資料－9

MITECプロジェクト暫定実施計画（TSI）

昭和53年8月15日に実施協議調査団長とマレイシア標準工業研究所長官との間で署名交換したTentative Schedule of Implementation（TSI）

TENTATIVE SCHEDULE OF IMPLEMENTATION AND THE PLAN OF ACTIVITIES ON THE TECHNICAL COOPERATION FOR THE METAL INDUSTRY TECHNOLOGY CENTRE PROJECT IN MALAYSIA

KUALA LUMPUR, AUGUST 15, 1978

JAPAN INTERNATIONAL COOPERATION AGENCY

&

STANDARDS & INDUSTRIAL RESEARCH INSTITUTE

OF

MALAYSIA

The Japanese Implementation Survey Team and the Controller of Standards & Industrial Research Institute of Malaysia have jointly formulated, for reference to the Record of Discussions between the Japanese Implementation Survey Team and the Authorities concerned of the Government of Malaysia on the Japanese Technical Cooperation for the Metal Industry Technology Centre Project, the Tentative Schedule of Implementation and the Plan of Activities as annexed hereto.

Kuala Lumpur, 15 August, 1978

M. Sayama

Minoru Sayama
Head of
the Japanese Implementation
Survey Team

Abdullah bin Mohd. Yusof
Controller of
Standards & Industrial Research
Institute of Malaysia

(1) Tentative Schedule of Implementation

	1978		1979				1980				1981				1982				Remarks
	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	4 5 6	7 8 9	10 11 12	1 2 3	4 5 6	7 8 9	10 11 12	
1. Missions																			
Advisory and Evaluation								⟷					⟷						
2. Expert Assignment																			Forms will be needed
(1) Short term Experts					⟷	⟷		⟷		⟷		⟷		⟷					*Experts on installation
(2) Long term Experts																			Experts on
A) 1 expert	⟵													⟶					(Electro Plating)
B) 2 experts		⟵												⟶					(Chief Advisor, Welding)
C) 3 experts			⟵											⟶					(Press die, Press work
																			Information & Coordination)
3. Training in Japan																			
Engineers				⟵			⟶												*Recruitment of the counterpart personnel
Engineers							⟵				⟶								
Engineers											⟵				⟶				

	1978		1979										1980										1981										1982										Remarks
	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	4	5	6	7	8	9	10	11	12	
Information Officer												⟷						⟷																										
Test and Checking Officer														⟷																														
4. Equipment																																												
Provided by Japanese																																												
Government																																												
1st stage (welding/ test & checking		⟷																																										
2nd stage (main-1/2)									⟷																																			
3rd stage (main-1/2)														⟷																														
4th stage (others)																										⟷																		
5. Purchase of Equipment by Malaysian Government																																												
1. Preparation of Specifications							⟷																																					
2. Tender								⟷																																				
3. Arrival & Installation										⟷																																		

	1978						1979						1980						1981						1982						Remarks
	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	4	5	6	7	8	9	10	11	12	
6. Building Renovation																																										
Preparation of Plans																																										
Tender drawing	⟷																																									
Comment by Japanese Mission	⟷																																									
Temporary office for Japanese Experts				⟷																																						
Tender				⟷																																						
Renovation							⟷						═══ Foundation of Heavy Machine ═══																															
Installation							⟷						⟷						⟷						⟷																	

Note: This schedule is subject to conditions that necessary budget will be acquired for the implementation of the Project, because of the annual budgetting system of Japan.

(2) Plan of Activities

	Preparation 1978 - 1979	Basic - establishment 1980	Development 1981	Self-reliance 1982
Consulting Service	(1) Studying managerial & technical status of local industry (2) Managerial & technical consultation to local industry (3) Making detailed schedule in each phase for consulting service	(1) Managerial & technical consultation to local industry (2) On the job training in the visiting industry (3) Lecture & seminar	(1) Managerial & technical consultation to local industry (2) On the job training in the visiting industry (3) Lecture & seminar	Self-reliant operation (1) Establishment of consulting service (2) Annual plan for consulting service
Test & Checking	(1) Studying technical level of test & checking (2) Studying materials used by local industry (3) Test & checking service for local products	(1) Test & checking service for materials and local products (2) Introduction & guidance of test & checking equipment (3) Lecture & seminar	(1) Test & checking service for materials & local products (2) On the job training in the visiting industry (3) Technical competition (4) Lecture & seminar	Self-reliant operation Additional improvement & establishment of test & checking technique
Information Service	(1) Studying items of local products and equipment used by local industry (2) Studying necessary information for local industry (3) Collection of data & information	(1) Establishment of library system (2) Filming service (3) Information service	(1) Extension service for library system (2) Filming service (3) Information service (4) Exhibition	Self-reliant operation Establishment of information service
Training	(1) Making curriculum & text (2) Training of basic knowledge about test & checking (3) Training & diffusion of management technique	(1) Training & guidance 1) Electroplating 2) Press-die design & making 3) Press work 4) Welding 5) Test & checking (2) Training & diffusion of management technique (3) Lecture	(1) Advanced training & guidance for electroplating, press die, press work, welding, test & checking (2) Trial production (3) Lecture & seminar	Self-reliant operation (1) Extension service for training & guidance (2) Annual plan for training & guidance
Others	(1) Any other related activities	(1) Any other related activities	(1) Any other related activities	(1) Any other related activities

資料－10

計画打合せ調査団議事録（昭和55年4月11日）

THE MINUTES OF DISCUSSION BETWEEN THE JAPANESE CONSULTATION TEAM AND THE STANDARDS AND INDUSTRIAL RESEARCH INSTITUTE OF MALAYSIA ON THE TECHNICAL COOPERATION PROJECT FOR THE METAL INDUSTRY TECHNOLOGY CENTRE OF MALAYSIA

The Japanese Consultation Team (hereinafter referred to as "the Team") organised by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Yoichi Takebayashi, Director of Mining and Industrial Development Cooperation Depatrment of JICA visited Malaysia from March 29 to April 12, 1980 for the purpose of working out the details of the technical cooperation programme for the basic-establishment, development and self-reliance stages concerning Metal Industry Technology Centre Progect based on the Record of Discssions signed on August 11, 1978.

During its stay in Malaysis, the Team exchanged views and had a series of discussions with the Standards and Industrial Research Institute of Malaysia (hereinafter referred to as "SIRIM") headed by its Controoler, Mr. Abdullah bin Mohd. Yusof in respect of the desirable measures to be taken by both Governments for the successful implementation of the above-mentioned Project.

As a result of the discussions, the Team and SIRIM agreed to recommend to their respective Governments the matters referred to in the documents (Annex I and II) attached hereto.

SHAH ALAM, APRIL 11TH, 1980

MR. YOICHI TAKEBAYASHI
Leader
Japanese Consultation Team
Japan International Cooperation Agency

MR. ABDULLAH BIN MOHD. YUSOF
Controller
Standards and Industrial Research
Institute of Malaysia

GENERAL WORK PLAN OF THE MITEC PROJECT

Annex I

Activity \ Phase and Year	Preparation	Basic-establishment	Development	Self-reliance
	1978——1979	1980	1981	1982
A. Target	(1) Prepatation for activeity (2) Survey of the actual condition of Malaysian Metal Industry (3) Introduction of MITEC to local industry (4) Acquirement of technical background by counterpart personnel	(1) Acquirement of fundamental Technology (2) Implementation of various sevices to local industry	(1) Acquirement of production technology and quality control for manufacturing machine parts (2) Implementation fo various service to local industry	(1) Establishment of leading role as the center to local industry (2) Implementation of various service by Malaysian side
B. Content of Activity	A. Consulting Service (1) Extension service	A. Consulting Service (1) Extension service (2) Trial Manufacturing service (3) Short-term trainig courses for local industry	A. Consulting Service (1) Extension service (2) Trial manufacturing service (3) Short-term training courses for local industry	A. Consulting service (1) Extension service (2) Trial manufacturing service (3) Short-term training courses for local industry
	B. Test & Checking (inspection) (1) Introduction to machinery and equipment	B. Test & checking (inspection) (1) Test and checking service to local industry	B. Test & Checking (inspection) (1) Test and checking service to local industry	B. Test & Checking (inspection) (1) Test and checking service to local industry
	C. Information service (1) Survey of Malaysian Metal Industry (2) Collection of technical data and books (3) Publication of MITEC News	C. Information service (1) Distribution of information (2) Publication of MITEC News	C. Information service (1) Distribution of information (2) Publication fo MITEC News (3) Holding of seminars	C. Information service (1) Distribution of information (2) Publication of MITEC News (3) Exhibition
	D. Training (1) Lectures (2) Training of counterpart personnel in Japan	D. Training of counterpart personnel: (1) Lectures (2) Training of counterpart personnel in Japan (3) Learning of operation methos of machinery and equipment (4) Beginning of trial manufacture	D. Training (1) Lectures (2) Training of counterpart personnel in Japan (3) Learning of operation method of machinery and equipment (4) Trial manufacture	
	E. Others (1) Arrival of Japanese experts at their posts (2) Opening of temporaty office (3) Adpotion and appointment of MITEC staff members (4) Prepatation for tender of building renovation and its starting (5) Selection and purchase of machinery provided by Malaysian side. (6) Receiving & checking of machinery provided by Japanese side.	E. Others (1) Completion of building renovation (2) Installation and test run of machinery and equipment	E. Others (1) Installation and test run of machinery and equipment.	

	Preparation	Basic-establishment	Development	Self-reliance
	1978———1979	1980	1981	1982
DIE-MAKING A) Target of Technological Transfer to be acquired	1) Die concept 2) Operation method of machinery and tools. 3) Die-making method 4) Maintenance method of simple die 5) Ability to understand technical problem of die	1) Machining ablity 2) Ability to make simple die 3) Repair and maintenance of die 4) Ability to test and check die materials, die and products Accuracy 5 - 10/100	1) High level machining ability 2) Ability to manufacture die for industrial parts 3) Ability to implimint quality control of die-making Accuracy 5/100-5/1000	1) Ability to provide die-making technology to local industry
B) Method of Technological Transfer	1) Lecture 2) Extension service 3) Advisory service 4) Survey of the availability of materials and tools	1) Extension service 2) Design of die 3) Selection of materials and tools 4) Making of operation work standard 5) Basic machining work 6) Heat treatment 7) Test and checking	1) Extension service 2) Design of die 3) Selection of materials and tools 4) Control of manufacturing process 5) High level machining 6) Model making 7) Heat-treatment 8) Die assembly 9) Test and checking	1) Extension service 2) Advisory service 3) Trial manufacturing service 4) Test and checking service 5) Short term training courses for local industry
C) Necessary machinery and equipment		1) Hack sawing machine, shearing machine for cutting ✓ 2) Shaping machine, grinding machine for surface working ✓ 3) Lathe turning machine for round and circular working ✓ 4) Drilling machine for bore working ✓ 5) Vertical milling machine for heavy cutting for vertical corking ✓ 6) Contour machine for curved line cuting ✓ 7) Filing machine for curved line making ✓ 8) Heat treatment furnace for heat treatment 9) Block gauge, hardness tester, profile tracer, optical microscope, projector and other test and checking equipment	same ✓ 10) Tool grinding machine for repairing of the cutting tools ✓ 11) Surface grinding machine for surface grinding ✓ 12) Forming grinder for curved line grinding ✓ 13) Universal milling machine for solid working ✓ 14) Profile grinder 15) Necessary related machine including EDM	same

