83 to 16.7.83	5.6.85 to 21.7.85	23.7.85 to 5.9.85	4.2.85 to 29.3.85.	7.4.84 to 10.8.84	4.2.85 to 29.3.85

5). Training Institute in Japan :

HITACHI SEIKI CO Tokyo. TOSHIBA Machinery Co; NUMAZU.	HITACHI SEIKI CO; Tokyo. ""	FANUC TECH.TRG. CENTRE,JAPAX, Tokyo.	TOSHIBA Machinery Co. NUMAZU.	TOSHIBA MACHINERY CO; NUMAZU. MITSU TOYO MET. INSTITUTE Tokyo. TOKYO SEIMITSU KOGYA CO,KUWAGOYA.	TOSHIBA MACHINERY CO. NUMAZU. JAPAX MIZUNO KACHI Tokyo. TOKYO SEIMITSU KOGYO CO.KUWAGAYA.	TOSHIBA MACHINERY CO; NUMAZU.

6). Level of Technical Trasnfer from Counterpart to Technicians :

Imparted Training for various Engineering staff Ranging from Engineer, Foreman to Technicians of PITAC and outsides trainees as well

7) Present Position(If position is out of PITAC, give the reason of transfer)

NC Machine Shop Division.	Foundry Metal Working Division.	Mechanical & Elec. Maintenance Div.	Manufacturing & Advisory.	Inspection & Quality Control Divn.	He left PITAC & joined some Private Organisation(P.E.L.)	Retired from service Mr.Nouman Siddiqui Trained by Counterpart is now working satisfactory as Manager, Heat Treatment Technoloy.
Manager	Manager	Manager	Manager	Dy.Manager	Dy.Manager	

資料 3.　トレーニングコースのプログラム例

GROUP TRAINING IN TOOL ENGINEERING TECHNIQUES

PROGRAMME & SCHEDULE

SPONSORED BY :

MANAGEMENT AND
TRAINING
SERVICES DIVISION
COMMONWEALTH SECRETARIAT,
LONDON

CONDUCTED BY :

PAKISTAN INDUSTRIAL
TECHNICAL ASSISTANCE
CENTRE (PITAC)
LAHORE - 54600
PAKISTAN

PROGRAMME & SCHEDULE

PAKISTAN INDUSTRIAL TECHNICAL ASSISTANCE CENTRE (PITAC)
MAULANA JALAL-UD-DIN ROOMI ROAD
LAHORE-54600.

3RD GROUP TRAINING PROGRAMME IN
'TOOL ENGINEERING TECHNIQUES'
FOR PARTICIPANTS OF COMMONWEALTH COUNTRIES

W.E.F 6TH NOV.93 TO 13TH JAN,94.

*****

o	Daily Working Hours	...	8.30 A.M - 1.30 P.M
o	Theoretical lectures	...	
	(Venue)	...	Conference Hall
o	Friday	...	Holiday
o	Tea Break	...	11.00 A.M - 11.30 A.M
	(Venue)	...	PITAC Canteen
o	Design exercises on Board.	...	8.30 A.M - 1.30 P.M
	(Venue)	...	Design Division
o	Auto CAD Training	...	8.30 A.M - 1.00 P.M
	(Venue)	...	University of Punjab, Quaid-e-Azam Campus, LAHORE.

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PROGRAMME & SCHEDULE

(6 NOV,93-13 JAN,1994)

DATE & DAY	PROGRAMME	CONDUCTED BY
6th Nov,93 Saturday	- Registration	Ch. Mohammad Hameed Manager (Design)
	- Get together Session	Mr. Arif Ali Sheikh Manager (Coordination)
	- Briefing on PITAC Activities (Past, Present & Future)	Syed Ahsan Ali Khan Senior Manager (O&W) & Deputy Managers (Design)
	+ Tea Break	
	- Film on Lahore (The Historical city).	Mr. M. Jamil Rana (A.V.A)
7th Nov. Sunday	- Visit of PITAC Workshops.	Syed Ahsan Ali Khan, Mr. Arif Ali Sheikh & Ch. Mohammad Hameed.
	+ Tea Break	
	- Shops visit continue	" "
8th Nov. Monday	Lecture Topic: - Introduction to Tool Engineering Course.	Ch. Mohammad Hameed
	+ Tea break	
	- Visit to Pakistan Handicrafts	
9th Nov. Tuesday	Gazetted Holiday.	

10th Nov. Wednesday	Lecture Topic: - Types of Press Tools and their components. + Tea break - Design Fundamentals in Shearing & Forming actions.	Ch. Mohammad Hameed " "
11th Nov. Thursday	Plant visit M/S. Continental Technology 200-Ferozepur Rd.Lhr.	Ch. Mohammad Hameed & Mr. Abdul Rashid.
12th Nov. Friday	Holiday.	
13th Nov. Saturday	Case Study - Design of Press Tools (Shearing & Forming Operations). + Tea break - Press Tools Operational defects, causes & remedies.	 Ch. Mohammad Hameed assisted by Altaf Mahmud & Abdul Rashid. " "
14th Nov. Sunday	Lecture Topic: - Manufacturing aspects + Tea break - Material selection for Production Tools and their Heat Treatment.	Ch. Sultan Ghafoor General Manager, PECO. " "

