

1. 協議議事録(ミニッツ)

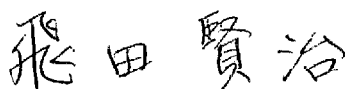
MINUTES OF DISCUSSIONS
BETWEEN THE JAPANESE MANAGEMENT CONSULTATION TEAM
AND THE AUTHORITIES CONCERNED OF THE GOVERNMENT
OF THE REPUBLIC OF THE PHILIPPINES
ON THE JAPANESE TECHNICAL COOPERATION
FOR THE UPGRADING PROJECT
FOR THE PLASTIC MOLDING TOOL TECHNOLOGY
IN THE REPUBLIC OF THE PHILIPPINES

The Japanese Management Consultation Team (hereinafter referred to as the "Team") organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Kenji Tobita visited the Republic of the Philippines from 21 to 29 August, 2000 for the purpose of monitoring and reviewing the activities and formulating further operational plans of the Upgrading Project for the Plastic Molding Tool Technology in the Republic of the Philippines (hereinafter referred to as the "Project").

During its stay in the Republic of the Philippines, the Team had a series of discussions and exchange of views with the authorities concerned of the Government of the Republic of the Philippines for the successful implementation of the Project.

As a result of the discussions, both sides agreed upon the matters referred to in the documents attached hereto.

Metro Manila, 28 August, 2000



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Management Consultation Team
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Japan



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Attached Document

I General Items

1 Current Situation of Japan's ODA

The Team explained and the Philippine side understood that Japan's ODA, although its volume marked a slight increase for Japanese fiscal year 2000, continues to face budgetary constraints, and that the Japanese call for more efficient, effective and accountable implementation of the ODA projects.

2 Localization of the Management of the Project

With reference to the management of the Project, the Team appreciated the efforts of the Philippine side and the Japanese expert team in that the Project management as well as its monitoring and evaluation which had been localized through the initiative of the Joint Coordinating Committee for the Project.

3 Purpose of the Mid-term Evaluation

The Team explained that its main purpose was to conduct mid-term evaluation of the Project so that both sides could monitor the progress of technical cooperation, make a plan for further effective implementation in the remaining period and discuss necessary measures to be taken by both sides in preparation for the final evaluation.

In the process of the evaluation, both sides reviewed and revised the indicators of the Project Design Matrix (hereinafter referred to as "PDM") and the planning and monitoring formats for the Project so as to reconfirm the scope of the Project. Based on the above-mentioned evaluation, both sides summarized the progress of the Project in the first half of the period as mentioned below.

4 Joint Evaluation and Five (5) Basic Evaluation Components

(1) Joint Final Evaluation

The Team reaffirmed and the Philippine side understood that in the final year of the Project, around March 2002, final evaluation would be conducted to examine the level of achievement of the objectives from the aspects as mentioned in the next section.

It will be a joint evaluation by the Japanese evaluation team dispatched by JICA and the Philippine evaluation team, as stipulated in the Record of Discussions signed on June 10, 1997 (hereinafter referred to as "R/D").

In this connection, the Team explained to the Philippine side that the members of the latter's evaluation team had to include persons who were not directly involved in the Project to secure the fairness of the said evaluation and that the nomination would be requested formally through JICA Philippine Office in due course of time, while JICA would hire a consultant exclusively for the Japanese evaluation team for the same reason.

(2) Monitoring

The Team requested the Philippine side and the latter agreed to conduct monitoring continuously as had been conducted four times so far by the initiative

of the Joint Coordinating Committee.

II Current Status of the Project

1 Government Policy and Strategies on Tool and Die Industries

The Philippine side explained that the Project is still in compliance with the Government Policy such as Medium-Term Philippine Development Plan 1999-2004 (Angat Pinoy 2004) formulated under the Estrada Administration and the DOST Medium-Term Development Plan 1999-2004 (DMTDP) drafted based on the Angat Pinoy 2004 to enhance the improvement in the productivity and competitiveness of the country's industries. The Team also confirmed that the upgrading of tool and die industry, which is the target sector of this Project, is positioned as one of the eight priorities by the government of the Philippines.

The Philippine side also explained to the Team that the government has deployed financial assistance to the Project in the form of "Grant-In-Aid" Program of the Department of Science and Technology (hereinafter referred to as "DOST"). In 1997, eight million pesos (PhP 8,000,000) were allocated to MIRDC Precision Tool and Die Center for the purchase of the machinery and equipment to facilitate the smooth implementation of the Project. In 1999, additional two hundred fifty thousand pesos (PhP 250,000) was given to the Project for the purchase of tools, materials, and supplies.

2 Present Situation of Metals Industry Research and Development Center (MIRDC)

(1) Organization

The Team confirmed that there has been no change in the legal status of MIRDC as a government agency attached to the DOST since the last Management Consultation Team dispatched in January 1999. The organization charts of DOST and MIRDC are shown respectively in Annex 1 and 2.

The Philippine side explained that MIRDC aimed to become a world-class organization capable of providing quality technical services. The MIRDC has acquired ISO/IEC Guide 25 accreditation for its laboratories in 1996, and in 1998, for its force and mass metrology laboratory from NATA of Australia. Also in 1998, the ISO 9002 Certification of Precision Casting Section, Investment Casting Unit was acquired. The MIRDC is now working towards the ISO 9001 Certification of its Industrial Training Section and the ISO 14001 Certification of the entire Center.

(2) Budget

The annual budget of MIRDC is provided in the General Appropriations Act (hereinafter referred to as "GAA") and released by Department of Budget Management (hereinafter referred to as "DBM"). MIRDC can also request additional subsidies from DOST through its "Grants-In-Aid" for conducting special project or to upgrade its facilities and equipment. MIRDC can spend its remaining annual budget up to the end of the following year. The annual budget of MIRDC is as shown in Annex 3-1 and 3-2.

MIRDC generates income from technical services, the source of which in

case of year 1999 is shown as follows:

Specialized Industrial Training	2,108
Technology Information and Promotion	65
Technical Consultancy and Extension Services/ Technology Business Incubation Program	3,755
Testing and Quality Control/Preventive Maintenance	10,731
Trade Skills Accreditation	-
Research and Development	660
Short-series Development Production Services	9,065
Total	26,384

(in thousand pesos)

MIRDC has to return to the Bureau of Treasury the income it generates. The DBM in return allocates twenty million pesos (PhP 20,000,000) to DOST, specified as "Use of Income" in the GAA wherever the total income of DOST is achieved. Half of this budget is being allocated by DOST to MIRDC. The "Use of Income" budget is for the purchase of accessories, fabrication, repairs and maintenance of equipment. No additional budget was allotted to MIRDC in 1998 and 1999 as shown in Annex 3-2. The GAA budget allocation to each division/section in 2000 is as follows:

Office of the Executive Director, Finance and Administrative Division	25,013
Office of the Deputy Executive Director for Industry Development	742
Office of the Deputy Executive Director for Research and Operations	746
Planning, Management and Information Services	1,513
Quality Assurance and Standards Section	3,060
Research and Development Division	6,530
Metalcasting Technology Division	11,806
Metalworking Technology Division	21,267
Industry Assistance Division	22,072
Analysis, Testing and Inspection Division	15,092
Engineering Division	8,317
Total	116,158

(in thousand pesos)

(3) Staff Allocation

The staff allocation to each division/section is as shown in Annex 2-1. The comparison of staff composition between the present and the ones confirmed at the time of previous studies is as follows:

	Implementation Study ('97.6)	Management Consultation ('99.1)	Management Consultation ('00.8)
Engineer	93	118	117
Technician	131	110	101
Other university graduate	66	53	52
High school graduate	28	23	17

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The Team confirmed MIRDC's staff promotion system and pay structure. It also confirmed that the recent average turnover rate in MIRDC was 2%.

(4) Current Activities

Apart from the activities of the Project, MIRDC offers the following technical services :

a Specialized Industrial Training

MIRDC offers training programs and seminars in the field of metal working processes, metal/surface treatment, metalcasting, analysis, testing and inspection, engineering/production planning, quality assurance, behavioral and supervisory courses.

b Technology Information and Promotion

MIRDC disseminates the latest information on relevant technologies, products, processes and markets through industry and sector studies, technical library services, technical information brochures and exhibits or fairs.

c Technical Consultancy and Extension Services

MIRDC offers technical assistance program to industry through management consultancy, feasibility studies, liaison work between the private sector and government agencies, periodic analysis of industry status, and extension of science and technology services to rural areas. MIRDC has established seven Regional Metal Testing Centers (RMTC) to promote the development of the metals and engineering industry.

d Testing and Quality Control

MIRDC provides a comprehensive range of testing and analytical services such as, chemical analysis, corrosion testing, mechanical testing, metallurgical analysis, nondestructive testing, instrumentation, and metrology.

e Trade Skills Accreditation

MIRDC in cooperation with Technical Education and Skills Development Authority (herein referred to as "TESDA") conducts technical skills and competency assessment of skilled workers.

f Research and Development (R&D), Short-series Developmental Production Services

MIRDC assists metals and engineering enterprises through R&D to identify improved products, processes, and materials as well as equipment prototypes by offering engineering design services, negotiated semi-subsidized contract R&D, joint R&D, and Technology packaging. MIRDC also provides short-series developmental production services in the following forms:

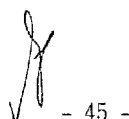
(a) Time-sharing scheme

MIRDC offers enterprises to utilize its existing machinery and equipment to upgrade their production technology.

(b) Pilot production

MIRDC undertakes processing and production in response to the needs of industry.

III Mid-term Evaluation of the Project

1 Review of the Inputs to the Project from September 1997 to August 2000

(1) Input by the Japanese side

a Dispatch of the Japanese experts

Both sides confirmed the record of dispatch of Japanese experts to date as shown in Annex 4.

b Training of the Philippine C/Ps in Japan

Both sides confirmed the record of training of counterpart personnel of the Project (hereinafter referred to as "C/P") in Japan to date as shown in Annex 5. The Team confirmed that MIRDC-JICA fellows had conducted echo seminars to other C/Ps and MIRDC personnel within two (2) months after their return.

c Provision of Machinery and Equipment

Both sides confirmed the record of provision of machinery and equipment to the Project to date as shown in Annex 6.

d Local Cost Support

Both sides confirmed the record of local cost supported by the Japanese side to date as shown in Annex 7.

(2) Input by the Philippine side

a Building and Facilities

The Philippine side provided buildings and facilities necessary for the Project as shown in Annex 8.

b Provision of Machinery and Equipment

Both sides confirmed the record of equipment provided by the Philippine side as shown in Annex 8.

c Allocation of the C/Ps and the Administrative Personnel for the Project

Allocation of the staff for the Project is as shown in Annex 9-1 and 9-2.

d Allocation of the Budget

Budget allocation for the Project is shown in Annex 10.

2 Mid-term Evaluation based on Five (5) Basic Evaluation Components

Both sides confirmed the results of mid-term evaluation based on five (5) basic evaluation components as described in Annex 11.

In conclusion, during the first three years of the cooperation period, the Project activities have been implemented efficiently and effectively in general. As a result of technology transfer from the Japanese experts, the C/Ps are now able to design, process, and assemble plastic injection molds in which they had difficulties before the Project started. The C/Ps also started to extend technical services such as short-term training courses and consultancy services to tool and die industry. The Project is also accepting short-term experimental production from the industry, which further enhances the practical skills of the C/Ps in plastic mold making.

In the remaining cooperation period, the Project is scheduled to conduct long-term training courses and offer more systematic technical support services in response to the needs of industry. At the same time, it is necessary to continuously upgrade the technical level of the C/Ps by accumulating their experiences in fabricating various types of simple to more complicated/precise molds.

Consequently, the following measures are to be undertaken in order to assure smooth implementation of the Project in its remaining cooperation period:

a Detailed plan of long-term training courses to commence in 2001 is required along with the preparation of curricula, training manuals and materials.

b It is requested to conduct systematically technical support services other than training, such as consultancy and short-series experimental production so as to meet the private sector's needs as well as to enhance the C/Ps' technical skills and knowledge.

c Further technology transfer has to be implemented as scheduled to upgrade the skills of C/Ps with periodic monitoring by both the Philippine side and Japanese expert team to assess the progress of technology transfer.

d It is requested for the Project to keep close relations to the industries through the Philippine Die and Mold Association (hereinafter referred to as "PDMA") and Metalworking Industries Association of the Philippines (hereinafter referred to as "MIAP") to be well-informed of the needs of the industries.

3 Reconfirmation of the Project Concept (Review and Confirmation of the PDM)

In the process of mid-term evaluation, both sides jointly reviewed the formats to check the achievement level of the outputs and project purpose by verifying indicators. At the same time, both sides also review the indicators from the viewpoint of their relevance, the activities and important assumptions of the PDM.

It was agreed that there was no need to revise the PDM at the time of the mid-term evaluation. The PDM is attached as Annex 12.

Both sides further confirmed that the said PDM excluding the columns of overall goal, project purpose, and outputs would be reviewed along with the progress of the Project by the time of final evaluation.

4 Review of the Plan of Operations (PO), the Technical Cooperation Program (TCP), and the Tentative Schedule of Implementation (TSI)

Both sides also revised the Plan of Operations (hereinafter referred to as "PO") and the Technical Cooperation Program (hereinafter referred to as "TCP") based on the progress of technology transfer reviewed during the mid-term evaluation and the results of discussions on the future plan of the Project. The PO and TCP are shown in Annex 13 and Annex 17 respectively.

In addition, both sides agreed to revise the Tentative Schedule of Implementation (hereinafter referred to as "TSI") based on the result of mid-term evaluation and the discussions on future work plan for the Project. The revised TSI is shown in Annex 20.

IV Plan of the Project in the Remaining Cooperation Period

1 Annual Plan of Operations (APO) for Japanese Fiscal Year 2000

Both sides confirmed the Annual Plan of Operations (hereinafter referred to as "APO") for fiscal year 1998 and 1999 as shown in Annex 14 and 15, and consented to the APO for fiscal year 2000 as shown in Annex 16.

2 Annual Technical Cooperation Program (ATCP) for Japanese Fiscal Year 2000

Both sides confirmed the Annual Technical Cooperation Program (hereinafter referred to as "ATCP") for fiscal year 1999 as shown in Annex 18, and consented to the ATCP for fiscal year 2000 as shown in Annex 19.

3 Annual Tentative Schedule of Implementation (ATSI) for Japanese Fiscal Year 2000 (Input by the Japanese side)

Both sides confirmed the Annual Tentative Schedule of Implementation (hereinafter referred to as "ATSI") for fiscal year 1999 as shown in Annex 21, and consented to the ATSI for fiscal year 2000 as shown in Annex 22 based on the discussion on the input by the Japanese side and the Philippine side agreed as follows:

(1) Dispatch of the Japanese Experts

a Long-term Experts

Both sides confirmed that the term of dispatch of Chief Advisor and Project Coordinator would be extended to the end of the Project in response to the request from the Philippine side. The long-term expert in the field of mold design is to be replaced by another expert who will serve the Project for one (1) year, same is true with the mold processing long-term expert who will be replaced by the long-term expert from mold assembly, maintenance and trial shot. A new long-term expert will fill the vacancy in the mold assembly, maintenance and trial shot who will serve till the end of the Project.

The Team explained to the Philippine side and the latter understood that the replacements in the composition of long-term experts described above was made with the intention to prepare for the training courses which were scheduled to start in 2001 as well as to continue technology transfer to the C/Ps in the field of mold making.

b Short-term Experts

Both sides confirmed that eight (8) short-term experts were to be dispatched in the following fields:

- (a) Techniques on Electric Discharge Machine Sinker Operation
- (b) Techniques on Wire-cut Electric Discharge Machine Operation
- (c) Injection Machine Maintenance
- (d) Techniques on CAD/CEUS
- (e) The Latest Technology on Plastic Mold Making Seminar
- (f) Techniques on Consultancy Services
- (g) DNC Operation
- (h) Plastic Material

(2) Training of the Philippine C/Ps in Japan

Both sides confirmed that three (3) C/Ps were undergoing six-month training courses of mold design, mold processing and mold assembly, maintenance and trial shot respectively in Japan at the time of mid-term evaluation. Another C/P in the field of equipment management is to be accepted in early November 2000 for a two-week training course in Japan.

(3) Provision of Machinery and Equipment

Both sides confirmed that the provision of machinery and equipment in Japanese fiscal year 2000 had been approved by the Japanese government and the arrangement for the purchase was being processed by the Project.

4 Input by the Philippine side

(1) Allocation of the C/Ps for the Project

The Philippine side explained the Team that two (2) C/Ps in mold processing were replaced with two (2) new C/Ps who were allocated to mold design group based on the result of 4th performance monitoring and evaluation conducted by the Philippine side and Japanese experts.

The Team understood the efforts of the Philippine side to assign substantial number of C/Ps with required knowledge and skills to be involved in the Project. At the same time, the Team requested the Philippine side to coordinate the schedule of the C/Ps so that they could continuously commit themselves to the technology transfer activities of the Project, especially while short-term experts were conducting technology transfer.

(2) Provision of Machinery and Equipment


The Team expressed its appreciation to the Philippine side for the effort to purchase machinery, tools and consumables for the Project, and requested to continue this effort. At the same time, the Team explained the Philippine side and the latter understood that the financial support from the Japanese side for purchasing tools, materials, consumables and furnishings would be gradually decreased towards the end of the Project from the viewpoint of the sustainability of the Project.

5 Plan of the Project in Japanese Fiscal Year 2001 and 2002

The Team requested the Project to formulate its work plan for 2001 and 2002 in due course according to the progress in its technology transfer activities with the guidance by new long-term experts.

V Specific Issues for the Project

1 Method to Monitor the Progress of Technology Transfer



Regarding the monitoring method, the Team suggested the Philippine side and the Japanese expert team to prepare and utilize a format to measure the technical achievement of the C/Ps periodically in a consistent manner. The Team emphasized the importance of introducing such a format by explaining that the achievement of technology transfer to the C/Ps was to be reviewed and evaluated at the time of the final evaluation. As a result of discussions on this subject, the Philippine side and the Japanese expert team agreed to introduce such a format and made drafts as shown in Annex 41.

The drafts consist of two (2) parts, one for reviewing the C/Ps' technical knowledge based on written or practical test and the other one for reviewing their technical skills based on the test molds they have designed, processed, and assembled. The Team requested the Philippine side and the Japanese expert team to continue to discuss the method of measurement and to complete the



formats for the next performance monitoring and evaluation.

2 Linkage with Other Cooperation Projects

The Team understood the contents of other cooperation projects and their relations to the Upgrading Project for the Plastic Molding Tool Technology as follows:

(1) "Support to the Establishment of Precision Tool and Die Center" by UNDP

The Philippine side explained the Team that MIRDC had started the above-mentioned project with financial aid by UNDP of total three hundred and twenty thousand US dollars (US\$ 320,000), three hundred thousand dollars (US\$ 300,000) of which was from "Japan Human Resource Development Trust Fund", in January 2000. The UNDP project focuses on developing training curricula and producing and packaging training materials for a variety of MIRDC's training courses regarding tool and die technologies. The MIRDC's training courses target the out-of-school youth and high school graduates to acquire the basic skills required for getting jobs.

The Upgrading Project for the Plastic Molding Tool Technology, on the other hand, covers training courses on plastic molding processes at higher level, targeting mainly at technicians and engineers who are already working in companies. The Philippine side explained that the two projects complemented each other in the field of training for tool and die industry.

(2) "Project for Enhancing Vocational Training of the Institute (PEVOTI)" in TESDA

JICA had implemented technical cooperation named "PEVOTI" in the field of vocational training with TESDA for five (5) years until March 1999. After the Project, TESDA has been conducting a variety of training courses for technicians and high-school graduates with the cooperation of private companies and associations. In the fields of machining and metals, TESDA is planning to operate the training courses shown below as the joint program with MIAP.

a Trainers' Training Program for instructors of vocational training centers or school teachers:

(a) Fitting and Machining	80 hours
(b) Computer Aided Drafting (2D/3D)	120 hours
(c) CAD for Electrical Instructors' Course	120 hours
(d) Mechanical Drafting	80 hours
(e) CNC Machining Center Programming and Application	120 hours
(f) CNC Lathe Programming and Application	120 hours
(g) Computer Aided Measuring and Inspection	40 hours

b Skills Upgrading Program for out-of-school youth, industry workers, new entrants in the labor market and students

(a) Computer Aided Drafting (2D/3D)	80 hours
(b) CNC Machining Center Programming and Application	120 hours
(c) CNC Lathe Programming and Operation	80 hours
(d) Machine Tool Technology	440 hours

The Team visited TESDA and understood its request of training for its instructors by the engineers of MIRDC as had been practiced.

In addition to the above, MIRDC and TESDA have had a relationship in the field of certification of occupational trades' skills and competency where MIRDC implements the assessment of workers' skills for supporting TESDA's certification activities.

3 Technical Support Services

(1) Technical Needs of the Industry

a Results of the Survey by Local Consulting Firm

Using a local consulting firm, the Project had conducted a comprehensive survey targeted at 38 tool and die companies ahead of mid-term evaluation for the purpose of getting feedback and grasping expectation of the industry concerning its technical services. The summary of the results is as shown in Annex 42.

The results show that the companies subject to the survey evaluate the technical services provided by MIRDC, such as technical training, seminars, consultancy, and short-series experimental production, quite positively in general. For the future technical services, it came to be shown that the needs of the companies varied according to the scale and technical level of the company. For instance, as to training courses, larger companies demand to learn more advanced technologies while small and medium scale companies demand more information on basic technology.

b Philippine Die and Mold Association (PDMA)

The Project has developed a close collaborative relationship with PDMA, the members of which come from local and foreign companies producing tools, dies, processing machines, and so forth. MIRDC and PDMA hold regular meetings and the involvement of PDMA has been very valuable for MIRDC to be more responsive to actual industry needs. MIRDC signed with PDMA in 1997 for the promotion of its training courses.

During its stay, the Team had a meeting with PDMA in company with the Project Management Team members and Japanese experts. PDMA expressed its expectation towards the early delivery of the long-term training courses and other technical support services to be implemented by the Project.

(2) Technical Training Courses

The Team confirmed that the Project had conducted eighteen (18) short-term training courses in response to the request from the industry to impart the transferred technology even before the Project ends. It is scheduled that the Project would start six-month training courses in the respective field of mold design, mold processing, and mold assembly, maintenance, and trial shot by the second half of 2001. The curricula for the courses have been completed as shown in Annex 33. The training manuals are scheduled to be completed by December 2000, while the training materials such as transparencies or hand-outs are to be completed by the commencement of the training.

The Project explained the Team that the six-month courses consisted of many short modules and participants could enroll in the course by each module. Since the target group of the six-month courses are engineers and technicians working in the industry, the Project plans to operate the courses with flexibility,

for example, by setting the class in the evening or only twice a week, in order to facilitate the participants' convenience.

As to the recruitment of the participants, the Project plans to send brochures on training information to about fifty (50) companies through PDMA and MIAP in advance of the course. The Project anticipates that the initial participants would be from relatively larger companies which have adopted the sophisticated machinery and can afford sending their employees to the training courses.

(3) Other Technical Support Services

The Project has already started conducting the technical support services such as consultancy, technical fora/clinic, and short-term experimental production aside from the training courses.

The Project explained the Team that the consultancy services had been and would be conducted in a form that the C/Ps and experts visited companies or companies visited the Project. The Project also conducts occasional technical fora, clinic, and seminars, which provide lots of companies including small and medium scale companies the chance to touch information about the latest technology or to get advice from experts.

The short-term experimental production services are being conducted only when the machinery and equipment are available. The Project explained the Team that this service was implemented with careful consideration so as not to delay the activities of the Project.

VI Attendees of the Discussions

The list of attendees of the discussions is as shown in Annex 44.

97/12

(15)



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DEPARTMENT OF SCIENCE AND TECHNOLOGY

Annex 1

SECRETARY

UNDERSECRETARY
(Research and Development)

UNDERSECRETARY
(Regional Operations)

UNDERSECRETARY
(S&T Services)

Assistant Secretary
(Admin & Legal Affairs)

Assistant Secretary
(Policy and Planning)

Assistant Secretary
(Finance & Management)

Planning and Evaluation Service

Financial and Manage Service

Philippine Council for Health
Research and Development

National Academy of Science and Technology

National Research Council of the Philippines

Philippine Council for Industry and Energy
Research and Development

Philippine Council for Agriculture, Forestry and
Natural Resources Research and Development

Philippine Council for Health
Research and Development

Philippine Council for Advanced Science and
Technology Research and Development

Philippine Council for Aquatic and Marine
Research and Development

COLLEGIAL
AND
SCIENTIFIC
BODIES

SECTORAL
PLANNING
COUNCILS
(5)

RESEARCH AND DEVELOPMENT
GROUP (7)

Industrial
Technology
Development
Institute

Philippine
Nuclear
Research
Institute

Advanced
Science and
Technology
Institute

Forest
Products
Research &
Development

Food and
Nutrition
Research
Institute

Science
Education
Institute

Science &
Technology
Information
Institute

Phil. Atmospher-
ic Geophysical
& Astronomical
Administration

Philippine
Institute of
Volcanology &
Seismology

Technology
Application
& Promotion
Institute



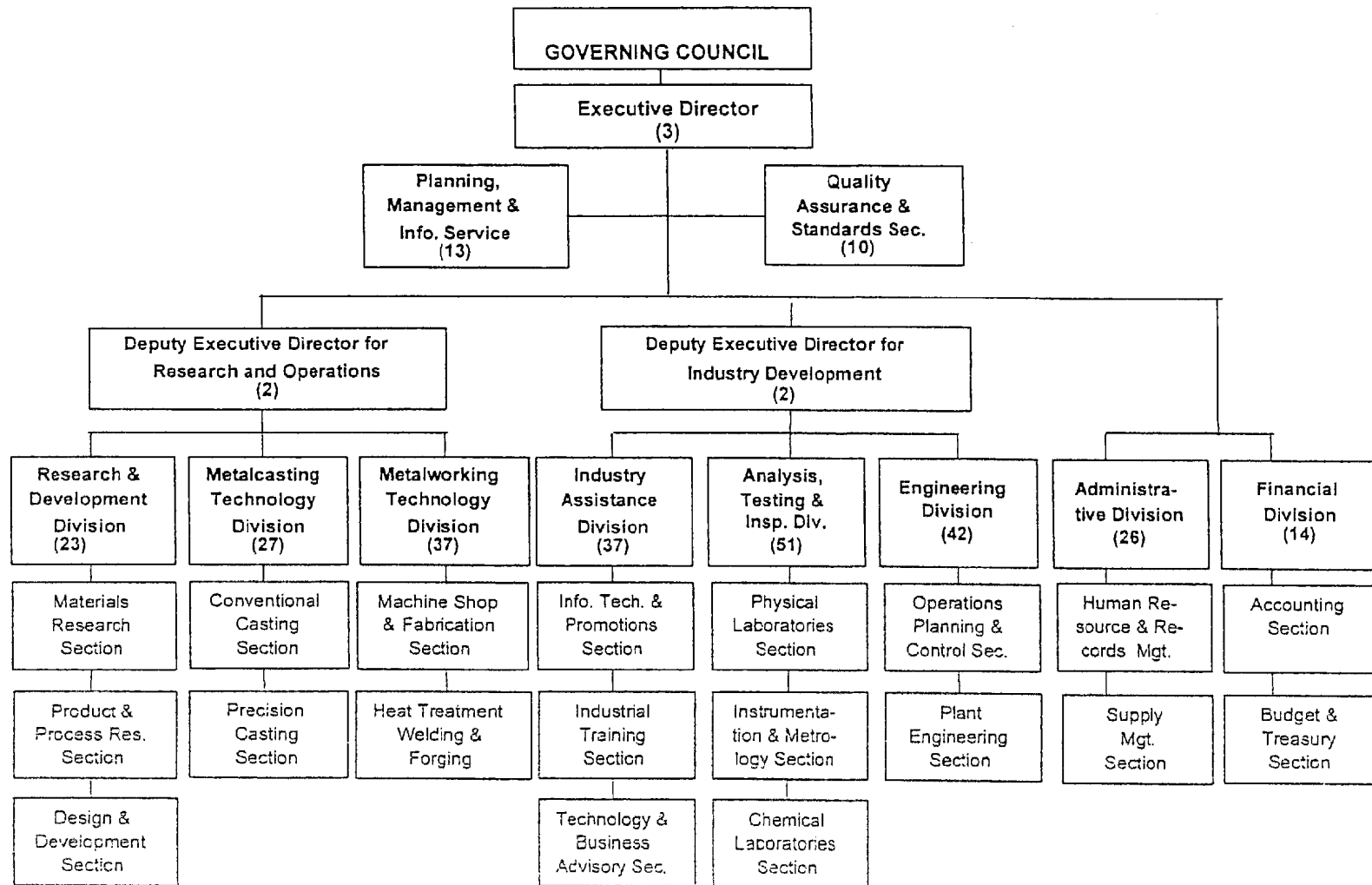
Philippine
Textile
Research
Institute

REGIONAL OFFICES

Philippine
Science
High
School

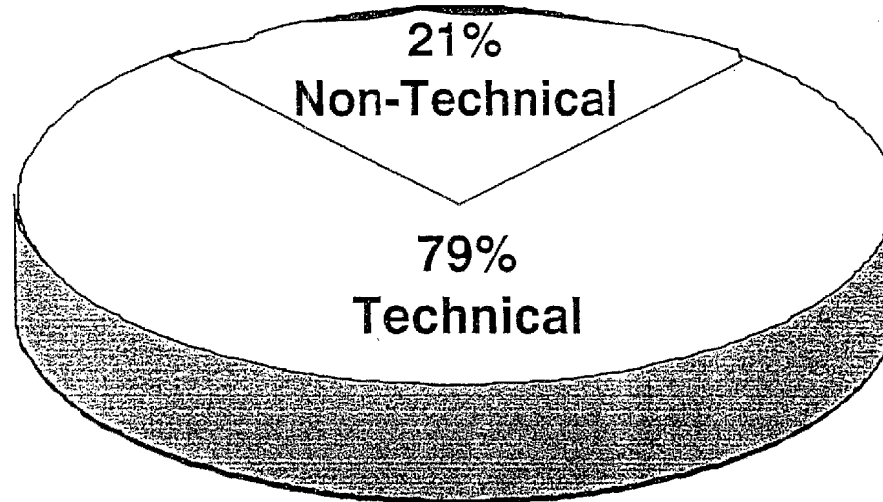
SCIENTIFIC AND TECHNOLOGICAL
SERVICES GROUP (6)