	Prepatation	Basic-establishment	Development	Self-reliance
	1978———1979	1980	1981	1982
PRESSWORK				
A) Target of Technological Transfer to be acquired	1) Presswork concept 2) Operation method of machinery and tools 3) Various method of presswork 4) Ability to understand technical problem of presswork 5) Safety control of presswork	1) Ability to select materials 2) Ability to design products 3) Ability to design operation work process 4) Ability to fabricate jig and tool 5) Ability to perform presswork 6) Control of safety operation 7) Ability to test and check	1) Ability of high level presswork 2) Ability to implement quality control measures for presswork	1) Ability to provide presswork technology to local industry
B) Method of Technological Transfer	1) Lecture 2) Extension service 3) Advisory service 4) Survey of the availability of materials and tools	1) Extension service 2) Advisory service 3) Planning and designing of products 4) Designing of production process 5) Fabricating jig and tool 6) Making of operation work standard 7) Prsswork 8) Test and checking	same 9) Control of production process 10) Production control	1) Extension service 2) Advisory service 3) Trial manufacturing service 4) Test and checking service 5) Short term training courses for local industry
C) Necessary machinery and equipment		1) Shaper, milling machine, lathe, boring machine, surface grinder, bench grinder, grinding machine and necessary attachments 2) Erichsen ductility tester, projector, sheet metal grid marking equipment, surface roughness tester and measuring tools for test and checking 3) Hydraulic press, crank press, gap shear for presswork, foot press 4) Cylindrical grinder	same 5) Forming grinder, tool grinding machine for jig and tool work 6) Horning machine 7) Transfer press machine	same

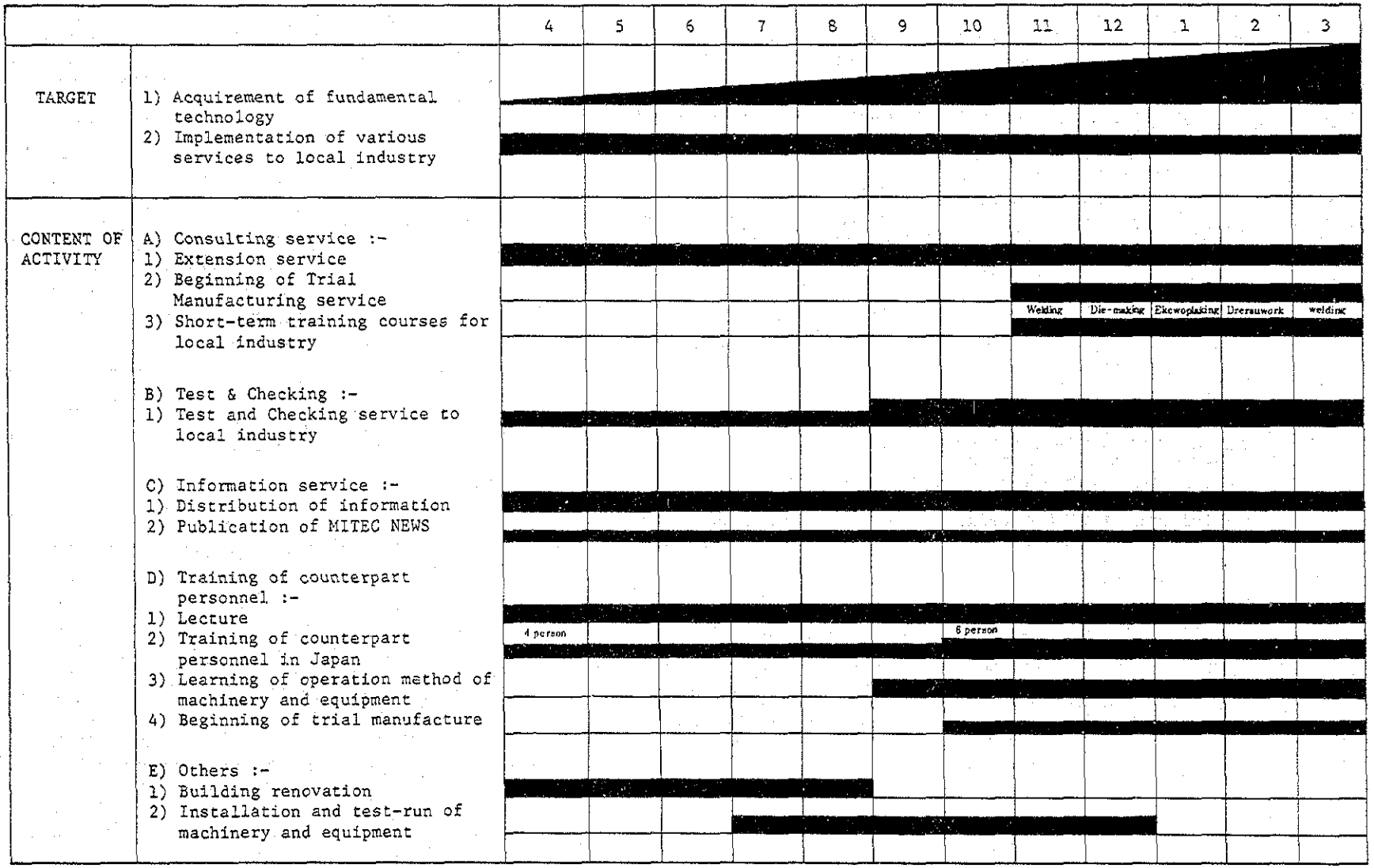
	Preparation	Basic-establishment	Development	Self-reliance
	1978———1979	1980	1981	1982
WELDING A) Target of Technological Transfer to be acquired	1) Welding concept 2) Operation method of machinery and tools 3) Ability to understand technical problem of welding	1) Ability to design products 2) Ability to select welding method 3) Ability to select materials and welding rods 4) Ability of cutting materials and edge preparation 5) Ability of welding work 6) Ability to test and check	1) Ability to test and check 2) Ability to trace, identify and rectify defects	1) Ability to provide welding technology to local industry
B) Method of Technological Transfer	1) Lecture 2) Extension service 3) Advisory service 4) Survey of the availability of materials and tools 5) Simple welding work	1) Extension service 2) Advisory service 3) Design and fabrication of products, jig and tools 4) Selection of welding method 5) Selection and control of materials and welding rods 6) Test and checking 7) Welding work including cutting and edge preparation	same 8) Tracing and identigying defects 9) Control of products and process	same
C) Necessary machinery and equipment	1) AC arc welder 2) Semi-automatic CO_2 welder 3) DC TIG welder 4) DC arc air gouging 5) Semi-qutomatic and automatic gas cutting machine 6) Welding rod dryer 7) Hand grinder 8) Welding equipment and material 9) Ultransonic Flaw Detector 10) Dye penetrant	same 11) Spot welder 12) MIG welder 13) DC-AC TIG welder 14) AC arc air gouging 15) Submerged arc welder 16) Seam welder 17) Electro slag welder 18) Plasma cutting machine 19) Metallurgical microscope 20) X-ray equipment (portable) 21) Universal testing machine (bending tester) 22) Charpy Impact testing machine 23) Rockwell and Vickers tester	same 24) Electron probe micro analyzer 25) Universal testing machine 26) X-ray equipment 27) Static and dynamic strain measurement equipment 28) Magnetic flaw detector	same

	Preparation	Basic-establishment	Development	Self-reliance
	1978 ——— 1979	1980	1981	1982
ELECTROPLATING A) Target of Technological Transfer to be acquired	1) Electroplating concept 2) Operation method of various analysis equipment 3) Operation method of various testing equipment 4) Knowledge for pollution control 5) Ability to understand technical problem of electroplatimg	1) Ability to select materials, and chemicals 2) Ability to design processing of products 3) Ability to design and fabricate jig and tool 4) Ability to perform electroplation work 5) Pollution control 6) Ability to analyse, test and check	1) High level electroplating work 2) Ability to implement quality control	1) Ability to provide electroplating technology to local industry
B) Method of Technological Transfer	1) Lectures 2) Excension service 3) Advisory service 4) Survey of the availability of materials and chemicals 5) Basic analysis, test and checking	same 6) Analysis, test and checking 7) Derusting and degreasing 8) Fabrication of jig and tool 9) Electroplating work 10) Waste water treatment 11) Exhaust treatment	same 12) High level electroplating work 13) Control of product processing	same
C) Necessary Machinery and Equipment	1) Harsell tester 2) Simplified analyzer for electroplating 3) PH and OF meter 4) Thickness tester 5) Permascope 6) Pin hole tester 7) Digital dust meter 8) Materials tools and chemicals	same 9) PVC welder 10) Buffing machine 11) Supporting line 12) Cu-Ni-Cr electroplating line 13) Gold plating equipment for experimentation 14) Zinc, nickel and tin plating line 15) Waste water treatment system 16) Exhaust treatment system 17) Analysing equipment for pollution control	same 18) Hard chrome electro plating line 19) Silver plating line 20) Gold plating line	same

ANNUAL WORK PLAN OF THE MITEC PROJECT, 1980

(April 1980 - March 1981)

Annex II



ANNUAL WORK PLAN IN 1980

Die-making	Content of Activity	4	5	6	7	8	9	10	11	12	1	2	3
A) Target of Technological Transfer to be acquired	1) Machining ability 2) Ability to make simple die 3) Repair and maintenance of die 4) Ability to test and check the die materials and die Accuracy 5 - 10/100			theoretical				practical					
B) Method of Technological Transfer	1) Extension service 2) Design of die 3) Selection of materials and tools 4) Making of operation work standard 5) Basic machining work 6) Heat treatment 7) Test and checking												
Presswork	Content of Activity												
A) Target of Technological Transfer to be acquired	1) Ability to select materials 2) Ability to design products 3) Ability to design operation work process 4) Ability to fabricate jig and tool 5) Ability to perform presswork 6) Control of safety operation 7) Ability to test and check												
B) Method of Technological Transfer	1) Extension service 2) Planning and designing of products 3) Designing of production process 4) Fabrication of jig and tool 5) Making of operation work standard 6) Presswork 7) Test and checking												

ANNUAL WORK PLAN IN 1980

Welding	Content of Activity	4	5	6	7	8	9	10	11	12	1	2	3
A) Targer of Technological Transfer to be acquired	1) Ability to design products 2) Ability to select welding method 3) Ability to select materials and welding rods 4) Ability of cutting materials and edge preparation 5) Ability of welding work 6) Ability to test and check												
B) Method of Technological Transfer	1) Extension service 2) Designing and fabrication of products, 3) jig and tools 3) Selection of welding method 4) Selection and control of materials and welding rods 5) Test and checking 6) Welding work including cutting and edge preparation												

Electroplating	Content of Activity
A) Target of Technological Transfer to be acquired	1) Ability to select materials and chemicals 2) Ability to design processing of products 3) Ability to design and fabricate jig and tool 4) Ability to perform electroplating work 5) Pollution control 6) Ability to analyse, test and check
B) Method of Technological Transfer	1) Extension service 2) Analysis, test and checking 3) Derusting and degreasing 4) Fabrication of jig and tool 5) Electroplating work 6) Waste water treatment 7) Exhaust treatment

資料－11　巡回指導調査団（第1次）

議事録（昭和56年8月24日）

THE MINUTES OF DISCUSSION BETWEEN THE JAPANESE TECHNICAL GUIDANCE TEAM AND THE STANDARDS AND INDUSTRIAL RESEARCH INSTITUTE OF MALAYSIA ON THE TECHNICAL COOPERATION PROJECT FOR THE METAL INDUSTRY TECHNOLOGY CENTRE OF MALAYSIA

1. The Japanese Technical Guidance Team (hereinafter referred to as "the Team") organised by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Dr. Ryuzo Naito, visited Malaysia from August 11th to August 26th, 1981 for the purpose of working out the Annual Work Plan for April, 1981 to March, 1982 and conducting technical guidance in the specific fields concerning Metal Industry Technology Centre Project based on the Record of Discussions signed on August 11, 1978.

2. During its stay in Malaysia, the Team exchanged views and had a series of discussions with the Standards and Industrial Research Institute of Malaysia (hereinafter referred to as "SIRIM") headed by its Controller, Mr. Abdullah bin Mohd. Yusof in respect of the desirable measures to be taken by JICA and SIRIM for the successful implementation of the above-mentioned Project.

3. During the course of the discussions, the Team and SIRIM reviewed the achievement of technical cooperation conducted on the basis of Annual Work Plan for the Japanese Fiscal Year 1980, and as a result of the review, it was made clear that some items referred to in General Work Plan had been left undone due to the delay of building renovation and installation of machinery and equipment.

