

CHAPTER 5
EVALUATION OF THE PROJECT

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In the Fifth Four-Year Plan, the Project forms a constituent of the most important object which has been recognized in agricultural development program increasing the unit yield of planted area with expanding irrigation. The Project is establishment of the central facilities with sufficient equipment to improve irrigation technology and to train irrigation engineers.

After completion of the Project maintenance and administration of ITC will be operated under control of the ID Planning Branch. As stated before, Burma faces a stringent need of improved irrigation technology and trained engineers, therefore, implementation of the Project is of vital significance.

The following effects from the Project are expected when the construction is completed in due course while maintenance and administration of ITC are smoothly carried out.

1. With its own new irrigation technology experiment facility and training program, necessary irrigation engineers will be brought up, thus, it becomes possible to test and prove foreign technology introduced for the design and construction of irrigation facilities. Also it will enable adaptation of irrigation technology developed in foreign countries to create an appropriate technology that is suited to Burmese needs. This technology can then be used to expand and improve the Burmese irrigation technology.
2. The introduction of computer will make possible quick and efficient use and renewal of data required for setting design standards and criteria. It will also simplify and standardize the method of data storage, design, construction cost estimates and construction materials management. Further, the efficiency and unity in all of the ID operations will be ensured by using new computer system.
3. The laboratory facilities will enable centralization and facilitation of physical and mechanical experiments of designed structure and construction materials.

The test results will be of great assistance to designers and site engineers, therefore, enhancing the overall efficiency of the

irrigation technology.

4. The improvement in quality and quantity of irrigation engineers is one of the urgent problems at ID. Bringing up engineers and assistants through the training at ITC which is assisted by Japanese Technical Cooperation certainly improve and expand the irrigation technology of Burma.

In conclusion, the objective of the Project is to promote irrigation technology and to increase the number of irrigation engineers as well as improving their quality for enhancing the efficiency of water resources. The Project is also expected to stimulate national development and stabilize the country economy, therefore, the grant aid program offered by the Government of Japan would be no doubt justifiable and further promise highly recognized results.

CHAPTER 6
CONCLUSION AND RECOMMENDATIONS

CHAPTER 6 CONCLUSION AND RECOMMENDATIONS

A survey carried in Burma and analysis pursued in Japan concerning the contents and background of the Project and evaluation of the request from the Government of Burma indicate that the need for the Project to establish the ITC outlined herein is essential. The location of the proposed construction site in the suburbs of Pegu city, geographically centrally located in Burma, facilitates the movements of trainees coming from local ID branches. The physical and geographical features make the location appropriate for establishing the center of laboratories and training facilities.

The Project requires the construction of Administration & Training Building (a two-storey reinforced concrete building with a floor area of 3,600 m²), Laboratory Building (single storey, partially two-storey, reinforced concrete building with a floor area of 2,685 m²), Dormitory (a two-storey, partially single storey, reinforced concrete building with a floor area of 1,395 m²) and connecting walkway etc. (floor area of 855.0 m²)

As stated in Chapter 5, the Project is of vital importance to Burma, therefore, the grant aid offer from Japan is fully appropriate.

The following are the recommendations to ensure speedy implementation of the construction and to pursue smooth and efficient operation for the entire Project.

(1) Project Implementation

1) Swift procedure of approval at every stage

The Project is subject to a time limit since it is implemented by Japanese grant aid system. It is therefore essential that the Exchange of Notes between both countries be rapidly concluded, and contracts regarding consultant, construction and equipment procurement be concluded without delay.

2) Smooth execution of Burmese side work

As the Ministry of Agriculture and Forests is acquainted with the procedure of the grant aid system of Japan, the Burmese side works are expected to be carried out by the prescribed time limit. At an appropriate time according to the Burmese fiscal year, sufficient budget

for the Burmese side works such as ground leveling work, the construction of access roads and drilling wells should be assigned and performed before the commencement of the construction work of the Project.

The permanent electric power supply works, etc. must be finished at least 2 months before the completion of the facilities to enable inspection and test run for both facilities and equipment.

3) Support to acceleration of other procedures

Since procedures such as negotiations with other ministries, customs clearance, transportation and bank arrangement should be swiftly dealt with, it is recommended that a suitable organization is established to perform these tasks.