15th Nov. Monday	Lecture Topic: - Sand Mould for Grey Castings. - Permanent Mould for Gravity Castings. - Automatic Mould for Pressure Castings. + Tea break - Brief on various types of Plastic Moulds.	Mr. M. Shakeel Chowdhry Manager, Foundry shop, PITAC. Mr. Altaf Mahmood
16th Nov. Tuesday	Lecture Topic: - Injection Mould design for thermoplastic materials. + Tea break - Designing of Compression Mould, Blow Mould & Extrusion of Plastics.	Mr. Altaf Mahmood " "
17th Nov. Wednesday	Case Study - Design of a typical Injection Mould. + Tea break - Design of a typical Compression Mould.	" " " "
18th Nov. Thursday	Plant visit M/S. Millat Tractors Ltd; Sheikhupura Road, Lahore.	Ch. Mohammad Hameed & Mr. Altaf Mahmood.
19th Nov. Friday	Holiday (Sight Seeing in and around Lahore).	Mr. Altaf Mahmood & Mr. Abdul Rashid.

20th Nov. Saturday	Lecture Topic: - Brief on Jigs & Fixtures - Fundamental Principles of a Jig design - Drill Jig Bushes & Plates - Locating & Clamping devices. + Tea break - Jig's classifiction & description	Mr. Khalid Mahmood Deputy Manager, PITAC " "
21st Nov. Sunday	Lecture Topic: - Fundamental Principles Fixture design - Fixtures for Milling Operations. + Tea break - Fixture for Turning Grinding, Broaching Operations. - Indexing Jigs & Fixtures.	Prof. M.H. Zuberi of University of Engineering & Technology, Lahore. " "
22nd Nov. Monday	Case Study - Designing of a typical Jig. + Tea break - Designing of a typical Fixture	Mr. Khalid Mahmood assisted by Altaf Mahmood Mr. Khalid Mahmood assisted by Mr.A.Rashid

23rd Nov. Tuesday	Lecture Topic: - Theoretical & Graphical design Aspects of Flat Form Tools.	Mr. Abdul Rashid
	+ Tea break	
	- Theoretical & Graphical design Aspects of Circular Form Tools.	" "
24th Nov. Wednesday	Lecture Topic: Graphical & Analytical approach to the design of Gear Milling Cutter	" "
	+ Tea break	
	- Designing of Hob Cutter & Broachers.	" "
25th Nov. Thursday	Plant visit M/S.Packages Ltd; Ferozepur Rd;Lahore.	Ch. Mohammad Hameed & Altaf Mahmood
26th Nov. Friday	Holiday Sight Seeing (In and around Lahore).	Mr. Altaf Mahmood & Mr. Fahim Anwar
27th Nov. Saturday	Case Study -Designing of Flat Form & Circular Form Tools.	Mr. Abdul Rashid assisted by Khalid Mahmood
	+ Tea break	
	- Designing of Gear Milling Cutters.	" "

28th Nov. Sunday	Lecture Topic: - System of Limits, Fits, Tolerances & Allowances. - Brief on Production & Inspection Gauges + Tea break - Design & Construction of Standard and Special Gauges.	Mr. Abdur Razzaq Gohar of M/S. ASKA Engineering Works, Lahore. " "
29th Nov. Monday	Case Study - Designing of Gauges + Tea break - continue.	Mr. Abdul Rashid assisted by Khalid Mahmood
30th Nov. Tuesday	Lecture Topic: - Human Relations + Tea break - Organizational Development.	Mr. M. Imtiaz Ahmad Manager, NSTC/PITAC. Mr. S.A. Majeed Hussaini Dy.Manager,NSTC/PITAC
Ist Dec. Wednesday	Lecture Topic: - Total Quality Management (TQM) & Productivity Improvement. + Tea break - Deming's, Philosophy for Quality and Productivity. - Safety & Health in industry.	Mr. Sarfaraz Ahmad Dy.Manager NSTC/PITAC Mr. Arif Ali Sheikh Mr. Imtiaz Ahmad

2nd Dec. Thursday	Plant Visit M/S. Pak Electrons Ltd;	Ch. Mohammad Hameed & Mr. Altaf Mahmood
3rd Dec. Friday	Holiday. Sight Seeing.	Mr. Altaf Mahmood & Mr. Fahim Anwar.
4 to 20th Dec. Sat - Wed.	Design Exercises on Board.	Design Division PITAC
21 to 24th Dec. Tuesday-Friday	Industrial Tour: Lahore-Islamabad-Lahore.	Ch. Mohammad Hameed & Mr. Abdul Rashid.
21st Dec. Tuesday	Visit to M/s.Syed Engineers Gujranwala.	
22nd Dec. Wednesday	Visit to Telephone Industries of Pakistan(TIP),Haripur Hazara.	
23rd Dec. Thursday	Visit to Heavy Mechanical Complex(HMC),Taxila.	
24th Dec. Friday	Sight Seeing in and around Islamabad and back to Lahore.	
25th Dec. Saturday	X-mas Holiday	
26th Dec,93 to 9th Jan, 94 Sunday - Sunday	AUTO CAD TRAINING (How computer helps in Tool Engineering Design)	Punjab University, Quaid-e-Azam Campus, Lahore. Mr. Khalid Mahmood.
10th Jan. Monday	Course Evaluation & submission of report.	
11th Jan. Tuesday	Self Preparation	
12th Jan. Wednesday	Closing Ceremony. (tentative)	
13th Jan. Thursday	Participants Departure back to their homeland.	