Under these circumstances, both sides agreed to make the utmost efforts for the effective and successful implementation fo this Project during the remaining technical cooperation period.

4. As a result of the discussions, the Team and SIRIM agreed to recommend to their respective Governments the Annual Work Plan for April, 1981 to March, 1982 attached herto.

5. Malaysian counterpart personnel will be trained in Japan on the following schedule;

Field	Number of Counterpart Personnel	Period
Electroplating and Welding	2	April, 1981-March, 1982
Die-making and Presswork	2	October, 1981-September, 1982
Test and Checking	2	October, 1981-March, 1982
Research Management	2	Two man-month within the period from October, 1981 to March, 1982

6. The Team and SIRIM generally agreed that the progress of the implementation of the MITEC Project had been satisfactory. However, on the aspect of technology transfer, SIRIM expressed its opinion that extended assistance would be necessary for some time after the end of the Project period, while the Team took note of the point of view of SIRIM and added that the final decision would be made taking into consideration the result of the evaluation survey on the Project envisaged in the Japanese Fiscal Year in 1982 period.

SHAH ALAM, AUGUST 24TH, 1981

DR. RYUZO NAITO
Leader
Japanese Technical Guidance Team
Japan International Cooperation Agency.

MR. ABDULLAH BIN MOHD. YUSOF
Controller
Standards and Industrial Researah
Institute of Malaysia.

ANNUAL WORK PLAN OF THE MITEC PROJECT, 1981

(April 1981 - March 1982)

No. 1

	4	5	6	7	8	9	10	11	12	1	2	3
TARGET 1) Acquirement of fundamental techology												
2) Implementation of various services to local industry												
CONTENT OF ACTIVITY A) Consulting service :-												
1) Extension service												
2) Beginning of Trial Manufacturing service												
3) Short-term training courses for local industry												
B) Test and Checking :-												
1) Test and Checking service to local industry												
C) Information Service :-												
1) Distribution information												
2) Publication of MITEC News												
D) Training of counterpart personnel :-												
1) Lecture	2 persons											
2) Training of counterpart personnel in Japan							4 persons					
3) Learning of operation method of machinery and equipment							2 persons					
4) Trial manufacture (internal)												
E) Others :-												
1) Building renovation												
2) Installation and test-run of machinery and equipment												

ANNUAL WORK PLAN IN 1981

No. 2

Die-making	Content of Activity	4	5	6	7	8	9	10	11	12	1	2	3
A) Target of Technology Transfer to be achieved	1) Machining ability 2) Ability to make simple die 3) Maintenance of die 4) Ability to test and check the die materials and die Accuracy 0.1 - 0.05 mm												
B) Method of Technology Transfer	1) Extension service 2) Design of die 3) Selection of materials and tools 4) Making of operation work standard 5) Basic machining work 6) Heat treatment 7) Test and checking												

Presswork	Content of Activity												
A) Target of Technology Transfer to be achieved	1) Ability to select materials 2) Ability to design products 3) Ability to design operation work process 4) Ability to fabricate jig and tool 5) Ability fo perform presswork 6) Control of safety operation 7) Ability to test and check												
B) Method of Technology Transfer	1) Extension service 2) Planning and designing of products 3) Designing of production process 4) Fabrication of jig and tool 5) Making of operation work standard 6) Presswork 7) Test and checking												

ANNUAL WORK PLAN OF 1981

No 3

Welding	Content of Activity	4	5	6	7	8	9	10	11	12	1	2	3
A) Target of Technology Transfer to be achieved	1) Ability to design products 2) Ability to select welding method 3) Ability to select materials and welding rods 4) Ability of cutting materials and edge preparation 5) Ability of welding work 6) Ability to test and check												
B) Method of Technology Transfer	1) Extension service 2) Designing and fabrication of products, jig and tools 3) Selection of welding method 4) Selection and control of materials and welding rods 5) Test and checking 6) Welding work including cutting and edge preparation												

Electroplating	Content of Activity												
A) Target of Technology Transfer to be achieved	1) Ability to select materials and chemicals 2) Ability to design processing of products 3) Ability to design and fabricate jig and tool 4) Ability to perform electroplating work 5) Pollution control 6) Ability to analyse, test and check												
B) Method of Technology Transfer	1) Extension service 2) Analysis, test and checking 3) Derusting and degreasing 4) Fabrication of jig and tool 5) Electroplating work 6) Waste water treatment 7) Exhaust treatment												

資料－１２　評価調査団（第１次）討議議事録（R／D）と暫定実施計画書（TSI）（昭和５７年７月１５日）

(1. 討議議事録)

THE RECORD OF DISCUSSIONS BETWEEN THE JAPANESE EVALUATION TEAM AND THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF MALAYSIA ON THE EXTENSION OF THE JAPANESE TECHNICAL COOPERATION FOR THE METAL INDUSTRY TECHNOLOGY CENTRE PROJECT

The Japanese Evaluation Team (hereinafter referred to as "the Team") organized by the Jpapn International Cooperation Agency (hereinafter referred to as "JICA") and headed by Dr. Keishin Matsumoto, Vice-President of Japan General Foundry Centre, visited Malaysia from July 6 to July 20, 1982, and exchanged views and had a series of discussions with the Malaysian authorities concerned for the purpose of evaluating the achievements of the Japanese technical cooperation for the Metal Industry Technology Centre Project(hereinafter referred to as "the Project") which has been conducted for four (4) years on the basis of the Record of Discussions signed on August 11, 1978 between JICA and Malaysian authorities concerned.

As a result of the discussions, both parties agreed to recommend to their respective governments to take necessary measures to follow up the above-mentioned Japanese technical cooperation until August 10, 1984.

Kuala Lumpur
July 15, 1982

K. Matsumoto

Dr. Keishin Matsumoto
Leader,
Jpapnese Evaluation Team
Japan International Cooperation Agency

Dato' Wan Sidek b. Hj. Wan Abdul Rahman
Secretary General,
Ministry of Science, Technology And Environment
Malaysia

（ 2. 暫定実施計画書 ）

TENTATIVE SCHEDULE OF IMPLEMENTATION ON THE EXTENSION OF THE JAPANESE TECHNICAL COOPERATION FOR THE METAL INDUSTRY TECHNOLOGY CENTRE PROJECT OF MALAYSIA

KUALA LUMPUR

JULY 15, 1982

JAPAN INTERNATIONAL COOPERATION AGENCY

AND

STANDARDS AND INDUSTRIAL RESEARCH INSTITUTE OF MALAYSIA

The Japanese Evaluation Team and the Controller of Standards and Industrial Research Institute of Malaysia have jointly formulated the Tentative Schedule of Implementation as annexed hereto, with regard to the Record of Discussions signed on July 15, 1982 between the Japanese Evaluation Team and authorities concerned of the Government of Malaysia on the extension of the Japanese technical cooperation for the Metal Industry Technology Centre Project.

In formulating the above-mentioned schedule, it was mutually understood that both sides should exert their utmost efforts so as to attain the target set forth in the above-mentioned schedule within the extended cooperation period.

K. Matsumoto

Dr. Keishin Matsumoto
Leader,
Japanese Evaluation Team
Japan International Cooperation Agency

Abdullah bin Mohd. Yusof
Controller,
Standards and Industrial Research Institute of Malaysia

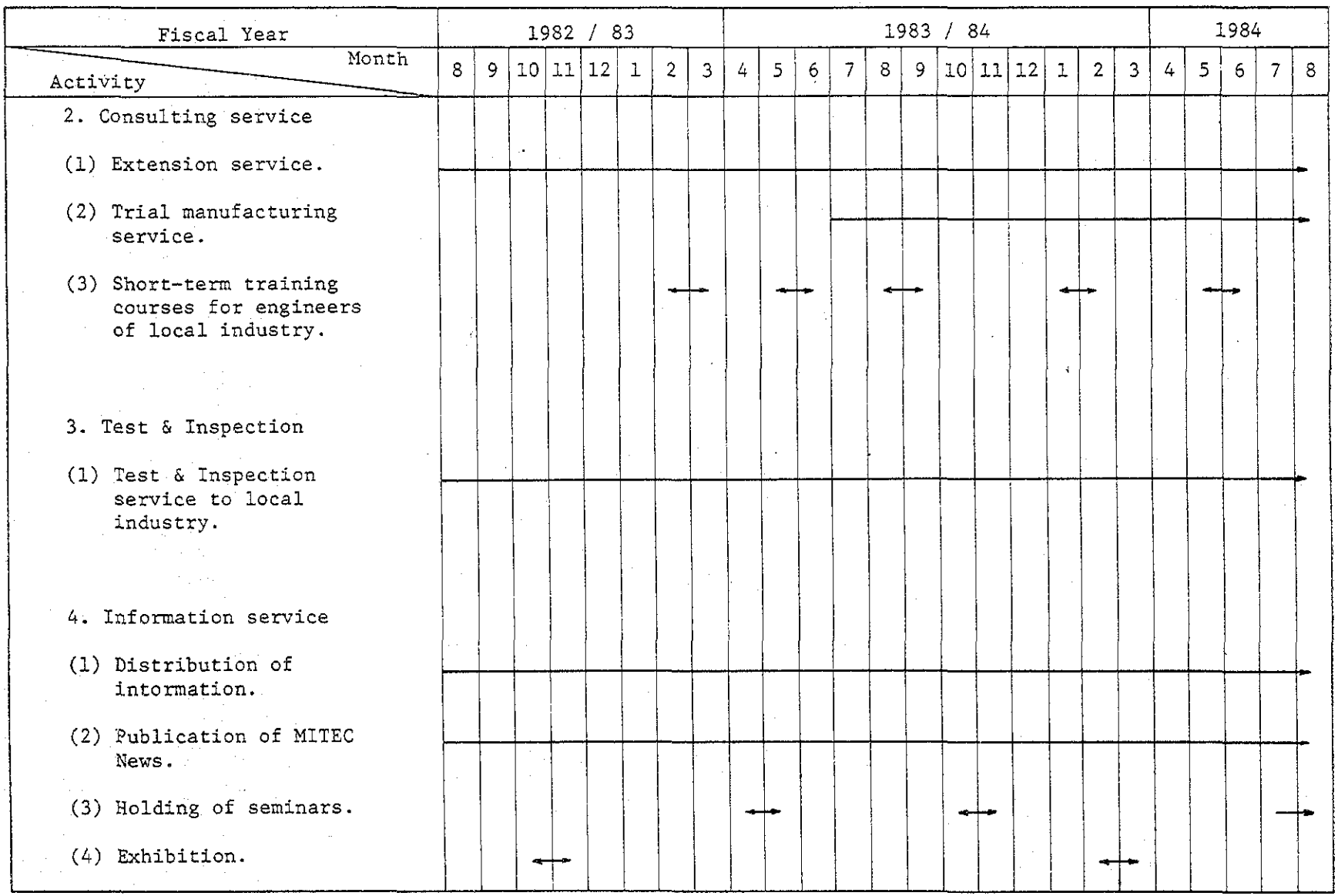
OTentative Schedule of Implementation

August 11, 1982 - August 10, 1984 (1)

Fiscal Year	1982 / 83								1982 / 84												1984				
Activity \ Month	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
A. Target																									
1. Acquirement of production technology and quality control for manufacturing machine parts.	→																								
2. Implementation of various services to local industry.	→																								
B. Content of Activity																									
1. Transfer of technology to counterpart personnel																									
(1) Lectures.													→												
(2) Practice of operation method of machinery and equipement.													→												
(3) Trial manufacture.													→												
(4) Technical training of counterpart personnel in Japan.	→																								

