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October 13, 2004

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Evaluation Grid: the Project for Balancing and Modernization of Workshop Facilities in Pakistan

Annex 01

Project Achievements and Implementation Process

Evaluation Items	Necessary Information and Data	Sources	Means of Verification	Remarks (+ positive factor; - negative factor; *neutral factor)
A. Achievement of Overall Goal				
A-1. Domestic plastic mold making industries are able to supply better quality molds for plastic production in Pakistan.	• The number of orders of molds at beneficiary plastic mold making companies. • Rejection rates, defective rates, and complaints on the moldings and molds produced by project beneficiaries (direct and indirect), etc.	• Beneficiary Private firms • Former trainees	• PITAC's survey reports (interviews and questionnaires)	- Since the Project has not yet provided its services to the private sector, the overall goal has not yet been achieved.
B. Achievement of Project Purpose				
B-1. Technical capability of PITAC is upgraded to extend technical services in the filed of plastic mold technology.	• Level of satisfaction of recent and former service beneficiaries • Number of newly improved services and beneficiaries	• PITAC • Beneficiary Private firms • Trainees • Beneficiary Private firms • Experts	• Interviews • Questionnaires • Observation of products	- Since the Project has been delayed and is not ready to provide its services to the private sector, the project purpose has not yet been achieved.
C. Achievement of Project Output				
C-0. The project operation unit is established for making advanced plastic molds.	• Allocation of C/Ps • Qualifications of C/Ps • Budget and expenditure • Frequency of committees and project management meetings • Publicity of the Project	• PITAC • Experts	• Review of materials • Interviews	- A project manager and 12 counterpart personnel were deployed for the Project. However, the number of C/Ps was not sufficient for mold design and mold processing, assembly and trial shot sections, considerably affecting the smooth implementation of the Project. * 20 newly recruited staff will be assigned to the Project in October 2004. - The Revised PC-I for the Project was not approved until July 2004. As a result, the Project has been significantly delayed as no local funds were available to complete the prerequisites for the commissioning of the machinery. + Taskforce meetings for the preparation of need-based training courses have been held fortnightly since April 2004. The list of taskforce meetings is shown in Annex 21-2. - Project staff meetings have not been jointly conducted by Pakistani and Japanese sides, showing the lack of communication

				between the two parties.
C-1. The necessary machinery and equipment are provided, installed, operated and maintained properly.	• List of equipment introduced • Conditions of machinery and equipment • Maintenance records	• PITAC • Experts	• Review of materials • Interviews	* The list of equipment provided by the Japanese and Pakistani sides are shown in Annex 7 and 8 respectively. + CMM room has been so far maintained at appropriate temperature by air conditioner, and blinds were installed for all windows. - The model molds designed and developed in Japan did not match the injection molding machinery, thus remodeling of the molds and the modification of the injection molding system are required. - The construction of the Project site has been significantly delayed due to lack of funds. - AVRs have not been installed by PITAC due to its budget constraints although the fluctuation of power in Pakistan has risk to give significant damage to the machinery. - Dust and water proof arrangement in the workshop is still insufficient. PITAC needs another three months to solve these problems. PITAC will take provisional measures within one month. - Production and procurement of items such as drawing stockers, assembly tables, shelves and lockers have not been completed. PITAC will accelerate the procurement/production process. - An overhead crane and some of the conventional machinery have not been installed because of the lengthy tendering process and the delay in budget transfer. PITAC will install the crane by the end of this year, and provide the machinery as soon as possible. - The installation work of small-hole EDM has not been completed due to non-receipt of installation manuals from Japan. The installation work is scheduled to be finished by the end of 2004.
C-2. Technical capability of the C/P personnel will be upgraded.	• Degree of improvement of knowledge and skill level of C/Ps • The number and technical level of achieved target products • Progress of the development of manuals, textbooks and training materials	• PITAC • Experts	• Review of materials • Interviews	+ Progress is observed in C/Ps' technical capacity, especially in mold design and CAD/CAM. Delay in technical transfer is observed in mold processing due to the delay in the installation of facilities. - However, since no objective monitoring indicators or targets have been set up, the degree of the progress of technical transfer cannot be evaluated at the time of mid-term evaluation. + The list of manuals, textbooks and training materials is shown in Annex 26.
C-3. Technical training courses and seminars are implemented systematically.	• The number of implemented seminars, training courses and their participants • Questionnaires collected from participants at the end of each	• PITAC • Experts	• Review of materials • Interviews • Records of Questionnaires	- No training courses have been conducted so far. * Curricula for training courses for CAD/CAM and mold design are mostly finalized while those for mold processing are barely started.

	course/seminar.			+ A task force has been formed for the planning of training courses and meetings are being held frequently. + Seven seminars were held at PITAC Lahore on "Occupational Safety and Health in August and September 2004. + Three seminars were held on "Latest Plastic Mold and Molding Technologies" in Karachi and Lahore in September 2004. Chief executives of plastic parts manufacturing association attended these seminars. + The seminars have been overall successful. The lists of the seminars and the participants from the private sector and their comments on the seminars are shown in Annex 28 and Annex 31.
C-4. Technical backup support services are implemented systematically.	• Number of mold designs and their clients • Number of implemented trial prototypes and their clients • Degree of satisfaction of clients with the quality of backup support services	• PITAC • Experts	• Review of materials • Interview • Records of Questionnaires	- No technical backup support has been conducted.
C-5. Advisory services are implemented systematically.	• Number of implemented technical advisory services and their clients • Degree of satisfaction of clients with the quality of advisory services	• PITAC • Experts	• Review of materials • Interview • Records of Questionnaires	* Thirteen advisory services have been provided to four enterprises (the list of advisory services is shown in Annex 29-2). Due to the delay in the deployment of qualified C/Ps, C/Ps joined three of the thirteen company visits.
D. Results of Input				
D-1. Inputs by the Japanese side	• Dispatch of long-term Experts • Dispatch of short-term Experts • C/P Training in Japan • Provision of machinery and equipment • Support of local cost	• PITAC • Experts	• Review of materials • Interview	* As shown in Annex 5-1, 6 and 7 * Rs. 1.39 million was disbursed by the Japanese side to meet some of the urgent fund requirements of the Project, including construction of false ceiling, painting, curtains, wiring and piping for workshop facilities.
D-2. Inputs by the Pakistani side	• Building and facilities • Allocation of C/Ps • Local cost allocation • Provision of machinery and equipment and their maintenance	• PITAC • Experts	• Review of materials • Interview	* As shown in Annex 3-2, 8, 20-1 and 20-2
E. Appropriateness of Implementation Process				
E-1. Monitoring plans and results	• Implementation process	• PITAC • Experts	• Review of materials • Interviews	- Monitoring reports for C/P training have not been prepared.

E-2. Appropriateness of communication between Experts and C/P	• Communication situation	• PITAC • Experts	• Interviews • Questionnaires	- Communication between Japanese Experts and C/Ps has been appropriate from the technical point of view, however, it was not sufficient from the managerial point of view. - Very few project staff meetings that include both Pakistani and Japanese sides have been held. - Little coordination has been observed at the management level in the mid-term evaluation of the Project.
E-3 Establishment of ownership of the Project	• Awareness and attitude of C/Ps	• PITAC • Experts	• Interviews • Questionnaires	+ Positive changes of awareness and working attitude have been observed for C/Ps.
E-4. Appropriateness of approaches/ methods of technology transfer	• Methodologies of technology transfer	• PITAC • Experts	• Interviews • Questionnaires	+ A holistic approach of technology transfer, i.e. not only transferring of skills but also explaining the background of the importance of the skills/knowledge was adopted, leading to better understanding of the technology. - Milestones or targets should have been worked out and explained by the Japanese Experts so that C/Ps would have been able to understand what to achieve through the training.

Five Evaluation Criteria: Relevance

Evaluation Items	Necessary Information and Data	Sources	Means of Verification	Remarks (+ positive factor; - negative factor; *neutral factor)
1. Relevance				
1-1. Relevance of Overall Goal to the government policies	• Three-year Rolling Plan • Industrial policies • Other related policies	• Ministry of Industries and Production, PITAC	• Review of materials • Interviews • Questionnaires	+ The promotion of SME is priority for the Pakistani Government's policy, which is indicated in "Ten Year Perspective Development Plan 2001-11" and "Three Year Development Program 2001-04". The Government's strategy for the promotion of plastic mold-making industries is indicated in "Strategy 2010 – Molds & Dies / Jig & Fixtures". Moreover, the Project is budgeted in the framework of "Annual Plan 2004-05".
1-2. Relevance of Overall Goal to the business needs	• Business needs for improvement of Pakistani plastic mold industries	• PITAC • Industrial associations • Private companies • Experts • SMEDA	• Interviews • Questionnaires	+ The demand of plastic molds is rapidly growing, since the domestic production of electric appliances and automotive parts is increasing. + Durable and thus expensive materials are used for plastic molds in foreign countries. Therefore, Pakistani plastic industries prefer using domestically produced molds that use relatively cheap materials, since the production scale is not large in Pakistan.
1-3. Comparative advantage of Japan's assistance	• Counterparts' view on Japan's expertise in plastic mold industry • Similar activities by other agencies including donors	• PITAC • Experts • SMEDA • Pak-Swiss Training Center	• Interviews • Questionnaires	+ Most C/Ps find Japanese Experts' skills and techniques high. + JICA has experiences in the implementation of the projects for the strengthening of technical skills of public entities that support mold-making industries in developing countries.

1-4. Relevance of Project Purpose to the government/ business needs	• Activities of PITAC • Private sector's view on PITAC	• PITAC • Industrial associations • Private companies • Experts	• Review of materials • Interviews • Questionnaires	+ PITAC is the only appropriate organization in Pakistan that can acquire and disseminate advanced techniques to private industries in plastic mold production.
1-5 Consistency with Japan's aid policy to Pakistan	• Focal fields in Japan's aid policy/programs to Pakistan	• MOFA, Japan	• Review of materials	+ Promotion of supporting industries including plastic mold making industries is one of the focal areas in Japan's cooperation policy to Pakistan.

Five Evaluation Criteria: Effectiveness

Evaluation Items	Necessary Information and Data	Sources	Means of Verification	Remarks (+ positive factor; - negative factor; *neutral factor)
2. Effectiveness				
2-1. Achievement of Project Purpose	As described in B-1	As described in B-1	As described in B-1	As described in B-1
2-2. Contributing factors for the achievement of Project Purpose	• PITAC's commitment in managing the project. • Capacity building of C/Ps • Development of training courses • Utilization of equipment • Progress of teaching material development • Progress and results of publicity plans	• PITAC • Experts	• Review of materials • Interviews • Questionnaires	- Not applicable since the project purpose has not been achieved.
2-3. Negative factors against the achievement of Project Purpose	• Status of the operation unit • Financial sources • Gaps between needs and the courses to be provided • Communication between Experts and C/Ps	• PITAC • Experts	• Review of materials • Interviews • Questionnaires	- Due to lack of local funds, failure in placement of required human resources for the Project and the dependence on the outside departments/agencies such as PWD, the commitment of the PITAC's management was not fully fulfilled. PITAC is committed to achieving operational efficiency and enhancing customer satisfaction of the Project by introducing the mind-set similar to that of the private sector. Upon necessity, the PITAC will deploy professional staff in this required area. - There was no C/P at the time of arrival of the first Experts. - The C/Ps actually assigned to the project are totally different from the ones mentioned in the R/D documents. - The project brochure and the advertisement for seminars are solely prepared by a Japanese Expert and then issued without consultation with Pakistani C/Ps. - The delay in the construction of the workshops and renovation of the offices caused a delay in the installation of equipment for

				several months. * As part of the "model factories" scheme, which was recommended by the Project Consultation Team dispatched in August 2003, the Experts and C/Ps have paid frequent visits to several companies and provided advisory services. The concept of model factories will be elaborated as required. * The process of the preparation of monitoring reports and monitoring/evaluation sheets is currently discussed between the Experts and C/Ps, although it is behind schedule.