METALS INDUSTRY RESEARCH AND DEVELOPMENT CENTER ORGANIZATIONAL CHART








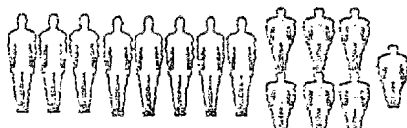


ANNEX 2-2

HUMAN RESOURCE PROFILE
(as of August 01, 2000)



ON-GOING

PhD		1		4
MS Degree Grad.		18		25
BS Degree Grad.		150		4
College Level		31		
Technical, Vocational & High School Grad.		87		
		<hr/>		
		287		

Recent Annual Budget of MIRDC

(Unit: Thousand Pesos)

FISCAL YEAR ITEM	1995 Disbursed	1996 Disbursed	1997 Disbursed	1998			1999			2000 Projection
				Projection [1]	Disbursed [2]	Ratio,% ([2]/[1])	Projection [1]	Disbursed [2]	Ratio,% ([2]/[1])	
Staff Expenses	39,450	47,049	58,938	61,620	56,620	92%	64,841	59,783	92%	52,299
Materials and Consumables	10,252	8,524	9,630	12,661	10,705	85%	12,222	10,166	83%	13,339
General Services including Utilities, Communication, Insurance, Cleaning, etc.	12,504	15,451	21,093	17,546	16,036	91%	20,948	26,424	121%	15,280
Scholarships/Training	921	874	765	530	302	57%	795	795	100%	1,000
Maintenance of Facilities	3,959	4,820	2,567	4,000	3,452	86%	4,000	903	23%	6,500
Maintenance of Equipment	2,997	3,600	3,145	2,750	2,681	98%	2,845	1,020	36%	4,064
Capital Outlay	16,122	33,516	45,456	11,592	10,900	94%	1,500	1,157	77%	11,450
Total (Subsidies)*, [A]	86,205	113,834	141,594	110,699	100,696	91%	107,151	100,248	94%	103,932
Income from Technical Services, [B]	21,170	26,832	27,918	26,500	21,998	83%	28,500	26,364	92%	27,500
Ratio (%), ([B]/[A])	28%	24%	21%	24%	22%	-	27%	26%	-	26%

*Inclusive of the Use of Income budget, DOST Grants-in-Aid, taxes, retirement, process and service fees.

Breakdown of MIRDC Budget (Subsidies/Disbursements)

(Unit: Thousand Pesos)

Source of Funding	1995	1996	1997	1998	1999	2000
1. General Appropriations Act (GAA)	75,197	101,543	115,685	100,351	98,428	116,158
2. Use of Income	7,660	10,130	10,525	-	-	-
3. DOST Grants-in-Aid (GIA)	-	-	8,000	-	3,003 (*)	8,300 (**)
4. Proceeds	628	-	-	-	188	193 (***)
5. Taxes	2,562	2,161	6,533	-	476	-
6. Retirement	154	-	851	16	1,344	697
7. Service Fees	4	-	-	329	-	-
Total	86,205	113,834	141,594	100,696	103,439	125,348

Note 1. Proceeds (Item 4) were generated from the sale of obsolete equipment/machines.

2. Special appropriation was requested from DBM for the payment of Taxes (Item 5) of imported equipment.

3. Special appropriation was requested from DBM for the payment of Retirement benefits (Item 6) of MIRDC employees.

4. Special appropriation was requested from DBM for the payment of Service Fees (Item 7) particularly the brokerage and other custom fees/duties of imported equipment.

(*) DOST-GIA for MIRDC (Php 250 Thousand for JICA Project)

(**) MIRDC proposal for DOST-GIA (Php 1.8 Million allocated for JICA Project)

(***) Waiting for Bureau of Treasury approval.

Dispatch of the Japanese Experts

(as of August 28, 2000)

Fiscal Year Month	1997			1998			1999			2000			2001			2002								
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Long-term Expert	Dr. Yasuhiko KONDO (Chief Adviser) [Oct 8,1999-Oct 7,2000] (to be extended until August 31, 2002)																							
	Mr. Kazuki ISHIDA (Administrative Coordinator) [Sep 16,1997-Sep 15,2000] (to be extended until August 31, 2002)																							
	Mr. Kaname KOJIMA (Mold Design) [Sep 22,1997-Sep 21,2000]												Mr. Hiroshi KOBAYASHI (Mold Design) [Aug 16, 2000-Aug 15, 2001]											
	Mr. Shusuke DOI (Mold Processing) [Apr 20,1998-Sep 19,2000]												Mr. Masaki IDE (Mold Processing) [Sep 1,2000-Aug 31,2001]											
	Mr. Masaki IDE (Mold Assembly & Trial Shot, Maintenance (AMT)) [Sep 1,1998-Aug 31,2000]												Mr. Yoshio HATANAKA (AMT) [Aug 16, 2000-Aug 31,2002]											
Short-term Expert	*Mr. Toshitaka MATSUOKA (Mold Processing seminar) [Mar 11 -Mar 14,1998]																							
	* Mr. Atsuhiko HATAKEYAMA (Installation & Adjustment) [July 12 -July 25,1998]																							
	* Mr. Joji FUJISAWA (Installation & Adjustment) [July 12 -July 25,1998]																							
	* Mr. Fuminaga HANYU (Installation & Adjustment) [July 12 -July 25,1998]																							
	* Mr. Minoru HATA (Installation & Operation of Network Operation) [Oct 25 -Nov 7,1998]																							
	* Dr. Takeo NAKAGAWA (Mold Processing Seminar) [Nov 22 -Nov 25,1998]																							
	* Mr. Minoru HATA (DNC Operation) [Mar 15 - Mar 26, 1999]																							
	* Mr. Michio KOMATSU (Mold Design;Seminar) [Mar 22 - Mar 26, 1999]																							
	* Mr. Joji FUJISAWA (CAD/CAM Operation) [Jul 7 - Jul 23, 1999]												* Mr. Mioru HATA (DNC Operation) [Jul 7 - Jul 23, 1999]											
	* Dr. Toshio OKUNO (Mold Material) [Aug 24 - Aug 31, 1999]												* Mr. Michio KOMATSU (Techniques of Consultancy Services) [Nov 8 - Nov 17, 1999]											
* Mr. Mitsuo TAMURA (TPM) [Feb 21 - Feb 26, 2000]												* Mr. Takeo YANAGISAWA (Mold Polishing) [Mar 6 - Mar 18, 2000]												
* Dr. Toshitaka MATSUOKA (CAD Networkstation Management) [Apr 30 - May 8, 2000]												* Mr. Yuichi SHINOHARA (CAM(T/S) Operation) [Apr 30 - May13, 2000]												
* Mr. Yutaka HONMA (Precision Injection Machine) [Jul 9 - Jul 22, 2000]												* Mr. Minoru HATA (CAM(T/S) Programming) [Jul 23, 2000 - Aug 5, 2000]												
* Dr. Tetsuo SASAKI (Curricula Development) [Aug 13, 2000 - Aug 19, 2000]																								

Counterpart Personnel Training in Japan

(as of August 28, 2000)

Fiscal Year Month	1997			1998			1999			2000			2001			2002																			
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Training in Japan	(1) Engr. Rogelito B. AQUINO (Mold Design : Oct 13,1997-Mar 29,1998)																																		
	=====																																		
	(2) Engr. Eduardo R. LACBAY (Project Management : Mar 17-28,1998)																																		
	(3) Engr. Eric P. DUQUEZ (Project Management : Mar 17-28,1998)																																		
	=====																																		
	(4) Engr. Feliciano H. JAPITANA (Mold Processing : Sep 1 -Nov 20,1998)																																		
	(5) Mr. Augusto S. ATANACIO (Mold Assembly : Sep 1-Nov 20,1998)																																		
	=====																																		
	(6) Mr. Ernesto B. ANDRANEDA (Mold Design : Sep 1,1998-Jan 21,1999)																																		
	=====																																		
	(7) Dir. Rolando T. VILORIA (Project Management : Nov 8-20,1998)																																		
	=====																																		
	(8) Ms. Ma. Leah A. PADIERNOS (Computer Maintenance : Mar 26 - Jul 9, 1999)																																		
	=====																																		
(9) Mr. Crisanto H. dela CRUZ (Mold Design : Jul 6 - Oct 19, 1999)																																			
(10) Mr. Benjamin C. Logica (AMT : Jul 6 - Oct 19, 1999)																																			
=====																																			
(11) Engr. Fred P. LIZA (Project Management : Nov 18 - Dec 2, 1999)																																			
=====																																			
(12) Mr. Rommel N. ADAME (Mold Design : Jul 4 - Dec 22, 2000)																																			
(13) Mr. Antonio P. HABAL (Mold Processing : Jul 4 - Dec 22, 2000)																																			
(14) Mr. Ely delos REYES (AMT : Jul 4 - Dec 22, 2000)																																			
=====																																			

List of the Machinery, Equipment and Facilities Provided by the Japanese Side

(as of August 28, 2000)

No	Item	Qty.	Date of Delivery	C/P in Charge	Purchased in
1	CAD/CAM Network Station	1 set	07/01/1998	Lascano	Japan
2	Molds for Training Materials	1 unit	07/01/1998	Lascano	Japan
3	Vertical Machining Center	1 unit	09/17/1998	Aquino	Japan
4	Milling Machine	1 unit	07/01/1998	Aquino	Japan
5	Form Grinding Machine	1 unit	07/26/1998	Aquino	Japan
6	CNC Electric Discharge Machine (Wire-cut, Sinkers)	1 unit	09/17/1998	Aquino	Japan
7	CNC Electric Discharge Machine	1 unit	09/17/1998	Aquino	Japan
8	Drill Grinding Machine	1 unit	07/01/1998	Aquino	Japan
9	Injection Machine (Large)	1 unit	07/01/1998	Cruz	Japan
10	Injection Machine (Medium)	1 unit	07/01/1998	Cruz	Japan
11	Injection Machine (Small)	1 unit	07/01/1998	Cruz	Japan
12	Passenger Van	1 unit	02/16/1998	Duquez	Japan
13	Paper Copier	1 unit	01/15/1998	Duquez	Philippines
14	Facsimile Machine	1 unit	01/15/1998	Duquez	Philippines
15	Drafting Kit	10 sets	10/30/1998	Lascano	Philippines
16	TV (21")	1 unit	10/27/1998	Duquez	Philippines
17	TV (29")	1 unit	10/27/1998	Duquez	Philippines
18	Video Cassette Recorder	2 units	10/30/1998	Duquez	Philippines
19	Handy Cam	1 unit	10/30/1998	Lacbay	Philippines
20	Opaque Projector	1 unit	12/07/1998	Duquez	Philippines
21	Finishing Machine	1 set	11/17/1998	Cruz	Philippines
22	Mold Welding Process	1 set	11/17/1998	Cruz	Philippines
23	Tool Holder	8 unit	08/17/1999	Aquino	Philippines
24	Collet Set	5 sets	08/17/1999	Aquino	Philippines
25	Measuring Instrument	35 pcs	08/17/1999	Aquino	Philippines
26	Mold Base	6 unit	09/09/1999	Duquez	Philippines
27	Ejector Pin	50 pcs	09/09/1999	Duquez	Philippines
28	Surface Plate	2 pcs	09/09/1999	Duquez	Philippines
29	Vise	10 unit	08/17/1999	Aquino	Philippines
30	Training Table	25 unit	09/01/1999	Duquez	Philippines
31	Electronic Copy Board	2 unit	07/26/1999	Duquez	Philippines
32	Color Printer	1 unit	08/05/1999	Duquez	Philippines
33	Hand Lifter	1 unit	09/24/1999	Aquino	Philippines
34	Crane for Mold Assembling Room	1 unit	03/25/2000	Cruz	Philippines
35	Personal Computer	2 unit	03/28/2000	Duquez	Philippines
36	Tool Holder	5 unit	for delivery	Aquino	Philippines
37	Roughing Head	3 unit	for delivery	Aquino	Philippines
38	Cartridge	3 unit	for delivery	Aquino	Philippines
39	Finishing Head	3 unit	for delivery	Aquino	Philippines
40	Indexable Inserts	20 pcs	for delivery	Aquino	Philippines
41	Boring Head	25 unit	for delivery	Aquino	Philippines
42	Inserts	10 pcs	for delivery	Aquino	Philippines
43	CK Extension	6 unit	for delivery	Aquino	Philippines
44	CK Pre Setter	1 unit	for delivery	Aquino	Philippines
45	Tool Holder	4 unit	for delivery	Aquino	Philippines
46	Precision Tool Makers Vise	1 unit	for delivery	Aquino	Philippines
47	Tool Cabinet	8 unit	for delivery	Aquino	Philippines
48	Work Bench with Vise	1 unit	for delivery	Aquino	Philippines
49	Fine Cutter	1 unit	for delivery	Aquino	Philippines
50	Industrial Fans	3 unit	08/24/2000	Cruz	Philippines
51	Injection Clamp	34 unit	for delivery	Cruz	Philippines
52	End Mill	102 unit	for delivery	Aquino	Philippines
53	Drill	160 unit	for delivery	Aquino	Philippines
54	Opaque Projector	1 unit	for delivery	Duquez	Philippines
55	Auto CAD LT2000	1 pc	for delivery	Lascano	Philippines

Supporting Local Cost by Japanese Side

(Unit: Thousand Pesos)

Item	Japanese Fiscal Year			
	1997	1998	1999	2000
General Local Cost	587	2,305	1,155	379
Equipment Provision	72,955	998	4,140	2,508
Hand-carried Equipment (by experts)	574	606	191	48
Emergency Measures (AMT Room)	0	0	1,051	0
Survey (by Local Consultant)	0	0	0	488
Promotion (Project Pamphlet Preparation)	0	264	0	0
Technical Exchange Program	0	426	0	608
TOTAL	74,116	4,599	6,537	4,031

List of Machinery, Equipment and Facilities Provided by the Philippine Side

1. Equipment

NO	Item	Manufacturer	Quantity	Amount (Peso)	Year of Purchase
1	CNC Milling Machine	MAHO	1 Unit	2,500,000.00	1989
2	CNC Vertical Machining Center	MAZAK	1 Unit	5,180,574.87	1996
3	VMC Toolings	ISCAR	1 set	981,702.45	1997
4	CNC Wire-cut EDM	AGIE	1 Unit	6,200,000.00	1997
5	CNC Hi-Speed Drill	KURODA	1 Unit	929,614.00	1997
6	Retroskan	RENISHAW	1 set	450,000.00	1997
7	CNC Coordinate Measuring Machine	MITUTOYO	1 Unit	1,521,836.00	1997
8	CNC Digitizing	RENISHAW	1 Unit	2,476,993.67	1998
9	CNC Surface Grinder	OKAMOTO	1 Unit	3,555,347.55	1998
10	Toolmaker's Microscope with Complete Accessories	MITUTOYO	1 Unit	500,000.00	1998
11	Toolings (Pin Gauge)	SK TOOLINGS	1 set	250,000.00	1998
12	Wire EDM Clamping Kit	SYSTEM 3R	1 set	500,000.00	1998
13	EDM Hi-Speed Rotating Spindle and Clamping Tools	EROWA	1 set	500,000.00	1998
14	Optical Profile Grinder	OPTICAL DOEBELI	1 set	7,734,153.00	1999

2. Facilities & Renovation

(Unit: Thousand Pesos)

	1997	1998	1999	2000
Renovation Cost	1,200	1,274	2,100	500
Facilities (Air conditioner/Crane)	-	1,040	250	-

Allocation Plan of Philippine Couterpart Personnel

Particular	1997	1998	1999	2000	2001	2002
Administrative Counterpart						
Project Director	1	1	1	1	1	1
Deputy Project Director	1	1	1	1	1	1
Project Manager	1	1	1	1	1	1
Administrative Coordinator		1	1	1	1	1
Technical Counterpart						
Technical Staff	22	23	23	23	23	23
Total Number of Counterparts	25	27	27	27	27	27
Supporting Staff						
Secretary	1	1	1	1	1	1
Driver	1	1	1	1	1	1
Secretariat	3	6	6	6	6	6
Maintenance (Mechanical & Electrical)	14	14	14	14	14	14
Training Specialists			10	10	10	10
Total Number of Supporting Staff	19	22	32	32	32	32
Total Number of Personnel Related to the Project	44	49	59	59	59	59

Note: Philippine fiscal year starts in January and ends in December.

OBS: The members of the Administrative counterpart and the supporting staff will dedicate time to the project according to its necessities.

PLAN FOR APPROPRIATION OF LOCAL COST FOR THE PROJECT

(Unit: Thousand Pesos)

ITEM	FISCAL YEAR	1997	1998	1999	2000	2001	2002
		Disbursed			Projection		
Staff Expenses		3,832	6,788	6,023	6,803	6,803	6,803
Materials and Consumables		495	512	650	719	800	1,190
General Services including Utilities, Communication, Insurance, Cleaning, etc.		685	830	3,066	4,560	5,154	5,547
Scholarships / Training		40	40	100	100	150	150
Maintenance of Facilities		1,200	1,274	2,100	500	650	850
Maintenance of Equipment		128	550	450	450	600	750
Capital Outlay		17,696	8,271	0	10,000	8,500	8,000
TOTAL		24,076	18,265	12,389	23,132	22,657	23,290

UPGRADING PROJECT FOR PLASTIC MOLDING TOOL TECHNOLOGY
[Mid-Term Evaluation]

1. Effectiveness

Evaluation Item	Evaluation Result	Reference
Achievement of Outputs	<p><u>Output 0. The project management and operation system will be enhanced.</u></p> <p>[Indicators] 0-1: Number of staff, budget 0-2: Number of the Joint Coordinating Committee Meeting 0-3: Number of plans formulated and reviewed 0-4: Number of project management meeting 0-5: Number of promotional activities</p> <p>Output 0 has been achieved to a satisfactory level during the first half of the cooperation period based on the following results of activities.</p> <p>0-1: The project has been operated under the cooperation between Japanese and Philippine side. On the Japanese side, five (5) long-term experts and nineteen (19) short-term experts have been dispatched to date, whereas on the Philippine side, the Undersecretary of DOST, Executive Director, Deputy Executive Director for Industry Development, the administrative staff and C/Ps of MIRDC have been committed to the project. Necessary operational cost of the project has been allotted by MIRDC.</p> <p>0-2: Joint Coordinating Committee (JCC) meetings have been held every six (6) months to give status of the project to the different government sectors involved, the industry and academe, and at the same time, getting their feed backs for the smooth implementation of the project.</p> <p>0-3: Project planning and monitoring formats such as Project Design Matrix (PDM), Plan of Operations (PO), Technical Cooperation Program (TCP), and Tentative Schedule of Implementation (TSI) have been formulated and revised for smooth implementation of the project.</p> <p>0-4: The Project Management Team (PMT), which consists of Project Manager, Project Leaders, Chief Advisor and Project Coordinator, meets once a week in principle to discuss matters regarding the implementation of the project.</p> <p>0-5: The formal inauguration of the Project was held in November 1998 with about eighty (80) attendees including the Secretary, Undersecretary and Assistant Secretary of DOST, the Minister of the Embassy of Japan in the Republic of the Philippines, the Resident Representative of JICA Philippine Office, and representatives from the academe, private and public sectors. The promotional activities of the Project have been conducted through print and broadcast media. Nine (9) articles concerning the project have been published since the start of the project. Radio interviews of MIRDC staff have been aired on radio in July 1997 and October 1999. The Project also participated in occasional technical exhibit for its promotion. In July 2000, the MIRDC-JICA exhibit received an award as "Best Conceptualization of the Fair's Theme" in the 11th Annual Technology Fair during the National Science and Technology Week 2000 celebration. Aside from these, the Chief Adviser is attending regular meetings of the Philippine Die and Mold Association so as to grasp the demands of the industry as well as to promote the Project.</p>	<p>Annex 2 Annex 3 Annex 23 Annex 12 – 22 Annex 24 Annex 25</p>

	<p><u>Output 1. The machinery and equipment will be provided, installed, operated and maintained properly.</u></p> <p>[Indicator] 1-1: Number of machinery and equipment introduced 1-2: Operating condition of machinery and equipment 1-3: Number of maintenance manuals 1-4: Number of tool holders/tooling</p> <p>Output 1 has been achieved to a satisfactory level in general during the first half of the cooperation period based on the results of activities shown below. However, it is necessary for the Project to complete the remaining maintenance manuals to ensure that the machinery and equipment are kept in good condition.</p> <p>1-1: Necessary machinery and equipment for the Project have been purchased by both the Philippine and the Japanese sides, and are now properly installed and operated. After installation and commissioning, the JICA donated machinery and equipment and those purchased by MIRDC are now being utilized by the experts to train C/Ps. These machinery and equipment are also being utilized to transfer the technology to the private sector as part of their hands-on training. Moreover, utilization of the equipment is also vital on the fabrication of molds and components requested by the private sector.</p> <p>1-2: The Team confirmed that the installed/commissioned machinery and equipment are in good operating condition as recorded in the Equipment Management Record.</p> <p>1-3: The Project has completed two equipment maintenance manuals and is developing four more manuals.</p> <p>1-4: Tool holders and toolings have been purchased by MIRDC with some financial support by the Japanese side.</p>	<p>Annex 6 Annex 8 Annex 28 Annex 27 Annex 26</p>
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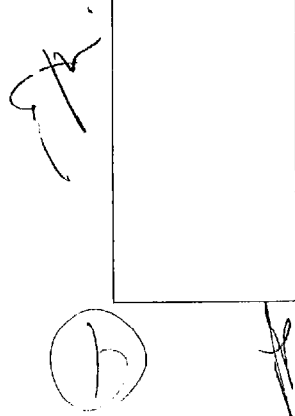
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	<p><u>Output 2. The technical level of counterpart personnel (C/P) will be upgraded.</u></p> <p>[Indicator] 2-1: Assessment by the project team 2-2: Number of In-house Seminars</p> <p>2-1: The Japanese experts have implemented technology transfer to C/Ps in accordance with Technology Cooperation Program (TCP) for three (3) years. As a result, the technical level of C/Ps in the field of mold design, processing and assembling, maintenance, and trial shot (AMT) has been upgraded in general, which has been verified through the periodic monitoring implemented by the Project. This can be seen also by the fact that C/Ps are now able to design, process and assemble molds in which they had difficulties before the project started. After one and a half years, they were able to transfer some of the technologies learned to the industry personnel. The dispatch of short-term experts on special fields also contributed to the upgrading of C/Ps' skills.</p> <p>2-2: In-house seminars for the C/Ps have been conducted by the Japanese long-term experts. To date, forty-five (45) lectures have been conducted in the field of mold design, fifty-five (55) in the field of mold processing, twenty (20) in the field of AMT. Short-term experts also have given seminars to C/Ps in their respective field of specialization.</p>	<p>Annex 29 Annex 30</p>
	<p><u>Output 3. Curricula, manuals, and materials for training courses for tool and die industry will be implemented systematically.</u></p> <p>[Indicators] 3-1: Number of curricula 3-2: Number of manuals 3-3: Number of materials</p> <p>Output 3 is being achieved based on the results of activities below. It is necessary for the Project to work further on the other manuals and materials as well as to revise the developed ones in accordance with the need of the industry based on the evaluation of the participants in the training courses.</p> <p>3-1: To date a total of twenty-nine (29) new training curricula have been developed. These new curricula deal with designing and processing of mold utilizing state-of-the-art equipment up to assembly, maintenance and trial shot.</p> <p>3-2, 3-3: The Project has completed four training manuals and training materials.</p>	<p>Annex 32 Annex 33 Annex 34 Annex 35</p>

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	<p><u>Output 4. Training courses for tool and die industry will be implemented systematically.</u></p> <p>[Indicators] 4-1: Number of training courses 4-2: Number of course participants 4-3: Performance of participants 4-4: Assessment by participants</p> <p>Since March 1999, short-term courses have been conducted by the C/Ps with some guidance from the Japanese long-term experts. The schedule of implementation of long-term courses will be in 2001. Consultations with the academe and the private sectors were conducted for the final review/evaluation of the course contents.</p> <p>4-1, 4-2: After the first half of implementation, eighteen (18) training programs were conducted wherein two hundred and thirteen (213) industry personnel benefited. The attendees include entrepreneurs, production managers, engineers (design and production), designers, technicians and others.</p> <p>4-3. As planned, the Project is going to implement performance evaluation of the participants through written and practical examinations in the next training programs.</p> <p>4-4. In general, the participants' assessment on the pilot training courses and resource persons was very good. However, participants requested for more hands-on exercises.</p>	<p>Annex 36 Annex 42</p>
	<p><u>Output 5. MIRDC's technical support services to tool and die industry will be implemented systematically.</u></p> <p>[Indicators] 5-1: Number of technical fora/clinic 5-2: Number of clients 5-3: Number of inquiries received</p> <p>Output 5 has been achieved to some extent in the first half of the Project as shown on the following results of activities. However, for the remaining cooperation period, more systematic approach should be undertaken.</p> <p>5-1: The Project visited tool and die companies and identified the needed technical support services such as technical seminars and consultancy. The Project is also accepting short-series experimental production to serve the tool and die companies which have no state-of-the-art equipment and machinery. This activity further enhances the skills of the C/Ps.</p> <p>5-2: To date, the Project has conducted thirteen (13) technical seminars, fourteen (14) consultancy services, and twenty-three (23) short-series experimental production services. Consultancy services are conducted by the Project. During these visits, the Japanese short-term experts are mentoring the C/Ps on the consulting techniques.</p> <p>5-3: To date, the project received fourteen (14) inquiries from companies located not only in Metro Manila but also in other parts of the country including Laguna, Davao City, Gen. Santos City, Bacolod City and Bohol. Majority of the inquiries deals on the design and fabrication of plastic injection mold. Inquiries on skills upgrading program were also raised.</p>	<p>Annex 31 Annex 37 Annex 38 Annex 39</p>

<p>Achievement of Project Purpose</p>	<p><u>Project Purpose: MIRDC will be able to provide training and technical support related to plastic molding tool technology.</u></p> <p>The MIRDC C/Ps have started imparting some of the learned technical skills and knowledge to the private industry through the conduct of short-term training courses, technical consultancy services and acceptance of short series experimental production services. These services are evaluated quite positively by the industry so far, especially by the small and medium enterprises, which are the Project's target beneficiaries.</p> <p>Therefore, it can be said that the project is already fulfilling its purpose to some extent though it is only halfway on its implementation.</p>	
<p>Factors hindering the achievement of Project Purpose on basis of Outputs</p>	<p>During the first half of the cooperation period, there was no special factor that hindered the achievement of the Project Purpose based on the Outputs.</p>	