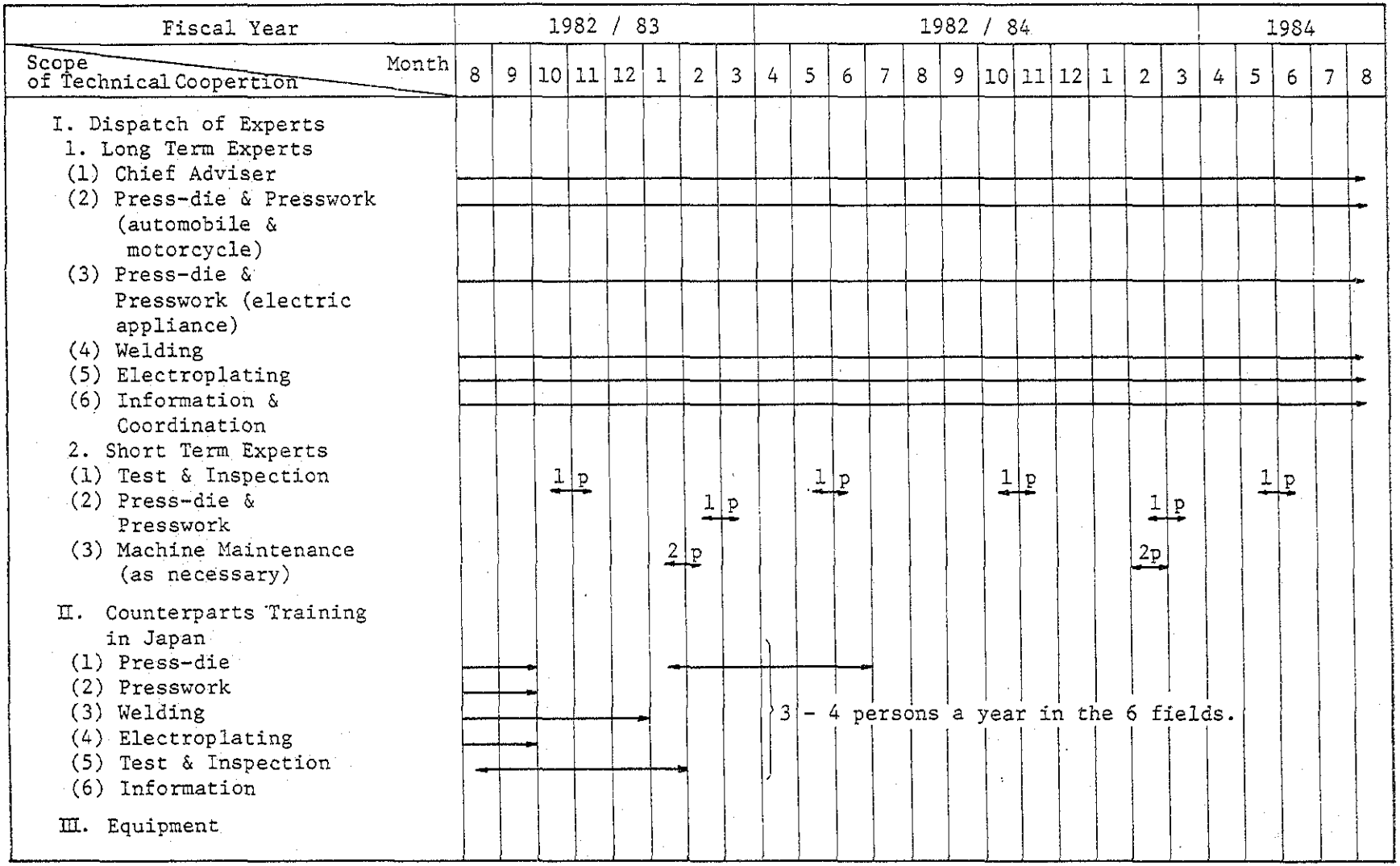
Tentative Schedule of Implementation

August 11, 1982 - August 10, 1984 (2)



Tentative Schedule of Implementation

August 11, 1982 - August 10, 1984 (3)



NOTE: (1) This Schedule is subject to conditions that necessary budget will be acquired for the implementation of the Project.

(2) This Scope of Technical Cooperation is subject to change within the provisions given in the Record of Discussions.

資料－13　Guide to MITEC

MITECプロジェクトにおいては，とくに情報担当の専門家を派遣し，マレイシア側カウンターパートと協力して，精力的にMITECプロジェクトの広報に努めた。本資料はMITEC紹介パンフレットの一例で，昭和58年1月に制作されたものである。

Guide to MITEC

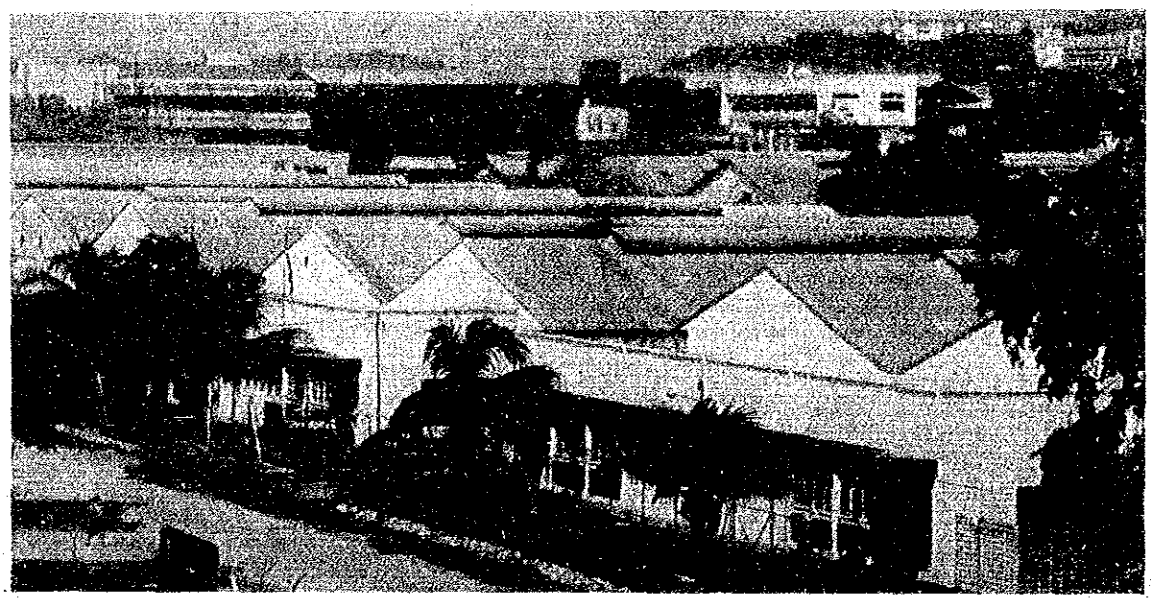
Metal Industry Technology Centre

A technical centre for the metal-working industries.

Today as Malaysia embarks on its industrialization programme to further strengthen its economy, it must follow the trend of other industrialised nations of the world by moving towards higher technology and a more diversified industry. The challenge of the era is to meet the demand for high quality products for a sophisticated market. As such, a technical centre to enhance upgrading and development of the existing technology in the fundamental industrial sectors such as the metal working industries, is imperative to speed up the industrial activities in Malaysia.

In view of this necessity steps to set up the Metal Industry Technology Centre in the Standards and Industrial Research Institute of Malaysia, (SIRIM) started in late 1978 to cater mainly for specialised aspects of the metal industries such as die-making, presswork , welding and electro-plating. The metal industry plays a key role in industrial development in that it is a basic industry which assists nearly all other industries, to name some such as mining, construction, automobile works, plastics and a host of others. To catalyse industrial growth would then mean providing the technical support to produce spare parts, machine components, machinery repairs and other associated engineering works which have to be internationally competitive in quality and price. MITEC is therefore an appropriate Centre to meet this challenge of technology dissemination to Malaysian metal entrepreneurs.

「マレイシア金属工業技術センター」 (MITEC) は当国の新経済政策の重要な一環として、工業近代化に必要なサポーティングインダストリーのうち、とくに中小金属加工業のレベルアップを図ることを目的として、日本政府の技術援助を得て設立された科学技術環境省所管の国立技術開発センターです。



MITEC Building

Various technological dissemination services.

The services rendered, though diverse in nature have been streamlined so as to focus on the expansion of our present technical know-how as well as the acquisition of modern technological knowledge in the fields of die-making, presswork, welding, electroplating, test and inspection.

〔ＭＩＴ ＥＣの業務〕

ローカル中小企業のための技術センターというＭＩＴＥＣの基本構想に沿い、より多くのローカル企業に、より効果的に技術普及を行なう為、ＭＩＴＥＣでは以下のサービスを行なっています。

○ 工場巡回指導サービス	o Technical Advisory Services
○ 技術相談サービス	o Consultancy Services
○ 試験,検査サービス	o Test and Inspection Services
○ 試作加工サービス	o Prototype Fabrication Services
○ トレーニングコースの開催	o Training
○ セミナーの開催	o Seminars
○ 情報提供サービス	o Information Services

〔ＭＩＴＥＣの担当技術分野〕	In the fields of:
○ 金型製作	o Die-making
○ プレス加工	o Presswork
○ 溶接	o Welding
○ 電気メッキ	o Electroplating

〔技術移転〕

日本政府が国際協力事業団（ＪＩＣＡ）を通じて行なう技術協力プロジェクトの一つであるＭＩＴＥＣプロジェクトにおいては、R/D協力期間内に、ローカル中小企業に対し上記業務を遂行できる指導者,すなわちＭＩＴＥＣスタッフを養成することが、主たる目的となっています。その為、ＪＩＣＡ派遣専門家によるセンター内での講義,実習,カウンターパートの日本における技術研修の他、上記ＭＩＴＥＣ活動を通じて行なう ON THE JOB TRAINING により、カウンターパートへの効率的な技術移転をはかっています。

(TECHNOLOGY TRANSFER) The one of the main purpose of the MITEC Project is to train Malaysian counterpart personnel to improve their technique and to acquire modern technique on management and technology for development of the local industries as an technical consultant in the Centre. Therefore, we, Japanese experts and Malaysian counterparts, are making every effort to improve and increase the technological self-sufficiency of MITEC personnel by conducting lectures and practical training in the Centre, technical training in Japan, and on the job-training through the above MITEC activities.

Technical cooperation by the Government of JAPAN.

The Metal Industry Technology Centre (MITEC) is set up under the Standards and Industrial Research Institute of Malaysia (SIRIM) through a bilateral aid programme with the Government of Japan. Efforts to establish the Centre commenced after the signing of the Record of Discussions on 11 August 1978 between the Governments of Japan and Malaysia.

〔国際協力事業団（JICA）による技術協力プロジェクト：MITECプロジェクトの背景と経緯〕

マレイシアは世界一の生産を誇るスズ、天然ゴム、パーム油などのほか、木材、天然ガス、石油とその豊富な一次産品を背景にして、これまで順調な経済発展をとげてきました。しかしながら一次産品輸出に対する過度の依存は、世界景気の影響をモロに受けやすく、将来の安定的経済発展のためには、工業化へ向けての足取りを速めることが必要であり、これが当国の大きな課題となっていました。

このため、マレイシア政府は１９７１年から始まった２０年間の「新経済政策」では、積極的に外資導入の意向を示し、その結果製造業をはじめとする多くの外国企業の進出をみるに至りましたが、これら外国進出企業のうち輸送，電気機器などの生産工場は、その大部分が組立工場であり、その必要な部品のほとんどすべてを本国あるいは第三国から輸入しているのが現状となっています。これは従来、当国の一次産品輸出への依存が強く、またその恵まれた外貨事情の為に、多くの工業製品を自由に輸入できたので、自動車部品の製造をはじめ、機械，金属加工分野など下請け関連産業が発達しなかったことに起因しています。この為政府も着実な工業化を進める為には、中堅，中小企業の育成に力を入れる必要性を認め、その具体策として、ローカル企業育成のための技術センター設立構想をとりまとめ、１９７５年，本センター構想に対する技術協力を日本政府に要請してきました。

これを受けて、日本政府は１９７７年から１９７８年にかけて３回にわたり調査団を派遣し、その結果、１９７８年８月１１日、マレイシア金属工業技術センタープロジェクトに関するR/Dの調印が行なわれました。（R/D協力期間は１９８２年８月１０日まで。）同年チーフアドバイザー他２名の専門家が、翌年にはさらに３名の専門家が着任し、「ＭＩＴＥＣ」設立に向けて種々の活動が開始され、その結果、１９８１年９月３日には、マハティール首相，有田日本国大使出席のもとに、「ＭＩＴＥＣ」の開所式が行なわれ、首相自らにより公式開所が宣言されました。

その後、１９８２年７月にはプロジェクト評価チームが派遣され、マレイシア側との協議の結果、さらに本格的なＭＩＴＥＣ活動に向けてR/D協力期間を２年間延長することで合意し、調印が行なわれました。

従って、ＭＩＴＥＣプロジェクトR/D協力期間は、１９８４年８月１０日まで延長されて、現在に至っています。

Make a visit to improve manufacturing techniques.