Five Evaluation Criteria: Efficiency

Evaluation Items	Necessary Information and Data	Sources	Means of Verification	Remarks (+ positive factor; - negative factor; *neutral factor)
3. Efficiency				
3-1. Achievement of Project Output	As described in C-0 to C-5.	As described in C-0 to C-5.	As described in C-0 to C-5.	As described in C-0 to C-5.
3-2. Appropriateness of quality, quantity and timing of inputs				
3-2-1. Experts	• Number • Expertise • Timing of dispatch • Duration of assignment	• PITAC • Experts	• Interviews • Questionnaires	* List of Experts is shown in Annex 5-1. + C/Ps are mostly satisfied with Experts' technical level.
3-2-2. Machinery and equipment	• Categories • Amount • Timing of installation	• PITAC • Experts	• Review of materials • Interviews • Questionnaires	* List of machinery and equipment is shown in Annex 7-A, 7-B and 8. + The number, type and timing of the introduction of machinery and equipment are appropriate for the purpose of technology transfer. - The method of CMM installation has not been found out until the installation engineer arrived.
3-2-3. Training in Japan	• Number of trainees • Contents of training • Duration of training • Timing of training • Feedback	• PITAC • Experts	• Review of materials • Interviews • Questionnaires	* List of C/Ps trained in the Philippines and Japan is shown in Annex 6. + All C/Ps are mostly satisfied with training in the Philippines and Japan. - However, some mismatches between the Experts' and C/Ps' expectations were observed on training subjects.
3-2-4. C/P allocation	• Number • Ability	• PITAC • Experts	• Review of materials • Interviews • Questionnaires	- PITAC was not ready to initiate project activities when the first Japanese Experts were sent. Therefore, since their arrival in September 2002, there had not been any C/Ps for half a year nor were there any workshop buildings while the list of C/Ps at the time of R/D mission was totally different from the list of the actually assigned C/Ps.

				- A project manager and 12 counterpart personnel were deployed for the Project. However, the number of C/Ps was not sufficient for mold design and mold processing, assembly and trial shot sections, considerably affecting the smooth implementation of the Project. * 20 newly recruited staff (6 engineers, 7 diploma holders and 7 technicians) will be assigned to the Project in October 2004. + C/Ps have basic ability to receive technology transfer from Japanese Experts.
3-2-5. Buildings and facilities	• Quality • Size • Convenience • Current condition	• PITAC • Experts	• Review of materials • Interviews • Questionnaires	- The construction of the Project site has been significantly delayed due to lack of funds.
3-2-6. Local cost	• Amount • Breakdown of local costs • Timing	• PITAC • Experts	• Review of materials • Interviews • Questionnaires	- The Revised PC-I for the Project was not approved until July 2004. As a result, the Project has been significantly delayed as no local funds were available to complete the prerequisites for the commissioning of the machinery.
3-3. Contribution to the efficiency of the Joint Coordination Committee (JCC)	• Activities • Members of the Committee • Topics Discussed and advice given • Follow-ups taken	• PITAC • Experts	• Review of materials • Interviews • Questionnaires	- Joint Coordination Committee has not been held since 26th, August 2003, although it was agreed at the occasion of the Project Consultation Team dispatched in August 2003 that JCC be held at least twice a year.
3-4. Cooperation with the other organizations	• Cooperation activities with other projects and related associations	• PITAC • Experts • PPMA • PAAPAM • ECMMA • Pak-Swiss Training Center	• Interviews • Questionnaires	- No meetings have been held with these related associations and no explanation has been made to them.

Five Evaluation Criteria: Impact

Evaluation Items	Necessary Information and Data	Sources	Means of Verification	Remarks (+ positive factor; - negative factor; *neutral factor)
4. Impact				
4-1. Achievement of Overall Goal	As described in A-1	As described in A-1	As described in A-1	As described in A-1
4-2. Economic and financial impact	• Future prospects of development of Pakistani plastic mold making industries whose staff were	• PITAC • Beneficiary companies	• Interviews • Questionnaires	* Since the project purpose has not been achieved, no financial or economic impact is observed.

	trained at PITAC • Unnecessary competition with the private sector when providing backup support services and advisory services	• Industrial associations • SMEDA • Experts		
4-3. Other impact	• Positive or negative impact arising from project activities, such as environmental, social, cultural, technological, and institutional impact.	• PITAC • Experts	• Interviews • Questionnaires	+ No negative impact is foreseeable.

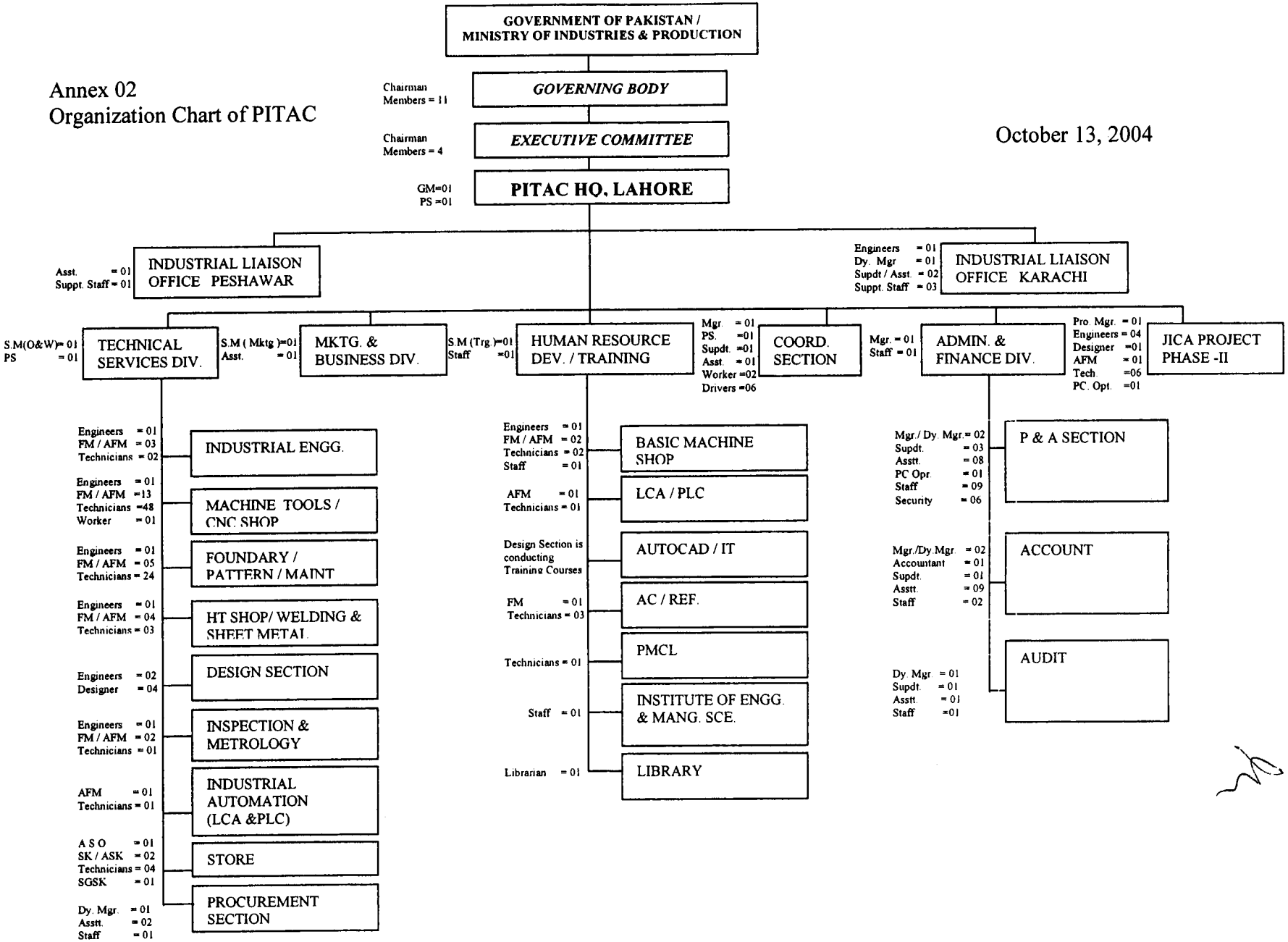
Five Evaluation Criteria: Sustainability

Evaluation Items	Necessary Information and Data	Sources	Means of Verification	Remarks (+ positive factor; - negative factor; *neutral factor)
5. Sustainability				
5-1 Organizational and Financial Aspects				
5-1-1. Operation and management system of the Project	• Composition of the operation unit • PITAC's organizational chart • PITAC's future plans • Retaining of C/Ps	• PITAC • Experts	• Review of materials • Interviews • Questionnaires	- The Project's managerial and administrative capacity has not been fully developed. * PITAC's organization chart is shown in Annex 2. * How the Project unit will be positioned within PITAC after the completion of the Project has not yet been determined. + No C/P has left the Project until now. According to the rules of Pakistani Government, a surety bond of five years is being taken from the C/Ps selected for abroad training. + The management of PITAC, in its future planning, intends to introduce a favorable remuneration system in order to retain highly qualified staff.
5-1-2. Financial condition of PITAC	• Budget allocation by the Pakistani Government • Budget allocated to the operation unit	• PITAC • Experts	• Review of materials Interviews • Questionnaires	* PITAC's budget and expenditure position in 2003-2004 and budget in 2004-2005 are shown in Annex 3-3. During this period, PITAC's budget increased from Rs. 41 million to Rs. 64 million (Rs. 6 million of Rs. 41 million is a compensation of the past debt.) * PITAC's budget allocation to the Project is shown in Annex 3-1 and 3-2.
5-1-3. PITAC's own income generation	• Condition of PITAC's current own revenue • PITAC's future perspectives on financial management	• PITAC • Experts	• Review of materials • Interviews • Questionnaires	* PITAC's revenue is shown in Annex 4.
5-2 Policy and Institutional Aspects				

5-2-1. National policy/programs on the promotion of plastic mold making industry	• Latest promotion plan/programs	• PITAC • Experts • SMEDA	• Review of materials • Interviews	+ Revised PC-I for the Project was approved in July 2004. The Project is also stated in the Government's Annual Plan 2004-2005.
5-2-2. Status of smuggling of plastic molds and the Government's countermeasures.	• Government policy	• PITAC • Experts • SMEDA	• Review of materials • Interviews	* Private enterprises state that they have no difficulty in importing plastic molds.
5-3. Technical Aspects				
5-3-1. Progress of technology transfer	• Technology level of C/Ps • Capacity of planning, implementing and evaluating PITAC services	• PITAC • Experts	• Review of materials • Interviews • Questionnaires	* Technology transfer is still on the way. + C/Ps in CAD/CAM and mold design sections are technically ready to provide basic training to outside trainees.
5-3-2. Maintenance and renewal of the machinery and equipment	• Maintenance plans including budget • C/Ps' capacity for maintenance	• PITAC • Experts	• Review of materials • Interviews • Questionnaires	- Systematic maintenance activities have not been introduced. - No maintenance plans have been prepared. No maintenance staff has been trained in the Project. - There is a concern that machinery and equipment will not be properly maintained after the completion of the Project due to unavailability of an appropriate maintenance system in PITAC. * The spare parts of the machinery and equipment are not available locally so that they must be imported from Japan or other countries.

Annex 02
Organization Chart of PITAC

October 13, 2004



Annex 03-1
Budget Allocation (Local Cost) for the Project

October 13, 2004

Budget Allocation (Rs. Million)		
Financial Year	**Date of**	
	Financial Allocation	**Funds Released**
2000-01	**4.20**	**3.57**
2001-02	**2.00**	**2.00**
2002-03	**2.78**	**2.78**
2003-04	**14.092**	**2.387 ***
2004-05	**18.705**	**--**

(*) The remaining amount of Rs. 11,705/- Million surrounded for Relocation in the next financial year.