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2. Efficiency

Evaluation Item	Evaluation Result	Reference
<p>Adequacy of timing, quality and quantity of Inputs from Japanese Side</p>	<p>[Input] 1. Dispatch of Japanese long and short term experts 2. Philippine C/P training in Japan 3. Provision of machinery and equipment 4. Supporting local cost</p> <p>Most of the inputs from the Japanese side were delivered in accordance with required timing, quality and quantity.</p> <p>The project's smooth implementation is mainly due to the timely acquisition of machinery and equipment including accessories and toolings, coupled with the dispatch of short-term experts who are capable of transferring the technology to the C/Ps. The strategy of sending the Filipino C/P to Japan for training before the experts come proved to be very effective since they acquired the initial know how in their fields of specialization.</p>	<p>Annex 4 Annex 5 Annex 6 Annex 7</p>
<p>Adequacy of timing, quality and quantity of Inputs from Philippine Side</p>	<p>[Input] 1. Provision and maintenance of buildings and facilities 2. Allocation of C/Ps and administrative staff 3. Provision and maintenance of machinery and equipment 4. Local cost</p> <p>Most of the inputs from the Philippine side were delivered in accordance with required timing, quality and quantity.</p> <p>MIRDC has assigned C/Ps to the Project based on their expertise and initial know how in the field of plastic molding. Before the mid-term evaluation, two C/Ps were replaced as a result of the 4th performance evaluation and monitoring conducted by the Japanese long-term experts and the project management team.</p> <p>Every year, a substantial amount of MIRDC's budget is being allocated for the maintenance and improvement of building and facilities. Budget for consumables like toolings, supplies and materials are also allocated annually by MIRDC. Additional budget is also being allotted for the acquisition of relevant machine tools and accessories to augment the JICA-donated equipment.</p> <p>The Department of Science and Technology (DOST) provided PhP8.25M for the upgrading of the project through its Grants in Aid (GIA) program.</p>	<p>Annex 8 Annex 9 Annex 10</p>
<p>Relevance of Inputs to Outputs</p>	<p>The support and assistance given by both the Japanese and the Philippine side are very relevant in the attainment of the expected outputs. The timely provision of the required inputs (e.g., equipment, and experts) contributed much to the achievement of targeted outputs per project work plan.</p> <p>However, it was pointed out by the Philippine side that the Japanese experts' difficulty in communicating in English language affected the technology transfer during the first year of the project implementation. This was resolved through the own initiative of the Japanese experts to study the English language. The C/Ps also had undergone several hours of Japanese language course. The use of visual aids as teaching materials also contributed to the effective transfer of technology.</p> <p>On the other hand, it was found out through performance evaluation and monitoring that some C/Ps could not keep up with the pace of technology transfer, which also affected the progress of the project. A strategy was formulated by the Project Management Team to address this problem. The C/Ps were classified into classroom and workshop instructors after which proper training was conducted.</p>	

<p>Linkage with Other Cooperation Project</p>	<p>In 1993, the DOST implemented Gain Exports (GAINEX) program with funding support from UNDP. Among the capacity-building target of the GAINEX is the development of the competitiveness of the Philippine metalworking industry. Its goal is to help the large numbers of SMEs acquire the necessary technological capabilities for production, cost reduction, output quality improvement, custom desired feature based value addition and sustainable environment responsiveness.</p> <p>The Precision Tool and Die Center (PTDC) is among the projects identified by the DOST under GAINEX program. In 1999, the UNDP together with the GOJ and GOP recognized the importance of the on-going JICA-MIRDC project. A multi-bilateral project entitled "Support to the Establishment of Precision Tool and Die Center" was forged in Nov. 1999. Actual implementation of the project was done in January 2000 with the aim of establishing the software component of the Precision Tool and Die Center which include the acquisition of audio/video training equipment, the development of training curricula, and the packaging and production of training materials essential to the conduct of training programs. Also included in the UNDP project are the ISO 9001 Certification of Industrial Training Section and ISO 14001 Certification of the entire MIRDC.</p> <p>The UNDP project focuses on developing training curricula on topics concerning tool and die technologies, from basic to advanced. The target beneficiaries of the project are the out of school youth and high school graduates. On the other hand, the Upgrading Project for Plastic Molding Tool Technology of JICA covers training courses on state-of-the-art plastic molding processes with industry technicians and engineers as target participants. In effect, the two projects complement each other as the topics addressed by both projects are interrelated.</p> <p>The MIRDC's linkage with TESDA also contributes to the efficient implementation of the project. The C/Ps conducted training to TESDA personnel in the fields of processing (e.g. EDM sinking, Wire Cutting). Some of the C/Ps are also members of the Technical Advisory Panel (TAP) and Technical Experts Panel (TEP). They assist TESDA in the prioritization and formulation of the occupational trades' skills and competency assessments. From time to time, some C/Ps are also tapped as members of the committee evaluating the curricula of the different vocational schools applying for accreditation while others are being tapped as members of Board of Jurors during skills competition.</p>	
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3. Relevance

Evaluation Item	Evaluation Result	Reference
Overall Goal Level	<p>1) Relevance with Government Policy and Strategies</p> <p>The project was proposed in 1995 to address global competitiveness which is one of the agenda of the Medium Term Philippine Development Plan 1993-1998. Likewise, the implementation of the project will boost the production of metal parts and components which is identified as one of the export winners supported under the Science and Technology Agenda for National Development (STAND 1993-1998). of the Department of Science and Technology (DOST).</p> <p>With the formulation of the Medium-Term Philippine Development Plan 1999-2004 or the <i>Angat Pinoy 2004</i>, the Estrada Administration now envisions sustainable development path anchored on economic growth with social equity. The pursuit of this vision entails strengthening competitiveness of the private sector to generate increasing productive employment opportunities. Hence, the government shall continue implementing policies and programs that will raise Philippine productivity to international benchmarks and redound to a sustained source of growth in output and employment.</p> <p>Following the framework set by the <i>Angat Pinoy 2004</i>, the DOST Medium-Term Development Plan 1999-2004 (DMTDP) was drafted to provide the focal point for the various S&T initiatives of the Estrada Administration. One of the S&T objectives to be pursued is the harnessing of the S&T inputs to improve the overall productivity and competitiveness of the country's agricultural, manufacturing and services sectors. Toward this end, the DOST will implement High-Priority Flagship Programs, one of which is the "Establishment of a Packaging R&D Center." Through this program, the DOST will offer testing and related activities, conduct training programs and information campaign, facilitate technology transfer to the industry, develop and maintain regional industry networks on packaging technology.</p> <p>Consistent with the goals of the above mentioned plans, the Upgrading Project for the Plastic Molding Tool Technology seeks to contribute to the sustained growth and competitiveness of the manufacturing sector by elevating the status of its strategic partner, the Philippine metalworking industry. In fact, its objective to build up local capability in tool and die by providing advanced machines and equipment and skills training of MIRDC personnel, is aligned with the goals of "Establishment of a Packaging R&D Center." Under these circumstances, the project is still relevant as it supports <i>Angat Pinoy 2004</i> and the DMTDP.</p>	

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	<p>2) Relevance with the Needs of Beneficiaries</p> <p>Under the current situation in the Philippines, the SMEs within the tool and die sector are not internationally competitive. Industries that rely on these SMEs are not satisfied with quality and technological capacities that fall short of international standards thereby affecting their competitiveness. The factors that hinder the competitiveness of local tool and die firms include outdated equipment and the inability of individual SMEs to put up needed investment at optimal levels.</p> <p>Likewise, factors such as absence of common service facilities, lack of critical mass of skilled workers, absence of training centers for the conduct of training on the latest technology on tool and die design and making hinder also the growth and competitiveness of the SMEs. Through the JICA project, many of these constraints are currently being addressed..</p>	
Project Purpose Level	<p>Relevance with the Needs of MIRDC</p> <p>The MIRDC is the sole government institution mandated to assist the metals and allied industry. With the JICA Upgrading Project for Plastic Molding Tool Technology, the Center is now better equipped with state-of-the-art machines and equipment as well as trained personnel to better serve and spearhead the industry's growth and development.</p>	
Factors diminishing the Relevance	<p>There are no factors that could diminish the relevance of the project since the overall goal of the project is aligned with the development policy of the Philippines.</p>	

3. IMPACT

Evaluation Item	Evaluation Result	Reference
	<p>The evaluation of this component will be implemented during the final evaluation.</p>	

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4. Sustainability

Evaluation Item	Evaluation Result	Reference
Institutional Aspects	<p>1) Outlook on Government Policy and Strategies supporting the target sector of the Project</p> <p>Human resource development is presently one of the major agenda of the Philippine government. Budgetary support is being provided by the government in order to achieve its goal of having highly trained and skilled manpower that can contribute to the achievement of Philippine industrialization in the near future.</p> <p>This is reflected in the Medium-Term Philippine Development Plan 1999-2004, where one of the policies identified to promote and sustain the growth and development of the industry and service sectors, is to develop S&T human resources.</p> <p>Human resources shall be prepared for further globalization and modernization by:</p> <ol style="list-style-type: none"> 1. supporting greater opportunities for middle level skills development and higher education to further enhance the qualifications of workers; 2. encouraging supplementary training from the workplace to maintain supply of high-level labor force. <p>Likewise, industry modernization is central to the government's agenda in improving the capability of local firms to compete globally. Several legislative measures have been passed to provide the necessary environment that would encourage domestic firms, including those in the metals sector, to upgrade and modernize the production facilities.</p> <p>Among the laws amended to assist the development of industries are the Tariff and Customs Code and the RA 7916 or the PEZA Law, where private companies are provided tax holidays. Likewise, other forms of assistance in developing, adapting and commercializing indigenous or imported technologies through equity investments or loans will be provided by the Creation of the Philippine Science and Technology Development Corporation. Meanwhile, new enactment on the institution of linkages among government agencies and private sector institutions for coordination, planning, implementation and evaluation of manpower development programs will be supported.</p> <p>2) Organizational Stability of MIRDC</p> <p>By virtue of Executive Order 494, the MIRDC was transformed into a government agency attached to the Department of Science and Technology. The Center shall exist as such unless a government reorganization/reengineering shall be pursued. Even then, the MIRDC, being the sole government entity directly supporting the metals and engineering industries, and which has efficiently and effectively served the interest not only of the metals sector but also several sectors in the Philippine manufacturing and service industries, is confident that its present status will not be affected by such move.</p> <p>With a Governing Council as its policy making body, the Center is managed by an Executive Director as its head, and assisted by two Deputy Executive Directors, one for Research and Operations and the other for Industry Development.</p>	

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	<p>The functions of the Center are actively pursued by eight line divisions namely: Research and Development; Metalcasting Technology; Metalworking Technology; Industry Assistance; Analysis Testing and Inspection; Engineering; Financial; and Administrative. A Quality Assurance and Standards Section provides support services to the Metalworking and Metalcasting divisions.</p> <p>Anchored on its vision to become a world class service organization, the MIRDC constantly implements staff development programs to enhance the knowledge and skills of its workforce and ensure the availability of competent human resource to implement its services. Also in line with the above mentioned vision, the MIRDC is working towards the ISO 9001 Certification of its Industrial Training Section and the ISO 14001 Certification of the entire Center..</p> <p>Funds to implement the Center's programs and projects are taken from its annual appropriations. The Center also requests grants-in-aid from local and foreign funding institutions for its major programs not allocated in its annual budget.</p>	Annex 40
Financial Aspects	<p>1) Budgetary Support from the Philippine Government in the future</p> <p>The Metals Industry Research and Development Center (MIRDC) is among the National Government Agencies (NGAs) guaranteed with annual subsidies from the national government. Its annual budget is regularly reflected in the General Appropriations Act.</p> <p>For the past 33 years, the MIRDC has consistently been provided with the necessary appropriations from the national government. Inasmuch as privatization is no longer an issue at hand and will not even be considered as a viable option in the next five years, the MIRDC is definitely assured of its existence under an NGA status, now and in the immediate future. Hence, the budgetary support from the Philippine government in the future will indeed be realized.</p>	
	<p>2) Availability of Local Cost by the Philippines Side</p> <p>The Upgrading Project for Plastic Molding Tool Technology is one of the priority projects of MIRDC. Hence, it has consistently secured the necessary financial resources to cover the recurring cost for the project starting from its initial implementation in 1997. Currently, the maintenance and operating expenses and other related financial requirements of the project were incorporated in the Year 2000 budget of MIRDC.</p> <p>Furthermore, future appropriations for the project's local counterpart cost has been instituted in the budgeting program of MIRDC and the Medium-Term Public Investment Program or MTPIP 2000-2003 of the National Economic Development Authority (NEDA). This institutional mechanism will help ensure that the long-term financial support of MIRDC to the project will be favorably sustained.</p>	

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<p>Technical Aspects</p>	<p>1) Certainty that the transferred technology would be rooted in MIRDC and disseminated to the industry</p> <p>Skills upgrading of the personnel are regularly implemented by the Center. In addition, the knowledge and experience gained by the C/Ps will be effectively transferred to other MIRDC personnel through the conduct of echo seminars, in-house training, etc. The MIRDC C/Ps will then transfer the technology to industry personnel through regular conduct of short-term training programs and long-term training courses.</p>	
	<p>2) Ability of MIRDC to Maintain and Upgrade Machinery and Equipment</p> <p>The Center has a pool of engineers and technicians capable of maintaining the equipment and facilities acquired from the project. These personnel are also trained on preventive maintenance that addresses unnecessary shutdown resulting in more efficient operations.</p>	
	<p>3) Certainty that the transferred technology would be continuously in compliance with the needs of the industry</p> <p>To ensure that the technology is constantly relevant with requirements of the industry, consultation with industry associations, academe and government agencies are conducted regularly. Strengthening of linkages is also a strategy, from which MIRDC gets feedback from both the public and private sectors nationwide.</p>	

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PROJECT DESIGN MATRIX (PDM)

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
<p>[Overall Goal]</p> <p>Technical level of engineers and technicians in the Philippine tool and die industry will be upgraded.</p>	<ol style="list-style-type: none"> 1. Improvement of capability of technical staff of tool and die industry. 2. Number of adopters of new tool and die technology disseminated by MIRDC. 3. Number of clients utilizing MIRDC tool and die facilities. 	<ol style="list-style-type: none"> 1.2. MIRDC report on tool and die industry 3. MIRDC marketing report 	<ol style="list-style-type: none"> a. The present government policy on industrial development will be sustained. b. Brain drain rate will be at the moderate level. Availability of appropriate raw materials will remain stable.
<p>[Project Purpose]</p> <p>MIRDC will be able to provide training and technical support related to plastic molding tool technology.</p>	<ol style="list-style-type: none"> 1. Level of satisfaction of individual beneficiaries 2. Level of satisfaction of tool and die industry 3. Number and type of new /improved technical services 	<ol style="list-style-type: none"> 1. Industrial Training Section report 2. Technical & Business Advisory Section report 3. MIRDC marketing report 	<ol style="list-style-type: none"> a. Tool and die industry will upgrade their facilities. b. Course graduates will be utilized in the right place in tool and die industry.
<p>[Outputs]</p> <p>0. The project management and operation system will be enhanced.</p> <p>1. The machinery and equipment will be provided, installed, operated and maintained property.</p> <p>2. The technical level of counterpart personnel(C/P) will be upgraded.</p> <p>3. Curricula, manuals and materials for training courses for tool and die will be developed.</p> <p>4. Training courses for tool and die industry will be implemented systematically.</p> <p>5. MIRDC's technical support services to tool and die industry will be implemented systematically.</p>	<ol style="list-style-type: none"> 0-1. Number of staff, budget 0-2. Number of the Joint coordinating committee meeting 0-3. Number of plans formulated and reviewed 0-4. Number of project management meeting 0-5. Number of promotional activities 1-1. Number of machinery and equipment introduced 1-2. Operating condition of machinery and equipment 1-3. Number of maintenance manuals 1-4. Number of tool holders/ tooling 2-1. Assessment by the project team 2-2. Number of In-house Seminars 3-1. Number of curricula 3-2. Number of manuals 3-3. Number of materials 4-1. Number of training courses 4-2. Number of course participants 4-3. Performance of participants 4-4. Assessment by Participants 5-1. Number of technical fora/clinic 5-2. Number of clients 5-3. Number of inquiries received 	<ol style="list-style-type: none"> 0-1. Organization chart, Accounting record. 0-2. Minutes of the meeting 0-3. Plan of operations 0-4. Minutes of the meeting 0-5. Leaflets, Press releases 1-1. MIRDC annual inventory Record 1-2. Equipment management record 1-3. List of maintenance manuals 1-4. MIRDC annual inventory Record 2-1. Evaluation sheet of technology transfer 2-2. List of In-house seminars 3-1. List of curricula 3-2. List of manuals. 3-3. List of materials 4-1,2,3,4. Industrial Training Section report 5-1. Technical & Business Advisory Section report 5-2.3. MIRDC marketing report 	<p>Trained C/P will continue to cooperate even after resigning / retiring from MIRDC.</p>

[Activities]	Inputs		
	Philippine side	Japanese side	
<p>0-1. Allocate necessary personnel.</p> <p>0-2. Formulate plans of operations.</p> <p>0-3. Make budget plan and implement properly.</p> <p>0-4. Establish and operate management system.</p> <p>1-1. Make facility refurbishment plan and implement as planned.</p> <p>1-2. Provide, install and commission machinery and equipment.</p> <p>1-3. Prepare preventive/ corrective maintenance programs of machinery and equipment.</p> <p>1-4. Operate and maintain facility, machinery and equipment.</p> <p>2-1. Assess technical level of C/P through lectures and On-the-Job-Training(OJT).</p> <p>2-2. Make technical cooperation program.</p> <p>2-3. Implement technology transfer to C/P.</p> <p>2-4. Evaluate result of implementation of technology transfer.</p> <p>3-1. Assess technology and training needs of tool and die industry.</p> <p>3-2. Develop curricula for training courses.</p> <p>3-3. Prepare manuals and materials for training courses.</p> <p>3-4. Review and improve curricula, manuals and materials.</p> <p>4-1. Select main/back-up trainers from C/P.</p> <p>4-2. Make training course plans.</p> <p>4-3. Conduct training courses.</p> <p>4-4. Evaluate trainers and training courses.</p> <p>5-1. Identify necessary technical support services for tool and die industry.</p> <p>5-2. Implement technical support services.</p> <p>5-3. Disseminate technical information through technology fora/clinic, and publications.</p>	<p>1 Provision and maintenance of buildings and facilities.</p> <p>2 Allocation of C/P and administrative personnel</p> <p>1) Management C/P</p> <p>2) Technical C/P</p> <p>(1) Mold Design</p> <p>(2) Mold Processing</p> <p>(3) Mold Assembly ,</p> <p>(4) Maintenance & Trial Shot</p> <p>(5) Computer maintenance</p> <p>3) Supporting C/P</p> <p>4) Administrative staff</p> <p>3 Provision and maintenance of machinery and Equipment.</p> <p>4 Local Cost</p> <p>Necessary budget for the implementation of the Project.</p>	<p>1 Dispatch of Japanese Experts</p> <p>1) Long-term Experts</p> <p>a. Chief-Adviser</p> <p>b. Administrative Coordinator</p> <p>c. Mold Design</p> <p>d. Mold Processing</p> <p>e. Mold assembly & Trial Shot</p> <p>2) Short-term Experts</p> <p>Appropriate number of short term experts will be dispatched as necessity arises.</p> <p>2 Philippine C/P Training in Japan.</p> <p>A certain number of C/P per year.</p> <p>3 Provision of Machinery and Equipment.</p> <p>4 Supporting Local Cost.</p>	<p>a. C/P will not leave MIRDC during the duration for the project.</p> <p>b. Machinery and equipment provided will pass the custom smoothly.</p> <p>[Pre-conditions]</p> <p>Commitment of private sectors.</p>

PLAN OF OPERATION FOR WHOLE PERIOD (5 YEARS)

.....:Plan ——— :Actual

Activities	Target	1997				1998				1999				2000				2001				2002		RPPPT	Input	Remarks
		III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II					
0. The project management and operation system will be enhanced.	Project Management																					PM CA	PMT	1) PM: Project manager 2) PL: Project Leader 3) CP: Counterparts 4) PMT <small>Project management Team</small> 5) CA		
0-1. Allocate necessary personnel.																										
0-2. Formulate plans of operations.																										
0-3. Make budget plan and implement properly.																										
0-4. Establish and operate management system.																										
1. The machinery and equipment will be provided, installed, operated and maintained property.	Equipment Management																					PM PL CA TE	PL CP TE	6) TE Technical Expert 7) PC Project Coordinator		
1-1. Make facility refurbishment plan and implement as planned.																										
1-2. Provide, install and commission machinery and equipment.																										
1-3. Prepare preventive/corrective maintenance programs of machinery and equipment.																										
1-4. Operate and maintain facility, machinery and equipment.																										
2. The technical level of counterpart personnel(C/P) will be upgraded.	Technical Transfer																					PMT	PM PL CP TE			
2-1. Assess technical level of C/P through lectures and On-the -Job Training (OJT).																										
2-2. Make technical cooperation program.																										
2-3. Implement technology transfer to C/P.																										
2-4. Evaluate result of implementation of technology transfer.																										

Annual Plan of Operations for JFY 1998 (APO)

.....Plan ————Implemented

Output 0 : The Project Management and Operation System will be enhanced.

Activities	Target	Schedule (FY 1998)												Responsible Persons in Project Team	Input	Remarks			
		4	5	6	7	8	9	10	11	12	1	2	3						
0-1. Allocate necessary personnel. 0-1-1. Discuss in JICA-MIRDC Management Meeting. 0-1-2. Revise MIRDC annual plan.	Maintain the necessary No. of C/P									.....	.....						CA, PM	PC LE PL	CA: Chief Adviser LE: Long-term Expert PM: Project Manager PC: Project Coordinator C/P: Counterpart
0-2. Formulate plans of operations. 0-2-1. Make the organization chart and administration record. 0-2-2. Make the documents for the JICA project - leader meeting in Japan.	Operation Plan	.....															CA, PD	PM PC LE PL	PL: Project Leader PD: Project Director
0-3. Make budget plan and implement properly. 0-3-1. Make the implementation plan of budget. 0-3-2. Formulate the budget plan for next year.	Budget Plan	.....															CA,PD	PM PC LE PL	
0-4. Establish and operate management system. 0-4-1. Discuss in JICA-MIRDC Management Meeting. 0-4-2. Discuss in technical meeting. 0-4-3. Obtain the Joint Coordinating Committee's consensus.	Management System	.....										.....	.....				CA,PM	PM PC LE PL	

Output 1 : The machinery and equipment will be provided, installed, operated and maintained properly.

Activities	Target	Schedule (FY 1998)												Responsible Persons in Project Team	Input	Remarks		
		4	5	6	7	8	9	10	11	12	1	2	3					
1-1. Make facility refurbishment plan and implement as planned. 1-1-1. Make the refurbishment plan. 1-1-2. Implement the refurbishment as planned. 1-1-3. Evaluate the refurbishment.	Refurbishment															PM, PL	CP	
1-2. Provide, install and commission of machinery and equipment. 1-2-1. Make installation and commission plan of machinery and equipment. 1-2-2. Make the plan of dispatch of short-term expert. 1-2-3. Implement the provision, installation and commission of machinery and equipment. 1-2-4. Update the machinery and equipment inventory.	Installation Plan															LE, PL, CP	LE PL CP PC	
1-3. Prepare maintenance preventive/ corrective programs of machinery and equipment. 1-3-1. Make manuals of standard maintenance method. 1-3-2. Keep the management-record of machinery and equipment. 1-3-3. Update list of maintenance manuals.	Machinery and equipment manuals plan															LE, PL, CP	LE PL CP	
1-4. Operate and maintain facility, machinery and equipment. 1-4-1. Implementation of basic operational training of the machinery and equipment. 1-4-2. Elaborate operation manual. 1-4-3. Elaborate maintenance manuals. 1-4-4. Implement operation of the machinery and equipment. 1-4-5. Implement regular maintenance.	Machinery and equipment Operation															LE, PL, CP	LE PL CP	

Output 2 : The technical level of C/P will be upgraded.

Activities	Target	Schedule (FY 1998)												Responsible Persons in Project Team	Input	Remarks		
		4	5	6	7	8	9	10	11	12	1	2	3					
<p>2-1. Assess technical level of C/P through lectures and OJT.</p> <p>2-1-1. Establish the monitoring method.</p> <p>2-1-2. Implement monitoring through OJT.</p> <p>2-1-3. Implement grouping of C/P.</p> <p>2-1-4. Make performance evaluation record of C/P.</p>	Identify technical level and grouping of C/P															CA, PM, PL	PM PL LE CP	
<p>2-2. Make technical cooperation program.</p> <p>2-2-1. Make technical cooperation program.</p> <p>2-2-2. Revise/Upgrade the plan of technical cooperation program.</p>	Technology transfer plan															CA, PM, PL	PM PL LE CP	
<p>2-3. Implement technology transfer to C/P.</p> <p>As shown in ATCP.</p>	Implementation of technology transfer															CA, PM, PL	PM PL LE CP	
<p>2-4. Evaluate result of implementation of technology transfer.</p> <p>2-4-1. Make evaluation sheet of technology transfer.</p> <p>2-4-2. Make performance target monitoring sheet.</p> <p>2-4-3. Analyze the results of monitoring and evaluation</p> <p>2-4-4. Revise plan of technology transfer.</p>	Evaluation of technology transfer															CA, PM, PL	PM PL LE CP PC	

Output 3 : Curricula, manuals and materials for tool and die industry technology training courses will be developed.

Activities	Target	Schedule (FY 1998)												Responsible Persons in Project Team	Input	Remarks		
		4	5	6	7	8	9	10	11	12	1	2	3					
3-1. Assess technology and training needs of tool and die industry. 3-1-1. Make plan for the plant visits. 3-1-2. Prepare format of the plant visits record. 3-1-3. Implement the plant visits. 3-1-4. Periodical meeting with industry concerned. 3-1-5. Evaluate and analyze the training needs.	Training needs															CA, PM	PL CP LE	
3-2. Develop curricula for training courses. 3-2-1. Develop curricula of seminar. 3-2-2. Develop curricula of training courses.	Development of curricula															CA, PM, PL	LE CP	
3-3. Prepare manuals and materials for training courses. 3-3-1. Prepare manuals and materials for seminar. 3-3-2. Prepare teaching materials for training courses.	Preparation of manuals															CA, PM, PL	LE CP	
3-4. Review and improve curricula, manuals and materials. 3-4-1. Evaluate the manuals and teaching materials. 3-4-2. Revise/Upgrade the manuals and teaching materials.	Upgrading															CA, PM, PL	CP LE	

Output 4 : Training courses in tool and die industry will be implemented systematically.

Activities	Target	Schedule (FY 1998)												Responsible Persons in Project Team	Input	Remarks		
		4	5	6	7	8	9	10	11	12	1	2	3					
4-1. Select main/ back-up trainers from C/P. 4-1-1. Analyze monitoring and evaluation sheet of C/P 4-1-2. Implement the selection of trainers.	Selection of trainers															CA, PM, PL	LE	
4-2. Make training course plans.	Training course plan															CA, PM, PL	LE PC	
4-3. Conduct training courses. 4-3-1. Implement pilot training course plans. 4-3-2. Evaluate the pilot training course plans.	Conduct of training course															CA, PM, PL	LE PC	
4-4. Evaluate trainers and training courses. 4-4-1. Make evaluation format for seminar and training courses. 4-4-2. Evaluate trainers skill. 4-4-3. Evaluate teaching materials. 4-4-4. Evaluate curriculum.	Evaluation of training course															CA, PM, PL	LE PL PM CA	

Output 5 : MIRDC's technical support services to tool and die industry will be implemented systematically.