On site advisory services to overcome technical problems as well as proposals to improve on manufacturing techniques and production processes are provided by MITEC officers during factory visits.

Factory visit

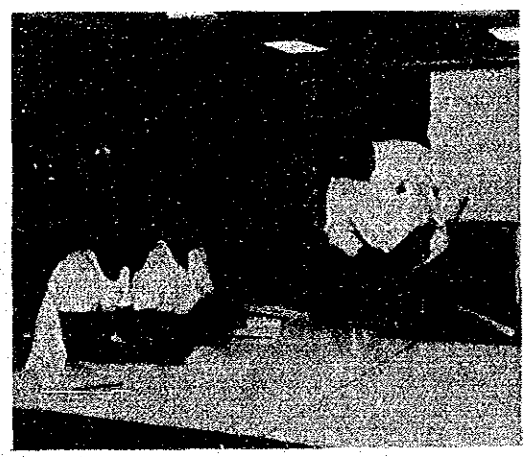
〔 工場巡回指導サービス 〕

各専門分野に通じた数名からなるＭＩＴＥＣ巡回指導チームが直接工場を訪れ、生産技術，品質管理，安全管理など、工場が現在直面している技術上の問題点につき、経営者，技術者などと話し合い、改善指導を行なっています。

１９７９年以来、マレイシア各地で訪れた工場は約３００にものぼり巡回指導の際使用するＭＩＴＥＣバスとＭＩＴＥＣカーの走行距離数は合わせて２０万KM以上に及んでいます。

To upgrade product quality.

MITEC provides the technical assistance required in the adaptation of new technology to upgrade product quality through up-to-date technical information, video tapes, slides and films.



Technical consulting

〔 技術相談サービス 〕

ローカル企業がかかえている技術上の問題点に対するアドバイスや、製品の品質向上の為の新しい技術の紹介など、ＭＩＴＥＣに備えられている最新の技術情報，資料，ビデオテープやスライドなどを使ってわかりやすく解説指導を行なっています。

１９８１年９月に行なわれたＭＩＴＥＣの開所式が新聞等で大きく報道されたこともあり、それ以後、全国各地のローカル企業からの技術相談の依頼が増えています。

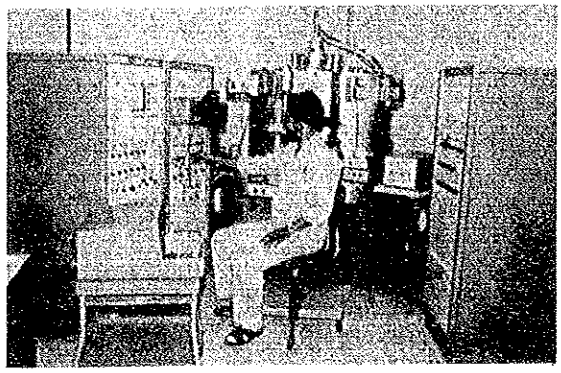
Wide range of testings and analytical work.

〔 試験,検査サービス 〕

各種試験機器をもたないローカル企業に対し、破壊,非破壊検査をはじめ、化学分析,精密測定等品質の確認あるいは向上へ向けての依頼試験に応じています。

現在マレイシアに3台しか無いといわれるX線マイクロアナライザーは、ＭＩＴＥＣの試験機器を代表するものとして広く知れわたっておりローカル企業はもとより、大学,政府の研究機関などからの試験検査依頼にも応じています。

With the present day emphasis on product quality, MITEC too has integrated into its activities the test and inspection services that handles a wide range of testings and analytical work, among them, destructive and non-destructive testings, chemical analysis, metallurgical anaysis at the micro level and precision measurements.



Electron Probe Micro Analyser

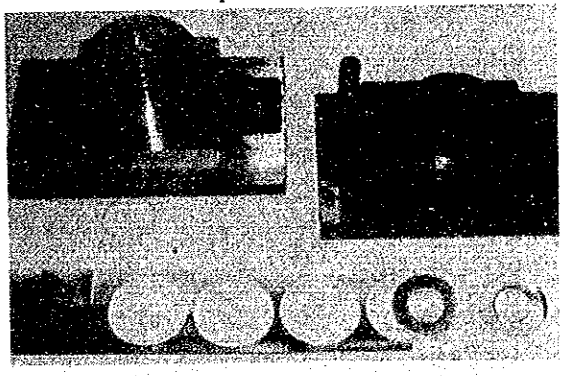
To encourage the growth of local fabrication capability.

〔 試作加工サービス 〕

ローカル企業の加工能力を高めるためＭＩＴＥＣにある各種の加工機械,装置を使い、製品の試作,生産工程の改善,治工具の開発等、さまざまな試作加工依頼に応じています。

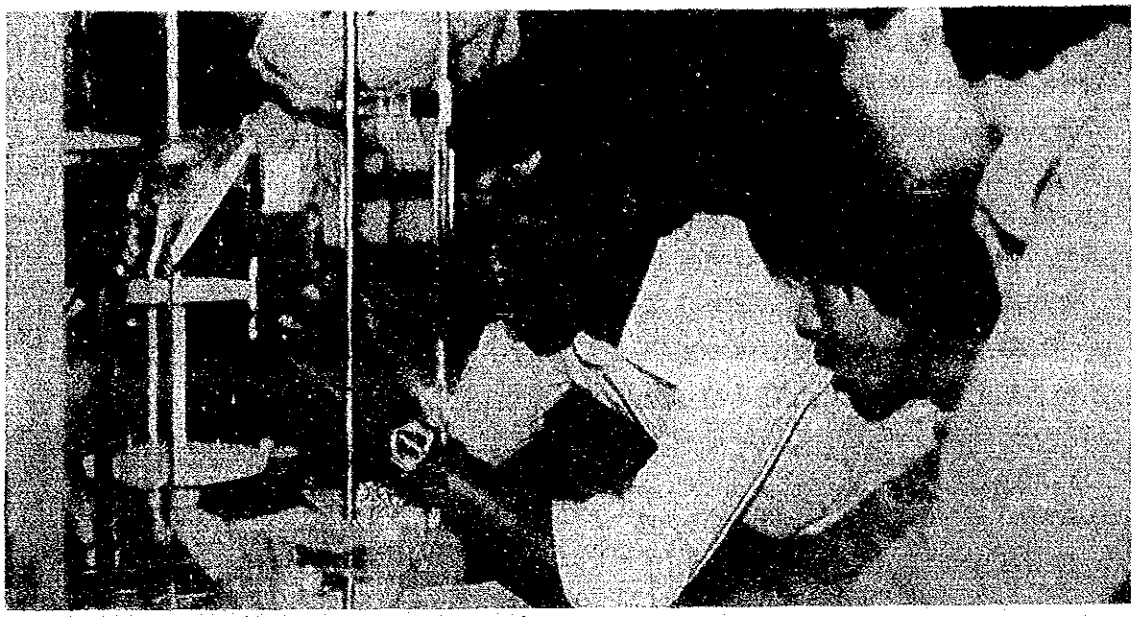
新しい設備投資にも限度のあるローカル中小企業にとって、ＭＩＴＥＣの最新設備を利用することは　加工技術のレベルアップにつながると同時に、より高度な技術に目を向けさせていくものとして、高く評価されています。

In product development, MITEC assists the metal industries by undertaking prototype product fabrication and improvement of manufacturing processes to encourage the growth of local fabrication capabilities.



Die and pressed parts for Air Filter Cover

Practical training courses to upgrade technical expertise.



Chemical Analysis

Practical training courses to industries to upgrade technical expertise as well as to impart modern manufacturing techniques and processes in the fields of die-making, presswork, welding, electroplating and test and inspection are among MITEC's prime activities.

〔 トレーニングコースの開催 〕

現場での技術経験を高め、さらには関連知識及び応用技術の習得等、実際に工場で役立つプラクティカルトレーニングを主体としたトレーニングコースを開催しています。

ＭＩＴＥＣのオープン以来、すでに5回の一般トレーニングコース（期間は2週間）を開催し、合計101名の研修終了生を送り出しています。またこれと平行して炭酸ガス溶接、亜鉛メッキなど、特定の技術にのみスポットをあてた特別研修コースを開催し、研修参加者より好評を博しています。

Welding practice

Machining practice

Basic know-how to recent technological innovations.

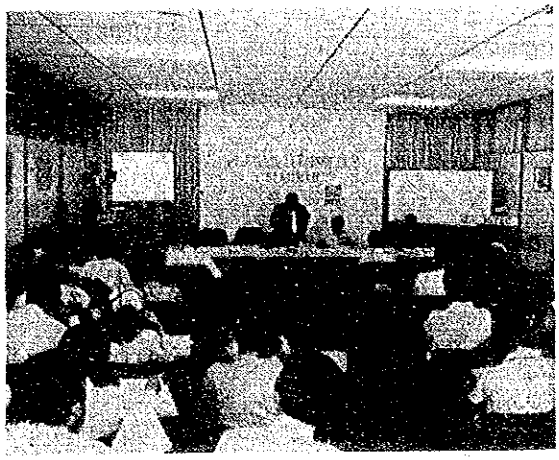
〔 セミナーの開催 〕

ローカル企業の品質管理,生産性,安全管理,公害対策などを向上させる為、基礎から最新技術まである特定のテーマについてセミナー・シンポジウムを開催しています。

昨年開かれた電子部品のメッキ技術をテーマとしたセミナーには、日本から講師を招いたこともあり、予想以上の反響を得て多くの参加者がつめかけました。

また、マレイシア国立大学で開かれたメタルシンポジウムでは、3分科会で発表を行なうなど、金属加工分野の研究においても高い評価を得ています。

Seminars featuring topics ranging from applied basic know-how to recent technological innovations in specialised areas of the metal working industry are held from time to time.



Electroplating Seminar

Information on manufacturing technique, process, equipment manual, quality control.

〔 情報提供サービス 〕

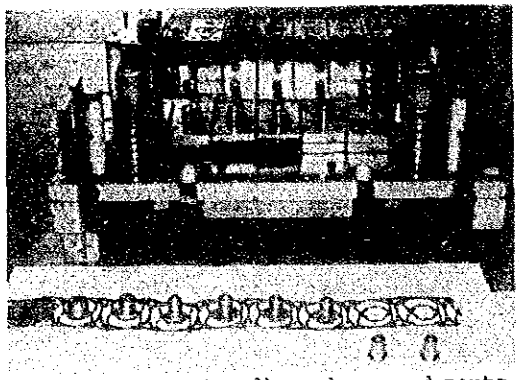
各種技術情報の収集力に欠けるローカル企業に対し、新らしい技術情報や、必要な機械装置の紹介などのサービスを行なう為、関連する技術書や雑誌,カタログ,ビデオテープ,スライドなどを収集整備し、必要に応じての情報提供に応じています。

また季刊「MITEC BULLETIN」の発行により、ＭＩＴＥＣ活動の紹介技術解説などのサービスを行なっています。

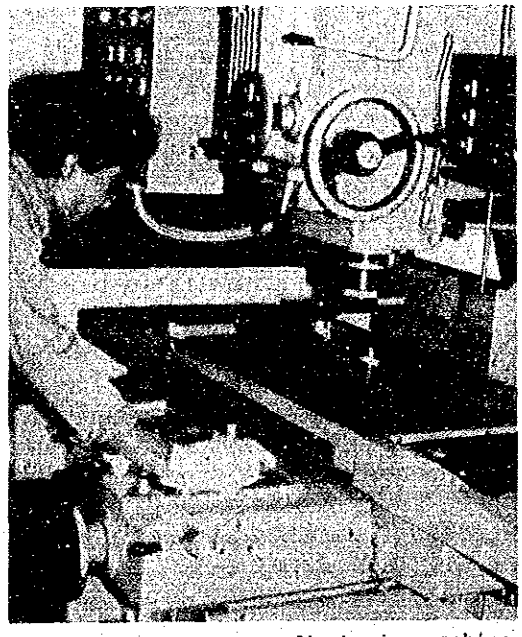
MITFC through its library makes available to the manufacturers technical information on manufacturing techniques, processes, equipment manuals, quality control and a host of other relevant technical subjects related to the metal fields. Video tapes, slides and films on technical subjects are also available. To keep abreast with recent technological development, technical pamphlets and MITEC bulletins are published periodically and distributed to the metal industries.