Annex-03-2

Budget Allocation (2004-05)

October 13, 2004

Budget Allocation (Rs. in Millions)							
Financial Year	**Local**	**FFC**	**Total**	**Quarterly Financial Allocation**			
				1st Quarter	*2nd Quarter*	*3rd Quarter*	*4th Quarter*
2004-05	18.705	--	18.705	14.330	1.750	1.875	0.75

Annex 03-3

PAKISTAN INDUSTRIAL TECHNICAL ASSISTANCE CENTRE (PITAC) LAHORE

BUDGET & EXPENDITURE POSITION DURING THE YEAR

October 13, 2004

Major Head of Account	Budget Allocation 2003-2004	Expenditure 2003-2004	Budget Allocation 2004-2005
01000 Pay of Officer	7,026,000.00	7,026,232.93	8,616,000.00
01200 Pay of Staff	11,690,000.00	11,689,653.31	12,630,000.00
02000 Regular Allowances	16,460,000.00	16,460,674.02	19,841,000.00
03000 Other Allowances	3,159,000.00	3,158,422.61	4,368,000.00
Total Establishment Charges	38,335,000.00	38,334,982.87	45,455,000.00
10000 Purchase of Durable goods	26,000.00	25,247.50	362,000.00
40000 Repair & Maint. of durable Goods & Works	328,000.00	327,580.00	73,000.00
50000 Commodities & Services	674,000.00	674,889.63	831,000.00
52000 Communication	300,000.00	299,888.00	466,000.00
53000 Utilities	2,963,000.00	2,962,914.37	4,150,000.00
58000 Rent Royalties Rates & Taxes	363,000.00	362,947.50	420,000.00
59000 Other Expenditure on Commodities & Services	206,000.00	206,129.13	471,000.00
60000 Transfer Payment (Pension)	2,069,000.00	2,069,088.00	14,765,000.00
80000 Loans & Repayments			300,000.00
90000 Misc. Expenditure	32,000.00	32,048.00	50,000.00
Total Other Charges:	6,961,000.00	6,960,732.13	22,545,000.00
Grand Total:	45,296,000.00	45,295,715.00	68,000,000.00
Less Receipt of the Centre	4,196,000.00	4,195,715.00	4,000,000.00
NET GRANT-IN-AID:	41,100,000.00	41,100,000.00	64,000,000.00
Expd. Allocation			

Annex 03-4

Budget Statement Account, Generated Income of PITAC, 2003-2004 (July 2003-June 2004)

October 13, 2004

Expenditure	Estimated	Actual (B)	(B)/ A	Income	Estimated (a)	Actual(b)	(B)/ (A)
Personal Expense	40,404,000	40,404,071	100%	Training	870,000	865,962	99.5%
Utilities	2,963,000	2,962,914	100%	Advisory & Consultancy Service	623,000	623,595	100.1%
Office Consumable	974,000	974,778	100%	IT Center	1,270,000	1,267,421	99.8%
Furniture & Office	-	-		Production (Die & Mold Service)	1,439,000	1,438,737	99.9%
Maintenance	328,000	327,580	100%	Others			
				Total Receipt	4,202,000	4,195,715	99.85%
Others	627,000	626,372	100%	Govt.grant in Aid	41,100,000	41,100,000	100%
Total	45,296,000	45,295,715			45,302,000	45,295,715	99.9%

Annex 04: Annual Income Earned by section of PITAC

REVENUE RECEIPT STATEMENT
(1990-91 to 2003-2004)
(Resource Generation)

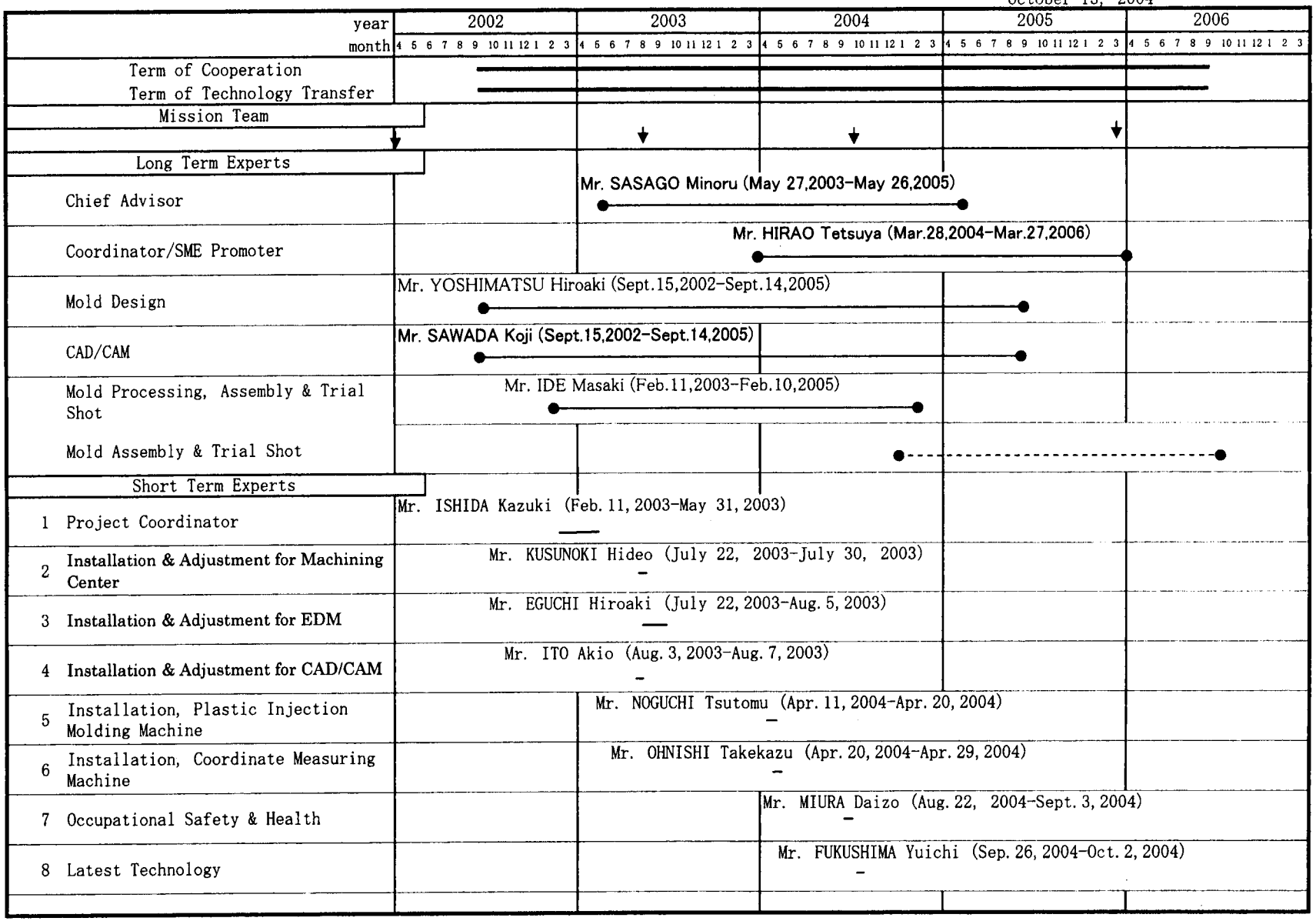
October 13, 2004

Sr. No.	Year	Production (Tool, Die& Special Parts) and Technical Assistance Programme	Human Resource Development Training (Training & Special Training)	Information Technology Courses (I.T.)	Advisory/Consultancy & Misc. Activities	Total
1	1990-91	2,789,826.08	433,360.00		130,494.84	3,353,680.92
2	1991-92	3,029,983.36	819,046.00		136,449.04	3,985,478.40
3	1992-93	2,321,466.81	1,398,194.00		332,827.61	4,052,488.42
4	1993-94	2,856,097.71	1,219,439.07		101,826.25	4,177,363.03
5	1994-95	2,082,628.10	773,070.00		335,665.30	3,191,363.40
6	1995-96	2,808,169.11	1,470,827.75		68,196.80	4,347,193.66
7	1996-97	2,355,826.00	1,998,605.00		135,893.00	4,490,324.00
8	1997-98	2,297,209.53	1,660,497.39		246,293.08	4,204,000.00
9	1998-99	2,721,315.51	1,214,033.40		128,421.00	4,063,769.91
10	1999-2000	2,395,738.93	517,304.00		272,592.86	3,185,635.79
11	2000-2001	1,306,060.00	799,310.00		144,630.00	2,250,000.00
12	2001-2002	1,879,423.00	1,020,841.00		166,307.00	3,066,571.00
13	2002-2003	1,837,677.00	816,298.00	3,488,941.00	265,059.00	6,407,975.00
14	2003-2004	1,438,737.00	865,962.00	1,267,421.00	623,595.00	4,195,715.00

LCAB

Annex 05-1 Dispatched Japanese Experts and Mission Teams

October 13, 2004



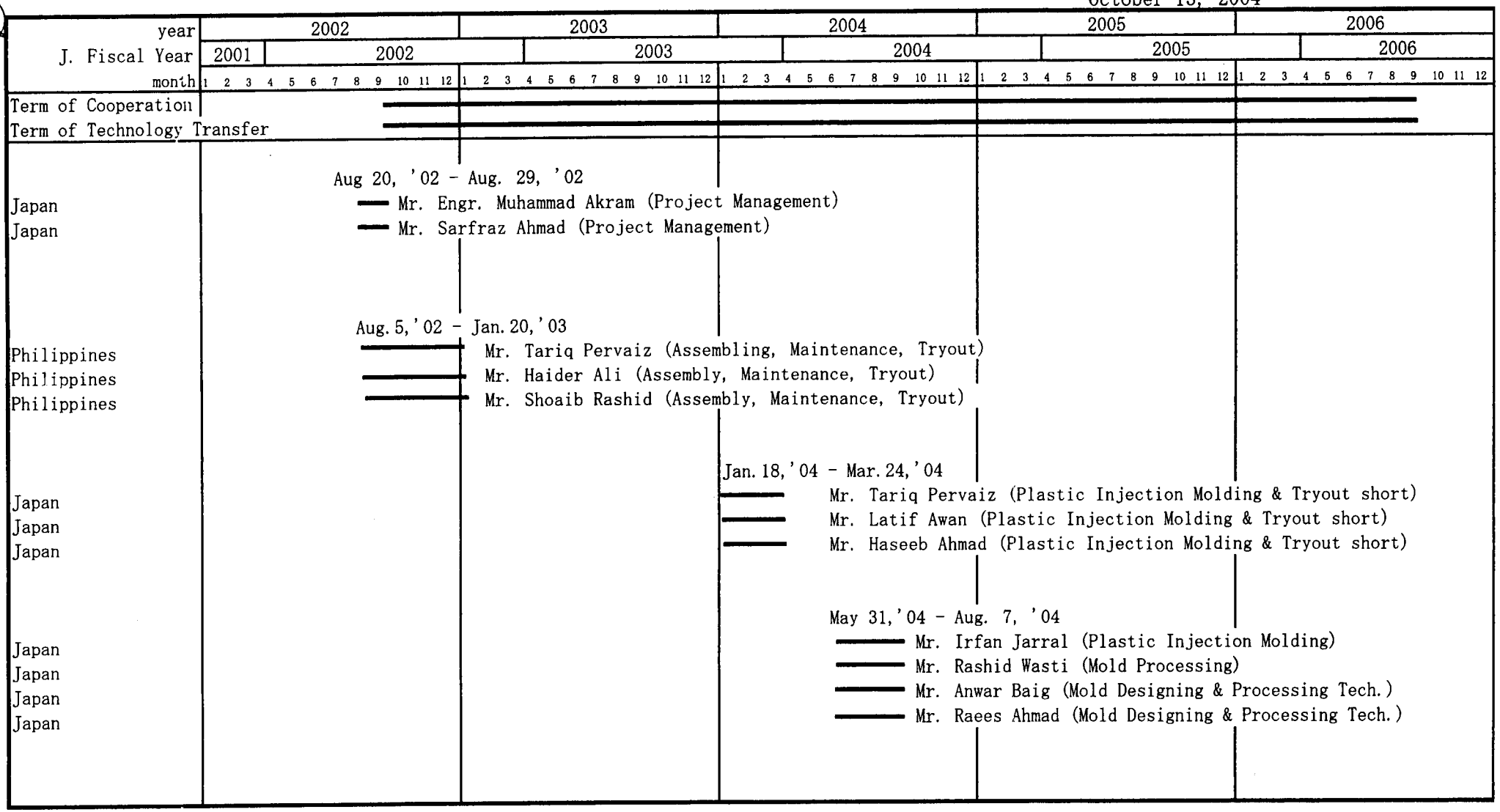
Annex 05-2 **List of Mission Teams**

October 13, 2004
Sadaf Chaudhry

Sr.	Name	Designation	Duration
1st Basic Study (Fact Finding) Team			
1	KUWAJIMA Kyoko	Leader	April 4, 1999 - April 13, 1999
2	YAMASHITA Mitsuhiro	Technical Cooperation Policy	
3	KATO Yuzo	Technical Cooperation Program	
4	SHIRAI Kenji	CAD / CAM	
5	IDE Katsuhisa	Tool & Die Technology	
6	CHIJI Mashiro	Metal Working	
7	MITSUI Yuko	Cooperation Planning	
2nd Preliminary Study Team			
1	KUWAJIMA Kyoko	Leader	Apr. 2, 2000 - Apr. 14, 2000
2	MATSUURA Yoshikazu	Technical Transfer Program	
3	CHIJI Masahiro	Mold Technology	
4	HATAKEYAMA Atsuhiko	Equipment & Training Program	
5	OKAYAMA Asuka	Cooperation Planing	
3rd Supplementary Study (Preparatory Study) Team			
1	TOBITA Kenji	Leader	Oct. 29, 2000 - Nov. 22, 2000
2	CHIJI Masahiro	Technical Transfer Program	
3	OKAYAMA Asuka	Cooperation / Plan	
4	INADA Akihiro	Mold Technology	
5	WATNABE Makoto	Equipment (1)	
6	HORIKASHI Futoshi	Equipment (2)	
4th Implementation Study (Project Design) Team			
1	HAYASHI Yoshinobu	Leader	Mar. 15, 2001 - Mar. 24, 2001
2	CHIJI Masahiro	Technical Transfer Program	
3	HATAKEYAMA Atsuhiko	Mold Technology	
4	YOSHIDA	Equipment & Training Planing	
5	OKAYAMA Asuka	Cooperation / Planing	
5th Team (1st Consultation)			
1	TAKAMA Hidetoshi	Leader	Mar. 24, 2002 - Apr. 03, 2002
2	HAITAKEYAMA Atsuhiko	Mold Technology	
3	SAWADA Koji	Equipment & Training Planing	
4	OKAYAMA Asuka	Cooperation Planing	
6th Team (2nd Consultation)			
1	TAKIZAWA Koichi	Leader	Aug. 18, 2003 - Aug. 27, 2003
2	HAYASHIBE Yoshitomo	Mold Technology	
3	YAMADA Minoru	Cooperation Planing	
7th Mid Term Evaluation Team			
1	JURO Masayoshi	Leader	Oct. 3, 2004 - Oct. 16, 2004
2	HATAKEYAMA Atsuhiko	Technical Transfer Program	
3	SASAKI Tetsuo	Technical Evaluation	
4	YAMAUCHI Chikako	Training Planing	
5	YOSHIMURA Etsuji	Evaluation Management	
6	MORI Shinichi	Evaluation Analysis	