*****

PITAC and WHAT IT DOES

* P — Production/development of spare parts, special equipments, machines, tools & gauges.

* I — Industrial productivity, Seminars, studies & discussions.

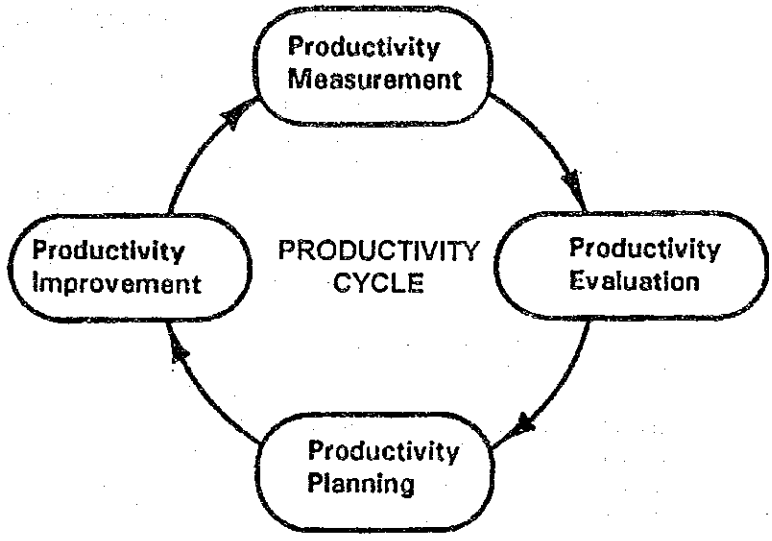
* T — Training in Tool Designing & tool making, foundry. heat treatment, protective & decorative coating

* A — Assistance in tooling, gauging, spares, & in plant advice on production problems.

* C — Collection & dissemination of technical information.

PAKISTAN INDUSTRIAL TECHNICAL ASSISTANCE CENTRE
KARACHI LAHORE PESHAWAR

資料4.　ＰＩＴＡＣ発行ニュースレター



NATIONAL PRODUCTIVITY ORGANISATION

Newsletter

PITAC

PAKISTAN INDUSTRIAL TECHNICAL ASSISTANCE CENTRE

NATIONAL PRODUCTIVITY ORGANIZATION

KARACHI LAHORE PESHAWAR

TRAINING COURSES

The Centre offers training courses on regular basis in the fields below. The contents of the courses have been carefully designed to meet the requirements of industrial personnel and remain under review to bring them in conformity with the changing needs. The curriculum is checked at the start of courses to meet the specific needs of the trainees.

Special courses of different duration may be designed on request in one or a combination of two or more trades to suit the sponsoring agency's programme of skill development:

Jigs & Fixture Design	10-weeks
Press Tool & Mould Design	—do—
Machine Shop Practice	—do—
Cutting Tools & Gauge Design	—do—
Precision Tool Making	—do—
Pattern Making	6-weeks
Basic Welding	—do—
Basic Drafting	—do—
Inspection & Quality Control	—do—
Heat Treatment	—do—
Foundry Practice	—do—
Protective Coatings	—do—
Sheet Metal & Development	—do—
Advance Drafting	—do—
Low Cost Automation	1-2-weeks
Supervisory Training Course	—do—
Air-conditioning & Refrigeration	10 weeks

The annual turn over of trained manpower ranging from Engineers to Technicians stands at 150 to 200 thereby adding adequate potential to the Metal Working Industry for enhancing productivity.

With the completion of Modernization and Balancing Project, PITAC has achieved expertise to arrange short-term appreciation and long-term application training courses on modern technology like CNC turning, EDM Wire Cut, Electroforming, Spark Erosion (EDM), Induction Hardening, Salt-bath Heat Treatment, Metrology, Inspection and Precision Measurement Techniques.

QUARTERLY

NEWSLETTER
OF
NATIONAL PRODUCTIVITY COUNCIL

Issue No: 21 | Date of Issue: 1st October, 1993

Patron : M.A. Jabbar Khan, *General Manager*
Editor : Arif Ali Sheikh, *Manager (Coordination)*

Address: Moulana Jalal Ud Din Roomi Road, Lahore 54600.
(Old Ferozepur Road)

Pakistan Industrial Technical Assistance Centre

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PESHAWAR
Tel. 216696

NEWSLETTER

Group of NSTC Staff off to the United States

As part of the training aspect of the on-going NSTC project, a group of four trainers left for University of Guam, U.S.A. beginning July to attend a two month training course in Supervisory Development. These trainers are Imtiaz Ahmad, Manager (NSTC) and Ishtiaq Ahmad, Syed Abdul Majeed Hussaini and Sarfraz Ahmad, all Deputy Managers. Having completed the training, they have returned and started organizing training programmes in the light of what they have learnt at Guam.

PITAC Engineers Return from Foreign Training

Under its on-going human resources development (HRD) programmes, PITAC engineers were sent abroad for training under various programmes offered by international agencies.

Mr. Arshad Javed, Manager (NC Shop) returned from Japan after attending a training course on "Mechatronics and its Application"

Mechatronics is a new technology created by integrating micro-electronics and mechatronics. Its scope includes major technology components in mechatronics systems, sensing technology and micro-processor applications, CAD and CAM, factory automation, flexible manufacturing systems and computer integrated systems.