Activities	Target	Schedule (FY 1998)												Responsible Persons in Project Team	Input	Remarks		
		4	5	6	7	8	9	10	11	12	1	2	3					
5-1. Identify necessary technical support services to tool and die industry. 5-1-1. Implement the plant visits. 5-1-2. Periodical meeting with industry concerned. 5-1-3. Make the plant visits record.	Information															CA, PM	PL LE CP	
5-2. Implement technical support services. 5-2-1. Set up the technical support target. 5-2-2. Formulate technical support program. 5-2-3. Implement technical support activities. 5-2-4. Elaborate guidance monitoring sheet.	Supporting services															CA, PM	PL LE CP	
5-3. Disseminate technical information through technical fora/ clinic, and publications. 5-3-1. Formulate plan of public relations. 5-3-2. Prepare pamphlet for presentation of the project. 5-3-3. Implement publicity periodically. 5-3-4. Hold an inauguration ceremony.	Publication															CA, PM	PM PL LE CP PC	

ANNUAL PLAN OF OPERATIONS FOR JFY1999 (APO)

..... : Plan

— : Actual

Output 0 : The Project management and Operation System will be enhanced.

ACTIVITIES	TARGET	SCHEDULE(FY1999)												Responsible Persons In project Term	INPUT	REMARKS		
		4	5	6	7	8	9	10	11	12	1	2	3					
0-1. Allocate necessary personnel.	Maintain the Necessary No. of C/P															PM CA	PMT	1) PM: Project manager 2) PL: Project Leader 3) CP: Counterparts
0-1-1. Discuss in JICA-MIRDC management meeting.																		
0-1-2. Revise MIRDC annual plan.																		
0-2. Formulate plans of operations.	Operation Plan															PM CA	PMT	4) PMT Project management Team 5) CA Chief Adviser 6) TE Technical Expert
0-2-1. Make the organization chart and administration record.																		
0-2-2. Make the documents for the JICA project-leader meeting in Japan.																		
0-2-3. Discuss in JICA-MIRDC management meeting.																		
0-3. Make budget plan and implement properly.	Budget Plan															PM PL CA	PMT	7) PC Project Coordinator
0-3-1. Make the implementation plan of budget.																		
0-3-2. Formulate the budget plan for next year.																		
0-4. Establish and operation management system.	Management System															PM PL CA	PMT CA TE	
0-4-1. Discuss in JICA-MIRDC management meeting.																		
0-4-2. Discuss in technical meeting.																		
0-4-3. Obtain the Joint Coordinating Committee's concern.																		

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Output 1 : The machinery and equipment will be provided, Installed, operated and maintained properly.

ACTIVITIES	TARGET	SCHEDULE(FY1999)												Responsible Persons In project Term	INPUT	REMARKS
		4	5	6	7	8	9	10	11	12	1	2	3			
1-1. Make facility refurbishment plan and implementation as planned.	Refurbishment													PM PL	CP	
1-1-1. Make the refurbishment plan.		(Already finished in FY1998.)														
1-1-2. Implement the refurbishment as planned.		(Already finished in FY1998.)														
1-1-3. Evaluate the refurbishment.		(Already finished in FY1998.)														
1-2. Provide, install and commission of machinery and equipment.	Installation Plan													PL CP TE	PL CP TE PC	
1-2-1. Make installation and commission plan of machinery and equipment.		(Already finished in FY1998.)														
1-2-2. Make the plan of dispatch of short-term expert.		(Already finished in FY1998.)														
1-2-3. Implement the provision, installation and commission of machinery and equipment.		(Already finished in FY1998.)														
1-2-4. Upgrade the machinery and equipment inventory.																
1-3. Make maintenance preventive/corrective programs of machinery and equipment.	Machinery and Equipment Manuals Plan													PL CP TE	PL CP TE	
1-3-1. Make manuals of standard maintenance method.																
1-3-2. Keep the management record of machinery and equipment.																
1-3-3. Upgrade list of maintenance manuals.																
1-4. Operate and maintain facility, machinery and equipment.	Machinery and Equipment Manuals Operation													PL CP TE	PL CP TE	
1-4-1. Implementation of basic operational training of the machinery and equipment.																
1-4-2. Elaborate operation manuals and maintenance manuals.																
1-4-3. Implement operation of the machinery and equipment.																
1-4-4. Implement regular maintenance.																

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Output 2: The technical level of C/P will be upgraded.

ACTIVITIES	TARGET	SCHEDULE(FY1999)												Responsible Persons In project Term	INPUT	REMARKS			
		4	5	6	7	8	9	10	11	12	1	2	3						
2-1. Assess technical level of C/P through lectures and OJT.	Identify Technical Level and Grouping of C/P.																PM PL CA	PMT CP TE	
2-1-1. Establish the monitoring method.																			
2-1-2. Implement monitoring through OJT.																			
2-1-3. Implement grouping of C/P.																			
2-1-4. Make performance evaluation record of C/P.																			
2-2. Make technical cooperation program.	Technology Transfer Plan																PM CA	PMT	
2-2-1. Revise / upgrade technical cooperation program.																			
2-3. Implement technology transfer to C/P.	Implementation of Technology Transfer																PM PL	CP TE	
* As shown in ATCP.																			
2-4. Evaluate result of implementation of technology transfer.	Evaluation of Technology Transfer																PM CA	PMT CP TE	
2-4-1. Prepare the monitoring and evaluation form.																			
2-4-2. Conduct the evaluation examination.																			
2-4-3. Analyze the result of monitoring and evaluation.																			
2-4-4. Review of technology transfer to C/P.																			
2-4-5. Revise plan of technology transfer.																			

Output 3 : Curricula, manuals and materials for tool and die industry technology training courses will be developed.

ACTIVITIES	TARGET	SCHEDULE(FY1999)												Responsible Persons In project Term	INPUT	REMARKS
		4	5	6	7	8	9	10	11	12	1	2	3			
3-1. Assess technology and training needs of tool and die industry.	Training Needs													PM PL	PL CP TE PC	
3-1-1. Make plan for the plant visits.		(Already finished in FY1998.)														
3-1-2. Prepare format of the plant visits record.		(Already finished in FY1998.)														
3-1-3. Implement the plant visits. (included the technical consultants services)																
3-1-4. Periodical meeting with industry concerned.																
3-1-5. Evaluate and analyze the training needs.																
3-2. Develop curricula for training courses.	Development of Curricula													PL	PL CP TE	
3-2-1. Develop curricula of training courses I. (Short training courses : 40hrs X 8 courses)																
3-2-2. Develop curricula of training courses II. (Mold Design course : 256hrs)																
3-3. Prepare manuals and materials for the training courses.	Preparation of Training Tools													PL TE	PL CP TE	
3-3-1. Prepare manuals and materials for training courses I. (Short training courses)																
3-3-2. Prepare manuals and materials for training courses II. (Mold Design courses)																
3-4. Review and improve curricula, manuals and materials.	Maintenance													PL CP TE	PL CP TE	
3-4-1. Evaluate the manuals and materials.																
3-4-2. Revise/ upgrade the manuals and materials.																

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Output 4 : Training courses in tool and die industry will be implemented systematically.

ACTIVITIES	TARGET	SCHEDULE(FY1999)												Responsible Persons In project Term	INPUT	REMARKS		
		4	5	6	7	8	9	10	11	12	1	2	3					
4-1. Select main/back-up trainers from C/P.	Selection of Trainers															PMT	PL CP TE	
4-1-1. Conduct monitoring and evaluation to C/P.																		
4-1-2. Analyze the result of monitoring and evaluation.																		
4-1-3. Implement the selection of trainers.																		
4-2. Make training course plans.	Training Courses Plan															PL	PL CP TE	
4-2-1. Make plan of training courses I. (Short training courses : 40hrs X 8 courses)																		
4-2-2. Make plan of training courses II.																		
4-3. Conduct training courses.	Conduct Training Courses															PL	PL CP TE	
4-3-1. Conduct plan of training courses I. (Short training courses : 40hrs X 8 courses)																		
4-3-2. Conduct plan of training courses II. (Mold Design course : 256hrs)																		
4-4. Evaluate trainers and training courses.	Evaluation of Training Courses	(Already finished in FY1998.)												PMT	PL CP TE			
4-4-1. Make evaluation format for training courses.																		
4-4-2. Evaluate trainers skill.																		
4-4-3. Evaluate curricula.																		
4-4-4. Evaluate training manuals and materials.																		

Output 5 : MIRDC's technical support services to tool and die industry will be implemented systematically.

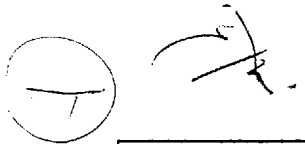
ACTIVITIES	TARGET	SCHEDULE(FY1999)												Responsible Persons In project Term	INPUT	REMARKS
		4	5	6	7	8	9	10	11	12	1	2	3			
5-1. Identify necessary technical support services to tool and die industry.	Information													PM CA	PMT	
5-1-1. Implement the questionnaire.																
5-1-2. Analyze the plant visit record and the results of questionnaire.																
5-1-3. Make the plan of technical support services.																
5-2. Implement the technical support services.	Technical Consultancy Services													PM	CP TE	
5-2-1. Set up the technical consultancy services target.																
5-2-2. Formulate technical consultancy services programs.																
5-2-3. Implement technical consultancy services activities.																
5-2-4. Elaborate guidance monitoring sheets.																
5-3. Disseminate technical information through technology fora/clinic and publications.	Publications													PM CA	PM CA CA PC	
5-3-1. Formulate plan of public relations.																
5-3-2. Prepare pamphlet/ project news for presentation of the project.																
5-3-3. Implement publicity periodically.																
5-3-4. Conduct fora/ clinic at provinces area.																

ANNUAL PLAN OF OPERATIONS FOR JFY2000 (APO)

..... :Plan ——— :Actual

Output 0 : The Project management and operation system will be enhanced.

ACTIVITIES	TARGET	SCHEDULE (FY2000)												Responsible Persons In Project Term	INPUT	REMARKS
		4	5	6	7	8	9	10	11	12	1	2	3			
0-1. Allocate necessary personal.	Maintain the Necessary No. of C/P													PM CA	PMT	1) PM: Project manager 2) PL: Project Leader 3) CP: Counterparts
0-1-1. Discuss in JICA-MIRDC management meeting.																
0-1-2. Implement the evaluation of C/P.																
0-2. Formulate plans of operations.	Operation Plan													PM CA	PMT	4) PMT Project management Team 5) CA Chief Adviser 6) TE Technical Expert
0-2-1. Discuss in JICA-MIRDC management meeting.																
0-2-2. Discuss in Joint coordinating committee meeting.																
0-2-3. Discuss in the midterm evaluation team.																
0-3. Make budget plan and implement properly.	Budget Plan													PM PL CA PC	PMT	7) PC Project Coordinator
0-3-1. Implement the project planning session.																
0-3-2. Make budget plan for project.																
0-3-3. Observe using of budget properly.																
0-3-4. Analyze the result of the used budget.																
0-3-5. Formulate the budget plan for next year.																
0-4. Establish and operation management system.	Management System													PM CA PC	PMT	
0-4-1. Discuss in JICA-MIRDC management meeting.																
0-4-2. Obtain the Joint coordinating committee's concern.																



Output 1 : The machinery and equipment will be provided, Installed, operated and maintained properly.

ACTIVITIES	TARGET	SCHEDULE (FY2000)												Responsible Persons In Project Term	INPUT	REMARKS			
		4	5	6	7	8	9	10	11	12	1	2	3						
1-1. Make facility refurbishment plan and Implementation as planned.	Refurbishment	(Already finished in FY 19998.)												PM PL	CP				
1-2. Provide, install and commission of machinery and equipment.	Inventory													PM CA	CP PC				
1-2-1. Upgrade the machinery and equipment inventory.				.....			.....								
1-3. Make maintenance preventive/corrective programs of machinery and equipment.	Maintenance Management													PM PL CA	CP TE				
1-3-1. Make manuals of standard maintenance method.				.....														
1-3-2. Check the management record of machinery and equipment.				.....			.....								
1-3-3. Implement the management stacker of machinery and equipment.				.....														
1-3-4. Upgrade the list of maintenance manuals.													.....					
1-4. Operate and maintain facility, machinery and equipment.	Operational Management													PM PL	CP TE				
1-4-1. Implementation of the upgrade operational training of machinery and equipment.				.....														
1-4-2. Implement the regular maintenance.				.....														
1-4-3. Elaborate the operational manuals.													.....					
1-4-4. Make the operational record of machinery and equipment.				.....														

Output 2 : The technical level of C/P will be upgraded.

ACTIVITIES	TARGET	SCHEDULE (FY2000)												Responsible Persons In Project Term	INPUT	REMARKS		
		4	5	6	7	8	9	10	11	12	1	2	3					
2-1. Assess technical level of C/P through lectures and OJT.	Monitoring													PMT	PM CP TE			
2-1-1. Re-establish the monitoring method.		.....		.....									.....
2-1-2. Implement monitoring through lectures and OJT.		.....			.....									
2-1-3. Implement the small examination to C/P.		.....		.....			.....				.....
2-1-4. Implement the examination for evaluation of C/P.		.....		.....							.....
2-2. Make technical cooperation program.	Technology Transfer Plan													PM	PMT			
2-2-1. Revise. Upgrade technical cooperation program.		.....			.....								.....
2-3. Implement technology transfer to C/P.	Technical Transfer													PMT	CP TE			
** As shown in ATCP.		.....			.....									
2-4. Evaluate the result of implementation of technology transfer.	Evaluation													PM CA	PMT			
2-4-1. Discuss in JICA-MIRDC management meeting.		.....			.....									
2-4-2. Analyze the result of monitoring and evaluation.								
2-4-3. Revise the plan of technology transfer.						

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Output 3 : Curricula, manuals and materials for tool and die industry technology training courses will be developed.

ACTIVITIES	TARGET	SCHEDULE (FY2000)												Responsible Persons In Project Term	INPUT	REMARKS	
		4	5	6	7	8	9	10	11	12	1	2	3				
3-1. Assess technology and training needs of tool and die industry.	Training Need													PM CA	PC		
3-1-1. Evaluate and analyze the training needs.		.....														
3-1-2. Make the report of training needs of tool and die industry.		.....														
3-2. Develop curricula for training courses.	Development of Curricula													PMT	PL CP TE		
3-2-1. Develop curricula of training courses including the needs of tool and die industry.		.....														
3-2-2. Develop curricula of the short-term training courses.		.....														
3-2-3. Develop curricula of the mold training courses.		.....														
3-3. Prepare manuals and materials for the training courses.	Preparation of Manuals													PMT	PL CP TE		
3-3-1. Make the manual and materials draft using the lectures/OJT documents.		.....														
3-3-2. Discuss the manual and materials draft in the technical group meeting.		.....														
3-3-3. Prepare manuals and materials of the short-term training courses.		.....														
3-3-4. Prepare manuals and materials of the mold training courses.		.....														
3-4. Review and improve curricula, manuals and materials.	Maintenance													PMT	PL CP TE		
3-4-1. Evaluate the curricula, the manuals and materials.		.....														
3-4-2. Revise/Upgrade the curricula, the manuals and materials.		.....														

Output 4 : Training courses in tool and die industry will be implemented systematically.

ACTIVITIES	TARGET	SCHEDULE (FY2000)												Responsible Persons In Project Term	INPUT	REMARKS			
		4	5	6	7	8	9	10	11	12	1	2	3						
4-1. Select main/back-up trainers from C/P.	Decision of Trainers																PMT	PL CP TE	
4-1-1. Conduct the monitoring and evaluation to C/P.				.....							.....
4-1-2. Analyze the result of monitoring and evaluation.				.....								.....
4-1-3. Decide of Classroom/ Workshop Instructor from C/P's.				.....								.....
4-2. Make training courses plans.	Planning																PMT	PI CP TE	
4-2-1. Make plan of the short-term training courses.																			
4-2-2. Make plan of the mold training courses.																			
4-3. Conduct training courses.	Conducting																PM	PL CP	
4-3-1. Conduct the short-term training courses.																			
4-3-2. Conduct the mold training courses.																			
4-4. Evaluate trainers and training courses.	Evaluation																PMT	PL CP	
4-4-1. Evaluate trainers skill.																			
4-4-2. Make plan of the second training courses.																		

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Output 5 : MIRDC's technical support services to tool and die industry will be implemented systematically.

ACTIVITIES	TARGET	SCHEDULE(FY2000)												Responsible Persons In Project Term	INPUT	REMARKS
		4	5	6	7	8	9	10	11	12	1	2	3			
5-1. Identify necessary technical support services to tool and die industry.	Information													PMT	PM PL CA PC	
5-1-1. Implement the questionnaire.																
5-1-2. Periodical meeting with industry concerned.																
5-1-3. Make the plan of technical support services.																
5-2. Implement the technical support services.	Implementation													PMT	PL CP TE	
5-2-1. Make the plan of technical consultancy services.																
5-2-2. Implement technical consultancy services.																
5-2-3. Elaborate the guidance monitoring sheets.																
5-2-4. Make the next target of technical consultancy services.																
5-3. Disseminate technical information through technology fora/clinic and publications.	Publications													PMT	PM CP CA TE PC	
5-3-1. Formulate the plan of public relations.																
5-3-2. Prepare to make the project PR video.																
5-3-3. Implement publicity periodically.																
5-3-4. Conduct for a/clinic at provinces area.																

Technical Cooperation Program (TCP)

----- : Plan _____ : Actual

The Upgrading Project for Plastic Milling Tool Technology

Calendar Year	97	1998				1999				2000				2001				2002				
Japanese Fiscal Year	1997		1998				1999				2000				2001				2002			
Term of Technical Cooperation	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	
I. Mold Design																						
1. Basic Knowledge of Mold Design																						
2. Actual Knowledge of Mold Design																						
1) Technical Drawing																						
2) Product Design/Mold Design																						
3) Design of Test Mold																						
(1) Pen Holder																						
(2) Plastic Catch (Bulb Protector)																						
(3) Soap Box																						
(4) Paper Clip & Holder																						
(5) Letter Opener																						
(6) Tape Holder																						
(7) Turn Lens																						
5) CAD(2-D) Operation																						
6) CAD/CAM(2.5-D) Operation																						
3. Advanced Knowledge of Mold Design																						
1) Design of Model Mold																						
(1) Telephone Case Mold																						
(2) Camera Body Mold																						
2) CAD/CAM(3-D) Operation																						
4. Trouble Shooting																						
II. Mold Processing																						
1. Basic Knowledge of Processing																						
2. Actual Knowledge of Processing																						
1) Upgrading of Machine Operation																						
2) DNC Operation from CAM																						
3) Maintenance of Machinery																						
4) Machining of Test Mold																						
(1) Pen Holder																						
(2) Plastic Catch (Bulb Protector)																						
(3) Soap Box																						
(4) Paper Clip & Holder																						
(5) Letter Opener																						
(6) Tape Holder																						
(7) Turn Lens																						
3. Advanced Knowledge of Processing																						
1) Programming																						
2) Operation & Method of Machinery																						
3) Machining of Model Mold																						
(1) Telephone Case Mold																						
(2) Camera Body Mold																						
4) Product Management																						
4. Trouble Shooting																						
III. Mold Assembling/Maintenance & Trial Shot (A.M.T.)																						
1. Basic Knowledge of A.M.T.																						
2. Actual Knowledge of A.M.T.																						
1) Adjustment of Assembling																						
2) Polishing & Mirror Polishing																						
3) A.M.T. of Test Mold																						
(1) Pen Holder																						
(2) Plastic Catch (Bulb Protector)																						
(3) Soap Box																						
(4) Paper Clip & Holder																						
(5) Letter Opener																						
(6) Tape Holder																						
(7) Turn Lens																						
3. Advanced Knowledge of A.M.T.																						
1) A.M.T. of Model Mold																						
(1) Telephone Case Mold																						
(2) Camera Body Mold																						
2) Precision Injection Molding Process																						
4. Trouble Shooting																						
5. Mold Maintenance																						
IV. Technical Consultancy & Method																						
1. Technical Consultancy																						
2. Seminar for Industry																						
1) Gas Injection																						
2) Programming																						

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Annual Technical Cooperation Program for JFY 1999

——: Plan : Completed

1. Mold Design

Calendar Year	1999												2000		
Japanese Fiscal Year	1999														
Technical Item	4	5	6	7	8	9	10	11	12	1	2	3			
1. Technical Drawing														
2. Product Drawing														
1) Parting Line														
2) Under Cut														
3) Draft														
4) Thickness														
5) Strengthening and Prevention														
6) Plastic Material														
3. Mold Design														
1) Mold Structure (2 /3 plate)														
2) Runner and Gate														
3) Ejector														
4) Temperature Control														
5) Gas Vent														
6) Metal Material														
7) Variation of Mold Structure														
4. Design of Test Mold														
1) Pen Holder														
2) Plastic Catch (Bulb Protector)	(Already finished until March 1999.)														
3) Soap Box	(Already finished until March 1999.)														
4) Paper Clip & Holder														
5) Letter Opener														
6) Tape Holder														
7) Turn Lens														
5. Design of Model Mold														
1) Telephone Case														
2) Camera Body														
6. CAD/CAM Operation (2D)														
1) CAD (I-CAD)														
2) CAM (T/S)														
3) Programming and Test Cutting														
7. CAD/CAM Operation (2.5D)														
1) CAM (T/S)														
2) Programming and Test Cutting														
★ Dispatch of Short-term Expert (CAD/CAM Programming)														
★ Training of C/P in Japan														
8. Technical Consultancy (in Cebu)														

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—— :Plan : Completed

2. Mold Processing

Calendar Year	1999												2000		
Japanese Fiscal Year	1999												1	2	3
Technical Item	4	5	6	7	8	9	10	11	12						
1. Basic Knowledge														
1) Safety & 5S														
2) Tolerance														
2. Upgrading of Machine Operation														
1) EDM														
2) Wire EDM														
3) Universal Type Milling Machine														
4) Drill Grinding Machine														
5) Surface Grinding Machine														
6) Vertical Machining Center														
7) Tool Presetter														
8) DNC Operation from CAM														
★ Dispatch of Short-term Expert (Mold Material)														
3. Upgrading of Processing														
1) Maintenance of Machinery														
2) Measurement														
3) Temperature & Accuracy														
4) Mold Material														
5) Tooling														
★ Dispatch of Short-term Expert (DNC Operation)														
4. Machining of Test Mold														
1) Pen Holder														
2) Plastic Catch (Bulb Protector)														
3) Soap Box														
4) Paper Clip & Holder														
5) Letter Opener														
6) Tape Holder														
7) Turn Lens														
5. Machining of Model Mold														
1) Telephone Case														
2) Camera Body														
6. Technical Consultancy (in Cebu)														

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— : Plan : Completed

3. Mold Assembling, Maintenance & Trial Shot

Calendar Year	1999										2000		
Japanese Fiscal Year	1999												
Technical Item	4	5	6	7	8	9	10	11	12	1	2	3	
I. Basic Knowledge of A.M.T.													
1. [Assembling]													
1) Preparation													
(1) Work Plan and Safety (5S)												
(2) Check of Drawing												
(3) Check of Mold Components												
2) How to Use of Crane												
3) Mold Disassemble												
2. [Trial Shot]													
1) Plastic												
2) Thermoplastic Resins												
3) Thermosetting Resins												
4) Classification of Thermoplastic Resins												
5) Feature of Thermoplastic Resins												
6) Injection Molding Machine													
(1) Outline and Explanation												
(2) Mold Clamping Unit												
(3) Plasticizing Unit												
7) Outline of Injection Molding Process													
(1) Drying and Handling of Resin												
(2) Mold Temperature Control												
(3) Mold Clamping Force												
(4) Plasticizing												
(5) Hold-pressure												
8) Molding Defects and Correctives												
II. Actual Knowledge of A.M.T.													
1. [Assembling]													
1) Adjustment of Insert-block												
2) Adjustment of P.L.												
3) Heating and Cooling System												
4) Polishing												
5) Adjustment of Side-core												
6) Test Mold													
(1) Pen Holder									
(2) Plastic Catch (Bulb Protector)									
(3) Soap Box									
(4) Paper Clip & Holder									
(5) Letter Opener									
(6) Tape Holder									
(7) Turn Lens									
7) Model Mold													
(1) Telephone case									
(2) Camera body									
☆ Dispatch of Short-term Expert (Polishing)												
★ Training of C/P in Japan												

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Calendar Year	1999										2000		
Japanese Fiscal Year	1999												
Technical Item	4	5	6	7	8	9	10	11	12	1	2	3	
2. [Trial Shot]												
1) Operation												
2) Test Mold												
(1) Pen Holder								
(2) Plastic Catch (Bulb Protector)												
(3) Soap Box								
(4) Paper Clip & Holder												
(5) Letter Opener												
(6) Tape Holder												
(7) Turn Lens													
3) Model Mold												
(1) Telephone Case												
(2) Camera Body												
III. Trouble Shooting												
IV. Mold Maintenance												
V. Technical Consultancy (in Cebu)						

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ANNUAL TECHNICAL COOPERATION PROGRAM (ATCP) FOR FY2000

[Annex 19]

(as of July 30, 2000)

I. MOLD DESIGN

▲ : C/P training in Japan ● : Dispatch of Short-term expert : Plan — : Actual

Technical Item	Month	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1. Basic Knowledge of Mold Design		(Already finished by FY1999.)											
2. Actual Knowledge of Mold Design													
1) Technical Drawing													
2) Product Drawing/Mold Design													
3) Design of Test Mold													
(1) Turn Lens		(Already finished by March 1999.)											
(2) Others													
4) CAD(2-D) Operation													
5) CAD/CAM(2.5-D) Operation													
(1) CAM(T/S) Operation			●	●									
(2) CAM(Test Cutting by VMC)		—			●	●							
(3) CAD/CAM Network Management		—	●		—								
(4) Making Maintenance/ Operation Manuals			—										
3. Advanced Knowledge of Mold Design													
1) Design of Model Mold													
(1) Telephone Case Mold													
(2) Camera Body Mold													
2) CAD/CAM(3-D) Operation													
(1) CADCEUS Operation					▲	▲	▲	▲	▲	▲	▲	▲	▲
(2) Programming and Test Cutting											●	●	●
(3) Making Maintenance/ Operation Manuals													
4. Trouble Shooting													
5. Curricula Development													
1) Curriculum for Training Courses							●						
2) Hand-out for Training Courses		—											
6. Technical Consultancy & Method													
1) Technical Consultancy												●	●
2) Technical seminar (Industry)											●	●	●

Tentative Schedule of Implementation

Calendar Year	.....Plan																Actual					
	96		1997				1998				1999				2000				2001				2002
Japanese Fiscal Year	96	96	1997		1998		1999		2000		2001		2002		2002		2002						
	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II			
Term of Technical Cooperation																						
Japanese Side	-----																						
I. Dispatch of Mission	-----																						
(1) Preliminary Study																						
(2) Implementation			...																				
(3) Management Consultation																						
(4) Management Consultation (Mid-term Evaluation)									-					...									
(5) Evaluation																						
II. Dispatch of Long-Term Experts	-----																						
(1) Chief Adviser																						
(2) Administrative Coordinator	-----																						
(3) Mold Design																						
(4) Mold Processing	-----																						
(5) Mold Assembling/Maintenance and Trial Shot																						
III. Dispatch of Short-Term Experts	-----																						
(1) Mold Design																						
(2) Mold Processing	-----																						
(3) Mold Assembling																						
(4) Seminar (The advanced technology)	-----																						
(5) Consultancy Service																						
(6) Installation & Adjustment	-----																						
IV. Training of Counterpart Personnel in Japan	-----																						
(1) Mold Design																						
(2) Mold Processing	-----																						
(3) Mold Assembling																						
(4) Project Management	-----																						
(5) Computer Maintenance																						
V. Provision of Machinery and Equipment	-----																						
(1) FY1997																						
(2) FY1998	-----																						
(3) FY1999																						
(4) FY2000	-----																						
Philippine Side	-----																						
I. Building and Facilities																						
II. Machinery and Equipment	-----																						
III. Allocation of Counterpart Personnel and Staff																						
IV. Budgetary Allocation	-----																						

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Annual Tentative Schedule of Implementation for JFY 1999 (ATSI)

Calendar Year	1999												2000			
	4	5	6	7	8	9	10	11	12	1	2	3				
Japanese Side																
1. Dispatch of Mission																
2. Dispatch of Long-term Experts																
(1) Chief Adviser																
(2) Administrative Coordinator																
(3) Mold Design																
(4) Mold Processing																
(5) Mold Assembling, Maintenance and Trial Shot																
3. Dispatch of Short-term Experts																
(1) CAD/CAM Programming																
(2) DNC Operation																
(3) Mold Material																
(4) Mold Polishing																
(5) Seminar (Advanced technology)																
(6) Consultancy Service																
4. Training of C/P in Japan																
(1) Computer Maintenance																
(2) Mold Assembling																
(3) Mold Design																
(4) Project Management																
5. Provision of Machinery & Equipment																
Philippine Side																
1. Building and Facilities																
2. Machinery and Equipment																
3. Budgetary Allocation																
4. Allocation of C/P																
5. Submission of the documents																
(1) A-1 Form for Experts																
(2) A-2-3 Forms for C/P Training in Japan																
(3) A-4 Forms for Machinery & Equipment																

1. The Japanese Fiscal year starts in April and ends in March.
2. This schedule is subject to change in accordance with budgetary appropriation in 1999.