Annex 06 C/P training in Japan

October 13, 2004



Annex 07-1

List of Machinery and Equipment Provided by Japanese Side

October 13, 2004

No	Eqipment name	Manufacturer / Model	Qty.	Arrival Date	Use frequency, Maintenance condition												Remarks
					Dec. 2003		Jun. 2004		Dec. 2004		Jun. 2005		Dec. 2005		Jun. 2006		
1	CAD/CAM Software																
		Nihon Unisys / CADCEUS	3	Feb. 2003	A	A	A	A									
		Realfactory / Craft Mill	3	Feb. 2003	A	A	A	A									
		Computer Engineering / Neo Solid	3	Feb. 2003	C	A	C	A									
2	Mulitimedia Projector	Panasonic / PT-LC55E	1	Feb. 2003	B	A	B	A									
3	Projection Screen	TOPEX / 6" x 6"	1	Mar. 2003	B	A	B	A									
4	Projection Screen	TOPEX / 8" x 8"	1	Mar. 2003	B	A	B	A									
5	Video Camera	SONY / DCR-TRV340	1	Mar. 2003	C	A	C	A									
6	Memory Stick for Video Camera	SONY / MSA-128A	1	Mar. 2003	C	A	C	A									
7	TV	Panasonic / TX-29P	1	Mar. 2003	D	A	D	A									
8	Video Deck	Panasonic / NV-HD640AM	1	Mar. 2003	D	A	D	A									
9	Photocopier	Canon / NP-6241	1	Mar. 2003	A	A	A	A									
10	FAX machine	Canon / B-155	1	Mar. 2003	A	A	A	A									
11	Scanner	HP / Scanjet 5550C	1	Mar. 2003	B	A	B	A									
12	Personal Computer																
	For CAD/CAM	IBM / Intellistation M Pro	6	Apr. 2003	A	A	A	A									
	For CAD/CAM	IBM / Intellistation M Pro	6	Aug.2003	A	A	A	A									
	For CMM/CNC	IBM / Net Vista A30P	2	Apr. 2003	-	-	A/C	A									
	For Office Work	IBM / Net Vista A30P	2	Apr. 2003	A	A	A	A									
13	Laser Jet Printer	HP / 4200DTN, P/N Q2428A	1	May.2003	A	A	A	A									
14	Plotter	HP / 500PS P/N C7770C	1	May.2003	B	A	B	A									
		HP / P/N C7790B	1	May.2003	B	A	B	C									
15	CNC Vertical Machining Center	Makino / V33	1	May.2003	-	-	A	A									
16	Electric Discharge Machine (EDM)	Makino / EDGE 3	1	May.2003	-	-	B	A									

No	Eqipment name	Manufacturer / Model	Qty.	Arrival Date	Use frequency, Maintenance condition												Remarks
					Dec. 2003		Jun. 2004		Dec. 2004		Jun. 2005		Dec. 2005		Jun. 2006		
17	Wire-cut EDM	Makino / EU64	1	May.2003	-	-	C	A									
18	Ultrasonic Polishing Machine	Japan Minitor / CM3021	1	May.2003	-	-	C	A									
19	Air Impact Wrench Set	Bessel / GT-P14J	3	May.2003	-	-	C	A									
20	Air Micro-grinder	Bessel / GT-MG 55SR	3	May.2003	-	-	C	A									
21	Surface Plate	NABEYA / CP04545	3	May.2003	-	-	-	-									
22	Thickness Gauge	NAGAI / No.100MZ	10	May.2003	-	-	C	A									
23	CAD/CAM Software																
		DelCAM / Power Shape	12	Aug.2003	A	A	A	A									
		DelCAM / Power Mill	12	Aug.2003	A	A	A	A									
		DelCAM / Art Cam	1	Aug.2003	A	A	A	A									
		DelCAM / Copy Cad	1	Aug.2004	A	A	A	A									
		Autodesk / Auto CAD 2004	2	Jul.2003	A	A	A	A									
24	Tool Pre-setter	MST / TVM3040-2-A63	1	Aug.2003	-	-	B	A									
25	Small Holed EDM Drilling	ASTEC / CDH-3AM	1	Aug.2003	-	-	-	-									
26	Surface Grinding Machine	Kuroda / GS-63PF	1	Aug.2003	-	-	-	-									
27	Drill Point Grinding Machine	Fujita / DG50B	1	Aug.2003	-	-	D	A									
28	Tool Grinding Machine	IIDA / GE-120S	1	Aug.2003	-	-	D	A									
29	Carbide Turning Tool Grinder	IIDA / BW-41	1	Aug.2003	-	-	D	A									
30	Welding Machine for Mold	JTE / YOZO-SYSTEM4	1	Aug.2003	-	-	-	-									
31	Coordinate Measuring Machine	Mitutoyo / Beyond-Crysta710	1	Aug.2003	-	-	C	A									
32	Injection Molding Machine 350t	SUMITOMO / SH350C	1	Aug.2003	-	-	B	A									
33	Injection Molding Machine 160t	SUMITOMO / SH160C	1	Aug.2003	-	-	B	A									
34	Cooler for Molding Machine	Kannetsu / WL-20	1	Aug.2003	-	-	B	A									
35	Mold Temperature for 350t	Matsui / MCJ-150HX	1	Aug.2003	-	-	B	A									
36	Mold Temperature for 160t	Matsui / GMCH-J-55J	1	Aug.2003	-	-	B	A									
37	Drier of resin	Matsui / MJ3-100J	1	Aug.2003	-	-	C	A									

No	Eqipment name	Manufacturer / Model	Qty.	Arrival Date	Use frequency, Maintenance condition												Remarks
					Dec. 2003		Jun. 2004		Dec. 2004		Jun. 2005		Dec. 2005		Jun. 2006		
38	Model Mold																
		Tray of Kitchen Cabinet	1	Sep.2003	C	A	C	A									
		Front Light Body of Motorcycle	1	Sep.2003	C	A	D	C									
		Mouse Cover (Upper and Lower)	1	Sep.2003	C	A	C	A									
		Telephone Upper-case	1	Sep.2003	C	A	C	A									
39	Modeling machine	Roland MDX-20	1	Sep.2003	C	A	C	A									
40	Simulation Software																
		Broad Mine / TRYCUT2000	1	Sep.2003	B	A	A	A									
		System I / NC Viewer	1	Dec.2003	B	A	A	A									
41	Thermometer/Hygrometer	TESTO / 608-H1	3	Sep.2003	A	A	A	A									
42	Office Software																
	For Office Work	Microsoft / Office XP Pro.	2	Sep.2003	A	A	A	A									
	For CAD/CAM	Microsoft / Office XP Pro.	4	Nov.2003	A	A	A	A									

Use frequency : A-use daily B-use often (1-3 times/week) C-use only specific period D-use rarely(3-11times/year)
E-not useable with specific reason

Maintenance condition : A-maintained well B-maintained good C-need maintenance to use D-not useable condition

Annex 07-2 List of Tool and Toolings

October 13, 2004

	Article	Manufacturer	Description	Qty.	Arrival Date	Remarks
I	For Machining Center					
1	Jigs					
	1) Machining Vise	Tsudakoma	VG-150	2	May. 2003	
	2) Edge Finder	Daishowa	ACCU-C10	1	May. 2003	
	3) Test Indicator	Mitsutoyo	513-415	1	May. 2003	
	4) Magnetic Stand	Mitsutoyo	7014	1	May. 2003	
	5) Tool-length Measuring	Daishowa	TM-100	1	May. 2003	
	6) Clamping Kit	SuperTool	S-1814	1	May. 2003	
	7) Parallel Block	ERON	01243, HP2	1	May. 2003	
			01245, HP4	1	May. 2003	
			01246, HP5	1	May. 2003	
			34596, HP34	1	May. 2003	
	8) Clamping Setup Kit	ERON	01056,CMM1814	2	May. 2003	
	9) T-Slot Nat & Standard Set	ERON	01142, TSM1814	1	May. 2003	
	10) Tooling Locker for NC5-63 & HSK63A		TLD106	1	May. 2003	
			Holder DC-C2	36	May. 2003	
2	Boring Tools					
	1) Boring Holder	MST	A63-MFA20-150	1	May. 2003	
			A63-MFA24-180	1	May. 2003	
			A63-MFA29-180	1	May. 2003	
			A63-MFA36-195	1	May. 2003	
			A63-MBH50-210	3	May. 2003	
			A63-MBH75-195	3	May. 2003	
			A63-MBH115-195	3	May. 2003	
			A63-MBH180-195	3	May. 2003	
	2) Insert	MST	TPA082-EA	5	May. 2003	
			TPA084-EA	5	May. 2003	
			TNB112-EA	3	May. 2003	
			TNB114-EA	3	May. 2003	
			TNB164-EA	6	May. 2003	
	3) Cartridge	MST	PTC10	3	May. 2003	
			PTC12	9	May. 2003	
3	Drilling, Reaming & Tapping Tools					
	1) Straight Shank Drill (SD)	KOBELCO	Φ 3.0	5	May. 2003	
			Φ 4.0	5	May. 2003	
			Φ 5.0	5	May. 2003	
			Φ 6.0	5	May. 2003	
			Φ 8.0	5	May. 2003	
			Φ 10.0	4	May. 2003	
			Φ 12.0	4	May. 2003	
	2) Straight Shank Drill (KSD)	KOBELCO	Φ 1.3	1	May. 2003	
			Φ 1.8	1	May. 2003	

	Article	Manufacturer	Description	Qty.	Arrival Date	Remarks
			Φ 2.3	1	May. 2003	
			Φ 2.8	1	May. 2003	
			Φ 3.3	1	May. 2003	
			Φ 3.8	1	May. 2003	
			Φ 4.3	1	May. 2003	
			Φ 4.8	1	May. 2003	
			Φ 5.3	1	May. 2003	
			Φ 5.8	1	May. 2003	
			Φ 6.3	1	May. 2003	
			Φ 6.8	1	May. 2003	
			Φ 7.3	1	May. 2003	
			Φ 7.8	1	May. 2003	
			Φ 8.3	1	May. 2003	
			Φ 8.8	1	May. 2003	
			Φ 9.3	1	May. 2003	
			Φ 9.8	1	May. 2003	
			Φ 10.3	1	May. 2003	
			Φ 10.8	1	May. 2003	
			Φ 11.3	1	May. 2003	
			Φ 11.8	1	May. 2003	
	3) Straight Shank Chucking Reama (SCR)	EIKO	Φ 1.5	2	May. 2003	
			Φ 2.0	2	May. 2003	
			Φ 2.5	2	May. 2003	
			Φ 3.0	2	May. 2003	
			Φ 3.5	2	May. 2003	
			Φ 4.0	2	May. 2003	
			Φ 4.5	2	May. 2003	
			Φ 5.0	2	May. 2003	
			Φ 5.5	2	May. 2003	
			Φ 6.0	2	May. 2003	
			Φ 6.5	2	May. 2003	
			Φ 7.0	2	May. 2003	
			Φ 7.5	2	May. 2003	
			Φ 8.0	2	May. 2003	
			Φ 8.5	2	May. 2003	
			Φ 9.0	2	May. 2003	
			Φ 9.5	2	May. 2003	
			Φ 10.0	2	May. 2003	
			Φ 10.5	2	May. 2003	
			Φ 11.0	2	May. 2003	
			Φ 11.5	2	May. 2003	
			Φ 12.0	2	May. 2003	
	4) Carbide Broach Reamer	NIKKEN	SX-2.0 Φ2.0mm	3	May. 2003	
			SX-3.0 Φ3.0mm	3	May. 2003	