(2) Management and Administration of ITC

1) Management and administration

As the ITC is located at some distance from the ID head office, close cooperation with the head office is essential so that administrative and management task can be performed efficiently. The ITC organization consists of the 4 departments of administration, training, computer system and laboratory.

The activities and functions of these departments must satisfy the technological demand of the ID departments.

2) Training of teaching staff

The ID main office which is responsible for the execution of irrigation tasks has so far not conducted any organized training of irrigation engineers and has never employed any teaching staff for training to this end. Before the opening of ITC, it is desirable to organize a proper training system with the cooperation from higher educational institute mainly from Rangoon University. Full-time teaching staffs will be selected from people who have experience in irrigation projects and these will work together with Japanese Technical Cooperation Experts to conduct an effective training system for instructors.

3) Establishment of data diffusion system

A data processing system with utilization of computer will be set up for the purpose of collecting wide variety of data concerning irrigation

technology and projects as well as promoting implementation of the project efficiently. It is desirable to establish a data diffusion system based on strengthening close cooperation between authorities concerned for improvement of the data processing.

4) Technical Cooperation

The preliminary survey has been done for the Technical Cooperation of the Project by the Government of Japan and the domestic support system for practical operation has been discussed.

Therefore, execution of the Technical Cooperation is the basis in the grade selection of testing and training equipment in the project.

In order to increase the efficiency of grant aid program, both Japan and Burma sides should do their utmost to realization of the Technical Cooperation due to the Government of Japan.

ANNEX

1. MEMBERS OF THE STUDY TEAM

MEMBERS OF THE STUDY TEAM

1-1 Basic Design Study Team (Jan. 31 - Feb. 24, 1986)

Mr. Yasuo SASAKI	Team Leader	Japanese Institute of Irrigation and Drainage
Mr. Noriaki NIWA	Project Coordinator	Grant Aid Planning and Survey Department, JICA
Mr. Tsunemasa TERAZAKI	Project Manager, Architect	Yamashita Architects & Engineers, Inc.
Mr. Takaaki KIMURA	Architect	"
Mr. Norio ISHIOKA	Facilities Engineer	"
Mr. Fumimichi OBU	Irrigation Engineer	Sanyu Consultants Inc.
Mr. Haruo HIKI	Equipment Engineer	"
Mr. Yoshiaki KIMURA	Equipment Engineer	"

1-2 Basic Design Study Team

(Explanation of Draft Final Report, May 14-May 23, 1986)

Mr. Noriaki NIWA	Team Leader, Project Coordinator	Grant Aid Planning and Survey Dept. JICA
Mr. Tsunemasa TERAZAKI	Project Manager, Architect	Yamashita Architects & Engineers, Inc.
Mr. Takaaki KIMURA	Architect	"
Mr. Fumimichi OBU	Irrigation Engineer	Sanyu Consultanys Inc.

2. MEMBERS OF THE BURMESE COUNTERPART

MEMBERS OF THE BURMESE COUNTERPART

(1) Ministry of Agriculture and Forests

(i) Irrigation Department (ID)

U SAW VAWTER LOO (Director General)
U KIN MAUNG HLA (Ex-Director General)
U SAW HLAING (Director)
U THEIN TUN (Director)
U SEIU AUNG (Assistant Director)
Dr. OHN MYINT (Executive Engineer, P & D)
U MAUNG MAUNG (Executive Engineer, Survey)
U KHIN MAUNG (Executive Engineer, Workshop)
U TIN MAUNG (Executive Engineer, Hydrology)
U WIN (Executive Engineer, Geology)
U CHIT LWIN (Executive Engineer, Geology)
U BA AYE (Executive Engineer, Topography)
U MAUNG MAUNG (Executive Engineer, Topography)
U SAUN LWIN (Senior Engineer, Geology)

(ii) Planning & Statistics Department

U KHIN MAUNG LATT (Director General)
U HLA MOE (Director)
U KYAING (Dy. Director)

(2) Foreign Economic Relations Department (FERD)

U SOE THWIN (Director General)
U SET MAUNG (Ex-Director General)
U ANTT KYAW (Dy. Director)
U MAUNG MAUNG LAY (Assistant Director)
U THAN MYINT (Assistant Director)