Annual Tentative Schedule of Implementation for JFY 2000 (ATSI)

Calendar Year	..... Scheduled ——— Implemented																
	2000												2001				
Japanese Fiscal Year	2000																
Japanese Side	4	5	6	7	8	9	10	11	12	1	2	3					
1. Dispatch of Mission				—												
2. Dispatch of Long-term Experts																	
(1) Chief Adviser																	
(2) Administrative Coordinator																	
(3) Mold Design																	
(4) Mold Processing																	
(5) Mold Assembling, Maintenance and Trial Shot																	
3. Dispatch of Short-term Experts																	
(1) CAD/CAM Network Station																
(2) Techniques of Electric Discharge Machine																
(3) Precision Injection Molding																
(4) Injection Machine Maintenance																
(5) Curricula Development & Management																
(6) Techniques of Consultancy Services																
(7) CAM (Twin Simple) Operation																
(8) CAM (Twin Simple) Programming																
(9) DNC Operation																
(10) Techniques of CADCEUS																
(11) Latest technical Seminar																
(12) Plastic Material																
4. Training of C/P in Japan																	
(1) Mold Design																	
(2) Mold Processing																	
(3) Mold Assembling																	
(4) Project Management																	
5. Provision of Machinery & Equipment																	
Philippine Side																	
1. Building and Facilities																	
2. Machinery and Equipment																	
3. Budgetary Allocation																	
4. Allocation of C/P																	
5. Submission of the documents																	
(1) A-1 Form for Experts																	(Forms to be submitted 3 months prior to dispatch)
(2) A-2·3 Forms for C/P Training in Japan																	(Forms to be submitted 3 months prior to dispatch)
(3) A-4 Forms for Machinery & Equipment																	(Forms to be submitted 3 months prior to dispatch)

1. The Japanese Fiscal year starts in April and ends in March.
2. This schedule is subject to change in accordance with budgetary appropriation in 1999.

List of Joint Coordinating Committee Meeting

No	Date	Contents of Discussion	Remarks
1st	April 28, 1998	Explanation of PDM, TCP, PO, ATCP. Initial approval of the contents by the JCC Members.	
2nd	January 20, 1999	Final approval of the contents by the JCC Members. (Dispatched of Management Team)	
3rd	March 03, 1999	Discussion of the project monitoring & evaluation system.	Small JCC
4th	April 16, 1999	Discussion of the project monitoring & evaluation system.	Small JCC
5th	May 12, 1999	Discussion of the project monitoring & evaluation system.	Small JCC
6th	June 04, 1999	Discussion of the project monitoring & evaluation system.	Small JCC
7th	July 06, 1999	Analysis of the 1 st monitoring and evaluation result and system.	
8th	January 19, 2000	Analysis of the 2 nd monitoring and evaluation result and system. Discussion on the plan of action.	

List of Project Management Meeting

Fiscal Year	No of Conducted	Date
FY1997	7	Oct 20, Nov 10, Nov 26, Jan 06, Feb 17, Mar 03, Mar 09
FY1998	25	Apr 13, May 06, May 25, Jun 09, Jun 16, Jul 20, Jul 28, Aug 04, Aug 10, Aug 17, Set 09, Set 22, Oct 13, Nov 04, Nov 19, Nov 27, Dec 08, Dec 15, Jan 26, Feb 02, Feb 16, Feb 23, Mar 09, Mar 16, Mar 22
FY1999	39	Apr 09, Apr 20, Apr 27, May 04, May 25, Jun 01, Jun 11, Jun 18, Jul 06, Jul 13, Jul 20, Aug 03, Aug 10, Aug 24, Sep 01, Sep 07, Sep 21, Sep 28, Oct 05, Oct 26, Nov 02, Nov 09, Nov 16, Nov 23, Dec 06, Jan 04, Jan 11, Jan 14, Jan 19, Jan 21, Jan 25, Feb 01, Feb 08, Feb 15, Feb 29, Mar 07, Mar 14, Mar 21, Mar 28
FY2000	17	Apr 4, Apr 7, Apr 21, May 02, May 09, May 23, May 30, Jun 9, Jun 13, Jun 20, Jun 23, Jun 29, Jul 10, Jul 11, Jul 17, Jul 18, Jul 25 (* as of July 30, 2000)

List of Promotional Activities

A. PUBLICATION

DATE	NAME OF PUBLISHER	TITLE OF ARTICLE
Jan. - Feb. 2000	Metals Industry Trends & Events	MIRDC, JICA hold 3 rd JCC meet on tool and die
Dec. 1999	S & T Post	Tool and Die Center
Nov. 1998	Manila Bulletin	MIRDC upgrades facilities with JICA grant
Sept. - Oct. 1998	Metals Industry Trends & Events	Plastic tool upgrade inauguration boon to industry
March - April 1998	Metals Industry Trends & Events	MIRDC, JICA hold gab on tool & die
June 1997	The Manila Chronicle	MIRDC receives \$13.5 M from JICA
May - June 1997	Metals Industry Trends & Events	Tool & Die Center to Rise at MIRDC
Jan. 1997	The Business Daily	RP-JICA Project to Boost Plastic Mold Sector
Jan. - Feb. 1997	Metals Industry Trends & Events	JICA to aid RP's Plastic Mold Toolmakers

B. RADIO INTERVIEW

DATE	PROGRAM HOST/STATION	PROGRAM	TOPIC	RESOURCE PERSON
Oct. 1999	S. Layos/DZRM 1287 KHz	S & T News	Precision Tool and Die Center	Engr. Eric P. Duquez
July 1997	J. Parafina/ZNN Veritas	S & T Hour	Precision Tool and Die Center	Engr. Rolando T. Vilorina

C. TECHNO FORA / DEMO CONDUCTED

DATE	LOCATION	ACTIVITY
July 10-15, 2000	PTTC, Roxas Blvd., Pasay City	<ul style="list-style-type: none"> Participated on the 11th Annual Technology Fair during the National Science and Technology Week 2000 celebration, which focused on information technology. The MIRDC-JICA exhibit received "The Best Conceptualization of the Fair's Theme Award".
Feb. 1998	Metro Cebu Regional Metals & Eng'g. Service Center (RMESC)	<ul style="list-style-type: none"> Introduced the following technologies and discussed with the participants: <ul style="list-style-type: none"> - Precision machining using Computerized Numerical Controlled (CNC) machines. - Conventional machining operation, e.g., copy milling, lathe and grinding operation. After the discussion/presentation of the above listed technologies, the team toward the facilities of the RMESC, Cebu Costume Jewelry Center(CJC) and Regional Metals Testing Center (PMTTC).
March 1998	Metro Cebu Regional Metals &	<ul style="list-style-type: none"> Twenty-five (25)-engineering students paid a visited the Regional Metals and Engineering

DATE	LOCATION	ACTIVITY
	Eng'g. Service Center (RMESC)	<p>Service Center in Metro Cebu. A forum was held afterwards at the Center's Seminar Room. The students from West Negros College, Negros Occidental accompanied by their professor - Engr. Jose Marlon S. Aguante, were toured around RMESC and a technical demonstration/forum was made on the following disciplines:</p> <ol style="list-style-type: none"> 1. Precision machining using Computerized Numerical Controlled (CNC) machines 2. Conventional Machining operations, i.e. copy milling, lathe & grinding operation.

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List of Tool Holders and Tooling

ARTICLE	DESCRIPTION	QTY.	COST	Purchased by
TOOLINGS FOR ASSEMBLY				
Abrasive, rubber	No. 2 saucer type, 1/8 x 5/8 dia.	5 pcs.	5,087.00	Philippine Side
Abrasive, stone	DME rectangular Grit 150 to 800	1 lot	3,432.00	Philippine Side
Angle Cut-Felt Bobs	Various sizes	1 lot	1,979.00	Philippine Side
Air Purifying Respirators	R-5,000	1 unit	82.00	Philippine Side
American Optical Cartridge	Cat. No. R57	1 pc.	600.00	Philippine Side
Beam Trammel	500 mm flat/round type	2 pcs.	409.00	Philippine Side
Broom Hand	300 mm	1 pc.	44.00	Philippine Side
Brush Cleaning	round	1 pc.	104.00	Philippine Side
Brush Combination	nylon and steel	1 pc.	994.00	Philippine Side
Brush steel	Various sizes	3 pcs.	806.00	Philippine Side
Chisel	Various sizes	1 lot	192.00	Philippine Side
Cutter, slab	Various sizes	1 lot	3,821.00	Philippine Side
Diamond compound	5 grams, grade 6U to 45U	12 pcs.	4,597.00	Philippine Side
Die, Threading	Round, various sizes	1 lot	3,565.00	Philippine Side
Dies	Hexagonal/round, various sizes	1 lot	31,772.00	Philippine Side
Divider, spring	150 mm	1 pc.	1,525.00	Philippine Side
Felt Polishing Kit	With wheels, dia. 1/4" to 3/4"	1 lot	2,850.00	Philippine Side
File, half round	1-1/4" x 12"	3 pcs.	125.00	Philippine Side
File, needle	12 pcs./set	1 pc.	901.00	Philippine Side
File, round	Various sizes	5 pcs.	549.00	Philippine Side
File, square	Various sizes	4 pcs.	132.00	Philippine Side
File, standard diamond	Various sizes	1 lot	39,651.00	Philippine Side
File, steel	Various sizes	1 lot	493.00	Philippine Side
File, triangular	Various sizes	3 pcs.	177.00	Philippine Side
Hammer, Engineer	500 gm/200 kg.	30 pcs.	758.00	Philippine Side
Holder, Drawing	B4	1 pc.	456.00	Philippine Side
Key, Allen	Various sizes	1 lot	295.00	Philippine Side
Key, Drift	Various sizes	1 lot	2,381.00	Philippine Side
Key, Hexagonal	Various sizes	1 lot	3,593.00	Philippine Side
Keyseating	Various sizes	1 lot	4,271.00	Philippine Side
Knife, Cable	2 x 1.5 x 25mm, cable strummer	28 pcs.	1,632.00	Philippine Side
Knurling Tool	Various sizes	1 lot	1,517.00	Philippine Side
Lapping Barrels	Various sizes	1 lot	6,903.00	Philippine Side
Level, Aluminum	Various sizes	1 lot	3,088.00	Philippine Side
Level, Frame	150 mm - 300 mm	3 pcs.	2,489.00	Philippine Side
Liquid Electrolyte	Various colors	3 pcs.	242.00	Philippine Side
Luster Laps	Various sizes	5 pcs.	1,830.00	Philippine Side
Mounted Wheels	Aluminum Oxide, A3 to 41/B44 to B97	1 lot	3,470.00	Philippine Side
Needle Eye Lap	Various sizes	1 lot	1,072.00	Philippine Side
Nylon Holder Felt Polishing	1/2"-1/4" dia. x 1/8 shank	3 pcs.	628.00	Philippine Side
Oil Stone	Various sizes	1 lot	203.00	Philippine Side
Parallel Bar	300 x 35 x 60	1 pc.	150.00	Philippine Side
Plate, Angle	Various sizes	1 lot	440.00	Philippine Side
Plate, Surface	Various sizes	1 lot	647.00	Philippine Side
Plier, Circlip	A0-J41	1 lot	520.00	Philippine Side
Plier, Cutting	74-20 "Knipex"	2 pcs.	158.00	Philippine Side
Plier, Duck Bill	130 mm, 33-160 "Knipex"	1 pc.	1,046.00	Philippine Side
Plier, Long Nose	130 mm, pointed 2815	1 pc.	267.00	Philippine Side
Plier, Round	130 mm, no. 2727	1 pc.	1,990.00	Philippine Side
Plier, Side cutting	140 mm - 230 mm	3 pcs.	2,118.00	Philippine Side
Plier, Stripping	165 mm, cable stripping	1 pc.	2,430.00	Philippine Side

ARTICLE	DESCRIPTION	QTY.	COST	Purchased by
Protractor	Various sizes	2 pcs.	3,029.00	Philippine Side
Puller	Various sizes	4 pcs.	7,119.00	Philippine Side
Riffler, die sinker	Various sizes	1 lot	15,025.00	Philippine Side
Riffler, half	Various sizes	1 lot	11,709.00	Philippine Side
Riffler, moldmaker	ZA-410 to 480 "2) cut x 12" long	1 lot	9,568.00	Philippine Side
Riffler, silversmith	"2" cut ZA-741/781 DME, 7" long	1 lot	4,362.00	Philippine Side
Rollers	5-20 tons capacity	2 pcs.	3,010.00	Philippine Side
Rubber Abrasive	Cratex, from fine to course	1 lot	4,106.00	Philippine Side
Rule, steel	Various sizes	3 pcs.	313.00	Philippine Side
Scraper	150 mm - 300 mm, various shapes	5 pcs.	2,059.00	Philippine Side
Scraper, Bearing	No. 660/2-8	1 pc.	240.00	Philippine Side
Screw driver	Various sizes	1 lot	1,472.00	Philippine Side
Silicon Carbide Resin Bonded	Various sizes	1 lot	1,614.00	Philippine Side
Sine Bar	100 mm	1 pc.	355.00	Philippine Side
Soldering Iron & Tip	GR 50	43 pcs.	858.00	Philippine Side
Spanner	Flat/Round, adjustable, var. sizes	1 lot	440.00	Philippine Side
Spanner, face	Various sizes	1 lot	124.00	Philippine Side
Square, precision	4-1/2" No. 20	1 pc.	631.00	Philippine Side
Square, try	Various sizes, bevelled	3 pcs.	4,581.00	Philippine Side
Square, steel	Various sizes	4 pcs.	7,839.00	Philippine Side
Stop watch		1 pc.	3,974.00	Philippine Side
Straight Edge	Various sizes	1 lot	503.00	Philippine Side
Tap, straight flute	Various sizes	1 lot	45,300.00	Philippine Side
Tapes, steel frame	10-30 meters	3 pcs.	414.00	Philippine Side
Tweezer, Varnish	125 mm, stripping	29 pcs.	1,690.00	Philippine Side
Wiggler	No. S-828H	1 pc.	600.00	Philippine Side
Wire Strapper	No. 16 - .05	1 pc.	24.10	Philippine Side
Wrench, box	Various sizes	1 pc.	520.00	Philippine Side
Wrench, combination	7x7mmx13 to 32x32mmx13	1 lot	578.00	Philippine Side
Wrench, monkey	300 mm	1 pc.	165.00	Philippine Side
Wrench, socket	Hexagon head type, various size	1 lot	1,245.00	Philippine Side
Wrench, tap	#0 - #15	6 pcs.	853.00	Philippine Side
TOOLINGS FOR VMC				
Broaching Tool	Various sizes	1 lot	97.00	Philippine Side
Carbide Cutter Inserts	Various sizes	1 lot	2,112.00	Philippine Side
Carbide Cutter Holder (insert)	PTG NR 3225M 22Q	1 pc.	227.00	Philippine Side
Carbide Holder	No. Papr. 16-3 R1715-2525M-16	1 pc.	113.00	Philippine Side
Chuck Arbor	Various sizes	5 pcs.	2,743.00	Philippine Side
Collet (inches)	Various sizes	1 lot	998.00	Philippine Side
Collet, spring	JSA 40 4mm to 25 mm	1 lot	1,716.00	Philippine Side
Counterbore	Various sizes	6 pcs.	3,989.00	Philippine Side
Counterbore straight shank	Various sizes	9 pcs.	9,350.00	Philippine Side
Counterbore taper shank	Various sizes	6 pcs.	961.00	Philippine Side
Countersink	Straight shank, various sizes	1 lot	1,959.00	Philippine Side
Cutter, angular milling	Various sizes	1 lot	18,708.00	Philippine Side
Cutter, concave milling	Various sizes	1 lot	17,583.00	Philippine Side
Cutter, convex milling	Various sizes	1 lot	20,111.00	Philippine Side
Cutter, corner rounding	Various sizes with shank	1 lot	5,367.00	Philippine Side
Cutter, face mill	Novex F-244 80 mm dia.	1 pc.	2,456.00	Philippine Side
Cutter, plain	Various sizes	1 lot	6,521.00	Philippine Side
Cutter, plain milling	Various sizes	1 lot	4,497.00	Philippine Side
Cutter, radius milling	Various sizes	1 lot	3,840.00	Philippine Side
Cutter, shell mill	Various sizes	1 lot	41,734.00	Philippine Side
Cutter, side milling	Staggered, various sizes	1 lot	22,190.00	Philippine Side

ARTICLE	DESCRIPTION	QTY.	COST	Purchased by
Cutter, single angle milling	Various sizes	1 lot	2,319.00	Philippine Side
Drill	Straight shank, 0.25 mm - 32 mm	1 lot	12,919.00	Philippine Side
Drill	Tapered shank, 5.8mm - 19.75mm	1 lot	17,418.00	Philippine Side
Drill, blank	Various sizes	1 lot	2,222.00	Philippine Side
Drill, center	Various sizes	1 lot	2,307.00	Philippine Side
Drill, letter series	A to Z	1 lot	7,336.00	Philippine Side
Drill, fractional sizes	T-shank/straight, various sizes	1 lot	10,482.00	Philippine Side
Drill, number series	#35 - #60, straight shank, RH	1 lot	3,391.00	Philippine Side
Drill, straight shank	Number series 1 to 34 RH	1 lot	7,410.00	Philippine Side
Drill, tapered shank	Various sizes	2 pcs.	2,566.00	Philippine Side
Drill, twist	#4 morse taper shank, various sizes	5 pcs.	2,097.00	Philippine Side
Drill, twist	#5 morse taper shank, various sizes	2 pcs.	740.00	Philippine Side
End Mill	Various sizes	1 lot	16,940.00	Philippine Side
End Mill, ball	Various sizes	1 lot	7,361.00	Philippine Side
End Mill, carbide	Various sizes	1 lot	561.00	Philippine Side
End Mill, double	Various sizes	1 lot	28,052.00	Philippine Side
End Mill, finishing	Various sizes	1 lot	4,134.00	Philippine Side
End Mill, single	Various sizes	1 lot	13,786.00	Philippine Side
Holder, boring tool	No. 10	1 pc.	1,785.00	Philippine Side
Holder, tape extension	5.5 mm/7mm	2 pcs.	84.00	Philippine Side
Machine Reamer	Taper shank, spiral flute, dia. 8 - 30mm	1 lot	3,873.00	Philippine Side
Reamer, adj.	48 mm - 58 mm, "Chucking"	1 lot	292.00	Philippine Side
Reamer	Hand/Machine 8 mm - 37 mm	1 lot	45,185.00	Philippine Side
Reamer	Adjustable 18mm - 33 mm	1 lot	8,399.00	Philippine Side
Reamer	MT, Helical/spiral MK 0 - MK 4	1 lot	512.00	Philippine Side
Reamer	Taper, long series, 2 - 10	1 lot	300.00	Philippine Side
Sleeve Drill	4-2	1 pc.	518.00	Philippine Side
Sleeve, M. Taper	Various sizes	5 pcs.	1,695.00	Philippine Side
Tap, Hand	Various sizes	1 lot	61,129.00	Philippine Side
Tap, Machine	M8 - M12	1 lot	4,234.00	Philippine Side
Tap, Pipe	Various sizes	1 lot	3,377.00	Philippine Side
Taper Pin Reamer	Shank, various sizes	1 lot	5,428.00	Philippine Side
Taper Sleeve	Size 2-4	2 pcs.	1,193.00	Philippine Side
Twist Mill	#5 morse tapered shank	2 pcs.	756.00	Philippine Side
Tool Holder	BT40-CTH10-60~CTH20-90	8 pcs.	106,000.00	Japanese Side
C10 Collet Set	2.5/3.5/4.5/5.5/6.5/7.5/8.5/9.5	1 set	19,200.00	Japanese Side
C10 Collet Set	3.0/4.0/5.0/6.0/8.0/10.0	1 set	14,400.00	Japanese Side
C20 Collet Set	6.0/8.0/10.0/12.0/16.0/20.0	1 set	16,500.00	Japanese Side
DTA7 Collet Set	1.0/2.0/3.0/4.0/6.0	1 set	40,500.00	Japanese Side
DTA12 Collet Set	4.0/6.0/8.0/10.0/12.0	1 set	96,000.00	Japanese Side
TOOLINGS FOR LATHE MACHINE				
Blade Knurling Tool	15L x 0.8 x 14.5 dia.	1 pc.	114.00	Philippine Side
Blade threading	Various sizes	3 pcs.	1,341.00	Philippine Side
Boring Tool	Various sizes	1 lot	2,242.00	Philippine Side
Center, Dead	MK 3-5 x 60 carbide tip	2 pcs.	2,032.00	Philippine Side
Center, Live	Various sizes	1 lot	6,072.00	Philippine Side
Center, Revolving	MT3	1 pc.	5,073.00	Philippine Side
Holder, Cut-off Tool	Various sizes	4 pcs.	2,659.00	Philippine Side
Holder, Knurling Tool	Various sizes	2 pcs.	284.00	Philippine Side
Holder, threading tool	FG1-2H	2 pcs.	803.00	Philippine Side
Holder, Tool	Various sizes	1 lot	8,931.00	Philippine Side
Tool Bit	Various sizes	3 pcs.	1,935.00	Philippine Side
TOOLINGS FOR MILLING MACHINE				
Cutter, Gear	Various sizes	1 lot	76,895.00	Philippine Side

ARTICLE	DESCRIPTION	QTY.	COST	Purchased by
Cutter, module	Endmill type, various sizes	1 lot	1,423.00	Philippine Side
Cutter, slitting	Various sizes	1 lot	13,333.00	Philippine Side
Cutter, spherical	3mm to 12mm	1 lot	4,035.00	Philippine Side
Cutter, sprocket	Various sizes	1 lot	6,334.00	Philippine Side
Cutter, staggered	Various sizes	1 lot	11,265.00	Philippine Side
Cutter, woodruff	Various sizes	1 lot	8,570.00	Philippine Side
TOOLINGS FOR QUALITY CONTROL				
Caliper	Gear Tooth/inside groove	1 lot	3,639.00	Philippine Side
Gage, boring	6-8mm to 100-160mm	1 lot	6,870.00	Philippine Side
Gage, center	30-50 deg., trapezoid	2 pcs.	60.00	Philippine Side
Gage, drill	Various sizes	4 pcs.	220.00	Philippine Side
Gage, drill grinding	0-120 degrees	2 pcs.	334.00	Philippine Side
Gage, hole	"Mitutoyo", 4 pcs./set	1 set	61.00	Philippine Side
Gage, marking	300 mm "KWK"	1 pc.	1,185.00	Philippine Side
Gage, morse ring	M.T. #0-#4, male	5 pcs.	841.00	Philippine Side
Gage, morse taper	M.T. #0-#4, female	5 pcs.	841.00	Philippine Side
Gage, plain plug	5-20 H7 "Go-no-go"	1 lot	1,005.00	Philippine Side
Gage, radius	Various sizes	1 lot	7,439.00	Philippine Side
Gage, scratch	300 mm "KWK"	3 pcs.	366.00	Philippine Side
Gage, surface	300 w/ adjustment	1 pc.	126.00	Philippine Side
Gage, telescopic	Various sizes	1 lot	991.00	Philippine Side
Gage, thread	55 deg. withworth, 60 deg., comb.	1 pc.	169.00	Philippine Side
Gage, thread plug	M10-M20 - 6H "Go-no-go"	1 lot	1,389.00	Philippine Side
Gage, thread ring	Various sizes	1 lot	3,620.00	Philippine Side
Gage, universal grinding	0-50 mm	1 pc.	214.00	Philippine Side
Gage, vernier depth	150 mm	11 pcs.	2,659.00	Philippine Side
Bore Gauge	(max)150-(min)10	1 pc.	33,174.00	Japanese Side
Digimatic Caliper	0-150 mm	5 pcs.	17,550.00	Japanese Side
Digimatic Caliper	0-200 mm	5 pcs.	22,425.00	Japanese Side
Maicrometer Digimatic	0-25 mm	5 pcs.	30,550.00	Japanese Side
Maicrometer Digimatic	25-50 mm	2 pcs.	14,430.00	Japanese Side
Maicrometer Digimatic	50-75 mm	2 pcs.	15,600.00	Japanese Side
Maicrometer Digimatic	75-100 mm	2 pcs.	22,880.00	Japanese Side
Maicrometer Digimatic	100-125 mm	2 pcs.	29,652.00	Japanese Side
Maicrometer Digimatic	125-150 mm	2 pcs.	29,076.00	Japanese Side
Dial Indicator	10x0.1 mm	3 pcs.	3,510.00	Japanese Side
Magnetic Stand	10x0.1 mm	3 pcs.	10,725.00	Japanese Side
Height Gauge	0-450 mm	1 pc.	50,500.00	Japanese Side
Height Master	10-310 mm	1 pc.	132,725.00	Japanese Side
TOOLINGS FOR GRINDING MACHINE (Kuroda)				
Wheel, abrasive	Various sizes	3 pcs.	721.00	Japanese Side
Wheel, dish	6 x 3 x 1-1/4 H dia., Tyrolit	1 pc.	1,650.00	Japanese Side
Wheel, grinding	Various sizes	1 lot	22,780.00	Japanese Side
Wheel, stone grinding	Various sizes	1 lot	11,379.00	Japanese Side
TOOLINGS FOR OTHER USAGES				
Cutter, single lip	2 mm - 20 mm	1 lot	1,468.00	Japanese Side
Cutter, tube pipe	3-35 mm	1 pc.	110.00	Japanese Side
Deburring tools	Various sizes	3 pcs.	621.00	Japanese Side
Safety glass	Black frame	1 pc.	372.00	Japanese Side
Safety glass	Mono. spec. 11-138 "Willison"	1 pc.	2,850.00	Japanese Side
Tester, Hardness	With Ball Bearing	1 pc.	250.00	Japanese Side
Digital Lead-out System	LS-303x320 mm	3 pcs.	178,320.00	Japanese Side
Vise	LTH 3P-150	1 pc.	59,120.00	Japanese Side
Vise	LT-50	2 pcs.	40,480.00	Japanese Side

ARTICLE	DESCRIPTION	QTY.	COST	Purchased by
Vise	LT-60	1 pc.	23,360.00	Japanese Side
Vise	PV-1	2 pcs.	24,160.00	Japanese Side
Vise	PV-2	2 pcs.	38,080.00	Japanese Side
Vise	PV-3	2 pcs.	63,840.00	Japanese Side
Wire Guide System	0.1 mm	1 set	59,600.00	Japanese Side
TOTAL COST	Philippine Side	916,244.1		
	Japanese Side	1,234,558.00		

TR

(H)

AS

List of Equipment Maintenance Manuals

(Completed)

Name of Maintenance Manual		Person in Charge
1.	Sodick CNC EDM Wire-cut	Engr. Danilo R. Lacdan
2.	Gilardon Drilling Machine	Engr. Rogelito B. Aquino

(Plan of Making Equipment Maintenance Manual)

Name of Maintenance Manual	Person in Charge	Completing Date
1. Mazak CNC Vertical Machining Center	Engr. Danilo R. Lacdan	December, 2000
2. Sodick CNC EDM Sinker	Engr. Danilo R. Lacdan	December, 2000
3. Sumitomo Plastic Injection Machine	Engr. Danilo R. Lacdan	December, 2000
4. CAD/CAM Network Station	Engr. Danilo R. Lacdan	December, 2000

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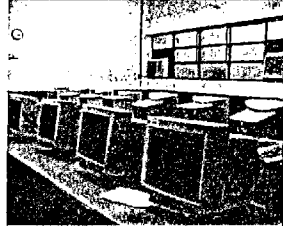
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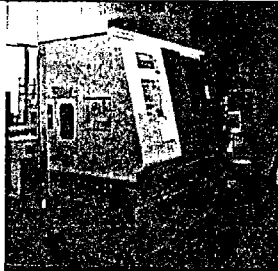
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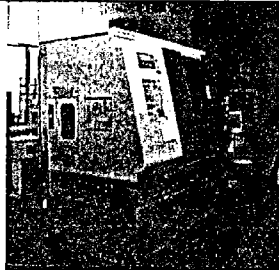
Equipment Management Record

(Sample)