	Article	Manufacturer	Description	Qty.	Arrival Date	Remarks
			SX-4.0 Φ4.0mm	3	May. 2003	
			SX-5.0 Φ5.0mm	3	May. 2003	
			SX-6.0 Φ6.0mm	3	May. 2003	
	5) Tap Holder	Kato	A63-HA412	2	May. 2003	
	6) Tap Collet	Kato	TC412-4	3	May. 2003	
			TC412-5	3	May. 2003	
			TC412-6	2	May. 2003	
			TC412-8	2	May. 2003	
			TC412-10	2	May. 2003	
			TC412-12	2	May. 2003	
	7) Spiral Fluted Taps (EX-SFT)	OSG	No,11544 M3x0.5	5	May. 2003	
			No,11556 M4x0.7	5	May. 2003	
			No,11571 M5x0.8	5	May. 2003	
			No,11583 M6x1.0	5	May. 2003	
			No,11601 M8x1.25	5	May. 2003	
			No,11621 M10x1.5	5	May. 2003	
			No,11650 M12x1.75	5	May. 2003	
4	Milling Tools (Face Milling)					
	1) Face Mill Arbor	MST	A63-FMA31.75-60	2	May. 2003	
	2) Face Mill	OSG	No,8004483 P5E43R-10007J	2	May. 2003	
	3) Insart	OSG	ODMT0605-ZZN-D57	5	May. 2003	
5	Milling Tools (Holder & Collets)					
	1) Holders	MST	A63-DTA7-105	8	May. 2003	
			A63-DTA12-120	8	May. 2003	
			A63-DTA12-180	5	May. 2003	
			A63-CTH10-90	8	May. 2003	
			A63-CTH10-150	5	May. 2003	
			A63-CTH20-90	8	May. 2003	
			A63-CTH20-150	5	May. 2003	
			A63-ART32-100	3	May. 2003	
	2) Collet for DTA7	MST	D7-1.5P	5	May. 2003	
			D7-2P	5	May. 2003	
			D7-2.5P	5	May. 2003	
			D7-3P	5	May. 2003	
			D7-4P	5	May. 2003	
			D7-5P	5	May. 2003	
			D7-6P	5	May. 2003	
			D7-7P	5	May. 2003	
	3) Collet for DTA12	MST	D12-4P	5	May. 2003	
			D12-6P	5	May. 2003	
			D12-8P	5	May. 2003	
			D12-10P	5	May. 2003	
			D12-12P	5	May. 2003	
			D12-13P	5	May. 2003	

	Article	Manufacturer	Description	Qty.	Arrival Date	Remarks
	4) Collet for CTH10	MST	C10-3P	5	May. 2003	
			C10-4P	5	May. 2003	
			C10-5P	5	May. 2003	
			C10-6P	5	May. 2003	
			C10-8P	5	May. 2003	
			C10-10P	5	May. 2003	
	5) Collet for CTH20	MST	C20-6P	5	May. 2003	
			C20-8P	5	May. 2003	
			C20-10P	5	May. 2003	
			C20-12P	5	May. 2003	
			C20-16P	5	May. 2003	
			C20-20P	5	May. 2003	
	6) Straight Collet	MST	S32-6	5	May. 2003	
			S32-8	5	May. 2003	
			S32-10	5	May. 2003	
			S32-12	5	May. 2003	
			S32-16	5	May. 2003	
			S32-20	5	May. 2003	
			S32-25	5	May. 2003	
	7) Open Ended Spanner	MST	F-38	2	May. 2003	
			F-45	2	May. 2003	
			FC-36	2	May. 2003	
			FC-50	3	May. 2003	
			FM-72	1	May. 2003	
6	Milling Tools (End-mill)					
	1) Roughing End Mill (MRD)	KOBELCO	MRD800 8mm	5	May. 2003	
			MRD1200 12mm	5	May. 2003	
			MRD1600 16mm	5	May. 2003	
			MRD2000 20mm	5	May. 2003	
	2) Roughing End Mill (ESM-C Coat)	HITACHI	ESMQS6 6mm	5	May. 2003	
			ESMQS8 8mm	5	May. 2003	
			ESMQS10 10mm	5	May. 2003	
			ESMQS12 12mm	5	May. 2003	
			ESMQS16 16mm	5	May. 2003	
			ESMQS20 20mm	2	May. 2003	
			ESMQS30 30mm	1	May. 2003	
	3) Hss End Mill (2MSD)	KOBELCO	2MSD0600 6mm	5	May. 2003	
			2MSD0800 8mm	5	May. 2003	
			2MSD1000 10mm	5	May. 2003	
			2MSD1200 12mm	5	May. 2003	
			2MSD1600 16mm	5	May. 2003	
			2MSD2000 20mm	3	May. 2003	
	4) Hss End Mill (4MSD)	KOBELCO	4MSD0600 6mm	5	May. 2003	
			4MSD0800 8mm	5	May. 2003	

	Article	Manufacturer	Description	Qty.	Arrival Date	Remarks
			4MSD1000 10mm	5	May. 2003	
			4MSD1200 12mm	5	May. 2003	
			4MSD1600 16mm	5	May. 2003	
			4MSD2000 20mm	5	May. 2003	
	5) Hss End Mill (4LSD)	KOBELCO	4LSD0600 6mm	5	May. 2003	
			4LSD0800 8mm	5	May. 2003	
			4LSD1000 10mm	5	May. 2003	
			4LSD1200 12mm	5	May. 2003	
			4LSD1600 16mm	5	May. 2003	
			4LSD2000 20mm	5	May. 2003	
	6) Carbide End Mill (CEPR EPOCH)	HITACHI	CEPR4030 3mm	5	May. 2003	
			CEPR4040 4mm	5	May. 2003	
			CEPR4050 5mm	5	May. 2003	
			CEPR6060 6mm	5	May. 2003	
			CEPR6080 8mm	5	May. 2003	
			CEPR6100 10mm	5	May. 2003	
			CEPR6120 12mm	4	May. 2003	
			CEPR6200 20mm	2	May. 2003	
	7) Carbide End Mill:2F with CR(FX-CR-MG-EDS)	OSG	8543831 3 x R0.2	5	May. 2003	
			8543845 4 x R1	5	May. 2003	
			8543855 5 x R1	5	May. 2003	
			8543865 6 x R1	5	May. 2003	
			8543885 8 x R1	5	May. 2003	
			8543907 10 x R1.5	5	May. 2003	
	8) Carbide End Mill:6F with CR (FX-CR-EMS)	OSG	8545509 6 x R0.2	5	May. 2003	
			8545516 8 x R0.5	5	May. 2003	
			8545521 10 x R0.5	5	May. 2003	
			8545527 12 x R1	5	May. 2003	
	9) Carbide End Mill:4F with CR (FXS-MFE)	OSG	8546103 10 x R0.5	5	May. 2003	
			8546105 10 x R1	5	May. 2003	
			8546123 12 x R0.5	5	May. 2003	
			8546145 14 x R1	5	May. 2003	
	10) Ball-end (FX-MG-EBD)	OSG	8521030 R1.5 x 3	5	May. 2003	
			8521040 R2 x 4	5	May. 2003	
			8521060 R3 x 6	5	May. 2003	
			8521080 R4 x 8	5	May. 2003	
			8521100 R5 x 10	5	May. 2003	
			8521120 R6 x 12	5	May. 2003	
	11) Ball-end (FXS-EBDS)	OSG	8518003 R1.5 x 3	5	May. 2003	
			8518004 R2 x 4	5	May. 2003	
			8518006 R3 x 6	5	May. 2003	
			8518008 R4 x 8	5	May. 2003	
			8518010 R5 x 10	5	May. 2003	
			8518012 R6 x 12	5	May. 2003	

	Article	Manufacturer	Description	Qty.	Arrival Date	Remarks
	12) Ball-end :for Non-ferrous (CRN-EBD)	OSG	8503860 R3 x 6	5	May. 2003	
			8503880 R4 x 8	5	May. 2003	
			8503900 R5 x 10	5	May. 2003	
			8503920 R6 x 12	5	May. 2003	
	13) Rib Processing Ball-end (MRB-230)	NS TOOL	8-520-00501 R0.5 x 6mm	5	May. 2003	
			8-520-00502 R0.5 x 8mm	5	May. 2003	
			8-520-01001 R1 x 6mm	5	May. 2003	
			8-520-01004 R1 x 12mm	5	May. 2003	
			8-520-01006 R1 x 16mm	5	May. 2003	
			8-520-01503 R1.5 x 15mm	5	May. 2003	
			8-520-01506 R1.5 x 25mm	5	May. 2003	
			8-520-02003 R2 x 20mm	5	May. 2003	
			8-520-02004 R2 x 25mm	5	May. 2003	
	14) Rib Processing (MHR-230)	NS TOOL	8-200-05060 0.5 x 6mm	5	May. 2003	
			8-200-08080 0.8 x 8mm	5	May. 2003	
			8-200-08100 0.8 x 10mm	5	May. 2003	
	14) Rib Processing (MHR-430)	NS TOOL	8-210-01010 1 x 10mm	4	May. 2003	
			8-210-01210 1.2 x 10mm	4	May. 2003	
			8-210-01510 1.5 x 10mm	4	May. 2003	
			8-210-01816 1.8 x 16mm	4	May. 2003	
			8-210-02016 2 x 16mm	4	May. 2003	
			8-210-02020 2 x 20mm	4	May. 2003	
			8-210-03025 3 x 25mm	4	May. 2003	
			8-210-04025 4 x 25mm	4	May. 2003	
	15) Taper for Rib Processing (NRF-4)	NS TOOL	1-425-01036 1 x 2°x 8mm	5	May. 2003	
			1-425-01212 1.2 x 30° x 4mm	5	May. 2003	
	16) Taper for Rib Processing (FXS-RB-TPE)	OSG	8507522 1 x 1° x 8mm	4	May. 2003	
			8507845 1 x 3° x 8mm	4	May. 2003	
			8507542 1.5 x 1° x 8mm	4	May. 2003	
			8507855 1.5 x 3° x 12mm	4	May. 2003	
			8507573 2 x 1° x 10mm	4	May. 2003	
			8507870 2 x 3° x 16mm	4	May. 2003	
			8507597 3 x 1° x 25mm	4	May. 2003	
			8507807 3 x 3° x 25mm	4	May. 2003	
II	For EDM Machine					
1	Jigs					
	1) Tooling Holders	EROWA	ITS SET (ER-023239)	1	May. 2003	
	2) Universal Holder	EROWA	EUV-25	1	May. 2003	
	3) Test Block	EROWA	ER-8617	1	May. 2003	
	4) Electrode Holder	EROWA	Centering Plate 50:ER-009214	1	May. 2003	
			Centering Plate 100:ER-011599	2	May. 2003	
			Uni-plate:ER-010627	4	May. 2003	
			V-block Holder:ER-008458	3	May. 2003	
			Φ20 Adapter:ER-009235	3	May. 2003	