Die-making.

〔金　型　製　作〕　金型製作部門では、金属プレス用各種金型の設計・製作・補修に関する技術指導を行なっており、これらに必要な設計製図法，金型材料知識，機械加工技術，熱処理技術，金型検査技術等に関して、ローカル企業への技術普及に取り組んでいます。マレイシアでは最新鋭といわれるジグボーラーは、位置決め精度±0．003㎜という特殊精密加工ができ、放電加工機，投影研摩機と共に精密高度な複合金型の製作を可能にしています。また倣い対象物の形状をそのまま金型材に切削加工する倣いフライス盤をはじめ、各種フライス盤，研削盤などが設置してありますので、広範囲にわたる加工条件に対応できるようになっています。熱処理炉としては、滴注式ガス雰囲気炉が設置され、各種鋼材の焼き入れを行なっています。



Progressive die and pressed parts



Jig boring machine

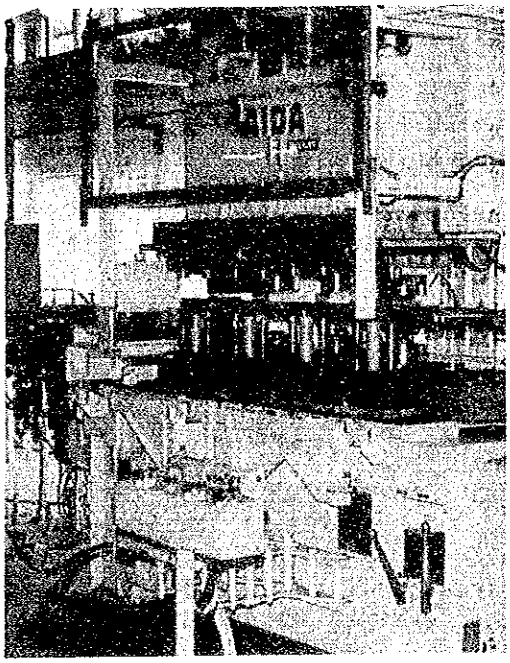
The die-making division is equipped with the most advanced machining facilities available in Malaysia featuring sophisticated equipment like Jig-borer, the Copy Milling Machine which is capable of machining 3 dimensional complex shapes, the Die Spotting Press for die repairs which is so designed to contain adjustable table and a movable clapper enabling very accurate and precise matching of the upper and lower dies, such salient features has qualified it to be placed among the rare equipment list available in the country presently. Other facilities in this division which are also tailored specifically for the requirements of the die-making industry include the Drip Feed Heat treatment which can be programmed according to the time set, the Electric Discharge Machine (EDM) and the Optical Profile Grinding machine which has the capacity to produce high precision dies such as those required for electronic components and cannot be produced by ordinary machining.

Press work.

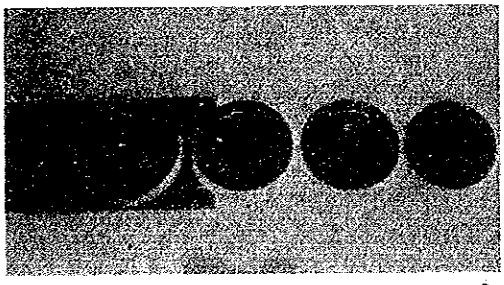
〔プレス加工〕 プレス加工部門では、抜き,曲げ,しぼり,バルジ,コイニング,パイプ等の各種プレス加工技術のほか、これらを複雑に組み合わせた順送加工,トランスファー加工等高度なプレス技術の指導にも取り組んでいます。そして、これら実際の加工技術に合わせ、製品設計,材料の選択,治具・工具の設計加工,コストマネジメント,さらに、安全作業の対策指導など、きめ細かく行なっています。

ワークショップにすえ付けられた150トン油圧プレスは、その油圧の特性によりしぼり加工に適しており、またその高い加工能力は自動車部品等大物プレス加工にも対応できます。

一方マレイシアではまだ導入例をみない110トントランスファープレスは、順送型では困難なしぼり製品,成形製品の加工に適し、その高度な加工技術とともに、自動化,複合化という今日のプレス技術の流れに沿うものとして注目を集めています。



110 ton transfer press



Product process of transfer

The presswork division has been sufficiently equipped to carry out most of the presswork operations known, as well as to initiate research interests into the areas of safety, and increased efficiency along production lines.
Consonance with the demand for small-lot productions aimed at achieving reasonable inventories of blanks, semi-finished and finished goods and space saving arrangements, technology has come up with the transfer press machine which is able to cope with the above requirements such as replacement and adjustment of dies. The transfer Press, among the first of its kind to be imported into the country has just been installed in the Presswork Workshop.
The 150 ton Hydraulic Press ideal for deep to very deep drawing with adjustable speeds and time lengths and the versatile 45 ton Pneumatic Clutch Power Press capable of performing a wide variety of operations ranging from blanking, forming, shallow drawing to deep drawing and equipped with a photo sensor safety device, are among the facilities that have been systematically built up in the division.

Welding.

〔溶　接〕　溶接部門では、被覆アーク溶接,炭酸ガス溶接,TIG溶接,MIG溶接サブマージアーク溶接,エレクトロスラグ溶接,スポット溶接,シーム溶接等各種溶接技術の指導を行なっており、これらの溶接方法の選択,材料と溶接棒の関係,材料切断と開先加工,各種溶接の自動化,対象溶接構造物の種類による溶接設計規準,さらに溶接部の検査技術等総合的な技術指導に取り組んでいます。

ワークショップにある各種溶接機器は、鉄鋼材,ステンレス鋼はもとより、アルミニウム,銅などの非鉄金属の溶接にも対応でき、また1mmの薄板から最大80mm程度の厚板溶接も可能となっています。また、溶接された溶接部は、試験検査部門との緊密な連携のもとに、外部,内部欠陥の検出,判定が行なわれ、ローカル企業における溶接技術の向上に大きく寄与しています。

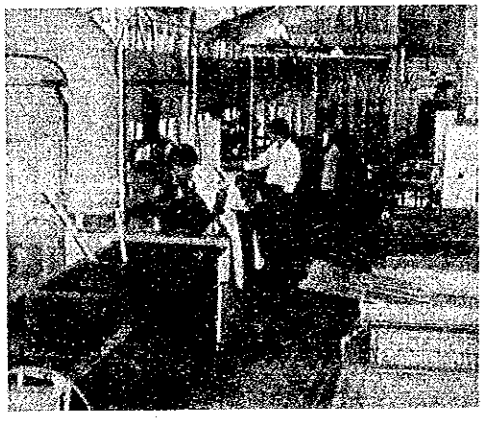
Welding of high pressure pipe 8" in 6G position

A wide selection of welding facilities is made available in MITEC and they include the common shielded metal arc welding, semi-automatic CO_2 arc welding, semi-automatic MIG arc welding, TIG arc welding, arc air gouging, resistance spot welding and resistance seam welding, submerged arc welding, oxy acetylene gas cutting, automatic plasma arc cutting and electro-slag welding.
This division also offers a range of training courses in arc welding particularly that of shielded metal arc welding and CO_2 arc welding for untrained welders and any personnel directly involved with welding production and inspection. The course content has been so designed as to be equivalent to the level and expectations set by welding international authorities. The training is industrial oriented and well balanced with lectures on up-to-date welding know-how.

Electroplating.

〔電　気　メ　ッ　キ〕　電気メッキ部門では、ローカル企業における各種メッキ技術の向上を目指して総合的な技術改善指導を行なっておりますが、このためワークショップには、銅・ニッケル・クロム・亜鉛・スズ・金・銀・硬質クロム・プラスチックメッキの各種メッキラインに加えて、分析室,研摩室,前処理設備,排水・排ガス処理設備等が完備されています。ローカル企業への指導は、これら各メッキラインをか動させて行なう現場作業の改善指導にはじまり、メッキ液の分析と管理技術、メッキ膜の厚み測定法、治具の作成、品質・コスト管理などそれぞれの現場条件に対応させて、きめ細かく行なっています。とくに、最新のメッキ排水・排ガス処理設備による公害防止技術の指導は、ローカル企業における公害防止意識を高め、その対策指導の普及に役立っています。

Demonstration of Hull Cell Test



Cu-Ni-Cr line

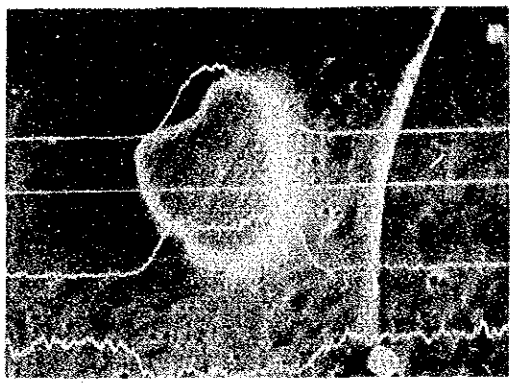
To instill technological development in electroplating would necessitate the introduction of modern equipment, plaing facilities and chemical currently being used in metal finishing industries of advanced industrialized nations. The electroplating devision has been equipped with various types of sophisticated plating process inclusive of copper-nickel-chrome, zinc, nickel and tin barrel, plastics (ABS), gold, silver and hard chrome platings.

To comply with the future implementation of government regulation whereby all electro-plating plants must be equipped with a waste disposal system, a sophisticated waste treatment system consisting of ion ex-changers and filter presses that is capable of detoxicating cyanide, acid, alkali and metallic residues has been installed in the Centre. There is also a scrubber for toxic gas treatment. Besides plant facilities, this division is also supported by an analytical laboratory where up-to-date testing facilities are available.

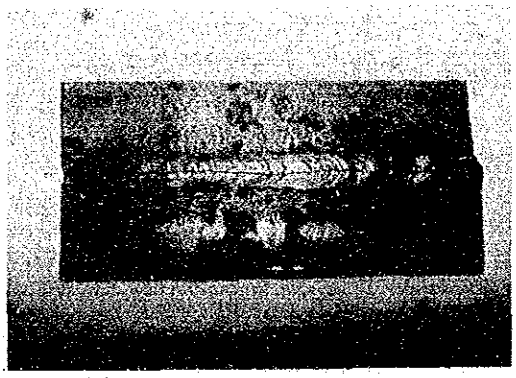
Test & Inspection.