The Upgrading Project for Plastic Molding Tool Technology


EQUIPMENT RECORD (DONATED EQUIPMENT BY JICA)								
Fiscal Year : FY 1997			Date of Arrival at Project Site : July 01, 1998					
Management Number			MD-001					
Description of Goods			CAD/CAM NETWORK STATION					
/ Model			IK-CAD/CAM NETWORK STATION					
/ Manufacturer			I.K. TOOL INTERNATIONAL CO.					
Specification								
<p>1. IK-CAD/CAM Network System</p> <p>1) 2 CAD/CAM (15 sets) : Pentium PRO200, HDD:2.5GB, 48MB memory</p> <p>2) 3 CAD/CAM (1 set) : Pentium PRO200, HDD:4GB, 128MB memory</p> <p>3) Page Printer (1 set) : A4/A3, Printer LAN Card</p> <p>4) Plotter (1 set) : for A1, SIMM memory, JET direct Card</p> <p>5) Saver (1 set) : Pentium PRO200 x 2, 64MB memory, HDD:12GB, 15" Display, UPS</p> <p>2. IK-CAD/CAM Skill Package : Training Simulation System</p>								
Composition / Accessories								
Place Installed : MIRDC CAD/CAM Room				Amount : ¥ 72,000,000 (P 18,000,000.00)				
Regular Inspection / Routine Adjustment (1 time / 3 months)								
Date	Description / Comment	Sign	Date	Description / Comment	Sign	Date	Description / Comment	Sign
Sep 1998	D.K	<i>[Signature]</i>	Jun 2000	D.K	<i>[Signature]</i>	Mar 2002		
Dec 1998	D.K	<i>[Signature]</i>	Sep 2000			Jun 2002		
Mar 1999	D.K	<i>[Signature]</i>	Dec 2000			Aug 2002		
Jun 1999	D.K	<i>[Signature]</i>	Mar 2001					
Sep 1999	D.K	<i>[Signature]</i>	Jun 2001					
Dec 1999	D.K	<i>[Signature]</i>	Sep 2001					
Mar 2000	D.K	<i>[Signature]</i>	Dec 2001					
Condition of Trouble / Repair and Adjustment :								
Remarks :								

EQUIPMENT RECORD (DONATED EQUIPMENT BY JICA)								
Fiscal Year : FY 1997			Date of Arrival at Project Site : September 17, 1998					
Management Number			MP-001					
Description of Goods			MACHINING CENTER					
/ Model			FJV-25					
/ Manufacturer			YAMAZAKI MAZACC					
Specification								
1. Transfer : X-axis x Y-axis x Z-axis (1020 x 510 x 460) 2. Table : Space size (1200 x 550 mm) Capability weight (800 kg) 3. Main Shift : Rotation Speed (35 - 12000rpm) Electromotor (AC22Kw(30HP)/15Kw(20HP)/1Kw5HP) 4. Sending Speed : X,Y : 30000 mm/min, Z : 18000 mm/min Cutting Speed : 8000 mm/min 5. Automatic Tool Changing Unit 1) Tool Shank Type : MAS BT-40 2) Capability : 21 pcs 3) Max. Tool Length : 300 mm 4) Max. Tool Weight : 8 kg 3. Power Supply : 35 Kv 4. Air Pressure : 200L/min 5. Size : 1) Height : 2898 mm 2) Necessary space size : 2650 x 2340 mm 3) Machine weight : 5500 kg * Continuous to See the Annex								
Composition / Accessories			* See the Annex					
Place Installed : Machining Center Room					Amount : ¥ 28,400,000 (P 7,100,000.00)			
Regular Inspection / Routine Adjustment (1 time / 3 months)								
Date	Description / Comment	Sign	Date	Description / Comment	Sign	Date	Description / Comment	Sign
Sep 1998	OK	S.D	Jun 2000	OK	S.D	Mar 2002		
Dec 1998	OK	S.D	Sep 2000			Jun 2002		
Mar 1999	OK	S.D	Dec 2000			Aug 2002		
Jun 1999	OK	S.D	Mar 2001					
Sep 1999	OK	S.D	Jun 2001					
Dec 1999	OK	S.D	Sep 2001					
Mar 2000	OK	S.D	Dec 2001					
Condition of Trouble / Repair and Adjustment :								
Remarks :								



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EQUIPMENT RECORD (DONATED EQUIPMENT BY JICA)								
Fiscal Year : FY 1997			Date of Arrival at Project Site : July 01, 1998					
Management Number			MA-003					
Description of Goods			INJECTION MACHINE (Small)					
/ Model			SH80M					
/ Manufacturer			SUMITOMO HEAVY EQUIPMENT CO.					
Specification								
<p>1. Clamp Unit</p> <p>1) Clamp System : Direct pressure</p> <p>2) Clamp Power : 80t</p> <p>3) Open Power : 5t</p> <p>4) Tiebar Space : 375 x 375 mm</p> <p>5) Platen Size : 545 x 545 mm</p> <p>6) Delight : 710 mm</p> <p>2. Plastic Injection Unit</p> <p>1) Model : C160S</p> <p>2) Electromotor : 15KW</p> <p>3) Screw ASS'Y : Φ28</p> <p>3. Power Supply : 200/220V 50/60Hz</p> <p>4. Size : 1018(w) x 4018(L) x 1680(H)mm</p> <p>5. Weight : 2.9t</p>								
Composition / Accessories			<p>1) Standard Hopper (1 set)</p> <p>2) Level Pat (1 set)</p> <p>3) Checking signal for Plate (1 set)</p> <p>4) Dry Unit (Box Type) : NH-12 (2 sets)</p> <p>5) Temperature Adjustment Unit : SH80M (1 set)</p>					
Place Installed : Injection Machine Room				Amount : ¥ 10,000,000 (P 2,500,000.00)				
Regular Inspection / Routine Adjustment (1 time / 3 months)								
Date	Description / Comment	Sign	Date	Description / Comment	Sign	Date	Description / Comment	Sign
Sep 1998			Jun 2000			Mar 2002		
Dec 1998	OK	SH	Sep 2000			Jun 2002		
Mar 1999	OK	SH	Dec 2000			Aug 2002		
Jun 1999	OK	SH	Mar 2001					
Sep 1999	OK	SH	Jun 2001					
Dec 1999	OK	SH	Sep 2001					
Mar 2000	OK	SH	Dec 2001					
Condition of Trouble / Repair and Adjustment :								
Remarks :								

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Comparison Chart for Monitoring Examination

ITEM Name of C/P	1st Examination					2nd Examination					3rd Examination					4th Examination			
	June 1999					December 1999					February 2000					June-July 2000			
	Written	Practical	Interview	TOTAL	Eva.*	Written	Practical	Interview	TOTAL	Eva.*	Written	Practical	Interview	TOTAL	Eva.**	Lecture	Practical	TOTAL	Eva***

I. Mold Design

Engr. Edgar M. LASCANO	30.0	31.5	15.6	77.1	S	46.5	37.0		83.5	S	76.5		86.3	81.4	CI	3.7		3.7	VG
Engr. Renato M. AGUSTIN Jr.	30.0	35.0	17.0	82.0	S	43.2	36.0		79.2	S	79.8		91.8	85.8	CI	3.7		3.7	VG
Mr. Rommel N. ADAME	26.2	33.5	*	59.7	*	38.2	37.5		75.7	S	66.9		79.2	73.1	WI		66.0	66.0	P
Mr. Ernesto B. ADRANEDA	27.8	35.5	10.8	74.1	P	29.8	41.5		71.3	P	62.2		62.2	62.2	D		90.0	90.0	E
Mr. Crisanto Dela CRUZ	27.0	33.0	14.0	74.0	P	36.8	36.5		73.3	P	63.3		80.6	71.9	WI		79.0	79.0	S

II. Mold Processing

Engr. Rogelito B. AQUINO	30.0	31.0	14.3	75.3	S	48.5	39.0		87.5	S	71.7		89.9	80.8	CI	3.8		3.8	VG
Mr. Augusto S. ATANACIO	27.4	31.5	13.3	72.2	P	39.5	40.0		79.5	S	70.6		69.4	70.0	WI		88.0	88.0	S
Mr. Ramon M. MARTIN	29.1	37.5	10.7	77.3	S	41.3	49.0		90.3	S	67.6		77.1	72.4	WI		88.0	88.0	S
Mr. Tirso P. ENTERESO	26.7	25.0	12.7	64.4	P	27.8	22.0		49.8	P	50.2		82.6	66.4	WI		31.0	31.0	F
Mr. Bobby F. FRONDA	28.5	28.0	13.0	69.5	P	35.4	42.0		77.4	S	45.4		59.0	52.2	D		66.0	51.0	F
Mr. Joel P. MONCAWE	27.6	35.5	10.3	73.4	P	35.2	50.0		85.2	S	65.8		79.3	72.5	WI		94.0	94.0	E
Mr. Antonio P. HABAL	28.6	32.0	10.6	71.2	P	37.5	35.0		72.5	P	65.4		80.0	72.7	WI		91.0	91.0	E
Mr. Ricardo M. SALAMAT	27.1	29.5	12.9	69.5	P	30.6	37.0		67.6	P	49.7		69.7	59.7	D		51.0	61.0	P

III. Mold Assembly, Maintenance & Trial Shot

Engr. Jesus C. CRUZ	30.0	38.5	15.5	84.0	S	*	*	*	*	*	68.2		86.1	77.1	CI	3.5		3.5	G
Mr. Ely Delos REYES	28.2	32.0	12.5	72.7	P	34.0	48.5		82.5	S	61.2		75.3	68.2	WI		92.0	92.0	E
Mr. Manuel F. ASCANO	27.9	33.5	17.5	78.9	S	32.6	36.0		68.6	P	56.5		80.1	68.3	WI		91.5	91.5	E
Mr. Benjamin C. LOGICA	23.7	35.0	*	*	*	43.7	35.5		79.2	S	47.1		77.0	62.1	WI		83.5	83.5	S
Mr. Simplicio N. MORLA Jr.	25.6	22.0	11.0	58.6	P	18.7	34.0		52.7	P	32.0		76.0	54.0	D				
Mr. Pascual N. LUMANTA	29.4	30.5	10.0	69.9	P	30.6	34.0		64.6	P	49.5		52.6	51.0	D		82.3	82.3	S

* Evaluation(Rating) : S=Satisfactory(75.0 ↑), P=Poor(74.9 ↓)

** Evaluation(Classification) : CI=Classroom Instructor, WI=Workshop Instructor, D=Demonstrator

*** Evaluation(Adjectival Rating) : in case of Classroom Instructor, 5.0-4.1=Excellent, 4.0-3.6=Very Good, 3.5-3.0=Good, 2.9-=Poor

in case of Workshop Instructor & Demonstrator, 100-90=Excellent, 89-75=Satisfactory, 74-60=Poor, 59-=Failed

- 1) Classroom Instructor: C/P who will conduct the in-house lectures for the trainees.
- 2) Workshop Instructor: C/P who will conduct the OJT for the trainees.
- 3) Demonstrator: C/P who will prepare the materials for the training courses.

Result of The 1st Monitoring & Evaluation

	Written (30%)	Practical (50%)	Interview (20%)	TOTAL (100%)	Adjectival Rating
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I. MOLD DESIGN

Engr. Edgar M. LASCANO	30.00	31.50	15.63	77.13	<i>Satisfactory</i>
Engr. Renato M. AGUSTIN Jr.	30.00	35.00	17.00	82.00	<i>Satisfactory</i>
Engr. Rogelito B. AQUNIO	30.00	31.00	14.25	75.25	<i>Satisfactory</i>
Mr. Rommel N. ADAME	26.20	33.50	-	-	-
Mr. Ernesto B. ADRANEDA	27.75	35.50	10.80	74.05	<i>Poor</i>
Mr. Crisanto Dela CRUZ	27.00	33.00	14.00	74.00	<i>Poor</i>
AVERAGE	28.49	33.25	14.34	76.49	

II. MOLD PROCESSING

Engr. Feliciano H. JAPITANA	29.25	34.00	12.55	75.80	<i>Satisfactory</i>
Mr. Augusto S. ATANACIO	27.40	31.50	13.25	72.15	<i>Poor</i>
Mr. Ramon M. MARTIN	29.10	37.50	10.65	77.25	<i>Satisfactory</i>
Mr. Tirso P. ENTERESO	26.70	25.00	12.70	64.40	<i>Poor</i>
Mr. Bobby F. FRONDA	28.50	28.00	13.00	69.50	<i>Poor</i>
Mr. Joel P. MONCAWE	27.55	35.50	10.30	73.35	<i>Poor</i>
Mr. Antonio P. HABAL	28.60	32.00	10.55	71.15	<i>Poor</i>
Mr. Pascual N. LUMANTA	29.40	30.50	9.95	69.85	<i>Poor</i>
AVERAGE	28.31	31.75	11.62	71.68	

III. MOLD ASSEMBLING, MAINTENANCE & TRIAL SHOT

Engr. Jesus C. CRUZ	30.00	38.50	15.50	84.00	<i>Satisfactory</i>
Mr. Ely Delos REYES	28.20	32.00	12.50	72.70	<i>Poor</i>
Mr. Manuel F. ASCANO	27.90	33.50	17.50	78.90	<i>Satisfactory</i>
Mr. Benjamin C. LOGICA	23.70	35.00	-	-	-
Mr. Simplicio N. MORLA Jr.	25.60	22.00	11.00	58.60	<i>Poor</i>
Mr. Ricardo M. SALAMAT	27.10	29.50	12.90	69.50	<i>Poor</i>
AVERAGE	27.08	31.75	13.88	72.74	

TOTAL AVERAGE	28.00	32.20	13.00	73.31	
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* Rating: Satisfactory=75.0 ↑ , Poor=74.9 ↓

** Contents for Evaluation:

- 1) Written Examination (30%)
- 2) Practical Examination (50%)
- 3) Interview by the JCC members (20%)

Result of The 2nd Monitoring & Evaluation

(conducted on December 1999)

	Written (50%)	Practical (50%)	Interview (00%)	TOTAL (100%)	EVALUATION
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I. MOLD DESIGN

Engr. Edgar M. LASCANO	46.50	37.00	/	83.50	<i>Satisfactory</i>
Engr. Renato M. AGUSTIN Jr.	43.20	36.00	/	79.20	<i>Satisfactory</i>
Mr. Rommel N. ADAME	38.20	37.50	/	75.70	<i>Satisfactory</i>
Mr. Ernesto B. ADRANEDA	29.80	41.50	/	71.30	<i>Poor</i>
Mr. Crisanto Dela CRUZ	36.80	36.50	/	73.30	<i>Poor</i>
AVERAGE	38.90	37.70	/	76.60	/

II. MOLD PROCESSING

Engr. Rogelito B. AQUINO	48.50	39.00	/	87.50	<i>Satisfactory</i>
Mr. Augusto S. ATANACIO	39.50	40.00	/	79.50	<i>Satisfactory</i>
Mr. Ramon M. MARTIN	41.30	49.00	/	90.30	<i>Satisfactory</i>
Mr. Tirso P. ENTERESO	27.75	22.00	/	49.75	<i>Poor</i>
Mr. Bobby F. FRONDA	35.40	42.00	/	77.40	<i>Satisfactory</i>
Mr. Joel P. MONCAWE	35.15	50.00	/	85.15	<i>Satisfactory</i>
Mr. Antonio P. HABAL	37.50	35.00	/	72.50	<i>Poor</i>
Mr. Ricardo M. SALAMAT	30.60	37.00	/	67.60	<i>Poor</i>
AVERAGE	36.96	39.25	/	76.21	/

III. MOLD ASSEMBLING, MAINTENANCE & TRIAL SHOT

Engr. Jesus C. CRUZ	*	*	*	*	*
Mr. Ely Delos REYEZ	34.00	48.50	/	82.50	<i>Satisfactory</i>
Mr. Manuel F. ASCANO	32.60	36.00	/	68.60	<i>Poor</i>
Mr. Benjamin C. LOGICA	43.70	35.50	/	79.20	<i>Satisfactory</i>
Mr. Simplicio N. MORLA Jr.	18.70	34.00	/	52.70	<i>Poor</i>
Mr. Pascual N. LUMANTA	24.20	34.00	/	58.20	<i>Poor</i>
AVERAGE	30.64	37.60	/	68.24	/

TOTAL AVERAGE	35.74	38.36	/	74.11	/
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* Rating: Satisfactory=75.0 ↑ , Poor=74.9 ↓

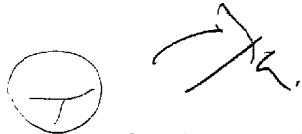
** Contents for Evaluation:

- 1) Written Examination (50%)
- 2) Practical Examination (50%)

Result of The 3rd Monitoring & Evaluation

(Conducted on: February, 2000)

NAME	POSITION	WRITTEN EXAMINATION			INTERVIEW				AVERAGE	Classification
		General	Special	TOTAL POINT	Job Knowledge / Intelligence	potential (To be trainer)	Communication Skills	TOTAL POINT		
I. MOLD DESIGN										
1. Edgar M. Lascano	Engineer	78.0	75.0	76.5	81.3	88.8	88.8	86.3	81.4	Classroom Instructor
2. Renato M. Agustin Jr.	Engineer	89.7	70.0	79.8	88.3	92.7	94.3	91.8	85.8	Classroom Instructor
3. Rommel N. Adame	Draftsman	70.7	63.1	66.9	77.3	79.3	81.0	79.2	73.1	Workshop Instructor
4. Crisanto dela Cruz	Engineer	77.3	49.3	63.3	78.3	80.0	83.3	80.6	71.9	Workshop Instructor
5. Ernesto B. Adraneda	Draftsman	66.0	58.5	62.2	60.0	63.3	63.3	62.2	62.2	Demonstrator
AVERAGE		76.3	63.2	69.7	77.1	80.8	82.2	80.0	74.9	
II. MOLD PROCESSING										
1. Rogelito B. Aquino	Engineer	82.0	61.4	71.7	83.3	93.3	93.0	89.9	80.8	Classroom Instructor
2. Augusto S. Atanacio	Technician	68.2	73.0	70.6	71.7	68.3	68.3	69.4	70.0	Workshop Instructor
3. Ramon M. Martin	Technician	73.0	62.3	67.6	78.3	76.7	76.3	77.1	72.4	Workshop Instructor
4. Tirso P. Entereso	Technician	65.3	35.0	50.2	82.7	83.3	81.7	82.6	66.4	Workshop Instructor
5. Bobby F. Fronda	Technician	44.0	46.8	45.4	53.3	60.0	63.7	59.0	52.2	Demonstrator
6. Joel P. Moncawe	Technician	64.7	66.8	65.7	80.3	79.3	78.3	79.3	72.5	Workshop Instructor
7. Antonio P. Habal	Technician	57.7	73.2	65.4	76.7	81.7	81.7	80.0	72.7	Workshop Instructor
8. Ricardo M. Salamat	Technician	59.0	40.5	49.7	70.0	70.0	69.0	69.7	59.7	Demonstrator
AVERAGE		64.2	57.4	60.8	74.5	76.6	76.5	75.9	68.3	
III. A.M.T.										
1. Jesus C. Cruz	Engineer	58.0	78.3	68.2	78.3	88.3	91.7	86.1	77.1	Classroom Instructor
2. Ely delos Reyes	Technician	51.2	71.1	61.2	76.7	75.0	74.3	75.3	68.2	Workshop Instructor
3. Benjamin C. Logica	Technician	45.9	48.3	47.1	74.3	75.0	81.7	77.0	62.1	Workshop Instructor
4. Manuel F. Ascano	Technician	57.3	55.6	56.4	80.0	79.3	81.0	80.1	68.3	Workshop Instructor
5. Pascual N. Lumanta	Technician	44.0	55.0	49.5	47.0	52.0	58.8	52.6	51.0	Demonstrator
6. Simplicio N. Morla Jr.	Technician	36.5	27.4	32.0	76.7	75.3	76.0	76.0	54.0	Demonstrator
AVERAGE		48.8	56.0	52.4	72.2	74.2	77.2	74.5	63.5	
TOTAL AVERAGE		63.1	58.8	61.0	74.6	77.2	78.6	76.8	68.9	



Classification according to the rating;

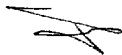
* Criterion for Evaluation:

- 1) Classroom Instructor= 75.0 ↑
- 2) Workshop Instructor= 60.0~74.9
- 3) Demonstrator = 59.9 ↓

In case of Mr. Ernesto B. Adraneda, reason of absence was his sickness.

** Contents for Evaluation:

- 1) Written Examination: Based on the In-house lectures conducted by Long-term Experts.
- 2) Interview by the JCC Members: Checking of the ability as an Instructors.



Result of the 4th Monitoring & Evaluation

[Conducted on June, 2006]

I. Classroom Instructor

Name	Field	Conducted of Seminar (Evaluation Contents)									AVERAGE	EVALUATION(**)
		Knowledge of Subject Matter	Preparation	Enthusiasm	Clarity of Presentation	Flexibility	Focus on Stated Course Objectives	Cooperativeness	Sensitivity to Participants' Needs	Promotion of Group Interaction		
Edgar M. Lascano	Mold Design	4.0	3.6	4.2	3.8	3.8	3.8	3.7	3.0	3.0	3.7	Very Good
Renato M. Agustin Jr.	Mold Design	3.7	4.0	3.9	3.9	3.3	4.2	3.4	3.4	3.5	3.7	Very Good
Rogelito B. Aquino	Mold Processing	4.8	3.4	3.7	3.5	3.7	4.2	3.8	4.0	3.4	3.8	Very Good
Jesus C. Cruz	A.M.T.	3.3	3.3	3.5	3.5	3.3	3.8	3.6	3.2	3.6	3.5	Good

II. Workshop Instructor

Name	Field	Technical Examination										AVERAGE	EVALUATION (**)	
		Product (50 points)					Assembly (50 points)							
		Paper Size	Line Usage	Accuracy	Dimensioning	Abbreviation	3-Plate	Side Core	Injector	Inserts				
Rommel N. Adame	Mold Design	5.0	4.0	16.0	11.0	5.0	7.0	5.0	5.0	8.0			66.0	Poor
Crisanto dela Cruz	Mold Design	5.0	4.0	15.0	11.0	5.0	12.0	10.0	8.0	9.0			79.0	Satisfaction

Name	Field	Dimension & Accuracy (80 points)				Flatness (5 points)	Parallelism (5 points)	Perpendicularity (5 points)	Surface Roughness (5 points)	Delivery Time	AVERAGE	EVALUATION (**)
Antonio P. Habal	Mold Processing					5.0	5.0	5.0	5.0	-9.0	91.0	Excellent
Ramon M. Martin	Mold Processing					5.0	5.0	5.0	5.0	-6.0	88.0	Satisfaction
Joel P. Moncawe	Mold Processing					5.0	5.0	5.0	5.0	-6.0	94.0	Excellent
Augusto S. Atanacio	Mold Processing					5.0	5.0	5.0	5.0	-6.0	88.0	Satisfaction
Tiroso P. Entereso	Mold Processing					5.0	5.0	3.0	5.0	-51.0	31.0	Failed

Name	Field	Assembly and Disassembly			Injection Molding				Deduct Points	AVERAGE	EVALUATION (**)	
		Preparation	Disassembly	Assembly	Preparation	Installing	Setting	Removing				Time and Quality
Ely C. delos Reyes	A.M.T.	-2.0	0.0	-2.0	0.0	0.0	-12.0	0.0	0.0	-16	92.0	Excellent
Benjamin C. Logica	A.M.T.	-2.5	-2.0	-5.5	0.0	-3.0	-16.0	0.0	-4.0	-33	83.5	Satisfaction
Manuel F. Ascano	A.M.T.	-2.5	-2.0	-6.5	0.0	0.0	-6.0	0.0	0.0	-17	91.5	Excellent

III. Demonstrator

Name	Field	Technical Examination										AVERAGE	EVALUATION (**)	
		Product (50 points)					Assembly (50 points)							
		Paper Size	Line Usage	Accuracy	Dimensioning	Abbreviation	3-Plate	Side Core	Injector	Inserts				
Ernesto B. Adraneda	Mold Design	5.0	5.0	18.0	14.0	5.0	12.0	10.0	8.0	13.0			90.0	Excellent

Name	Field	Dimension & Accuracy (80 points)				Flatness (5 points)	Parallelism (5 points)	Perpendicularity (5 points)	Surface Roughness (5 points)	Delivery Time	AVERAGE	EVALUATION (**)
Ricardo M. Salamat	Mold Processing					5.0	5.0	5.0	5.0	-9.0	51.0	Failed
Bobby F. Fronda	Mold Processing					5.0	5.0	5.0	5.0	-24.0	66.0	Poor

Name	Field	Assembly and Disassembly			Injection Molding				Deduct Points	AVERAGE	EVALUATION (**)	
		Preparation	Disassembly	Assembly	Preparation	Installing	Setting	Removing				Time and Quality
Pascual N. Lumanta	A.M.T.	-2.5	-2.0	-5.0	0.0	-8.0	-18.0	0.0	0.0	-36	82.3	Satisfaction



(*) Evaluation Standard by The Training Section, MIRDC:

5.0 - 4.1 Excellent

4.0 - 3.6 Very Good

3.5 - 3.0 Good

2.9 - Poor

(**) Evaluation Standard by The Project Management Team :

100-90 Excellent

89-75 Satisfaction

74-60 Poor

59- Failed



List of In-house Seminars

1. Mold Design

No.	Date	Title	Lecturer	Attendance
1	Oct 28, 1997	1) Concept of Injection mold 2) Drawing Manner	Mr. K Kojima	22 C/P's
2	Nov. 04	1) Mold Structure 2) Parting Line / Under Cut	Mr. K Kojima	22 C/P's
3	11	1) Plastic Material 2) Metal Material	Mr. K Kojima	22 C/P's
4	18	1) Limit and Fits 2) Preferred Number	Mr. K Kojima	22 C/P's
5	25	1) Runner and Gate 2) Temperature Control	Mr. K Kojima	22 C/P's
6	Dec. 02	Ejector System	Mr. K Kojima	22 C/P's
7	09	CAD Operation by CP	Mr. K Kojima	22 C/P's
8	16	CAM System	Mr. K Kojima	22 C/P's
9	Feb 03, 1998	Evaluation of Drawing	Mr. K Kojima	22 C/P's
10	Feb 17	Principle to Select Injection Machine	Mr. K Kojima	22 C/P's
11	Feb 24	1) Parting Line 2) Third Angle Projection and Section	Mr. K Kojima	22 C/P's
12	Mar 03	1) Drat Taper 2) Insert Molding	Mr. K Kojima	22 C/P's
13	Mar 10	1) The Strength of Mold 2) The Flow of Molding	Mr. K Kojima	22 C/P's
14	Mar 17	Molding Fault	Mr. K Kojima	22 C/P's
15	Aug 04	Mold Design Process (Soap Box)	Mr. K Kojima	22 C/P's
16	Aug 18	Mold Design Process (Soap Box)	Mr. K Kojima	22 C/P's
17	Aug 20	Mold Design Process (Bulb Protector)	Mr. K Kojima	22 C/P's
18	Jan 11, 1999	3-Plate Type (Review)	Mr. K Kojima	5 C/P's
19	Jan 21	Parting Line and Draft (Review)	Mr. K Kojima	5 C/P's
20	Jan 22	CAD System (Review)	Mr. K Kojima	5 C/P's
21	Feb 03	1) Side Core (Review) 2) Schedule Control	Mr. K Kojima	5 C/P's
22	Feb 08	Specification of Injection Machine	Mr. K Kojima	5 C/P's
23	Feb 10	1) Technical Drawing 2) Structure of 3-Plate Type Mold	Mr. K Kojima	5 C/P's
24	Feb 17	Bolt Strength	Mr. K Kojima	5 C/P's
25	Feb 23	Plastic Material	Mr. K Kojima	5 C/P's
26	Apr 22	Concept of Injection Molding (Review)	Mr. K Kojima	5 C/P's
27	Apr 23	Drawing Exercise	Mr. K Kojima	5 C/P's
28	Apr 26	1) Technical Drawing 2) Runner Lock Pin	Mr. K Kojima	5 C/P's
29	May 03	Coil Spring (Return Pin)	Mr. K Kojima	5 C/P's
30	May 04	Metal Material (Concept of JIS)	Mr. K Kojima	5 C/P's
31	May 05	Metal Material (Concept of JIS, AISI)	Mr. K Kojima	5 C/P's
32	May 10	Concept of Injection Molding	Mr. K Kojima	5 C/P's
33	May 12	Hot Runner	Mr. K Kojima	5 C/P's
34	May 14	Surface Finishing (texture, Polishing)	Mr. K Kojima	5 C/P's
35	May 19	Stop Bolt/ Puller Bolt/ Parting Line Lock	Mr. K Kojima	5 C/P's
36	May 20	Outside Undercut	Mr. K Kojima	5 C/P's
37	May 21	Inside Undercut	Mr. K Kojima	5 C/P's
38	May 24	Inside Undercut	Mr. K Kojima	5 C/P's
39	May 25	Inside Undercut	Mr. K Kojima	5 C/P's
40	May 27	Cavity and Core Insert	Mr. K Kojima	5 C/P's
41	Jun 07	Runner and Gage	Mr. K Kojima	5 C/P's
42	Jun 08	1) Plastic Material 2) Mold Structure (Review)	Mr. K Kojima	5 C/P's
43	Jan 25, 2000	Plastic Material	Mr. K Kojima	6 C/P's
44	Feb 08	Specification of Injection Machine for Mod Design	Mr. K Kojima	6 C/P's
45	Feb 09	Specification of Injection Machine for Mod Design	Mr. K Kojima	C/P's