	Article	Manufacturer	Description	Qty.	Arrival Date	Remarks
2	Electrode					
	1) Cube Electrode		15mm	40	May. 2003	
	2) Cylinder Electrode		Φ15x70mm	40	May. 2003	
III	For Wire-cut EDM Machine					
1	Jigs					
	1) Quick Chuck for Electrode Processing	EROWA	ER-022584	4	May. 2003	
2	Wire Electrode	HITACHI	HBZ-20 5Kg/roll	19	May. 2003	
			HBZ-25 5Kg/roll	18	May. 2003	
IV	For Polishing (Ultrasonic Polishing Machine)					
1	Carbide Cutter Set	MINITOR	B3920	1	Mar. 2004	
			B3930	2	Mar. 2004	
			B3940	2	Mar. 2004	
2	Whetstone					
	1)Whetstone with Axis Set	MINITOR	Blue set D7510	3	Mar. 2004	
			4mm set D7530	3	Mar. 2004	
			6mm set D7540	3	Mar. 2004	
			10mm set D7550	3	Mar. 2004	
	2)Rubber Whetstone with Axis Set	MINITOR	D3362	20	Mar. 2004	
			D3461	20	Mar. 2004	
			D3471	20	Mar. 2004	
	3)Stick Whetstone	YAMATO	YHB B46D No.400 (20pcs)	3	May. 2003	
			YTM M46D No.600 (20pcs)	3	May. 2003	
			YTM M46D No.800 (20pcs)	3	May. 2003	
		MISUMI	EDSC-100-6-3-240 (20pcs)	1	Mar. 2004	
			EDSC-100-6-3-400 (20pcs)	1	Mar. 2004	
			EDSC-100-13-3-240 (20pcs)	1	Mar. 2004	
			EDSC-100-13-3-400 (20pcs)	1	Mar. 2004	
	4) Square Prism Type	YAMATO	Alundam: 205x50x25mm	3	May. 2003	
	5) Hand Lapper	CRISTON	Y400F: 40x12mm (10pcs/box)	3	May. 2003	
	6)Ceramic Fiber Stick Whetstone	MISUMI	XBCHD-1-6-100	10	Mar. 2004	
			XBCHB-1-6-100	10	Mar. 2004	
			XBCHR-1-6-100	10	Mar. 2004	
3	Holder for Ultrasonic Polishing Machine					
	1)Stick Holder	MINITOR	F3401	10	Mar. 2004	
			F3402	10	Mar. 2004	
	2)Contract Tube	MINITOR	F3410	40	Mar. 2004	
			F3411	40	Mar. 2004	
4	File					
	1)Diamond File	GOEI	S type 8pcs Set	3	May. 2003	
			S type 12pcs Set	3	May. 2003	
	2)Diamond File for Ultrasonic	MINITOR	F4012	5	Mar. 2004	
			F3016	5	Mar. 2004	
5	Sandpaper	BELSTAR	DC-100 : No.100 (100pcs/box)	3	May. 2003	
			DC-120 : No.120 (100pcs/box)	3	May. 2003	

	Article	Manufacturer	Description	Qty.	Arrival Date	Remarks
			DC-180 : No.180 (100pcs/box)	3	May. 2003	
			DC-240 : No.240 (100pcs/box)	3	May. 2003	
			DC-320 : No.320 (100pcs/box)	3	May. 2003	
			DC-400 : No.400 (100pcs/box)	3	May. 2003	
			DC-600 : No.600 (100pcs/box)	3	May. 2003	
			DC-800 : No.800 (100pcs/box)	3	May. 2003	
			DC-1000 : No.1000 (100pcs/box)	3	May. 2003	
			DC-1500 : No.1500 (100pcs/box)	3	May. 2003	
			DC-2000 : No.2000 (100pcs/box)	3	May. 2003	
6	Diamond Paste	CRISTON	CP060 No.2500 : 5g	3	May. 2003	
7	Felt Puff	JPTM	F3208 (5pcs/box)	3	May. 2003	
8	Tool Box	TOYO	F501	3	May. 2003	
V	For Aeembling					
1	Socket Set for Socket Wrench					
	1) Socket	TONE	6mm :3S-06	3	May. 2003	
			8mm: 4S-08	3	May. 2003	
			10mm : 4S-10	3	May. 2003	
			12mm : 4S-12	3	May. 2003	
			14mm : 4S-14	3	May. 2003	
			17mm : 4S-17	3	May. 2003	
	2) Socket Adaptor	TONE	68	3	May. 2003	
2	Hexagon Socket Screw Keys Set	NJS	AXS 0810	3	May. 2003	
3	Open Ended Spanners	ASAHI	SMS 0800	3	May. 2003	
4	Copper Hammer	OH	CO-15 : NO.1-1/2	3	May. 2003	
5	Shackles Hammer	OH	OS-40 : NO.2	3	May. 2003	
6	Tool Box	TOYO	LG-600	3	May. 2003	
VI	For Tool Presetter					
1	Dial Guage	MITSUTOYO	DG-1Z(1/100)	2	Aug. 2003	
			DG-2X(1/1000)	2	Aug. 2003	
VII	For Small Hole EDM					
1	BS Electrode	ASTEC	Φ 0.5	1	Aug. 2003	
			Φ 0.8	1	Aug. 2003	
			Φ 1.0	1	Aug. 2003	
			Φ 1.5	1	Aug. 2003	
			Φ 2.0	1	Aug. 2003	
VIII	Grinding Wheels					
1	Surface Grinder	Kure-Norton	WA46J	3	Aug. 2003	
2	Drill Point Grinder	FUJITA	DG50B/KE-46-I	6	Aug. 2003	
3	Tool Grinding Machine	KEIHIN	DW-4B/Diamond wheel	5	Aug. 2003	
			DW-4B/Borazon wheel	5	Aug. 2003	
4	Carbide Turning Tool Grinder	KEIHIN	DW-8	7	Aug. 2003	
			DW-9	7	Aug. 2003	

Annex-08

List of machinery and equipment provided by the Pakistani side

Note: 6 sets of UPS Unit and 1 set of Compressor have been provided as of October 13, 2004, while others have not.

October 13, 2004

Sr.	Description of Items	Cost Demanded in Approved PC-1 (Rs. Million)	Cost Demanded in Revised PC-1 (Rs. Million)
1.	***Purchase of essential machine tools and operating local items.***		
	(a)- Mold Design		
	i. AVR Unit (Server & Client) 1-Set	-	0.200
	ii. UPS Unit (Server & Client) 12-Sets	-	0.200
	(6 sets provided by Sept. 11, 2004)		
	(b)- Mold Processing	-	2.000
	i. Vertical Milling Machine 3-No	-	2.000
	ii. Lathe 2-No	-	0.015
	iii. Tool Grinder 1-No	-	0.015
	iv. Bench Grinder 1-No	-	0.200
	v. Band Saw 1-No	-	0.025
	vi. Working Desk 4-No	-	0.020
	vii. Stocker 2-No	-	2.500
	viii. Crane (3 Ton) 1-No	-	0.450
	ix. Portable Hoist (2T) 1-No	-	0.200
	x. Furniture and Fixtures -		
	(c)- Mold Assembly Injection Tryout		
	i. Working Desk 4-No ii. Mold Assembly Bench (1200mmx2400mm) 1-No iii. Mold Rack 2-No iv. Assembly Apparatus 2-No	-	0.200
	(d)- Inspection		
	i. Block Gauge 1-Set	0.150	0.150
	ii. Gauge Unit 1-Set	0.150	0.150
	(e)- Material Handling Equipment and Other Items		
	i. Fork-Lift 1-No	-	1.200
	ii. Trolley 5-No	-	0.150
	iii. Compressor 1-Set	-	0.120
	(1set provided by Sept. 11, 2004)		
	(f)- Equipment for Training, Advisory and Consultancy Services for Industries	0.050	0.200
	i. Multimedia 1-No	0.050	0.240
	ii. Overhead Projector 1-No	0.100	0.200
	iii. Pentium-IV Computer and Software 4-No	-	0.070
	iv. Punching Machine for Ring binding 1-No	-	0.100
	v. Laser Printer 2-No		
TOTAL		**Rs.0.5 Million**	**Rs. 10.605 Million**

Annex 09
Expenses by the Japanese Side from JFY 1999 to JFY2003

October 13, 2004

(Unit: Thousand Yen)

Japanese Fiscal Year	1999	2000	2001	2002	2003	Total (1999 – 2003)
Dispatch of Experts				31,896	83,235	115,131
Acceptance of C/P in Japan *				704	2,065	2,769
Provision of Machinery and Equipment			800	151,387	166,728	318,915
Dispatch of Study Team	3,756	14,208	2,904		2,488	23,356

Note: *:Expenses for Acceptance of C/P excludes common expenses of training program.

Annex 10 Revised Project Design Matrix (PDM)

PITAC-JICA Project (Oct. 13, 2004)

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumption
[Overall Goal] Domestic plastic mold making industries are able to supply better quality molds for plastic production in Pakistan.	1. Increase of orders of plastic molds at beneficiary plastic mold making companies 2. Rejection rates, defective rates, and complaints on the moldings and molds produced by project beneficiaries (direct and indirect)	1-1. Industrial statistics 1-2. Survey report of PITAC 2. Survey report of PITAC 3. Survey report of PITAC	a. There is no drastic change in the policy of Pakistan government regarding engineering sectors. b. Demand for plastic industry from assembly industry continues to be stable. c. Linkage between assembly industry and plastic mold industry is enhanced. d. A quality requirement for plastic products becomes higher in the industries.
[Project Purpose] Technical Capability of PITAC is upgraded to extend technical services in the field of plastic mold technology.	1. Level of satisfaction of recent and former service beneficiaries. 2. Number of newly improved services and beneficiaries.	1,2 Records of questionnaires to participants of all training courses Questionnaires to and interviews with beneficiary companies and industrial associations	a. Pakistan plastic mold industries utilize the technology obtained from PITAC. b. Demand for quality mold form plastic industry is increasing in trend. c. Plastic materials and mold materials are supplied within Pakistan.
[Outputs of the Project] 0. The project operation unit is established for making advanced plastic molds. 1. The necessary machinery and equipment are provided, installed, operated and maintained properly. 2. Technical capability of the counterpart personnel (hereinafter referred to as 'C/P') is upgraded. 3. Technical training courses and seminars are implemented systematically. 4. Technical backup support services are implemented systematically. 5. Advisory services are implemented systematically. 6. Interactions of the Project with private companies are strengthened.	0. Number and capacity of staff, budget and settlement accounts, number of committees and meetings, number of cases in publicity. 1-1. Contents and condition of machinery and equipment. 1-2. Route to get spare parts and situation to secure spare parts. 2-1. Assessment by the Japanese experts. 2-2. Number and technical level of achieved target products. 2-3. Manuals, textbooks and developed. 3-1. Number of training courses 3-2. Number of training course participants. 4-1. Number of mold designs and their clients. 4-2. Number of implemented trial prototypes and their clients. 5. Number of implemented technical advisory services and their clients. 6-1 Number of customers 6-2 Number of companies on data base	0. Organization chart, Administration record, Accounting record, Personnel record 1-1. Property record Operation & Maintenance record 1-2. Spare parts list Suppliers list 2-1, 2-2, 2-3 Record of PITAC 3,4,5, 6 Record of PITAC	a. Trained C/P's remain at PITAC.

[Activities]	Inputs		a. C/P personnel remain at PITAC
	The Pakistan side	1. The Japanese side	
0-1. Allocate necessary personnel as planned. 0-2. Formulate plans of activities. 0-3. Make budget plan and execute it properly. 0-4. Establish and operate project management system. 1-1. Provide and install necessary machinery and equipment. 1-2. Operate and maintain machinery and equipment properly. 2-1. Make Technology Transfer Plan. (Technical Cooperation Program (TCP), Annual Technical Cooperation Program (ATCP) etc. 2-2. Implement technology transfer to C/P following to Technology Transfer Plan. 2-3. Monitor and evaluate the result of technology transfer to the C/P. 3-1. Identify needs through company visits. 3-2. Make plans of technical training courses and seminars. 3-3. Develop training curricula and teaching materials. 3-4. Implement technical training courses and seminars. 3-5. Monitor and evaluate the result of technical training courses and seminars. 4-1. Identify needs through company visits. 4-2. Make plans of technical backup support services. 4-3. Implement technical backup support services. 4-4. Monitor and evaluate the result of technical backup support services. 5-1. Identify needs through company visits. 5-2. Make plans of advisory services. 5-3. Implement advisory services 5-4. Monitor and evaluate the result of advisory services. 6-1 Make plans of promotion in the private sector to increase the Project's exposure and improve the quality of services. 6-2 Implement the promotional activities. (company visits, seminars, pamphlets, homepages, and data base) 6-3 Monitor and evaluate the results of the promotional activities.	1. Provision and Maintenance of Building and Facilities. 2. Allocation of C/P and Administrative Personnel (1) Administrative C/P (2) Technical C/P (3) Administrative Staff (4) Supporting Staff a. Secretary b. Driver c. Other necessary staff upon request by the Japanese experts 3. Provision of machinery & Equipment and their Maintenance 4. Local Cost Necessary budget for the implementation of the project	2. Dispatch of Japanese Experts (1) Long-term Experts (2) Short-term Experts Appropriate number of short-term experts will be dispatched as necessity arises. 3. C/P Training in Japan A certain number (0-3 persons) of the C/P yearly 4. Provision of Machinery and Equipment 4. Supporting Local Cost	[Preconditions] a. Construction and refurbishment of building and facilities for the project is complete. b. Qualified new staff is recruited for PITAC.