Like any other advance country, mechatronics has a great scope in Pakistan though it is linked with Pakistan's overall progress in engineering industry.

Mr. Javaid Iqbal Sheikh, Manager (L.C.A.) was another engineer who was sent to Japan to attend a training course on "Integrated Productivity Improvement", commonly known as "Kaizen" in Japanese language.

Kaizen focuses on practical application and inter-linkage of some particular techniques in the field of production management. These techniques are 5 S's, Industrial Engineering, Kaizen-Suggestion Scheme, Quality Control Circles, Total Quality Control, Just-in-Time, Total Production Management etc.

Mr. Khalid Mahmood, Dy. Manager (Design) availed training facilities on "Effective Problems Solving for Production Managers" in Japan.

This programme involves general approach to problem solving, effective methods of analysis such as profitability analysis, cause and effect analysis, professional approaches to problem identification and detection etc.

The need for such a course was felt because production managers have to face and resolve an increasing variety and complexity of problems. In their problems solving and decision making they have to contend with large number of factors and variables.

Our young engineer, Mr. Irfan Zaheer, Deputy Manager (NC Division) was sent to Poland on a UNIDO Fellowship for training in the subject of "Design and Manufacture of Spare Parts". This course was specially designed for developing countries where ageing machinery and lack of funds to buy spare parts causes major production problems. This year PITAC was fortunate to have sent a maximum number of engineers for foreign training.

WORKSHOP ON PATENT INFORMATION SERVICES HELD

Mr. William MacDougal, Head of Information and Network of World Intellectual Property Organization (WIPO) conducted a 2-day workshop on *"Patent Information Services"* from 19-20 August, 1992.

Mr. Tausif Haider Mirza, Senior Examiner of Patents, also delivered a lecture. The objective of the Workshop was to introduce the working of WIPO to the participants.

TRAINING COURSE IN PLASTIC TECHNOLOGY ORGANIZED

With the usual collaboration of Plastic Technology Center (PTC), Karachi, the following specialised courses were held at PITAC.

* A regular 5-day training programme on *"Basics of Plastic Technology"* was held from 23-27 August, 1992.
  This training course was largely attended by businessmen dealing in plastics who expressed a desire to hold more basic course of this type.

* A 6-day training course on *"Advance Injection Moulding"* was organized from 12-17 August, 1992. Mr. John P. Goff, a plastic expert of UNDP, conducted the course.

* A 4-day Short Course on *"Extrusion Technology & Production of Woven Sacks"* was organized from 7-10 December, 1992. This training course was conducted by Mr. Hamed-El-Sharkawy, a UNIDO expert from Egypt.

SECOND PITAC-COMMONWEALTH GROUP TRAINING PROGRAMME

As was the case last year, with the collaboration of British Common-Wealth PITAC organized a Second Group Training Programme in *"Design of Press Tools for Industrial Products"* at its Lahore Headquarter from 10 October-12 December, 1992. Twelve participants from Bangladesh, Gambia, Ghana, Swaziland, Tanzania, Uganda, Kenya, Zambia and Pakistan participated. This year, too, the trainees were sent to the Punjab University for Autocad training. Besides, they were also taken to Islamabad, Gujranwala and Taxila for industrial visits.

The certificate distribution ceremony was held on 21st December, presided over by Mr. Farooq Ayub, Additional Secretary (Development) of the Ministry of Industries, Islamabad.

WORKSHOP ON LINKING WAGES WITH PRODUCTIVITY

The long awaited Workshop on *"Linking Wages with Productivity"* saw fruition from 16-19 November, 1992. Fifteen delegates from Bangladesh, India, Iran, Nepal, Sri Lanka and Pakistan participated in the Workshop which was also attended by many resource persons, special invitees and observers from various organizations and ministries.

The Workshop was inaugurated at Pearl-Continental Hotel, Lahore on 16th November, 1992 by Sheikh Rashid Ahmad, Minister of Industries. Dr. G.K. Suri, Technical Consultant and head of Research and Planning Division of the

APO, acted as the Chief Resource Person and Mr. S.M. Naqi, an Industrialist & Consultant acted as the Chief Rapporteur. Mr. T.Z. Faruqui, Secretary (Industries) took active part in conducting the Workshop. The recommendations of the Workshop will be circulated to industry shortly.

SEMINAR ON ISO-9000

Pakistan's businessmen are going to face a new challenge for exports to Europe under ISO-9000. The reason why Pakistan could not produce goods of international standard is that our businessmen and policy makers tend to pay lip service to standardization and quality control.

In view of importance of quality in the international trade, PITAC organized a 2- day seminar from 6-7 December, 1992 to promote awareness about ISO-9000 among the relevant circles.

The ISO-9000 is a series of five international standards that establish requirements for quality systems of companies, such as management responsibility, quality systems, contract review, document control, purchasing, process control, inspection and testing, design control, control of non-confirming products, corrective action, handling, storage, packaging and delivery, quality records, international quality audits etc. It is feared that by making registration of exporters under ISO-9000 compulsory, Pakistan's exports to Europe may suffer, hence the importance of conducting such a seminar to enable the exporters to plan for the future.