2. Mold Processing

No.	Date	Contents	Lecturer	Attendance
1	Jun 03, 1998	Mold Processing (1)	Mr. S Doi	22 C/P's
2	Jun 05	Mold Processing (2)	Mr. S Doi	22 C/P's
3	Jun 10	Mold Processing (3)	Mr. S Doi	22 C/P's
4	Jun 17	Mold Processing (4)	Mr. S Doi	22 C/P's
5	Jun 19	Installation (1)	Mr. S Doi	22 C/P's
6	Jun 24	Installation (2)	Mr. S Doi	22 C/P's
7	Jun 26	Machine Tool Name (1)	Mr. S Doi	22 C/P's
8	Jul 08	Machine Tool Name (2)	Mr. S Doi	22 C/P's
9	Jul 09	Small Tool (1)	Mr. S Doi	22 C/P's
10	Aug 19	Small Tool (2)	Mr. S Doi	22 C/P's
11	Aug 21	Common Numerical (1)	Mr. S Doi	22 C/P's
12	Aug 26	Common Numerical (2)	Mr. S Doi	22 C/P's
13	Aug 28	Total Product Management (TPM) (1)	Mr. S Doi	22 C/P's
14	Sep 02	Total Product Management (TPM) (2)	Mr. S Doi	22 C/P's
15	Sep 04	Machining Center (VMC) (1)	Mr. S Doi	22 C/P's
16	Sep 09	Machining Center (VMC) (2)	Mr. S Doi	22 C/P's
17	Sep 11	Machining Center (VMC) (3)	Mr. S Doi	22 C/P's
18	Sep 16	Tooling System (1)	Mr. S Doi	22 C/P's
19	Sep 25	Tooling System (2)	Mr. S Doi	22 C/P's
20	Sep 30	Programming (1)	Mr. S Doi	22 C/P's
21	Oct 02	Programming (2)	Mr. S Doi	22 C/P's
22	Oct 09	Trouble Shooting (1)	Mr. S Doi	22 C/P's
23	Jan 29, 1999	Trouble Shooting (2)	Mr. S Doi	22 C/P's
24	Feb 23	ISO Programming	Mr. S Doi	22 C/P's
25	Feb 25	1) Machine Coordination System 2) Work-Piece Coordination System	Mr. S Doi	22 C/P's
26	Mar 10	Diameter Compensation (G40, G41, G42)	Mr. S Doi	22 C/P's
27	Mar 11	Diameter Compensation (G28, G429, G30)	Mr. S Doi	22 C/P's
28	Apr 12	Function of Grinding Machine	Mr. S Doi	22 C/P's
29	Apr 20	Limits and Fits System	Mr. S Doi	22 C/P's
30	Apr 21	Tapping	Mr. S Doi	22 C/P's
31	Apr 22	Temperature	Mr. S Doi	22 C/P's
32	Apr 26	Trigonometric Functions (Right Triangle)	Mr. S Doi	22 C/P's
33	Apr 27	Sin Bar (Right Triangle)	Mr. S Doi	22 C/P's
34	May 03	Fixed Cycle (G80, 82, 84, 85, 86, 73)	Mr. S Doi	22 C/P's
35	May 04	Fixed Cycle (G80, 82, 84, 85, 86, 73)	Mr. S Doi	22 C/P's
36	May 05	Tool Length, Position Offset (G43, G44, G45, G46, G47, G48)	Mr. S Doi	22 C/P's
37	May 10	5S & 6S	Mr. S Doi	22 C/P's
38	May 14	Limits and Fits	Mr. S Doi	22 C/P's
39	May 17	Electric Discharge Phenomena	Mr. S Doi	22 C/P's
40	Aug 11	Maintenance of Machinery	Mr. S Doi	8 C/P's
41	Aug 12	Twin Simple	Mr. S Doi	8 C/P's
42	Aug 17	CAM Operation (T/S~VMC & EDM Wire-cut)	Mr. S Doi	8 C/P's
43	Aug 23	ISO Programming	Mr. S Doi	8 C/P's
44	Aug 24	1) ISO Programming Absolute 2) Incremental System	Mr. S Doi	8 C/P's
45	Aug 31	ISO Programming (G00, G01, G02, G03)	Mr. S Doi	8 C/P's
46	Sep 06	Instance of ISO Programming	Mr. S Doi	8 C/P's
47	Sep 07	1) ISO Programming 2) Six-Axis Processing Method	Mr. S Doi	8 C/P's
48	Sep 09	1) ISO Programming 2) Calculation 3) Trigonometrically Function	Mr. S Doi	8 C/P's
49	Jan 04, 2000	1) Basic Plastic Knowledge 2) Injection Problems and ITS Causes	Mr. S Doi	8 C/P's
50	Jan 05	Mathematics	Mr. S Doi	8 C/P's
51	Feb 03	Difference of EIA Code and ISO Code	Mr. S Doi	8 C/P's
52	Feb 10	NC Machines	Mr. S Doi	8 C/P's
53	Feb 17	Fixed Cycle (G84, G76, G28)	Mr. S Doi	8 C/P's
54	Mar 02	Basic of Measurement	Mr. S Doi	8 C/P's
55	Mar 16	Measurement	Mr. S Doi	8 C/P's

3. Mold Assembling, Maintenance and Trial Shot

No.	Date	Title	Lecturer	Attendance
1	Feb 03, 1999	Outline of Injection Molding Machine	Mr. M Ide	6 C/P's
2	Feb 04	Outline of Injection Molding Machine	Mr. M Ide	6 C/P's
3	Feb 05	Safety	Mr. M Ide	6 C/P's
4	Feb 26	Safety	Mr. M Ide	6 C/P's
5	Mar 10	Injection Molding Condition	Mr. M Ide	6 C/P's
6	Mar 11	Injection Molding Condition	Mr. M Ide	6 C/P's
7	Jul 13	Mold Assembly (1)	Mr. M Ide	6 C/P's
8	Jul 21	Mold Assembly (2)	Mr. M Ide	6 C/P's
9	Jul 22	Mold Assembly (3)	Mr. M Ide	6 C/P's
10	Aug 10	Mold Assembly (4)	Mr. M Ide	6 C/P's
11	Aug 11	Mold Assembly (5)	Mr. M Ide	6 C/P's
12	Aug 12	Mold Assembly (6)	Mr. M Ide	6 C/P's
13	Aug 16	Mold Assembly (7)	Mr. M Ide	6 C/P's
14	Aug 17	Trigonometrically Function (1)	Mr. M Ide	6 C/P's
15	Aug 20	Trigonometrically Function (2)	Mr. M Ide	6 C/P's
16	Aug 24	Trigonometrically Function (3)	Mr. M Ide	6 C/P's
17	Aug 26	Mold Assembly (8)	Mr. M Ide	6 C/P's
18	Dec 02	1) Calculation of Injection Volume 2) Trouble Shooting	Mr. M Ide	6 C/P's
19	Feb 28, 2000	Process of Mold Assembly (1)	Mr. M Ide	6 C/P's
20	Mar 02	Process of Mold Assembly (2)	Mr. M Ide	6 C/P's

4. Conducted of Short-term Experts

No.	Date	Title	Lecturer	Attendance
1	Mar 12, 1998	1. Basic Knowledge in Cutting Techniques 1) Basic Knowledge on Cutting Tools (1) Types of Cutting Tools (2) Tool Materials (3) Applications (4) Cutting Conditions (5) Maintenance 2) CNC Processing (1) Programming (2) Selection of the Cutting Tools (3) Processing 2. The Latest Cutting Process 1) High Speed Machining Center 2) Effects on the Product 3) Present Status and Problems Encountered	Mr. T Matsuoka	22 C/P's
2	Nov 24, 1998	1. Rapid Manufacturing of Molds by High Speed Milling and Rapid Tooling Free Form Surface Machining by Ball End Mill	Dr. T. Nakagawa	15 C/P's
3	Mar 25, 1999	Mold Design	Mr. M. Komatsu	22 C/P's
4	Aug 25, 1999	Fundamentals of Steel Materials	Dr. T. Okuno	20 C/P's
5	Aug 26, 1999	1. Die Materials 2. Heat Treatment	Dr. T. Okuno	8 C/P's (Engineer C/P)
6	Nov 09, 1999	1. Introduction to Trouble Shooting in Plastic Injection Molding The Guidance of Consulting for Plastic Molding and Mold	Mr. M. Komatsu	18 C/P's
7	Feb 22, 2000	1. 5S 2. Productivity Management	Mr. M. Tamura	12 C/P's
8	Feb 23, 2000	1. Management of Die Design and Fabrication 1) Technical Management of Die Design and Fabrication 2) Production Management 3) Productivity Control	Mr. M. Tamura	7 C/P's (Engineer C/P)

Record of Factory Visits

COMPANY	ADDRESS	DATE	RESEARCHER
1997			
MESCO Inc.	MESCO Bldg., Reliance cor. Brixton Sts., Pasig City	9/30/97	Experts & C/P
Precision Machinist Co.		10/09/97	Experts & C/P
NCC	NCC Bldg., C.P. Garcia Avenue, UP Diliman, Quezon City	11/21/97	Experts & C/P
Armel Plastic Co.	48 2 nd Avenue, Industrial State, Bagumbayan, Taguig, Metro Manila	11/27/97	Experts & C/P
Octagon Chemical & Mfg., Co.	7-B Manalac St., Tanyag, Bo. Bagumbayan Taguig, M.M.	12/10/97	Experts & C/P
Metalcast Corp.	Banahaw St., Mountview Industrial Complex, Carmona, Cavite	12/12/97	Experts & C/P
Aichi Forging Co. of Asia	Sta. Rosa, Laguna	12/17/97	Experts & C/P
1998			
Moriroku Philippines, Inc.	115 North Science Ave. Laguna Technopark Binan, Laguna	2/18/98	Experts & C/P
Maximetal Industries, Inc.	9 Arellano Street, Caloocan City	2/19/98	Engr. Lacbay Engr. Cruz
FVC (Philippines) Inc.	Narra Road, Bo. San Antonio, San Pedro, Laguna	2/24/98	Experts & C/P
Ramcar Technology, Inc.	Sct. Santiago corner Marathon St., Bo. Obrero, Quezon City	2/26/98	Engr. Lacbay Engr. Duquez
Meralco Foundation Institute		2/26/98	Engr. Lacbay PDMA Members
Fujitsu Die-Tech Co. of the Philippines	113 East Science Ave., Laguna Technopark, Sta. Rosa, Laguna	3/06/98	Experts & C/P
Manly Plastics, Inc.	Macabagdal St., Howmart Road, Quezon City	3/13/98	Engr. Lascano Engr. Cruz Mr. Fronda Mr. Salamat Mr. Morla
TESDA	NMYC Complex East Service Road, SSH Taguig, Metro Manila	5/07/98	Experts & C/P
Optitech Machine Tools	Platinum Street, Goldendale II Tinejeros, Malabon, M.M.	6/23/98	Engr. Lacbay Engr. Duquez Engr. Aquino

			Mr. Antonio
I-Tung Plastic Mold Eng., Co.	600 7 th Avenue cor. 10 th Street, Caloocan City	7/06/98	Engr. Lachbay Mr. Dela Cruz Engr. Cruz
Machinebanks Co.	482 G. Araneta Avenue Quezon City	7/06/98	Experts & C/P
Kosei (Asia) Pacific, Inc.	105 Commerce Road, Laguna Technopark Binan, Laguna	7/08/98	Dr. Kondo Engr. Corral
San Miguel Packaging Products Manila Plastic Plant	631 Tomas Claudio St., Besta, Pandacan, Manila	7/27/98	Engr. Lachbay Mr. Benjamin Mr. Pascual Engr. Agustin Jr.
McKinley Machinery Philippines, Inc.	F.P. Felix Avenue Cainta, Rizal	8/03/98	Dr. Kondo Engr. Lachbay Engr. Duquez Rngr. Corral
Mikado Philippines Co.	Cavite Export Processing Zone Rosario, Cavite	8/08/98	Experts & C/P
Ebara Benguet, Inc.	Terelay Canlubang Industrial Estate, Cabuyao, Laguna	8/08/98	Experts & C/P
Ito-Focus Co.	Pioneer cor. Reliance Sts., Mandaluyong City	9/07/98	Dr. Kondo Engr. Lachbay Engr. Cruz
MESCO, Inc.	MESCO Bldg., Reliance cor. Brixton Sts., Pasig City	9/07/98	Engr. Lachbay Engr. Cruz
Yamashita Mold Philippines, Inc.	Block. 1 Daiichi Industrial Park, SEZ Bgy. Maguyam, Silang, Cavite	9/07/98	Engr. Lachbay Mr. Entereso Mr. Delos Reyes Dr. Kondo Mr. Kojima Mr. Do Mr. Ide
Santi & Sons	1) 1845 2/F Aric Bldg., Taft Avenue, Manila 2) Cavite	9/07/98	Engr. Lachbay Mr. Entereso Mr. Delos Reyes Dr. Kondo Mr. Kojima Mr. Doi Mr. Ide
Plastimer Industrial Co	25T Santiago Street, Bo. Canumay Valenzuela, MM	10/23/98	Experts & C/P
Plastic City	Valenzuela, MM	10/23/98	Experts & C/P
Yakohama Tire Philippines	IE5, Clark Special Economic Zone, Clark Field, Pampanga	11/13/98	Experts & C/P
JM Precision Tools Co.	21 First Avenue Bgy. Tanyag, Taguig, MM	11/23/98	Dr. Kondo Engr. Duquez C/Ps

1999			
Plazin Co.,	Cavite Economic Zone, Rosario, Cavite 4106	03/05/99	Experts Engr. Lachbay Engr. Cruz Mr. Lascano Mr. Moncawe
SHI Plastics Machinery (Phils.) Inc.	First Cavite Industrial Estate, Langkaan, Dasmariñas, Cavite	03/05/99	Experts Engr. Lachbay Engr. Cruz Engr. Lascano Mr. Moncawe
KOSAI Co.	Magsasai Rd., Brgy Antonio, San Pedro, Laguna	03/18/99	Dr. Kondo Mr. Kojima
H&E Manufacturing Co.	6032 Cul de Sac St., Edison Ave., Km 14 SSH West	03/24/99	Dr. Kondo Mr. Komatsu Mr. Doi C/P's 4 persons
Private Label Manufacturing	31 RMT Industrial Complex Tunasan, Muntinlupa City	03/24/99	Dr. Kondo Mr. Komatsu Mr. Doi C/P's 4 persons
TECHNO MOLD Inc.	756 Juan Luna St., Binondo, Manila	04/21/99	Mr. Kojima Mr. Doi Engr. Duquez Engr. Lascano Engr. Cruz
PLASTMAN Industrial Co.,	Carmelray Industrial Park, Canlubang, Calamba, Laguna	07/07/99	Experts Engr. Duquez Engr. Cruz Mr. Moncawe Mr. Ascano
2000			
Manly Plastics Inc.	Macabagdal St., Howmart Rd., Quezon City	03/13/00	Experts Engr. Duquez Engr. Aquino
Maximetal Industry Co.,	09 Arellano St., Caloocan City, MM	03/10/00	Experts Engr. Lascano Mr. Logica Mr. Habal
Armel Plastic Co., Inc.	48 2 nd Ave., Indl State Bagumbayan, Taguig, MM	08/18/00	Prof. Sasaki Dr. Kondo Engr. Lascano Engr. Aquino Engr. Cruz
Metroplas Packaging Products Co.,	858 Champaca Rd., Ext., UPS IV Sucat, Palanaque, MM	08/18/00	Prof. Sasaki Dr. Kondo Engr. Lascano Engr. Aquino Engr. Cruz

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List of Curricula Developed by the Project

1. Mold Design

No	Title of Curricula	Course Term	Developed Year
1	Fundamentals of Plastic Materials	40 hrs	FY 1999
2	Selection of Mold Materials	40 hrs	FY 1999
3	Computer Aided Design (I-CAD)	40 hrs	FY 1999
4	Mold Design I (Basic)	40 hrs	FY 1999
5	Mold Design II (Advance)	40 hrs	FY 1999
6	Computer Aided Machining (Twin/Simple)	40 hrs	FY 1999
7	Computer Aided Machining (Master Cam)	40 hrs	FY 1999
8	Computer Aided Machining (CADCEUS)	40 hrs	FY 1999
9	Mold Design	6 months	FY 2000

2. Mold Processing

No	Title of Curricula	Course Term	Developed Year
1	CNC Milling Machine	40 hrs	FY 1999
2	CNC Wire Cutting with DNC System	40 hrs	FY 1999
3	CNC EDM Sinking	40 hrs	FY 1999
4	Tool, Cutter & Drill Grinding	40 hrs	FY 1999
5	CNC Milling with DNC System	40 hrs	FY 1999
6	Surface Grinding Operation	40 hrs	FY 1999
7	Cylindrical Grinding Operation	40 hrs	FY 1999
8	CNC Surface Grinding	40 hrs	FY 1999
9	CNC Optical Profile Grinding	40 hrs	FY 1999
10	Mold Processing	6 months	FY 2000

3. Mold Assembly, Maintenance & Trial Shot

No	Title of Curricula	Course Term	Developed Year
1	Mold Manufacturing Using Digitizing System	40 hrs	FY 1999
2	Programming and Trial Shot of Mold	40 hrs	FY 1999
3	General Concept (Introduction to Injection Molding)	40 hrs	FY 1999
4	Coordinate Measuring Machine Operation	40 hrs	FY 1999
5	Mold Polishing Technique	40 hrs	FY 1999
6	Mold Assembly, Repair & Maintenance	40 hrs	FY 1999
7	CAD/CAM/CAE System	40 hrs	FY 1999
8	Injection Molding Machine Operation and Maintenance	40 hrs	FY 1999
9	Injection Molding Cost	40 hrs	FY 1999
10	Mold Assembly, Maintenance & Trial Shot	6 months	FY 2000

Proposed Outline of Curricula for Long-term Training Courses

1. Mold Design

CODE	SUBJECTS	DURATION	
		Hour	Day
JMP-MOD-01	Work Ethics	16	2
JMP-MOD-02	General Concept (Intro. To Injection Molding)	16	2
JMP-MOD-03	Housekeeping (5S)	8	1
JMP-MOD-04	Technical Mathematics	16	2
JMP-MOD-05	Technical Drawing	40	5
JMP-MOD-06	Dimensional Metrology	24	3
JMP-MOD-07	Safety	16	2
JMP-MOD-08	Turning Operation (Conventional)	16	2
JMP-MOD-09	Milling Operation (Conventional)	16	2
JMP-MOD-10	Grinding Operation (Conventional)	16	2
JMP-MOD-11	CNC Milling	24	3
JMP-MOD-12	CNC EDM Wire-cut	24	3
JMP-MOD-13	CNC EDM Sinker	24	3
JMP-MOD-14	Fundamentals of Plastic Materials	24	3
JMP-MOD-15	Selection of Mold Materials	16	2
JMP-MOD-16	Computer Aided Design (I-CAD)	64	8
JMP-MOD-17	Mold Design I (Basic)	176	22
JMP-MOD-18	Mold Design II (Advance)	192	24
JMP-MOD-19	CAE	4	1/2
JMP-MOD-20	Digitizing	8	1
JMP-MOD-21a	Computer Aided Machining (T&S)	64	8
JMP-MOD-21b	Computer Aided Machining (MasterCAM)	64	8
JMP-MOD-21c	Computer Aided Machining (CADCEUS)	68	8 1/2
JMP-MOD-22	Cost Estimation for Machining Jobs	16	2
JMP-MOD-23	Polishing	16	2
JMP-MOD-24	Assembly	16	2
JMP-MOD-25	Injection Machine Operation	40	5
JMP-MOD-26	Injection Molding Cost	8	1
	Plant Visits/ Tours	24	3
TOTAL		1,056	132

2. Mold Processing

CODE	SUBJECTS	DURATION	
		Hour	Day
JMP-MOP-01	Effective Human Relations & Work Ethics	16	2
JMP-MOP-02	General Concept of Injection Mold	16	2
JMP-MOP-03	Good Housekeeping (5S Program)	8	1
JMP-MOP-04	Safety	16	2
JMP-MOP-05	Technical Drawing	40	5
JMP-MOP-06	Technical Mathematics	16	2
JMP-MOP-07	Fundamentals of Plastic Materials	16	2
JMP-MOP-08	Selection of Mold Materials	16	2
JMP-MOP-09	Plastic Injection Mold Design (Basic)	40	5
JMP-MOP-10	Computer Aided Design Using 2-D Software	8	1
JMP-MOP-11	CNC Digitizing Technology	8	1
JMP-MOP-12	Cost Estimation of Machining Job	16	2
JMP-MOP-13	Dimensional Metrology	24	3
JMP-MOP-14	Lathe Machine Operation	24	3
JMP-MOP-15	Milling Operation	24	3

JMP-MOP-16	Surface Grinding Operation	24	3
JMP-MOP-17	Cylindrical Grinding Operation	24	3
JMP-MOP-18	Tool, Cutter & Drill Grinding	24	3
JMP-MOP-19	Panthographing	24	3
JMP-MOP-20a	Computer Aided Manufacturing(Using 2.5-D Software)	40	5
JMP-MOP-20b	Computer Aided Manufacturing (Using 3-D Software)	40	5
JMP-MOP-21	CNC Milling with Direct Numerical Control (DNC) System	144	18
JMP-MOP-22	CNC EDM Wire-cut with DNC System	144	18
JMP-MOP-23	CNC EDM Sinking	80	10
JMP-MOP-24	CNC Surface Grinding	40	5
JMP-MOP-25	CNC Optical Profile Grinding	40	5
JMP-MOP-26	Mold Polishing Technique	16	2
JMP-MOP-27	Mold Assembly	16	2
JMP-MOP-28	Plastic Injection Process	24	3
JMP-MOP-29	Determining Injection Molding Cost	8	1
	Plant Visits/ Tours	24	3
TOTAL		1,000	125

3. Mold Assembly

CODE	SUBJECTS	DURATION	
		Hour	Day
JMP-AMT-01	Effective Human Relation and Work Ethics	16	2
JMP-AMT-02	General Concept (Intro. To Injection Molding)	16	2
JMP-AMT-03	Housekeeping (5S)	8	1
JMP-AMT-04	Technical Mathematics	16	2
JMP-AMT-05	Technical Drawing	40	5
JMP-AMT-06	Dimensional Metrology	24	3
JMP-AMT-07	Coordinate Measuring Machine Operation	40	5
JMP-AMT-08	Safety	16	2
JMP-AMT-09	Turning Operation (Conventional)	16	2
JMP-AMT-10	Milling Operation (Conventional)	16	2
JMP-AMT-11	Grinding Operation (Conventional)	16	2
JMP-AMT-12	CNC Milling with Direct Numerical Control (DNC)	24	3
JMP-AMT-13	CNC EDM Wire-cut with Direct Numerical Control (DNC)	24	3
JMP-AMT-14	CNC EDM Sinker	24	3
JMP-AMT-15	Cost Estimation for Machining Jobs	16	2
JMP-AMT-16	Fundamentals of Plastic Materials	24	3
JMP-AMT-17	Selection of Mold Materials	16	2
JMP-AMT-18	2 Dimension CAD Operation	24	3
JMP-AMT-19	Plastic Injection Mold Design	40	5
JMP-AMT-20	CAD/CAM/CAE System	8	1
JMP-AMT-21	Mold Manufacturing Using Digitizing System	8	1
JMP-AMT-22a	Mold Polishing (Module I)	112	14
JMP-AMT-22b	Mold Polishing (Module II)	56	7
JMP-AMT-23	Mold Assembly, Repair and Maintenance	160	20
JMP-AMT-24	Injection Molding Machine Operation and Maintenance	40	5
JMP-AMT-25	Programming and Trial Shot of Mold	224	28
JMP-AMT-26	Injection Molding Cost	8	1
	Plant Visits/ Tours	24	3
TOTAL		1,056	132

List of Training Manuals

1. Mold Design

No	Title of Training Manual	Person In Charge	Target Date
1	Fundamentals of Plastic Materials	Engr. Agustin Jr.	Completed
2	Selection of Mold Materials	Engr. Lascano	Sep, 2000
3	Computer Aided Design (I-CAD)	Engr. Lascano	Sep, 2000
4	Mold Design I (Basic)	Engr. Lascano	Completed
5	Mold Design II (Advance)	Engr. Lascano	Oct, 2000
6	Computer Aided Machining (Twin/Simple)	Engr. Lascano	Oct, 2000
7	Computer Aided Machining (Master Cam)	Engr. Lascano	Completed
8	Computer Aided Machining (CADCEUS)	Engr. Lascano	Dec, 2000
9	Mold Design	Engr. Lascano	Dec, 2000

2. Mold Processing

No	Title of Training Manual	Person In Charge	Target Date
1	CNC Milling Machine	Engr. Aquino	Completed
2	CNC Wire Cutting with DNC System	Engr. Aquino	Sep, 2000
3	CNC EDM Sinking	Engr. Aquino	Sep, 2000
4	Tool, Cutter & Drill Grinding	Engr. Aquino	Oct, 2000
5	CNC Milling with DNC System	Engr. Aquino	Oct, 2000
6	Surface Grinding Operation	Engr. Aquino	Nov, 2000
7	Cylindrical Grinding Operation	Engr. Aquino	Nov, 2000
8	CNC Surface Grinding	Engr. Aquino	Dec, 2000
9	CNC Optical Profile Grinding	Engr. Aquino	Dec, 2000
10	Mold Processing	Engr. Aquino	Dec, 2000

3. Mold Assembly, Maintenance & Trial Shot

No	Title of Training Manual	Person In Charge	Target Date
1	Mold Manufacturing Using Digitizing System	Engr. Cruz	Sep, 2000
2	Programming and Trial Shot of Mold	Engr. Cruz	Sep, 2000
3	General Concept (Introduction to Injection Molding)	Engr. Cruz	Oct, 2000
4	Coordinate Measuring Machine Operation	Engr. Cruz	Oct, 2000
5	Mold Polishing Technique	Engr. Cruz	Nov, 2000
6	Mold Assembly, Repair & Maintenance	Engr. Cruz	Nov, 2000
7	CAD/CAM/CAE System	Engr. Cruz	Dec, 2000
8	Injection Molding Machine Operation and Maintenance	Engr. Cruz	Dec, 2000
9	Injection Molding Cost	Engr. Cruz	Dec, 2000
10	Mold Assembly, Maintenance & Trial Shot	Engr. Cruz	Dec, 2000

List of Training Materials

1. Mold Design

No	Title of Training Materials	Training Materials	Person In Charge	Target Date
1	Fundamentals of Plastic Materials	Transparencies / Hand-outs	Engr. Agustin Jr.	Completed
2	Selection of Mold Materials	Transparencies / Hand-outs	Engr. Lascano	Sep, 2000
3	Computer Aided Design (I-CAD)	Hand-outs	Engr. Lascano	Sep, 2000
4	Mold Design I (Basic)	Hand-outs	Engr. Lascano	Completed
5	Mold Design II (Advance)	Hand-outs	Engr. Lascano	Oct, 2000
6	Computer Aided Machining (Twin/Simple)	Hand-outs	Engr. Lascano	Oct, 2000
7	Computer Aided Machining (Master Cam)	Hand-outs	Engr. Lascano	Completed
8	Computer Aided Machining (CADCEUS)	Hand-outs	Engr. Lascano	Dec, 2000
9	Mold Design	Hand-outs	Engr. Lascano	Dec, 2000