〔試　験　検　査〕　試験検査部門では、金属加工分野における各種試験検査機器を備え、ローカル企業からの依頼試験はもとより、ＭＩＴＥＣ各部門の開発プロジェクトに対しても各種試験データを提供しています。非破壊検査においては、金属ミクロ領域の形状・組成・特性を分析するX線マイクロアナライザーをはじめ、溶接部の内部欠陥を検出するX線装置，超音波探傷装置，また表面欠陥の観察には、浸透探傷器，磁気探傷器などが備えられており、一方破壊検査の方では、２００トンの万能試験機，シャルピー衝撃試験機，エリクセン深しぼり試験機などで金属材料の塑性加工性試験などを行なっています。その他、プロファイルプロジェクター、コントレーサーなどによる精密測定，各種硬度計による金属硬さ試験，騒音・振動の測定、またメッキ関係の試験なども行ない、その試験データはＭＩＴＥＣの内外で、幅広く活用されています。

The activities of this division is integrated into the other four major divisions of MITEC by providing the testing facilities specifically used in the metal working fields. The laboratory is equipped with a sophisticated Electron Probe Micro Analyser (EPMA) for spectriometric qualitative and quantitative analysis. The latter is restricted to the standard samples of metals available, eg. Mn, Ni, Cr and Si. It is applicable to all elements up to boron in the periodic table for qualitative analysis.
The ultrasonic flaw detector and the X-ray radiography of 250KV are used to detect internal defects in welded products. Also available are the Dye Penetrants for surface defects and the Magnetic Partical Tester for sub-surface defects of ferrous materials.
The equipment catering for destructive testing are the Universal Tensile Testing Machine capable of withstanding loads up to a maximum of 200 tons, a Charpy Impact Tester, Rockwell and Microbickers Testers for the hardness test and a Metallurgical Microscope with a magnification of 1000 times.



Elemental distribution
(SE image + Correlate views)

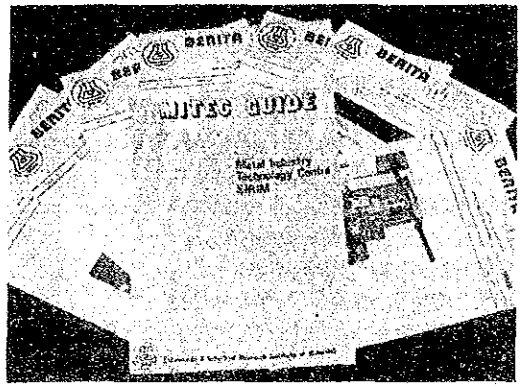


Cracking detected by Magnetic particle

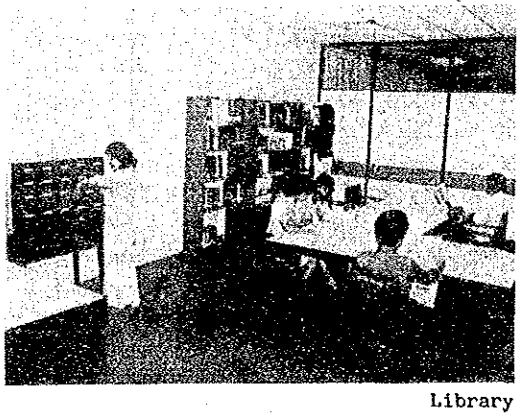
Information.

〔 情　報 〕　情報部門では、ＭＩＴＥＣの各種サービス業務を円滑に行なうため各部門と緊密に連絡をとりながら指導業務の企画調整，技術情報及び技術図書の収集管理，試験・研究の成果の管理普及，トレーニングコース及びセミナーなどで使用する視聴覚教材の企画・製作，ローカル企業・関係機関との直接の接点となる「ＭＩＴＥＣ ＢＵＬＬＥＴＩＮ」の企画編集など行なっています。センター内にあるテクニカルライブラリーには金属関連分野の技術書はもちろんのこと、ローカル企業にとって有益な各種規格，工具・材料・機器のカタログ，工場管理・品質管理・公害関係の図書，最新技術雑誌などが幅広く取りそろえてあります。またＶＴＲカメラ，編集録音機器，16mmフィルムプロジェクター，スライドプロジェクター，オーバーヘッドプロジェクターなど視聴覚教材の有効利用に必要な各種機器を備えています。

This division provides up-to-date technological information on a wide range of subjects of interest to the metal entrepreneurs. The technological dissemination services available include the services of a technical library which houses a host of reference books pertaining to specialised metal working fields of the Centre as well as other relevant topics covering factory management, organisations, safety, pollution control and quality control. MITEC also has an audio visual library facilitated with an editing and dubbing machine, slide projector, film projector, overhead projector and video tape recorders. MITEC is also equipped with a collection of appropriate technical video tapes and slides that will furnish interested parties with up-to-date information on the metal technology advancements already in the grasp of the highly industrialised countries of the world.
A quarterly bulletin 'Berita MITEC' and information brochures keeps the industrialists informed of the activities and development of the Centre.



MITEC Bulletine



Library

Major facilities.

	NAME	SPECIFICATION	MANUFACTURER
DIE-MAKING	Shaping m/c	670mm	Hokuetsu
	Copy milling m/c	1500 x 400mm	Yoneda Tekkosho
	Vertical milling m/c	600 x 260mm	Enshu
	Universal milling m/c	1300 x 290mm	Hitachi Seiki
	Radial drilling m/c	1135mm	Ikeda Tekkosho
	Precision form grinding m/c	450 x 150mm	Okamoto
	Optical Profile grinding m/c	250 x 80mm	Washino
	Electrical discharge m/c	300 x 400mm	Japax
	Jig boring & milling m/c	700 x 400mm	Waida
	Heat treatment furnace	50 kg	Oriental Eng.
PRESSWORK	Pneumatic Clutch Press	45 Ton	Amada
	Hydraulic press	150 Ton	Kawasaki Ucoh
	Transfer Press	110 Ton	Aida Eng.
	Gap shearing m/c	4.5 mm	Amada
	Hydraulic press brake	80 Ton	Amada
WELDING	AC Arc Welder	KPC-300 400 500	Osaka Transformer
	CO_2 Arc welder	350M	Osaka Transformer
	Tig welder	AC/DC-300	Osaka Transformer
	Mig welder	Pulse Auto 400	Osaka Transformer
	Spot welder	SL-AJ 30 KVA	Osaka Denki
	Seam welder	SE-V 90 KVA	Osaka Denki
	Air gouging m/c	MRA-600	Osaka Transformer
	Electro-slag welder	500A	Osaka Denki
	Submerged arc welder	BCR-1000	Osaka Denki
	Plasma cutting m/c	100A	Koike Sanso Kogyo
ELECTROPLATING	Cu-Ni-Cr plating line	200x100x160cm	Chuo Seisakusho
	Zinc plating line	200x80x100cm	Nihon Filter
	Nickel, tin barrel line	100x80x80cm	Koka Chrome
	Gold, silver plating line	80x50x80cm	
	Hard chrome line	200x100x160cm	
	PLastic plating line	50x50x80cm	
	Analysis Room	Hull Cell, PH, BOD & COD, Thickness	Yamamoto Tokin
	Polishing line	Two Head, Dryer	Nosui Kikai
	Pollution Control System	Waste water & Toxic Gas treatment system	Nihon Filter Koka Chrom
	Supporting line	Ion Deioniser, Cooling System, Air compressor	Chuo Seisakasho Nippon Rensui
TEST & INSPECTION	Electron probe micro analyser	EMX-SM7	Shimadzu
	Industrial X-ray unit	200 KV 250 KV	Shimadzu
	Ultrasonic flaw detector	SM80	Tokyo Keiki
	Metallurgical microscope	50x-1000x	Nippon Kogaku
	Universal testing m/c	30 Ton 200 Ton	Shimadzu
	Charpy Impact testing m/c	30 Kg-m	Shimadzu
	Erichsen Ductility tester	142	Erichsen
	Profile projector	VP-30A	Shinko Seiki
	Micro Vickers Hardness tester	M Type	Shimadzu

To achieve the establishment of MITEC.

〔 日本側分担 〕

1．機材の供与　　総額5億6千5百万円

1)	金型部門	1億4千9百万円
2)	プレス部門	9千7百万円
3)	溶接部門	3千1百万円
4)	電気メッキ部門	1億3千5百万円
5)	試験・検査部門	1億2千7百万円
6)	共通及び情報部門	2千6百万円

(※　昭和58年1月現在)

2．日本人専門家の派遣

1)	チーフアドバイザー	佐山　実	53. 11. 5 ～ 56. 9. 13
		富田　堅二	56. 10. 13 ～ 59. 8. 14
2)	金型製作	古井　正樹	54. 4. 1 ～ 56. 6. 2
		森　一雄	57. 11. 27 ～ 59. 8. 11
3)	プレス加工	長谷川久市	54. 4. 1 ～ 57. 3. 31
		杉山　成昭	57. 8. 15 ～ 59. 8. 14
4)	溶接	服部　哲二	53. 11. 4 ～ 57. 8. 11
		井上　勇一	57. 8. 7 ～ 59. 8. 6
5)	電気メッキ	野中　亮平	53. 10. 26 ～ 59. 8. 11
6)	情報	田中　和彦	54. 10. 15 ～ 59. 8. 11

3．カウンターパートの日本への受入研修

部　門	53年度	54年度	55年度	56年度	57年度	58年度	計
高級・準高級	2(人)	2(人)	—	1(人)	2(人)	—	7
金型製作	—	1	1	1	1	1	5
プレス加工	—	1	1	1	—	1	4
溶　接	—	1	1	1	1	—	4
電気メッキ	—	1	1	1	2	—	5
試験・検査	—	—	2	—	2	—	4
情　報	—	2	—	—	—	1	3
計	2	8	6	5	8	3	32

※　58年度は研修予定。

〔 マレイシア側分担 〕

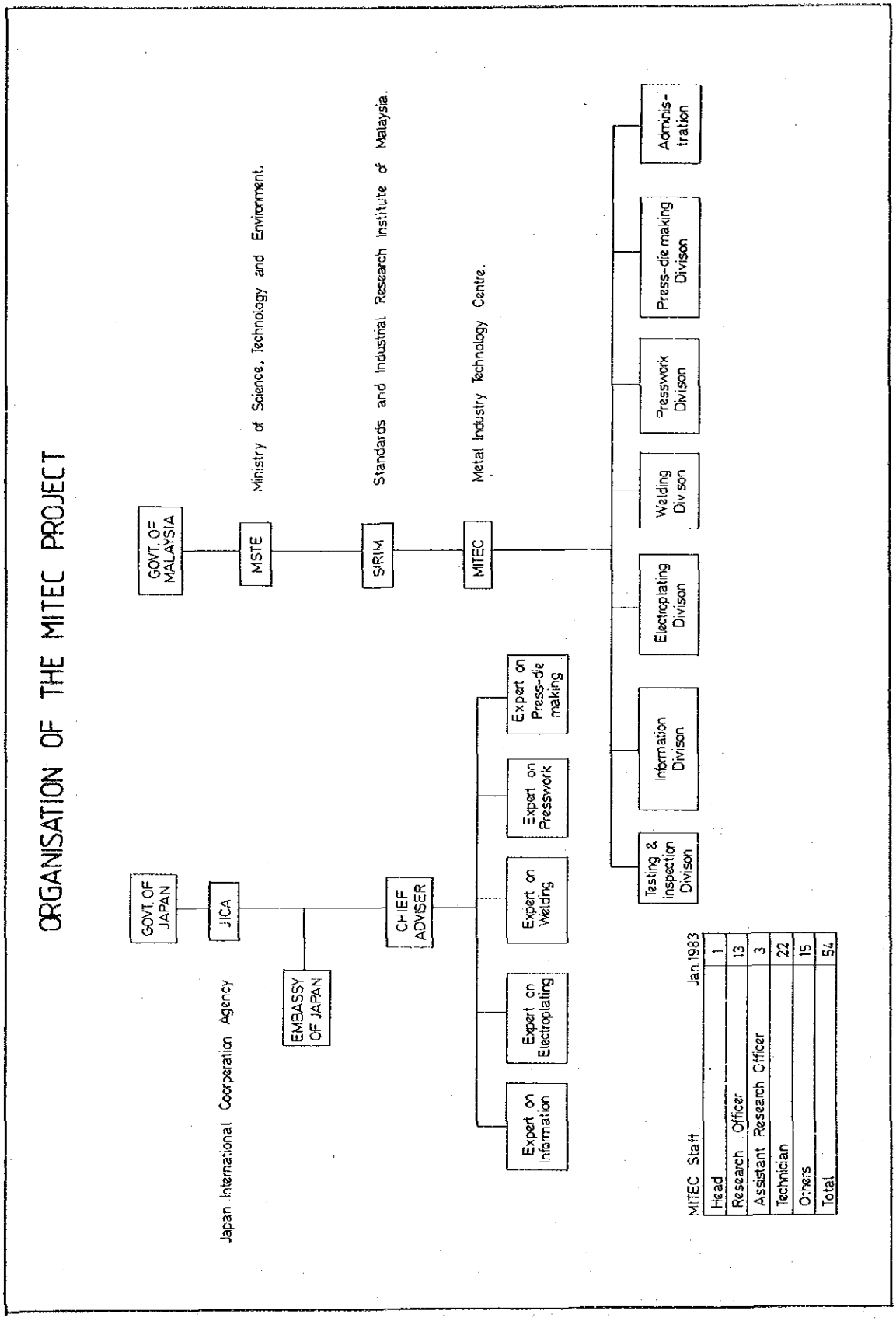
1．土地，建物の提供　　土地：10500平方メートル
　　建物：　5500平方メートル