The full seminar document is available from PITAC for Rs.100/-

PITAC COLLABORATES WITH A NGO

Not only PITAC but many other national organizations are working in the field of productivity by organizing human resource development programmes. Society for Urban & Rural Entrepreneurship (SURE) is one such organization that is involved in productivity promotion, project management, export marketing, management consultancy etc. SURE approached PITAC for a joint training course in *"How to Increase Productivity of your Industrial Enterprise"* with a view to create a state-of-mind and productivity consciousness among the participants from 2-7 January, 1993.

PITAC agreed to this proposal and put her facilities at the disposal of SURE. Apart from outside faculty, Arif Ali Sheikh, Manager (Co-ordination) and Incharge of Productivity Division and Sarfraz Ahmad, Deputy Manager, were also invited to deliver lectures on some selected topics. Both these officers of PITAC have received training in productivity in Italy and Japan. The programme was very well received by industry. Middle and senior level managers attended the course. The same course was repeated from 10-15 April, at PITAC.

Another seminar was organized jointly by SURE and PITAC on the subject of Office Automation in Karachi and Lahore in end April and beginning May. Mr. Mitsuo Takahashi, a Japanese consultant, was deputed by the APO under its T.E.S. programme. The lectures delivered by Mr. Takahashi were very informative and the objectives of introducing Office Automation hardware and software in Pakistani office environment and persuading local enterprises to instal the same were achieved.

SEMINAR ON INDUSTRIAL MAINTENANCE SYSTEMS ORGANIZED WITH PMC

Another joint venture HRD programme was organized with Preventive Maintenance Center (PMC) of Federal Chemicals and Ceramics Corporation located at Kala Shah Kaku near Lahore. The title of the seminar was *"Industrial Maintenance Systems"*.

Aftab Memon, Director (Industries), Government of Sind, inaugurated the seminar held from 25-28 January, 1993 at PITAC premises. One day was reserved for a visit to PMC Workshop which houses latest equipment used in preventive maintenance to locate faults. From PITAC's side, Aslam Taseer and Javed Iqbal, Managers, delivered lectures whereas Sarfraz Naeem, General Manager and Irfan Mirza, Manager PMC, made up the faculty. The General Manager PITAC gave away the certificates at the closing ceremony.

FRENCH EXPERTS VISIT PITAC

"Pakistan has great potential for export of leather garments to European countries. But unfortunately the manufacturers and exporters of these items are not familiar with import/ export culture of these countries".

This was observed by two French experts of leather garments, Mr. DeFontaine and Ms Josette Mathieu, who were in Pakistan under the EEC Technical Assistance Programme.

At the six day seminar which was organized at PITAC with the collaboration of Leather Industry Development Organization (LIDO) of the federal government, the participants who all belonged to tanneries and leather garments manufacturing companies, were introduced to the finer points of manufacture of leather jackets and other garments, the techniques of selling to buyers of France and Germany and other European countries, documentation, packing and such like items.

Pakistan produces finest type of leather and present need is to convert this into value added products and earn maximum foreign exchange.

MORE PLASTICS RELATED SEMINARS HELD

After a period of silence, the Plastics Technology Centre (PTC) of Karachi once again became active at Lahore and organized three training courses at PITAC. The subjects were:

"Basic Plastics Technology"
"Fundamentals of Injection Moulding Technology" and
"Mould Design and Material Selection of Moulds".

As usual, keen interest was shown by the plastic manufacturers in these seminars.

HIGHLIGHTS OF SOME IMPORTANT JOBS AT PITAC

Manufacture of Small die 7 Puncher

M/s. Shalimar Jewellers are engaged in manufacture of Special Gold Chains for which they used to import, some small & quite sophisticated punches and dies for making very thin and delicate golden chains. Knowing the capabilities and expertise of PITAC for production tools they approached for developing these tools. The tools are too small and delicate for handling. Yet PITAC developed these and now the firm is producing gold chains for the first time in the country in an automatic operation.

Tablet Making Punch & Die

M/s. Irza Pharma(Pvt) Ltd., are a pharmaceutical company. They have some automatic tablet making machines with indexing system. These machines utilize 40 sets of tablet making punches & dies at a time. The company used to import these dies & punches from Peoples Republic of China. PITAC developed a set of punch & die with special elliptical contours in view of a process of cold hobbing. The sample set thus made was up to the standard and the company was pleased to order 80 sets. These sets have been made and the Company is utilizing them for mass production of tablets. Thus import substitution has saved a lot of foreign exchange. PITAC also rectified two of their capsule-making machines which were lying idle and out of operation.

Floor Tile Making Moulds & Liners

M/s. EMCO are engaged in making most modern floor tiles. They needed to change the moulds and liners to accommodate various styles and fashions. PITAC has been carrying out many of their projects very successfully in the past. Hencethey approached for rectification of the moulds. The moulds have been made to their entire satisfaction and the company is now producing tiles in bulk quantities.

Over handling and Reconditioning of Printing Press

M/s. Printing Corporation of Pakistan, Islamabad, are engaged in printing of various items and documents of the government, such as postal and revenue stamps, ballot papers etc. They had purchased a special type of printing press from a junk yard which could not be put into operation as many of its parts were missing, rusted and damaged. The Corporation entrusted the work of over-hauling this press in PITAC by making new parts and replacing the damaged and missing ones. The machine has two separate units i.e. a mechanical unit and a pneumatic unit. PITAC has completed the over-hauling and reconditioning of the machine which is now giving an excellent performance. The printing speed of the machine various from 3000 to 5000 pieces per minute. Thus PITAC has helped them in saving foreign exchange.