2. Mold Processing

No	Title of Training Materials	Training Materials	Person In Charge	Target Date
1	CNC Milling Machine	Hand-outs	Engr. Aquino	Completed
2	CNC Wire Cutting with DNC System	Hand-outs	Engr. Aquino	Sep, 2000
3	CNC EDM Sinking	Hand-outs	Engr. Aquino	Sep, 2000
4	Tool, Cutter & Drill Grinding	Hand-outs	Engr. Aquino	Oct, 2000
5	CNC Milling with DNC System	Hand-outs	Engr. Aquino	Oct, 2000
6	Surface Grinding Operation	Hand-outs	Engr. Aquino	Nov, 2000
7	Cylindrical Grinding Operation	Hand-outs	Engr. Aquino	Nov, 2000
8	CNC Surface Grinding	Hand-outs	Engr. Aquino	Dec, 2000
9	CNC Optical Profile Grinding	Hand-outs	Engr. Aquino	Dec, 2000
10	Mold Processing	Hand-outs	Engr. Aquino	Dec, 2000

3. Mold Assembly, Maintenance & Trial Shot

No	Title of Training Materials	Training Materials	Person In Charge	Target Date
1	Mold Manufacturing Using Digitizing System	Transparencies / Hand-outs	Engr. Cruz	Sep, 2000
2	Programming and Trial Shot of Mold	Hand-outs	Engr. Cruz	Sep, 2000
3	General Concept (Introduction to Injection Molding)	Hand-outs	Engr. Cruz	Oct, 2000
4	Coordinate Measuring Machine Operation	Hand-outs	Engr. Cruz	Oct, 2000
5	Mold Polishing Technique	Hand-outs	Engr. Cruz	Nov, 2000
6	Mold Assembly, Repair & Maintenance	Hand-outs	Engr. Cruz	Nov, 2000
7	CAD/CAM/CAE System	Hand-outs	Engr. Cruz	Dec, 2000
8	Injection Molding Machine Operation and Maintenance	Hand-outs	Engr. Cruz	Dec, 2000
9	Injection Molding Cost	Hand-outs	Engr. Cruz	Dec, 2000
10	Mold Assembly, Maintenance & Trial Shot	Hand-outs	Engr. Cruz	Dec, 2000

List of Technical Training Courses Conducted for the Tool and Die Industry

1. Mold Design

No	Title of Training Program	No of Conducted	Date Conducted	No of Participants
1	Computer Aided Machining (Master Cam)	6	Mar 19/ Jun 17/ Oct 25/ Nov 22/ Nov 29, 1999 Apr 10, 2000.	146

2. Mold Processing

No	Title of Training Program	No of Conducted	Date Conducted	No of Participants
1	CNC Milling Machine	1	Mar 27, 1999	1
2	CNC Wire Cutting with DNC System	3	Apr 5, 1999 Apr 10/ May 27, 2000	14
3	CNC EDM Sinking	2	Apr 5, 1999 May 22, 2000	4
4	CNC Milling with DNC System	1	Apr 24, 2000	1

3. Mold Assembly, Maintenance & Trial Shot

No	Title of Training Program	No of Conducted	Date Conducted	No of Participants
1	Mold Polishing Technique	2	Apr 17/ Jun 12, 2000	11
2	Injection Molding Machine Operation and Maintenance	3	Sep 15/ Sep 20/ Oct 4, 1999	36

No. of Conducted Training Courses	No of Participants
18	213

List of Seminars for Tool and Die Industry

No.	Date	Title	Lecturer	Attendance
1	Mar 12, 1998	1. Basic Knowledge in Cutting Techniques 1) Basic Knowledge on Cutting Tools (1) Types of Cutting Tools (2) Tool Materials (3) Applications (4) Cutting Conditions (5) Maintenance 2) CNC Processing (1) Programming (2) Selection of the Cutting Tools (3) Processing 2. The Latest Cutting Process 1) High Speed Machining Center 2) Effects on the Product 3) Present Status and Problems Encountered	Mr. T Matsuoka	22 C/P's 20 from Private Companies
2	Nov 24, 1998	1. Rapid Manufacturing of Molds by High Speed Milling and Rapid Tooling 2. Free Form Surface Machining by Ball End Mill	Dr. T. Nakagawa	15 C/P's 35 from Private Companies
3	Mar 25, 1999	Mold Design	Mr. M. Komatsu	22 C/P's 32 from Private Companies
4	Aug 25, 1999	Fundamentals of Steel Materials	Dr. T. Okuno	20 C/P's
5	Aug 25, 1999	Tool Steels for Injection Mold Application	Dr. T. Okuno	Board Member of PDMA
6	Aug 26, 1999	1. Die Materials 2. Heat Treatment	Dr. T. Okuno	8 C/P's (Engineer C/P)
7	Aug 30, 1999	1. Die Materials 2. Heat Treatment	Dr. T. Okuno	38 from Private Companies
8	Nov 09, 1999	1. Introduction to Trouble Shooting in Plastic Injection Molding 2. The Guidance of Consulting for Plastic Molding and Mold	Mr. M. Komatsu	18 C/P's
9	Nov 12, 1999	Plastic Injection Molding & Mold in Japan	Mr. M. Komatsu	43 from Private Companies
10	Feb 22, 2000	1. 5S 2. Productivity Management	Mr. M. Tamura	12 C/P's
11	Feb 23, 2000	1. Management of Die Design and Fabrication 1) Technical Management of Die Design and Fabrication 2) Production Management 3) Productivity Control	Mr. M. Tamura	7 C/P's (Engineer C/P)
12	Feb 24, 2000	2. Management of Die Design and Fabrication 4) Technical Management of Die Design and Fabrication 5) Production Management 6) Productivity Control	Mr. M. Tamura	29 from Private Companies
13	May 05, 2000	1. Production Control System of New Dies in Japan 2. Prospects of Production Technologies in the 21 st Century · machining Technologies in the Age of High Speed Milling	Dr. T. Matsuoka	25 from Private Companies

List of Inquiries Received and Consulting Services Provided for the Tool & Die Industry

NO.	DATE	*REGION	COMPANY ASSISTED	COMPANY ADDRESS	INQUIRIES RECEIVED	RECOMMENDATION/ ACTION TAKEN
1	May 2000	NCR	Eco Triangle	L. GO2 De la Rosa Cond. Makati City - Mr. Ricardo Santiago	Fabrication of semiconductor tooling	<ol style="list-style-type: none"> 1) Phase of CNC EDM Wire Cut for faster and precise production of tooling. 2) They can avail of the MIRDC's CNC machines on a time sharing basis provided they have qualified operators or send their jobs to MIRDC. 3) If they push through with their plan to purchase Wire Cut EDM, Mr. Santiago must allow his staff to attend seminar or undergo on-the-job training.
2	May 2000	NCR	Catalina Boutique	333 Juan Luna Street Binondo, Manila - Mr. Adolph Ng	Design and fabrication of plastic moulds.	<ol style="list-style-type: none"> 1) Allow their staff to undergo on-the-job at the MIRDC so that close supervision and personalised instruction can be given on the following areas: mold design techniques using I-CAD, mold processing using CAD/ CAM and the use of state-of-the-art CNC machines for faster and efficient production.
3	April 1999	XI	Engr. Alfredo Gonora- OCW	021 Dona Rosa Street Toril, Davao City	Interested in establishing a machine shop/inquired on the conventional and latest tech.	<ol style="list-style-type: none"> 1) Discussed the end products of tool and die making such as moulds, die and tools and their various applications (i.e. plastic injection moulding, metal sheet cutting and forming, casting, etc.) 2) Also explained the equipment needed for tool and die making which can possibly be conventional or CNC machines. And the cost of investment which depends on the type of the shop set-up and the equipment.
4	July 1999	IV	Plastmann Ind'l. Mftg Corp.	Carmelry Subdivision Cabuyao, Laguna	<ul style="list-style-type: none"> • Design and fabrication of plastic injection mold. • Refurbishing of old mold used in egg tray prod'n. 	<ol style="list-style-type: none"> 1) Introduced the basics and fundamentals of plastic injection processes. 2) Discussed the operation of the machine.

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NO.	DATE	*REGION	COMPANY ASSISTED	COMPANY ADDRESS	INQUIRIES RECEIVED	RECOMMENDATION/ ACTION TAKEN
5	Nov. 1999	VII	Asahi Pentax	MEPZ 1, Lapu-Lapu City - Mr. Mathro Vasquez Purchasing Department	Localization of pin gauge and cylindrical grind gauge.	1) Machine tools such as profile grinders and cylindrical grinders are necessary for localization of these parts. 2) Referred to other companies equipped with the same machines.
6	Dec 1999	NCR	MICHEN Ind'l. Supply	504 Halcon Street Boni Avenue Mandaluyong City	<ul style="list-style-type: none"> • Fabrication of tooling for semiconductor. • Machine tool rebuilding of milling machine. 	1) Some of their semiconductor tooling need to be processed in CNC wire-cut machine instead of jig grinder. 2) He was advised to replace the wear plate (Gib) of the milling machine and scrape the bed.
7	Dec 1999	NCR	ADI Systems	7 Jesusa Bldg., Dr. A. Santos Avenue, Sucat Paranaque, Metro Mla.	Plastic casing of computer hard disk.	1) Provided information on how to produce molds and inject plastic products. 2) Explained the possibilities in using plastics instead of aluminium casing.
8	Dec 1999	NCR	Tools Technology	Unit C, MR Realty Bldg. Carlos Palanca Street Sucat, Paranaque City - Mr. Ted Suerte General Manager	Fabrication of blow molds.	1) Provided pointers on the fabrication of blow molds using CAD/CAM software. 2) A diskette with CAD/CAM program should be installed in the computer that is interfaced in the machining center.
9	Jan. 1998	XI	Ms. Rosalita T. Nunez City Mayor	General Santos City	MIRDC Training/Seminars on Metalworking Industry	1) Provided a list of training program scheduled for Region XI. Mayor Nunez zeroed in on the conduct of a Computer-Aided Design seminar/training for engineers and other technical people in the City Hall.
10	Feb. 1998	XI	Eduardo Eng'g.	General Santos City - Mr. Alex Amadeo Manager	Upgrading and training on metalworking production and operation with maximized use of computer aided design.	1) A brief overview was given him on the subject and an assurance that a training program tailored to their present needs is possible through the assistance of MIRDC. 2) Engr. Rory Dapitan, MIRDC extension officer for Region XI, has already arranged and drafted the terms and conditions for the conduct of such training program. and proper coordination is currently in a venue was already identified progress for

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NO.	DATE	*REGION	COMPANY ASSISTED	COMPANY ADDRESS	INQUIRIES RECEIVED	RECOMMENDATION/ ACTION TAKEN
						the conduct of the training soon.
11	Dec. 1998	XI	University of Southern Phils.	Davao City - Prof. Dumaguin Dean, College of Tech.	The University plans to establish an engineering laboratory (Tool and Die & Machine Fabrication Lab.) which will be a Common Service Facility Development Project. The funds for this project will come from Japan International Cooperation Agency (JICA).	<ol style="list-style-type: none"> 1) Provided them specifications and estimated cost of the equipment requirement for their project. 2) Also discussed with them the tool and die process. Provided them reference mat'ls. 3) The Heat Treatment furnace has a defective thermocouple which has to be replaced. 4) The furnace should be operated using Nitrogen to prevent scaling.
12	Dec. 1998	VI	New World Steel Industries, Inc.	CL Montelibano Avenue Bacolod City - Roberto Montelibano	Die design for his newly acquired roll forming equipment.	<ol style="list-style-type: none"> 1) Mr. Montelibano was briefed on the services of MIRDC and the present training which its engineers and technicians are undergoing on tool and die. 2) Also promoted was the capability of the Center with its facilities. 3) He was advised to visit MIRDC since he often traveled to Manila.
13	Aug. 1997	NCR	Technopoint Ind'l. Services (TIS)	9176 Pateros Street Makati City - Mr. William Alcantara	<ul style="list-style-type: none"> • Inquired about toolings and design of jigs and fixtures for semiconductor application. • He wanted to venture in this area and he is looking for some avenue to further his limited know-how on the subject. 	<ol style="list-style-type: none"> 1) He was given a tour of the MIRDC premises and the facility of one TBI tenant. 2) He also had a brief talk with Engr. E. Duquez, Chief of the Metalworking Technology Division-(MIRDC) on the Matter.
14	Dec. 1997	VII	Bohol School of Arts & Trade (BSAT)	Bohol	<ul style="list-style-type: none"> • Establishment of CAD Center. 	<ol style="list-style-type: none"> 1) MIRDC assisted the BSAT in finalizing their project proposal on CAD Center. 2) DOST VII provided =P=150,000.00 grant in aid for the acquisition of computers and software.

* Region NCR: National Capital Region, IV: Lugna Area, VI: Iloilo City, VII: Cebu City, XI: Davao City

List of Short-series Experimental Production Services

NO.	DATE	COMPANY	SERVICE RENDERED
1	2000	C & M Technology	EDM Wire Cutting
2	2000	Far East Semicon & Ind'l. Toolings	EDM Wire Cutting/Surface Grinding
3	2000	Maximetal Industries, Inc.	Vertical Machining Center, EDM Wire Cutting
4	2000	Michen Tool & Die	EDM Wire Cutting, Surface Grinding
5	2000	Moulding Technology	CNC Milling
6	2000	OVIMCO	EDM Sinking
7	2000	Premiere Creative	EDM Wire Cutting, EDM Sinking
8	2000	VL Industech	EDM Sinking, EDM Wire Cutting
9	1999	Eagle Electric of the Philippines	EDM Wire Cutting
10	1999	Furusawa Rubber (Phils.) Corp.	Vertical Machining Center
11	1999	Intertool Precision Group, Inc.	CNC Milling
12	1999	JM Precision	EDM Wire Cutting
13	1999	Maximetal Industries, Inc.	Vertical Machining Center, EDM Wire Cutting
14	1998	AB Precision Tooling & Trading Corp.	Grinding
15	1998	EJ Metals	EDM Sinking
16	1998	Eltronic Parts Equipment Trades	EDM Wire Cutting, CNC Milling, Grinding
17	1998	HDM Technology	EDM Sinking
18	1998	MRM Tool & Die Master	Grinding
19	1998	Moulding Technologies, Inc.	CNC Milling
20	1998	Maximetal Industries, Inc.	Injection Molding
21	1998	OVIMCO	Injection Molding
22	1998	TML Gasket inc., Inc.	Wire Cutting
23	1998	VL Industech Corp.	EDM Sinking, EDM Wire Cutting

MIRDC ROADMAP TOWARDS BECOMING A WORLD-CLASS SERVICE ORGANIZATION

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1996 1998 2000 2001 2002 2003 2004



BPS

Metals
Testing &
Calibration

RMTCs
VII & XI

RMTCs
III, IV & X

RMTCs
NCR & VI

ATID

NATA

Force /
Mass
Metrology

Length
Metrology

Electrical
& Temp.
Metrology

Chemical
Laboratory

Mechanical
Laboratory

CENTERWIDE

ISO 14001

ITS

ISO 9001

MCTD

ISO 9002
(Precision)

ISO 9002
(Conventional)

**TOOL &
DIE**

ISO 9001

Monitoring Sheet for the Review of the Progress in Technology Transfer (I)
(Technical Knowledge)

	Subject	Basis	Indicator	Remarks
0	Basic Knowledge			
0.1	Basic Knowledge on Drawing			
	a trigonometry	Test on drawings	Performance in the Test (shown in percentage)	Test should be done in limited time
0.2	Basic Knowledge on Injection			
	a Basic Knowledge on Resign	Written Test	Performance in the Test (shown in percentage)	
	b Basic Knowledge on Injection Mold	Written Test	Performance in the Test (shown in percentage)	
1	Mold design			
1.1	Basic Structure and Name of Parts	Test on drawings	Performance in the Test (shown in percentage)	
1.2	Standards for Mold Design			
	a Tolerance	Test on drawings	Performance in the Test (shown in percentage)	
1.3	Details Design			
	a Parting Line Design	Test on drawings	Performance in the Test (shown in percentage)	
	b Cooling path	Test on drawings	Performance in the Test (shown in percentage)	
	c Ejector Pin	Test on drawings	Performance in the Test (shown in percentage)	
	d Gate and Runner	Test on drawings	Performance in the Test (shown in percentage)	
	e Undercut Treatment	Test on drawings	Performance in the Test (shown in percentage)	
1.4	Checking Drawing	Test on drawings	Performance in the Test (shown in percentage)	Test is to be made in the form of error finding
1.5	Technological Calculation			
	a Calculation for Molding	Test on drawings	Performance in the Test (shown in percentage)	
	b Calculation for Mold Base	Test on drawings	Performance in the Test (shown in percentage)	
2	CAD/CAM			
2.1	CAM-CNO			
	a Knowledge on Numerical Control Co	Test on drawings	Performance in the Test (shown in percentage)	
	b Process Designing	Test on drawings	Performance in the Test (shown in percentage)	
3	Processing for Mold			
3.1	Cutting Theory	Calculation Test	Performance in the Test (shown in percentage)	
3.2	CNC Machine Processing Technology			
	a M/C Theory and Operation	Practical Test	Performance in the Test (shown in percentage)	
	b EDM Theory and Operation	Practical Test	Performance in the Test (shown in percentage)	
	c W-EDM Theory and Operation	Practical Test	Performance in the Test (shown in percentage)	
3.3	Know-how for Set-up of Jigs and Tools			
	a Actual Measurement	Practical Test	Performance in the Test (shown in percentage)	
4	Mold Assembly			
4.1	Assembly			
	a adjustment	Practical Test	5 grades evaluation*	
5	Injection Molding Technology			
5.1	Injection Molding Operation	Practical Test	Performance in the Test (shown in percentage)	
5.2	Product Inspection	Written Test	Performance in the Test (shown in percentage)	

* 5 grades evaluation

Level 0: Technology transfer has not yet started.

Level 1: C/P are able to perform the job under experts' instruction.

Level 2: C/P are able to perform the job with experts' advice.

Level 3: C/P are able to perform the job by themselves.

Level 4: C/P are able to instruct others.





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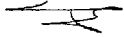
Monitoring Sheet for the Review of the Progress in Technology Transfer (2)
[Technical Skills]

NO	Production Name	Date of Beginning	Delivery Date		Difficulty	Field Evaluation				No. of Assembling	TOTAL EVALUATION
			Target	Actual		Design	Processing	Assembly	Trial Shot		
1	Calling Card Box	08/10/1998	10/30/1998	02/20/1999	1						
2	Soap Box	06/04/1999	07/12/1999	10/28/1999	1						
3	Plastic Catch	06/02/1999	07/06/1999	09/25/1999	3						
4	Pen Holder	06/02/1999	07/20/1999	01/14/2000	2						
5	Letter Opener	09/17/1999	11/04/1999	11/17/1999	1						
6	Tape Holder	10/04/1999	11/16/1999	01/14/2000	3						
7	Paper & Clip Holder	10/15/1999	11/12/1999	01/07/2000	2						
8	Flower Pot	11/17/1999	01/22/2000	02/17/2000	4						
9	Clamp	11/20/1999	01/20/2000	continuing	3						
10	Turn Lens	12/20/1999	03/31/2000	continuing	4						
11	Holder	02/21/2000	01/31/2001	continuing	3						
12	Telephone Case	03/07/2000	11/30/2000	continuing	4						
13	Nasal Aspirator	08/01/2000	Not decided	Not decided	3						
14	CD Case	08/01/2000	Not decided	Not decided	3						
15	Juice Cup	08/01/2000	Not decided	Not decided	4						
16	Camera Body	Not decided	Not decided	Not decided	5						
17	Organizer										



**Criterion for Evaluation (1)

Level	Production Name	Criterion		
		Quantity of Standard and Non-standard Parts	Processing time	Major tolerance of product
1	Calling Card Box Soap Box Letter Opener	20 ↓	100 ↓	±0.5~±0.2
2	Pen Holder Paper & Clip Holder	20~50	100~160	±0.2~±0.1
3	Plastic Catch Tape Holder Clamp Holder Nasal Aspirator CD Case	50~100	160~320	±0.05~±0.02
4	Flower Pot Turn Lens Juice Cup Telephone Case	50~100	320~500	±0.05~±0.02
5	Camera Body	100 ↑	500 ↑	±0.02~±0.01



**Criterion for Evaluation (2)

	Analyze of Trouble Cause	Countermeasure
AA		
A	○	○
B	○	△
C	△	○
D	△	△
E	×	×

- Possible to implement without experts.
- △ Possible to implement with experts.
- × Impossible to implement, even if learn from experts.

METALS INDUSTRY RESEARCH AND DEVELOPMENT CENTER
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

MID-TERM IMPACT ASSESSMENT OF THE
UPGRADING PROJECT FOR PLASTIC MOLDING
TOOL TECHNOLOGY

Final Report

By:

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July 31, 2000



MID-TERM IMPACT ASSESSMENT OF THE UPGRADING PROJECT FOR PLASTIC MOLDING TOOL TECHNOLOGY

Key Findings

Respondent Profile

- Most of the respondents are corporations (84%) and a few single proprietorship (8%).
- Most respondents have assets of over P40 million (68%) with a few having assets less than P10 million.
- Most of the companies are Filipino-owned (61%) with Japanese as the next major owner with 16%.

Equipment Profile

- Most respondents have conventional equipment.
- Most have one or two CNC machines.
- Only some 11 out of 39 respondents have either EDM wire cut or vertical machining center.
- Most of the respondents (30 out of 38 companies) have CAD/CAM systems with AUTOCAD as the most common software.
- Plastic manufacturing companies have injection molding machines with capacities varying from 70 tons to 16,000 tons. Pure tool and die makers have small capacity injection molding machines for testing purposes with sizes ranging from 25 oz. to 200 oz.

Market

- Most of the products are for the local market with some indirect exports (5 out of 29 manufacturing companies)
- Only six companies export most of their products.

Project Services Availment Profile

- Most of the respondent companies participated in the training program (23 out of 38 companies).
- Seven availed of the consultancy services.
- Six availed of both the training and consultancy program.
- Two availed of the three services, training, consultancy and SSEP.

Respondent Evaluation

Training Program Overall

- Overall respondent companies rated the training course "Good to Very Good."
- Impact was more significant for smaller companies compared to larger companies.
- Marked improvements were shown in skills, working methods and increase in productivity and creativity.

Training Course

- Participants have different levels of training requirements.
- Larger companies wanted to learn more advanced technologies while SMEs want more information on basic technology.

Future Training Programs

- Most respondents indicated that short-term and long-term programs were of adequate duration.
- Respondents require training courses in metal stamping, heat treatment and die casting.
- Some respondents are willing to pay their own fees for training courses.

Resource Persons

- Japanese experts are rated highly in technical knowledge but need improvement in presentation and communication skills.
- MIRDC C/P's need to possess technical knowledge that is "one step ahead of the industry."

Support/Secretariat

- MIRDC support/secretariat were rated "Very Good."



Impact on Trainees

- Trainees gave highly satisfactory ratings to training programs in terms of their relevance to their job and applicability of the new knowledge, techniques and skills that they learned.

Consultancy

- Most SMEs gave high ratings to consultancy services with an average rating of "Very Good".

SSFP

- Among the three Project programs, SSFP is the least availed of and was given lower ratings by participants.



MID-TERM IMPACT ASSESSMENT OF THE UPGRADING PROJECT FOR PLASTIC MOLDING TOOL TECHNOLOGY

Recommendations

1. Recommendations from Survey Respondents

A. Training

1. Give enough time and information to target companies so they can do the following:
 - Check suitability for their needs
 - Schedule personnel in advance
2. Describe training course in more details to enable SMEs or large companies to improve the matching of training course to their needs.
3. Fix the schedule of training courses for one year to enable companies to plan better.
4. Provide training on value formation and work ethics to support technical training.

B. Consultancy

1. Continue to focus consultancies on latest industry practices.
2. Improve the “hands-on” knowledge and experience of trainers to increase their effectiveness.

C. SSEP

Area of interest is how to ensure fast turnaround and be responsive to companies in terms of competitive pricing and quality.

II. Recommendations from PSR Consulting

A. Training

1. Prepare a two-tier training curriculum.
 - Basic training for general tool, die and mold making
 - Special training for plastic molding tool making
 - Allow for introduction of specialized tool and die technology for metal stamping
2. Include discussion of principles in basic training in design, processing and assembly, maintenance and trial shot.
3. To improve quality of trainees, conduct an aptitude test to screen participants, especially for long-term courses.
4. Improve the scheduling of training program.
5. Improve information on training programs.
 - More details to explain benefits
 - Send to production departments, not just HR's
6. Consider training new graduates and out-of-school youths.
 - To expand the workforce potential
 - Some companies expressed willingness to provide financial assistance to such programs

B. Consultancy

1. MIRDC's C/P should upgrade their skills to be "one-step" ahead of the industry.
2. The Project should accelerate their training by:
 - Continue company visits and fieldwork, documenting their experience for use as training material.
 - Provide assistance to industry under competitive cost and time budget.
 - Provide more support for laboratory research, Internet and library research, liaison with equipment suppliers and participation in equipment exhibits and conferences.
 - Charge companies a reasonable fee for training and consultancy to make participants value the services and to maintain the facilities on a self-sustaining basis.



Dispatch of the Study Team

- 1 Preliminary Study Team (December 5 ~ December 18, 1996)
 - (1) Koujiro Suzuki Leader
 - (2) Hiroshi Kato Technical Cooperation Program
 - (3) Kiyoyuki Iwakabe Technology Transfer Program
 - (4) Katsuhisa Ide Tool and Die Technology
 - (5) Akio Nakamoto Project Management

- 2 Implementation Study Team (May 29 ~ June 11, 1997)
 - (1) Akira Yamazaki Leader
 - (2) Noriyuki Uchino Technical Cooperation Program
 - (3) Yasuhiko Kondo Technology Transfer Program
 - (4) Kaname Kojima Tool and Die Technology
 - (5) Atsuhiko Hatakeyama Machinery and Training Program
 - (6) Akio Nakamoto Project Management

- 3 Management Consulting Team (January 13 ~ January 21, 1999)
 - (1) Kyoko Kuwajima Leader
 - (2) Mikio Nakada Technical Cooperation Program
 - (3) Atsuhiko Hatakeyama Technology Transfer Program
 - (4) Keiji Kondo Training Planning
 - (5) Kenichi Machida Project Management

- 4 Mid-term Evaluation Team (August 21 ~ August 29, 2000)
 - (1) Kenji Tobita Leader
 - (2) Makoto Kanazawa Technical Cooperation Program
 - (3) Kiyoyuki Iwakabe Technology Transfer Program
 - (4) Atsuhiko Hatakeyama Tool and Die Technology
 - (5) Asuka Okayama Project Management

List of Attendees in the Discussion

The Japanese Side

1. Management Consultation (Mid-term Evaluation) Team

Mr. Kenji Tobita	Leader
Mr. Makoto Kanazawa	Technical Cooperation Program
Mr. Kiyoyuki Iwakabe	Technical Transfer Planning
Mr. Atsuhiko Hatakeyama	Mold Technology
Ms. Asuka Okayama	Cooperation Planning

2. Project Experts

Dr. Yasuhiko Kondo	Chief Adviser
Mr. Kazuki Ishida	Administrative Coordinator
Mr. Kaname Kojima	Mold Design
Mr. Hiroshi Kobayashi	Mold Design
Mr. Shusuke Doi	Mold Processing
Mr. Masaki Ide	Mold Assembly, Maintenance and Trial Shot
Mr. Yoshio Hatanaka	Mold Assembly, Maintenance and Trial Shot

3. JICA Philippine Office

Mr. Hideo Ono	Resident Representative
Mr. Susumu Katsumata	Assistant Resident Representative
Ms. Mima C. Bautista-Macahilig	Project Liaison Officer

4. Embassy of Japan

Mr. Yoshimasa Sakai	First Secretary
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The Philippine Side

1. DOST

Sec. Filemon A. Uriarte Jr.	Secretary
Dr. Rogelio A. Panlasigui	Undersecretary for R & D
Dr. Carol M. Yorobe	Assistant Secretary

2. MIRDC

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Ms. Mima C. Bautista-Macahilig	Project Liaison Officer

4. Embassy of Japan

Mr. Yoshimasa Sakai	Second Secretary
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Dr. Rogelio A. Panlasigui	Undersecretary for R & D
Dr. Carol M. Yorobe	Assistant Secretary

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