Annex 11-1 Technical Cooperation Program (TCP)

PITAC-JICA Phase II Project

October 13, 2004

Calendar Year	02	2003				2004				2005				2006	
Japanese Fiscal Year (FY)	2002		2003				2004				2005				2006	
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II
Term of Technical Cooperation																
I. MOLD DESIGN																
1. Basic Design																
2. Mold Design for Injection Molding																
1) Basic Mold Design																
(1) Basic Stricture of Mold for Injection Molding																
(2) Function of Standard Parts for Injection Molding																
(3) Function of Mold Element for Injection Molding																
(4) Basic Structure of Sliding Parts for Undercut																
(5) Element of Injection Molding Component																
(6) Basic Procedure of Mold Design																
(7) Condition of Injection Molding																
(8) Drawing by AUTO CAD																
2) Application of Mold Design																
(1) Mold Design for Basic Structure																
(2) Component Design for Injection Molding																
(3) Design of Standard Part																
(4) Design of Sliding Parts for Undercut																
(5) Standardization of Mold Part																
(6) Mold Design (Trouble Shooting of Injection Mold)																
(7) Mold Design for Target Mold																
-1. Tray for Kitchen Cabinet																
-2. Front Light Body for Motorcycle																
-3. Mouse Cover (Upper & Lower Case)																
-4. Telephone Case (Upper Side)																
3. Training Course																
(1) Preparation of Curricula for Mold Design Training Course																
(2) Preparation of Manuals & Materials for Mold Design Training Course																
(3) Mold Design of Injection Molding																
(4) Review of Mold Design of Injection Molding Training Course																
4. Backup Support Service																
5. Advisory Service																
II. Measuring Method																
1) Operation of C.M.M.																
2) Backup Support Service																

Calendar Year	02	2003				2004				2005				2006	
Japanese Fiscal Year (FY)	2002		2003				2004				2005				2006	
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II
3) CAD／CAM for Target Mold (Mouse)																
4) CAD／CAM for Target Mold (Desltop Telephone)																
7. Training Course & Seminar																
1) Exercise of CAD (POWER SHAPE & Mold Maker) for Training Course																
2) Exercise of CAM (POWER MILL) for Training Course																
3) Preparation of Manuals & Materials for CAD/CAM Training Course																
4) CAD/CAM (Basic Training Course)																
5) CAD/CAM (Advanced Training Course)																
6) Seminar for CAD/CAM																
8. Backup Support Service																
1) Survey of needs from Mold Making Company																
2) Provide 3D CAD/CAM DATA for Mold Making Companies. (it depends on nees by survey.)																
9. Advisory Service																
1) Visit for Mold making Company																
2) CAD/CAM Seminar for Mold making Company																

Annex 11-2 Technical Cooperation Program (TCP)

PITAC-JICA Phase II Project

October 13, 2004

Calendar Year	02	2003				2004				2005				2006	
Japanese Fiscal Year (FY)	2002		2003				2004				2005				2006	
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II
Term of Technical Cooperation																
III. CAD/CAM NETWORK STATION																
1. CAD/CAM (General)																
1) Installation & Adjustment of CAD/CAM SYSTEM																
2) Selection of CAD/CAM SYSTEM for Training Course																
3) Observation of the present situation of CAD/CAM Technology in Pakistan																
4) Preparation of materials for Technology Transfer of CAD/CAM																
5) Administration & Maintenance of CAD/CAM SYSTEM																
2. 3D CAD (Basic)																
1) 3D CAD SYSTEM																
2) Wire Frame																
3) Surface																
4) Solid																
5) Conversion 3D Modeling to 2D Drawing																
6) Data Exchange																
7) Sketch & Parametric																
8) Mold Design																
3. 3D CAD (Advanced)																
1) Component Modeling																
2) Modeling for Injection Molding																
3) Cavity/Core Separation																
4) Modeling for machine Processing																
5) Edit of 3D CAD Data (Topology Geometry)																
6) Mold Design																
7) Building of Database (Mold Base Standard Parts)																
4. CAM (Basic)																
1) 2D CAM (Drilling, Side, Slot, Pocket, etc.)																
2) 3D CAM																
3) End mill (Cutting Condition & Tool Property)																
4) NC Program & Post for CAM																
5) Simulation for CAM																
5. CAM (Advanced)																
1) 2D, 3D CAM																
2) Building of Database (Cutting Condition &Tool Property)																
3) Installation of DNC System																
6. CAD/CAM (Advanced)																
1) CAD／CAM for Target Mold (Kitchen Tray)																
2) CAD／CAM for Target Mold (Front Light Cover)																

Annex 11-3 Technical Cooperation Program (TCP)

PITAC-JICA Phase II Project

October 13, 2004

Calendar Year	02	2003				2004				2005				2006	
Japanese Fiscal Year (FY)	2002		2003				2004				2005				2006	
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II
Term of Technical Cooperation																
IV. Mold Processing																
1. Basic of Machining																
2. Operation of Mold Making Machine																
3. Measuring Method																
4. Maintenance, Trouble Shooting & Installation of Machinery																
5. Mold Making (Advanced)																
-1. Tray for Kitchen Cabinet																
-2. Front Light Body for Motorcycle																
-3. Mouse Cover (Upper & Lower Case)																
-4. Telephone Case (Upper Side)																
6. Training Course																
1) 2) Preparation of Training Course																
3) Mold Processing Training Course																
4) Review of Mold Processing Training Course																
7. Backup Support Service																
8. Advisory Service																

Annex 11-4 Technical Cooperation Program (TCP)

PITAC-JICA Phase II Project

October 13, 2004

Calendar Year	02	2003				2004				2005				2006	
Japanese Fiscal Year (FY)	2002		2003				2004				2005				2006	
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II
Term of Technical Cooperation																
V. Mold Assembly & Trial Shot																
1. Finish of Mold																
2. Mold Assembly																
3. Injection Molding																
4. Maintenance, Trouble Shooting & Installation of Machinery																
5 Finish, Mold Assembly & Injection Molding (Advanced)																
-1. Tray for Kitchen Cabinet																
-2. Front Light Body for Motorcycle																
-3. Mouse Cover (Upper & Lower Case)																
-4. Telephone Case (Upper Side)																
6. Training Course																
1) 2) Preparation of Training Course																
3) Finish, Mold Assembly & Injection Molding of Mold Training Course																
4) Review of Finish, Mold Assembly & Injection Molding of Mold Training Course																
7. Backup Support Service																
8. Advisory Service																

Annex 11-5 Technical Cooperation Program (TCP)

PITAC-JICA Phase II Project

October 13, 2004

Calendar Year	02	2003					2004				2005				2006	
Japanese Fiscal Year (FY)	2002		2003				2004				2005				2006	
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II
Term of Technical Cooperation																
VI. SME Promotion																
1. Organize Seminars																
1) Ocuupational Safety & Health																
2) Latest Technology																
3) Total Quality Control																
2. Make Project Pamphlet																
1) 1st issue																
2) 2nd issue																
3) 3rd issue																
4) 4th issue																
3. Make Project Homepage																
1) Develop Homepage																
2) Visit of Homepage expert																
3) Bi-weekly Renewal																
4. Visit Private Factories & Associations																
1) Visit Factories																
2) Visit Associations																
3) Visit Educational Institutions.																
4) Introduce the project services.																
5) Collect the factory's basic data.																
5. Establish Data Base for SMEs																
1) Make the format.																
2) Input Data on D/B.																

Annex 12 Plan of Operations (PO)

PITAC-JICA Phase II Project

October 13, 2004

Calendar Year	2002			2003				2004				2005				2006	
Japanese Fiscal Year	2002			2003				2004				2005				2006	
	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II
Term of Technical Cooperation																	
0 The project operation unit is established for making advanced plastic molds.																	
0-1 Allocate necessary personnel planned.																	
0-2 Formulate plans of activities.																	
0-3 Make budget plans and execute it properly.																	
0-4 Establish and operate project management system.																	
1 The necessary machinery and equipment are provided, installed, operated and maintained properly																	
1-1 Provide and install necessary machinery and equipment.																	
1-2 Operate and maintain machinery and equipment properly.																	
2 Technical capability of the counterpart personnel (C/P) is upgraded.																	
2-1 Make technology transfer plan.																	
2-2 Implement technology transfer to C/P following to technology transfer plan.																	
2-3 Monitor and evaluate the result of technology transfer to the C/P.																	
3 Technical training courses and seminars are implemented systematically.																	
3-1 Identify needs through company visits.																	
3-2 Make plans of technical training courses and seminars.																	
3-3 Develop training curricula and teaching materials.																	
3-4 Implement technical training courses and seminars.																	
3-5 Monitor and evaluate the result of technical training courses and seminars.																	
4 Technical backup support services are implemented systematically.																	
4-1 Identify needs through company visits.																	
4-2 Make plans of technical backup support services.																	
4-3 Implement technical backup support services.																	
4-4 Monitor and evaluate the result of technical backup support services.																	

Calendar Year		2002			2003				2004				2005				2006	
Japanese Fiscal Year		2002			2003				2004				2005				2006	
		II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II
5	**Technical advisory services are implemented systematically.**																	
5-1	Identify needs through company visits.																	
5-2	Make plans of technical advisory services.																	
5-3	Implement technical advisory services.																	
5-4	Monitor and evaluate the result of technical advisory services.																	
6	**Interactions of the Project with private companies are strengthened.**																	
6-1	Make plans of PITAC promotions in private sector																	
6-2	Implement the promotions.																	
6-3	Monitor and evaluate the reuslt of promotions.																	

Annex 13 Tentative Schedule of Implementation (TSI)

PITAC-JICA Phase II Project

October 13, 2004

Calendar Year	02	2003					2004				2005				2006	
Japanese Fiscal Year (FY)	2002		2003				2004				2005				2006	
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II
	▼FY2000 IV:Signing of the R/D ▼FY2002 I:Amendment of the R/D ▼ FY2003 IV:Revise of the R/D															
Term of Technical Cooperation																
The Japanese Side																
I Dispatch of Mission Team																
(1) Preliminary Study Team	▼FY2000, I															
(2) Preparatory Study Team	▼FY2000,III															
(3) Project Design Team	▼FY2000,IV															
(4) Project Consultation Team																
(5) Mid-term Evaluation Team																
(6) Project Evaluation Team																
II Dispatch of Japanese Experts																
(1) Chief Adviser																
(2) Coordinator/SME Promotion																
(3) Mold Technology																
(4) CAD/CAM Network System																
(5) Mold Processing、Assembly & Trial Shot																
(6) Mold Processing																
(7) Assembly & Trial Shot																
III Dispatch of Short Term Experts																
(1) Project Coordinator																
(2) Installation & Adjustment for CAD/CAM Network																
(3) Installation & Adjustment for Marching Center																
(4) Installation & Adjustment for EDM																
(5) Installation & Adjustment for Coordinate Measuring Machine (CMM)																
(6) Installation & Adjustment for Injection Molding																
(7) Occupational Safety & Health																
(8) Seminar Lecturer for the Latest Technology																
(9) Techniques of CMM																
(10) Precision Injection Molding																
(11) Mold Assembly & Finishing																
(12) Machinery Operation and Management (Machining Center)																
(13) Machinery Operation and Management (EDM)																
(14) Processing Design & Management																
(15) Total Quality Control																
(16) Maintenance of Injection Molding Machine																
(17) Maintenance of Machinery																