Development of Special Components for Electric Bulb Making Machine

M/s. Shafaq Lamps Corporation Ltd., are the manufacturers of electricity bulbs and flouroscent tube lights. Two of their rotary (Indexing type) bulb making machines were out of order. The spare parts were not available in the local market nor from abroad as they have switched over to new machines by discarding the old ones. PITAC has now developed these parts and put the machine in operation giving excellent performance. This is yet another example of saving of foreign exchange which would have otherwise been utilized in importing new machines and parts.

Castings for Power Looms

M/s. Pakistan Engineering Co.(PECO) Lahore, are the manufacturers of machine tools and other allied equipments. They also produce special machinery on order for textile, agriculture and other sectorial groups. At present they are engaged in manufacturing power looms for which production of grey cast iron parts was entrusted to PITAC. The parts have been produced to their entire satisfaction.

Heat Treatment of Components, Tools, Cutters etc.

The Heat Treatment Section in PITAC has made a remarkable progress with the introduction of Induction Hardening Furnace under JICA Project and the out come of this section is excellent. A variety of parts, components such as gears, automobile parts, textile spindles, reverse clusters, agricultural implements, valves, cutters, reamers, broaches, blades, ratchets, dowel pins, sprockets and other parts of production tools like jigs, fixtures, gauges etc., which were manufactured either by PITAC or by other private industries were heat treated. Most of our private sector industries do not have the required facilities in this particular discipline. PITAC offers them heat treatment facilities at very nominal rates, maintains proper delivery schedule and gives the required hardness strictly as per customers requirements and specifications.

MEETING OF THE APO SOCIETY

Mr. Arif Ali Sheikh, Manager (co-ordination) & Secretary of the APO Society, delivered a lecture on "Communication within Enterprise" on 26th August, 1993. The lecture was based upon the seminar in Japan which he attended in June last. A group of PITAC Labour Union was also invited at the meeting so that they could became familiar with the act of communication with the engineers as well as the workers of various shops.

PITAC PUSHES A HAND WITH QUALITY CONTROL

The international recession, the increased quality consciousness of importing countries and the lack of awareness of techniques of quality control, has always being heavily on Pakistan's export . As the National Productivity Organization, PITAC is fully aware of its implications and the need to create quality consciousness among the workers, supervisors, managers, manufacturers, experts etc. Whenever possible, assists the local NGO's in conducting quality related programme.

PITAC assisted Pakistan Institute of Quality Control (PIQC) in organizing two seminars on ISO 9000 Statical Process Control at a local hotel. Both the seminars were of 3 days duration and were held from 14-16th September & 18-20th September at Pearl Continental hotel. About ninety professionals in quality control sections of their enterprises attended the seminars. They appreciated the techniques taught to them.

Mr. Arif Ali Sheikh, Manager (Coord.) represented PITAC at the first seminar on ISO 9000 and read out a message from the General Manager PITAC, Mr. M.A. Jabbar Khan. He also gave away certificates at the concluding session. Second seminar on SPC, Mr. Ahsan Ali Khan, Senior Manger (Operations) of PITAC delivered concluding speech and gave away the certificates.

PRODUCTIVITY PROGRAMME AT HINOPAK, KARACHI

M/S Hinopak Ltd, a leading automobile manufacturing company of Karachi, have established a Productivity Division to disseminate the concepts among the related persons. They seeked PITAC's assistance in this venture.

In the first 3-day seminar held from 28-30 September, 1993, PITAC despatched its deputy manager (Training) Mr. Abdul Majid, to Karachi to show productivity related slides and film strips supplied by the APO to PITAC in the past. This seminar made the participants familiar with the

activities of the APO as next as PITAC. APO literature on audio-visual aid and leaflets were distributed. Many participants organizations expressed a desire to purchase A/V aids from the APO.

PUNJAB UNIVERSITY M.B.A STUDENTS VISIT PITAC

A group of 88 M.B.A students of The Punjab University, Lahore, visited PITAC on 28 & 29 September, 1993 along with their dean Dr. Kh. Amjad Saeed, who is also head of Institute of Business Administration (I.B.A). The students were given lectures on activities of PITAC, NSTC & Kaizen by Arif Ali Sheikh, Imtiaz Ahmad, Dr. Peter Gibson & Sarfraz Ahmad respectively. The students were shown video film on Kaizen and made familiar with the concepts of productivity and the role played by supervisors in productivity and quality control.

MR. T.Z. FAROOQUI RETIRES FROM GOVERNMENT SERVICE

On attaining the age of Superannuation, Mr. T.Z. Faruqui, Secretary (Industries) and APO Director for Pakistan retired after 35 years of meritorious service. His tenure as Secretary (Industries) will be long remembered by PITAC as Mr. Faruqui was a person who took personal interest in productivity promotion and encouraged PITAC in establishment of NPC. His position has now been taken over by Mr. Viqar Rustam Bakhshi, Additional Secretary, who has been promoted to the rank of Secretary recently.

OBITUARY

We announce with deep regret the sad demise of our colleague and designer Mr. Zulfiqar Ahmad on Ist August, 1992.