2．建物改造費　　2億5千万円

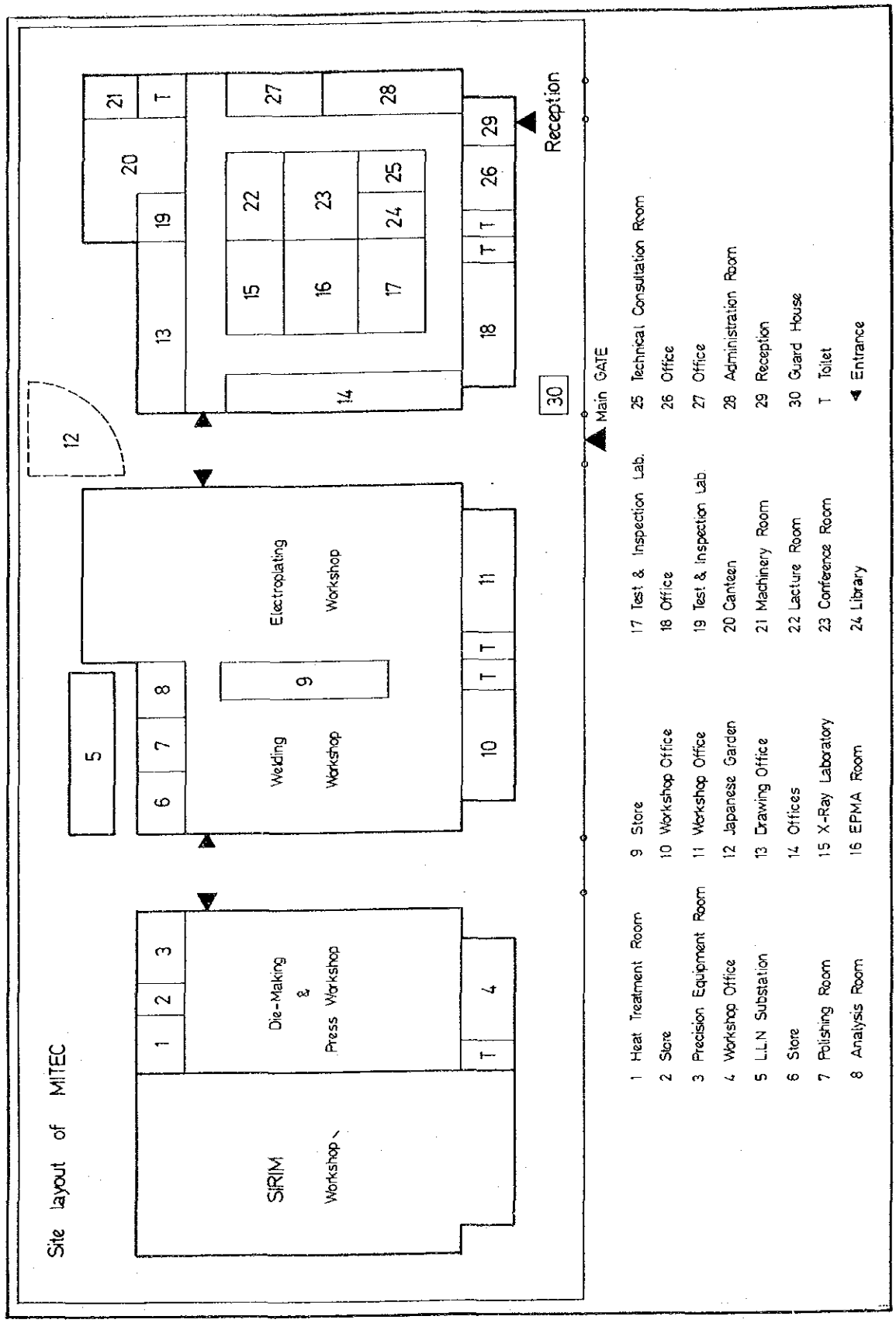
3．付帯設備，現地調達資機材費　　2億5千万円

4．運営費　　年間1億2千万円

Organization chart.



Site layout.


Site layout of MITEC
SIRIM
Workshop
Die-Making & Press Workshop
Welding Workshop
Electroplating Workshop
Reception
Main GATE
1 Heat Treatment Room
2 Store
3 Precision Equipment Room
4 Workshop Office
5 L.L.N Substation
6 Store
7 Polishing Room
8 Analysis Room
9 Store
10 Workshop Office
11 Workshop Office
12 Japanese Garden
13 Drawing Office
14 Offices
15 X-Ray Laboratory
16 EPMA Room
17 Test & Inspection Lab.
18 Office
19 Test & Inspection Lab
20 Canteen
21 Machinery Room
22 Lecture Room
23 Conference Room
24 Library
25 Technical Consultation Room
26 Office
27 Office
28 Administration Room
29 Reception
30 Guard House
T Toilet
Entrance

Basic data.

名称　：　科学技術環境省
標準工業研究所
マレイシア金属工業技術センター

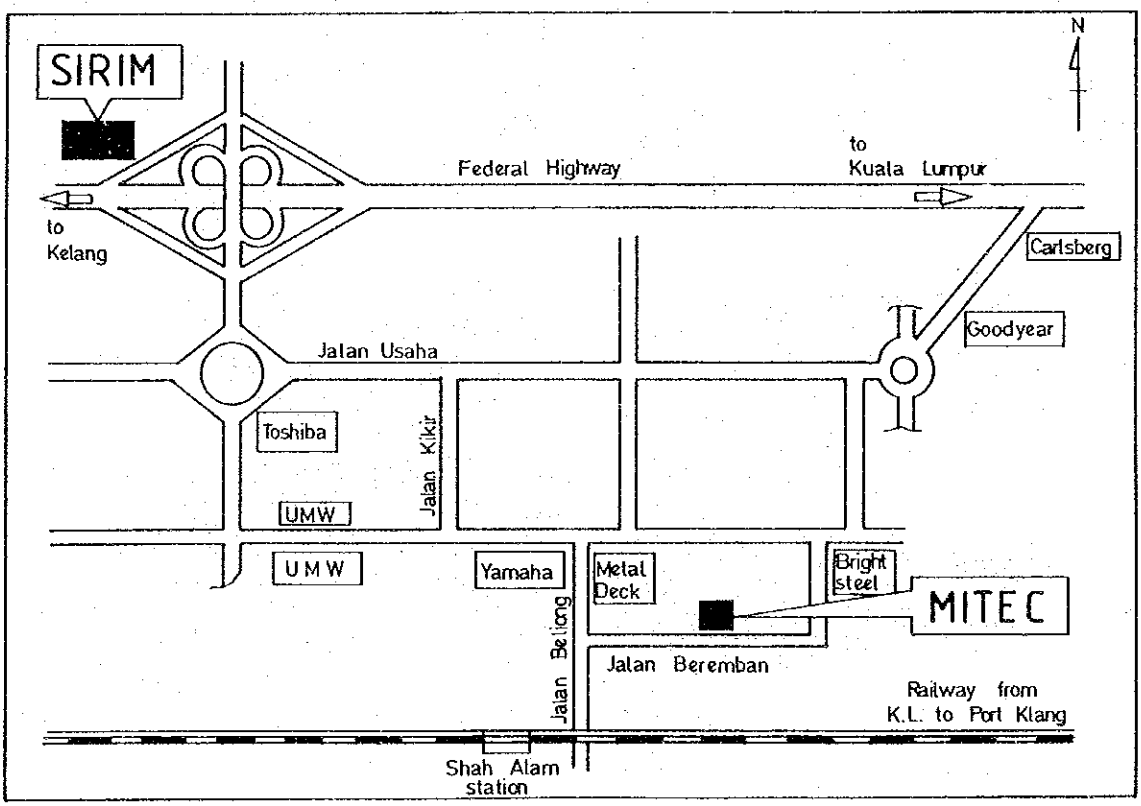
METAL INDUSTRY TECHNOLOGY CENTRE (MITEC)
STANDARDS AND INDUSTRIAL RESEARCH INSTITUTE OF MALAYSIA (SIRIM)
MINISTRY OF SCIENCE, TECHNOLOGY AND ENVIRONMENT (MSTE)

所在地　：　LOT 12-20, JALAN BEREMBAN, SHAH ALAM, SELANGOR.
MALAYSIA.

電話番号　：　３６１９６４（代表），３６１９６２（チーフアドバイザー）

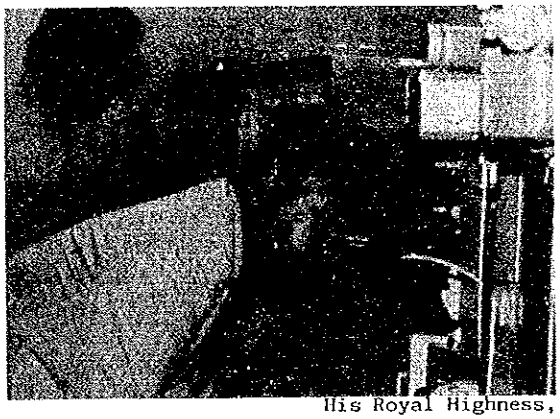
通信先　：　MITEC, SIRIM, P. O. BOX : 35, SHAH ALAM, SELANGOR,
MALAYSIA.

業務時間　：　月曜日～木曜日　８：００～１２：４５
１４：００～１６：１５
金曜日　８：００～１２：１５
１４：４５～１６：１５
土曜日　８：００～１２：４５

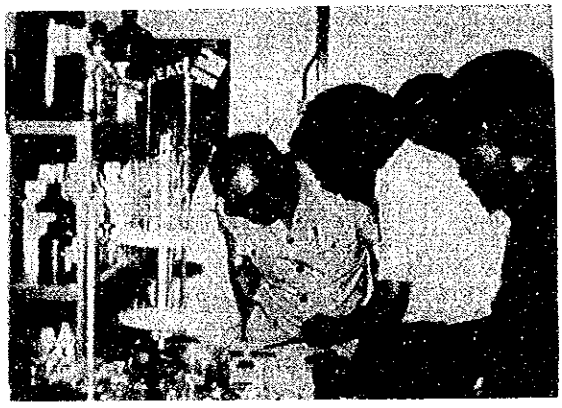


Various visitors

Dato' Seri Dr. Mahathir bin Mohamad
The Prime Minister of Malaysia



His Royal Highness,
the Sultan of Perlis



Dato' Amar Stephen Yong
The Minister of Science,
Technology and Environment

Tan Sri Ong Kee Hui
The former Minister of Science,
Technology and Environment

Datin Paduka Rafidah Aziz
The Minister of Public Enterprise

Datuk Hormat Rafie
The Chief Minister of Selangor

Various visitors

Mr. Keisuke Arita
President, JICA

Mr. Takashi Shikita
Vice President, JICA

Mr. Takeo Arita
Ambassador of Japan to Malaysia

Mr. Kenich Yanagi
Director-General, Economic Cooperation Bureau,
Ministry of Foreign Affars

Mr. Yoshio Hisatome
Executive Director, JICA