Calendar Year	02	2003				2004				2005				2006	
Japanese Fiscal Year (FY)	2002	2003				2004				2005				2006	
	III IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II
IV Dispatch of the C/P Training in Japan & Philippines															
(1) FY 2002															
-1 Project Management: Eng. Muhammad Akram Khan	— (Aug 20-29, 2002)														
-2 Project Management: Eng. Sarfraz Ahmad	— (Aug 20-29, 2002)														
(2) FY 2003															
-1 Mold Design					▪▪▪										
-2 Mold Processing & Assembly					▪▪▪										
-3 Plastic Injection Molding					▪▪▪										
(3) FY 2004															
-1 Mold Design						▪▪▪									
-2 CAD/CAM						▪▪▪									
-3 Mold Processing & Assembly						▪▪▪									
-4 Plastic Injection Molding						▪▪▪									
(4) FY 2005-1															
-1 Mold Design												▪▪▪	(1)		
-2 CAD/CAM												▪▪▪	(1)		
-3 Mold Processing, Assembly & Trial Shot												▪▪▪	(2)		
(5) FY2005-2															
-1 Mold Design													▪▪▪	(1)	
-2 CAD/CAM													▪▪▪	(1)	
-3 Mold Processing, Assembly & Trial Shot													▪▪▪	(1)	
-4 CMM													▪▪▪	(1)	
-5 SME Promotion													▪▪▪	(1)	
(6) Dispatch of the C/P Training in Philippines															
-1 Mr. Muhammad Tariq Pervaiz	—	(Aug 5, 2002-Jan 20, 2003)													
-2 Eng. Hayder Ali	—	(Aug 5, 2002-Jan 20, 2003)													
-3 Mr. M. Shoaib Rashid	—	(Aug 5, 2002-Jan 20, 2003)													
V Provision of Machinery & Equipment															
(1) FY 2002		▼	▼	▼											
(2) FY 2003															
(3) FY 2004								△							
(4) FY 2005															
(5) FY2006															
VI Technical Exchange Program															
(1) FY 2004								▪▪▪							
The Pakistan Side															
I Building & Facilities	▪▪▪	▪▪▪	▪▪▪	▪▪▪	▪▪▪	▪▪▪	▪▪▪	▪▪▪							
II Machinery & Equipment	▪▪▪														
III Allocation of C/Ps & Necessary Staff	▪▪▪	▪▪▪	▪▪▪	▪▪▪	▪▪▪	▪▪▪	▪▪▪	▪▪▪							
IV Allocation of Budget	▪▪▪	▪▪▪	▪▪▪	▪▪▪	▪▪▪	▪▪▪	▪▪▪	▪▪▪							

Annex 14-1 Annual Technical Cooperation Program (ATCP)

PITAC-JICA Phase II Project

October 13, 2004

Calendar Year	2004									2005		
Japanese Fiscal Year (FY)	2004											
	4	5	6	7	8	9	10	11	12	1	2	3
Term of Technical Cooperation												
I. MOLD DESIGN												
1. Basic Design												
1) General Mechanical Drawing												
(1) Third Angle Projection Method												
(2) Using Method According to Kind of Line												
2) Property of Plastic												
(1) Property of Injection Molding Resin												
(2) Condition of Injection Molding												
3) Basic of Mold Material												
(1) Property of Steel for Plastic Mold												
4) Basic of Machining												
(1) Function & Variety of Machining												
(2) Basic of Cutting												
5) Basic of Injection Molding												
(1) Principle of Injection Molding												
(2) Function of Injection Molding Machine												
2. Mold Design for Injection Molding												
1) Basic Mold Design												
(1) Basic Structure of Mold for Injection Molding												
-1. Hot Runner, Cold Runner												
-2. 2-Plate Mold, 3-Plate Mold												
-3. Standard Mold Base												
(2) Function of Mold Element for Injection Molding												
-1. Guide Pin, Locate Ring, Sprue Bush, etc.												
-2. Return Pin, Ejector Pin, Spring, etc.												
(3) Function of Mold Element for Injection Molding												
-1. Kind of Runner and Gate												
-2. Mold Temperature Control System												
-3. Ejector System												
(4) Basic Structure of Sliding Parts for Undercut												
-1. Slide Core, Loose Core etc.												
(5) Element of Injection Molding Component												
-1. Parting Line, Boss, Lib etc.												
(6) Basic Procedure of Mold Design												
-1. Product Specification (Size, Thickness, etc.)												
-2. Mold Specification (Shrinkage, Draft angle)												
-3 Injection Machine Specification												
(7) Condition of Injection Molding												
-1. Gate Location, Runner Layout												
-2. Number of Cavity												
(8) Drawing by Auto-CAD												
2) Application of Mold Design												

Calendar Year	2004									2005		
Japanese Fiscal Year (FY)	2004											
	4	5	6	7	8	9	10	11	12	1	2	3
(1) Mold Design for Basic Structure												
(2) Component Design for Injection Molding												
-1. Quality of Injection												
-2. Mold Draft Angle												
-3. Shrinkage												
-4. Parting Line												
(3) Design for Standard Part												
-1. Guide Pin, Locate Ring etc.												
(4) Design of Sliding Parts for Undercut												
(5) Standardization of Mold Part												
(6) Trouble Shooting of Injection Mold												
(7) Mold Design for Target Mold												
-1. Tray for Kitchen Cabinet (Multi-Purpose)												
-2. Front Light Body for Motorcycle												
-3. Mouse Cover (Upper & Lower Case)												
-4. Telephone Case (Upper Side)												
3. Training Course												
(1) Preparation of Carricula for Mold Design Training Course												
(2) Preparation of Manuals & Materials for Mold Design of Injection Molding Training Course												
(3) Mold Design of Injection Molding												
4. Backup Support Service												
(1) Mold Design for Mold												
5. Advisory Service												
(1) Visit for Mold Making Company												
II. Measuring Method												
1) Operation of C.M.M.												

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Calendar Year	2004									2005		
Japanese Fiscal Year (FY)	2004											
	4	5	6	7	8	9	10	11	12	1	2	3
Term of Technical Cooperation												
Ⅲ. CAD/CAM NETWORK STATION												
1. CAD/CAM (General)												
1) Installation & Adjustment of CAD/CAM SYSTEM												
2) Selection of CAD/CAM SYSTEM for Training Course												
3) Observation of the present situation of CAD/CAM Technology in Pakistan												
4) Preparation of materials for Technology Transfer of CAD/CAM												
5) Administration & Maintenance of CAD/CAM SYSTEM												
2. 3D CAD (Basic)												
1) 3D CAD SYSTEM												
2) Wire Frame												
3) Surface												
4) Solid												
5) Conversion 3D Modeling to 2D Drawing												
6) Data Exchange												
7) Sketch & Parametric												
8) Mold Design												
3. 3D CAD (Advanced)												
1) Component Modeling												
2) Modeling for Injection Molding												
3) Cavity/Core Separation												
4) Modeling for machine Processing												
5) Edit of 3D CAD Data (Topology Geometry)												
6) Mold Design												
7) Building of Database (Mold Base Standard Parts)												
4. CAM (Basic)												
1) 2D CAM (Drilling, Side, Slot, Pocket, etc.)												
2) 3D CAM												
3) End mill (Cutting Condition & Tool Property)												
4) NC Program & Post for CAM												
5) Simulation for CAM												
5. CAM (Advanced)												
1) 2D, 3D CAM												
2) Building of Database (Cutting Condition &Tool Property)												
3) Installation of DNC System												
6. CAD/CAM (Advanced)												
1) CAD／CAM for Target Mold (Kitchen Tray)												
2) CAD／CAM for Target Mold (Front Light Cover)												

Calendar Year		2004									2005		
Japanese Fiscal Year (FY)		2004											
		4	5	6	7	8	9	10	11	12	1	2	3
3)	CAD／CAM for Target Mold (Mouse)												
4)	CAD／CAM for Target Mold (Desltop Telephone)												
7.	**Training Course & Seminar**												
1)	Exercise of CAD (POWER SHAPE & Mold Maker) for Training Course												
2)	Exercise of CAM (POWER MILL) for Training Course												
3)	Preparation of Manuals & Materials for CAD/CAM Training Course												
4)	CAD/CAM (Basic Training Course)												
5)	CAD/CAM (Advanced Training Course)												
6)	Seminar for CAD/CAM												
8.	**Support Service**												
1)	Survey of needs from Mold Making Company												
2)	Provide 3D CAD/CAM DATA for Mold Making Companies. (it depends on nees by survey.)												
9.	**Advisory Service**												
1)	Visit for Mold making Company												
2)	CAD/CAM Seminar for Mold making Company												

Annex 14-3 Annual Technical Cooperation Program (ATCP)

PITAC-JICA Phase II Project

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Calendar Year	2004									2005		
Japanese Fiscal Year (FY)	2004											
	4	5	6	7	8	9	10	11	12	1	2	3
Term of Technical Cooperation												
IV. Mold Processing												
1. Basic of Machining												
1) Cutting of Theory												
2) Electric Discharge Machining of Theory												
3) Grinding of Theory												
4) Measuring of Theory												
2. Operation of Mold Making Machine												
1) Conventional Machine												
2) CNC Machine												
(1) Machining Center												
-1. NC Programming												
-2. Operation												
(2) EDM Wire-cut												
(3) EDM Shinker												
-1. CNC EDM Machine												
-2. Small Hole EDM Drilling Machine												
3) Grinding Machine												
-1. Surface Grinding Machine												
-2. Drill Grinding Machine												
-3. Tool Grinding Machine												
-4. Carbide Turning Tool Grinding Machine												
4) Mold Making Technology												
(1). Processing Condition												
-1. Milling												
-2. EDM (Wire-cut & Shinker)												
(2) Manipulation of Tooling												
-1. Tool Presetter												
-2. Tooling System for EDM												
(3) Accuracy of the Processed Products												
5) Planning of Mold Making Process												
3. Measuring Method												
1) Operation of General Instrument												
4. Maintenance & Trouble Shooting												
1) Maintenance of Facilities												
2) Countermeasure of Trouble Shooting												
3) Installation of Machinery												
5. Mold Making (Advanced)												
1) Mold Making for Target Mold												
-1. Tray for Kitchen Cabinet												
-2. Front Light Body for Motorcycle												
6. Training Course												
1) Preparation of Curricula for Mold Processing Training Course												
2) Preparation of Manuals & Materials for Mold Processing Training Course												

Calendar Year	2004									2005		
Japanese Fiscal Year (FY)	2004											
3) Mold Processing Training Course												
7. **Backup Support Service**												
1) Mold Making of Mold												
8. **Advisory Service**												
1) Visit for Mold Making Company												

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PITAC-JICA Phase II Project

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Calendar Year	2004									2005		
Japanese Fiscal Year (FY)	2004											
	4	5	6	7	8	9	10	11	12	1	2	3
Term of Technical Cooperation												
V. Mold Assembly & Trial Shot												
1. Finish of Mold												
1) Fundamentals of Finishing												
2) Mold Polishing												
2. Mold Assembly												
1) Procedure of Mold Assembly												
(1) Mechanism of Mold												
(2) Role of Parts												
(3) Procedures up to Assembly of Product Parts												
2) Set-up for Mold Assembly & Adjustment												
3) Final Assembling & Preparation												
3. Injection Molding												
1) Plastic Material for Molding												
2) Procedure of Injection Molding												
(1) Mechanical Structure of Molding Machine												
(2) Operation of Injection Molding												
3) Operation of Injection Molding												
4) Molding Problems & Solution												
4. Maintenance & Trouble Shooting												
1) Maintenance of Facilities												
2) Maintenance of Mold												
3) Countermeasure of Trouble Shooting												
4) Installation of Injection Machine												
5 Finish, Mold Assembly & Injection Molding (Advanced)												
1) Target Mold												
-1. Tray for Kitchen Cabinet												
-2. Front Light Body for Motorcycle												
6. Training Course												
1) Preparation of Curricula for Finish, Mold Assembly & Injection Molding of Mold Training Course												
2) Preparation of Manuals & Materials for Finish, Mold Assembly & Injection Molding of Mold Training Course												
3) Finish, Mold Assembly & Injection Molding of Mold Training Course												
7. Backup Support Service												
1) Finish, Mold Assembly & Injection Molding of Mold												
8. Advisory Service												
1) Visit for Mold Making Company												

Annex 14-5 Annual Technical Cooperation Program (ATCP)

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Calendar Year	2004									2005		
Japanese Fiscal Year (FY)	2004											
	4	5	6	7	8	9	10	11	12	1	2	3
Term of Technical Cooperation												
VI. SME Promotion												
1. Organize Seminars												
1) Ocuupational Safety & Health												
2) Latest Technology												
3) Total Quality Control												
2. Make Project Pamphlet												
1) 1st issue												
2) 2nd issue												
3) 3rd issue												
4) 4th issue												
3. Make Project Homepage												
1) Develop Homepage												
2) Visit of Homepage expert												
3) Bi-weekly Renewal												
4. Visit Private Factories & Associations												
1) Visit Factories												
2) Visit Associations												
3) Visit Educational Institutions.												
4) Introduce the project services.												
5) Collect the factory's basic data.												
5. Establish Data Base for SMEs												
1) Make the format.												
2) Input Data on D/B.												