Mr. Zulfiqar was suffering from blood cancer for a number of years.

He had served PITAC efficiently for 27 long years. We pray to God almighty to grant him enternal peace and enable his family to bear the irreparable loss. Amen.

VIP DELEGATION OF EMBASSY OF JAPAN VISITS PITAC

Mr. Mashiko Tanoi, First Secretary, and Mr. Kaoru Iwasaki, Asstt. Resident Representative of JICA, comprised two member delegation from the embassy of Japan that visited PITAC on 6th July, 1992. The purpose of the visit was to take stock of modernisation and balancing project of PITAC which is in the pipeline to be assisted by the Government of Japan.

ILO EXPERT AT PITAC

The newly appointed ILO Associate Expert in ILO office, Islamabad, Mrs. M.L. Tacoma, paid a visit to familiarise herself with ILO sponsored project of NSTC.

National Supervisory Training Center (NSTC) is already underway and is due for completion in December, 1993.

APO GOVERNING BODY MEETING

The 34th Annual APO Governing Body Meeting was held in Tokyo from 21 to 24 July, 1992. Mr. T.Z. Faruqui, Secretary (Industries) and also APO Director for Pakistan attended the meeting.

Mr. T.Z. Faruqui has since retired from service and Mr. Viqar Rustam Bakhshi has taken over as the new Secretary (Industries). Mr. Bakhshi attend the 35th Governing Body Meeting held from 8-11 June, 1993 in Kuala Lampur, Malaysia.

RETIREMENTS DURING THE YEAR

The following PITAC employees retired on Superannuation or on voluntary basis.

1 Ch. Aftab Yousuf, 31-10-1992
Superannuation Senior Manager (T&A)

2 Mr. Nazeer Abbas, 31-07-1992

3 Mr. Abdul Rashid Burki 03-12-1992
Voluntary Foreman

4 Rana Mohd Younus, 03-02-1993
Superannuation Estimator

5 Mr.Mohammad Ashraf, 11-02-1993
35Year Services
Dy.Manager Audit

6 Mr. M.Tahir Qureshi, 11-02-1993
Voluntary Superintendent.

7 Mr. Mohammed Ashiq, 15-02-1993
S.G. Highly Skilled

8 Mr.Mohammad Siddiq, 31-03-1993
S.G. Highly Skilled

TRANSFER

Ch. Nazir-ud-Din, Deputy Manager (Co-ordination) at PITAC Headquarters, Lahore has been transferred to regional office at Peshawar and assumed the charge of the post of Deputy Manager (P&A) as officer incharge w.e.f. 20-2-1993.

Mr. M.S. Loane, Deputy Manager (P&A), regional office PITAC Peshawar, has also been transferred and taken over the charge of the post of Deputy Manager (Co-ordination) at Lahore w.e.f 9-3-1993.

CBA ELECTION HELD

The elections of the PITAC Labour Union were held on 27-1-1993. The following office bearers & executive members were elected for two years.

1. Mumtaz Akhtar Shah
   President
2. Haji Mohammad Saleem
   Vice President
3. Mohammad Suleman
   General Secretary
4. Liaqat Ali
   Joint Secretary
5. Liaqat Ali Shah
   Finance Secretary.

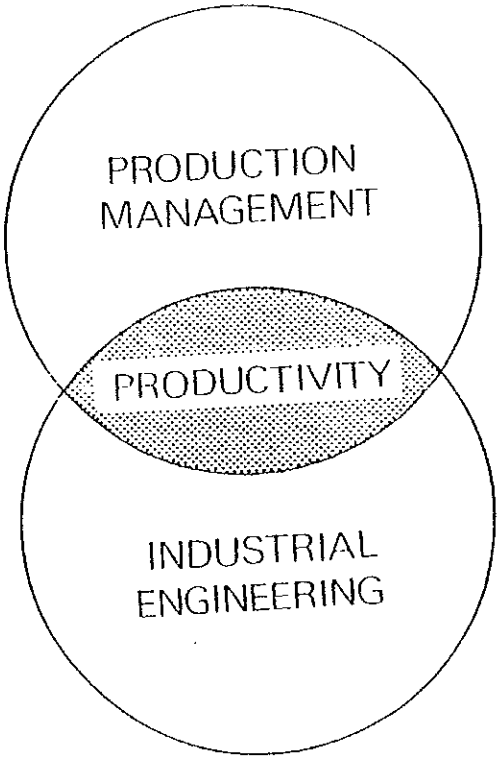
EXECUTIVE MEMBERS

1. Nasir Mahmood
2. Amir Rasool
3. M.Raza Shah

4. Shamsul Haq
5. Akram Javed
6. Mohammad Rafiq
7. Rana Ghulam Nabi
8. Mohammad Mustaqeem

HAJ DRAW

Messers Fazal Rehman, Assistant (P&E) and Mian Mohammed, Naib Qasid, were the lucky winners of the Haj Draw for the year 1993.



NEWSLETTER SPECIAL

TRAINING POLICIES AND STRATEGIES IN THE CONTEXT OF CHANGING TECHNOLOGY AND PRODUCTIVITY MOVEMENT IN PAKISTAN.

The phenomenal changes in technology over the last three decades have a profound impact on productivity. Rapid technological advances and the quickening pace of application of new technologies on several fronts characterize the modern industrial world. Basic scientific discoveries, enormous development effort by various agencies, and competitive pressures to adopt new technologies have extended the frontiers of knowledge and multiplied the application of new technologies. These technologies and products of every recent research and development are being introduced at an ever increasing pace and have the potential for drastically altering the prevailing social and economic conditions in the Asian countries. Micro-electronics and Information Technology, Bio-technology and materials Technology are the most significant examples.

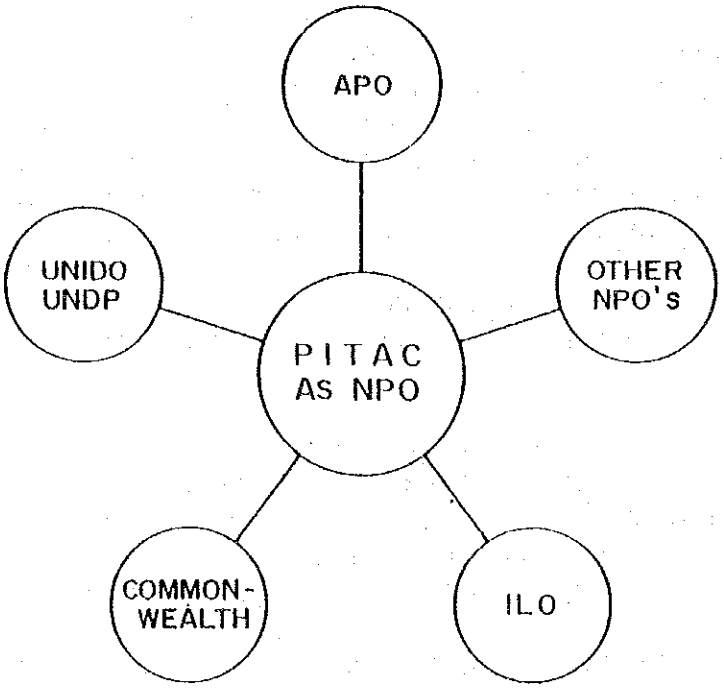
Human resources development holds the key to diffusion of new technologies and their applications at the plant level leading to productivity improvement. Without skilled manpower, it is not possible to apply new technologies to meet country's developmental needs. Yet the implications for a human resource development strategy in the context of emerging technology and the need for higher productivity has not received a strategic focus. Continuing education and training of personnel at all levels to cope with the demands of changing technologies and higher productivity are inevitable, and here has to be well laid-out training policies and strategies to meet this inescapable challenge.

Achieving productivity improvements has acquired a new sense of urgency in PAKISTAN where rapid population growth, reductions in export prices of raw materials, growing indebtedness on account of acute shortages of foreign exchange required to sustain the import dependence industrial output and inflation cloud the future of the country. Raising productivity can offset the impact of some of these problems and at the same time help the cause of social development. Increased national productivity not only means optimal use of resources, but also helps to create a better balance between economic, social and political structure within and between the Asian countries.

What is required is a new vision of continued education and training for national resurrection to meet the training and retraining needs of workers, managers, scientists and technologies in a period of dramatic technological change and the ever increasing and demanding role which the existing training establishments, at the national, industry and enterprise level have to pay.

M. A. JABBAR KHAN
General Manager
PITAC/HEAD OF NPO/
APO LIAISON OFFICER FOR PAKISTAN
&
PROJECT DIRECTOR NSTC

INTERNATIONAL LINKAGES



TECHNICAL ASSISTANCE TO INDUSTRIES & SERVICE ORGANIZATIONS

PITAC is providing technical assistance to the industry through its Tool Development, Advisory & Consultancy Service and Training in the following fields of metal trades:-

1. Design and manufacture of:-
   * Jigs, Fixtures, Press Tools for metal products.
   * Moulds and Dies for Plastic, Rubber, Leather, Glass, Ceramics, Pharmaceutical Products.
   * Machinery Spares, special, purpose Form Cutters, Milling Cutters, Reamers, Woodworking Tools etc.
   * Inspection gauges for quality mass production items.
2. NC and CNC machining for mass production jobs.
3. Jig boring and jig grinding.
4. Heat Treatment—Induction Hardening, Case Carborizing, Salt Bath Treatment and Atmospheric Control Hardening etc.
5. Welding-Argon Arc , Spot, Oxy - acetylene and metal spraying.
6. Sheet Metal Fabrication.
7. Ferrous and non-ferrous quality castings and Pattern Making.
8. Electroplating-Copper, Nickel, Chromium, Zinc, Hard Chromium, Silver, etc.
9. Test and Inspection Services-Micro level precision measurements and detection of manufacturing defects, critical measurements of intricate profiles.
10. Advisory and Consultancy Services-Roll Pass Design, Process Selection, Plant Layout, Material Specifications, Application of Low Cost Automation, Foundry Engineering, Tool Design, Heat Treatment, Protective and Decorative Coatings, Welding and Sheet Metal Fabrication, Selection, Installation and Commissioning of machinery and equipment, Productive Maintenance Techniques.
11. Training-Regular on-the-job Advanced Training Courses in metal trades, Special Training Courses on request of Sponsers, Regular Training Course in Air Conditioning and Refrigeration, Low Cost Automation, Supervisory Development and Inspection and Quality Control etc.
12. Dissemination of Technical know how and Information Services

Productivity Through People
in the
Age of Changing Technology

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