(3) University of Rangoon Computer Center (UCC)

U KOKO LAY (Scientific Applications Manager)
U TUR AUNG BYAW (System Engineer)
U HLA MIN (Business Applications Manager)

(4) Construction Corporation (CC)

U MYINT THAUNG (Staff Officer I, Q/S & Research)
U SHWE WIN (Staff Officer II, Q/S & Research)
Mr. DEZUZAR (Staff Officer II, Q/S & Research)
U NGWE HTUN (Staff Officer I, Water & Sanitary)
U TIN AUNG (Staff Officer II, Architect)
U NAY PHU BA SWE (Staff Officer III, Q/S & Research)
U THAN HTUN (Staff Officer III, Electrical)
DAW THAN THAN NWE (Staff Officer III, Electrical)
U SEIN HTOON (Staff Officer III, Water & Sanitary)

(5) Electric Power Corporation (EPC)

Mr. TAIKWELL (Dy CE)
U AYE (Superintending Engineer)
U AYE SA (Superintending Engineer)

3. SURVEY SCHEDULE

SURVEY SCHEDULE

3-1 Survey Schedule (Jan. 31 - Feb. 24, 1986)

Date	Schedule & Remarks
1st Jan 31 (Fri)	Lv. Tokyo (Messrs. Sasaki, Niwa, Terazaki, Kimura, Ishioka, Obu, Hiki, Kimura) Ar. Bangkok
2nd Feb 1 (Sat)	Lv. Bangkok, Ar. Rangoon
3rd 2 (Sun)	Investigation of the proposed site Meeting within the Team
4th 3 (Mon)	Meeting at JICA Office Courtesy call on Japanese Embassy, The Ministry of Agriculture and FERD
5th 4 (Tue)	Explanation of Inception Report at Irrigation Department (ID)
6th 5 (Wed)	Investigation of the proposed site Survey on the Vegetable & Fruit Research and Development Project and on CADTC
7th 6 (Thu)	Discussion at ID
8th 7 (Fri)	Survey on the existing ID's Laboratory building Discussion at ID
9th 8 (Sat)	Discussion and study within the Team, Investigation on the current construction technology in general
10th 9 (Sun)	Analysis of the collected data
11th 10 (Mon)	Meeting & discussion at ID
12th 11 (Tue)	Meeting & discussion at ID (with the member of UCC Investigation on the computer technology level in Burma
13th 12 (Wed)	Discussion within the Team Preparation for the draft of Minutes of Discussions
14th 13 (Thu)	Discussion on the draft of Minute of Discussions at ID
15th 14 (Fri)	Signing the Minites of Discussions Report the survey result to JICA office and Japanese Embassy
16th 15 (Sat)	Lv. Rangoon for Tokyo (Messers. Sasaki, Niwa)

Date	Schedule & Remarks	
17th Feb 16 (Sun)	Analysis of the collected data	
18th 17 (Mon)	Meeting at ID and EPC	
19th 18 (Tue)	Meeting at ID and CC	
20th 19 (Wed)	Investigation of the proposed site Visit and investigation on site condition and the Basic Design Study Survey on CADTC	
21th 20 (Thu)	Meeting at PTC and CC	
22th 21 (Fri)	Report the survey result to JICA office and Japanese Embassy	
23th 22 (Sat)	Report to ID	
24th 23 (Sun)	The consultant reaving Burma Lv. Rangoon, Ar. Bangkok (Messrs. Terazaki, Kimura Ishioka, Obu, Hiki, Kimura)	
25th 24 (Mon)	Return to Tokyo Lv. Bangkok, Ar. Tokyo	

3-2 Survey Schedule (May 14 - May 23, 1986)

Date	Schedule & Remarks
1st May 14 (Wed)	Lv. Tokyo (Messrs Niwa, Terazaki, Kimura, Obu) Ar. Bangkok
2nd 15 (Thu)	Lv. Bangkok Ar. Rangoon
3rd 16 (Fri)	Meeting at JICA office Courtesy call on Japanese Embassy, the Ministry of Agriculture & Forests
4th 17 (Sat)	Discussion and study within the team, investigation on the current construction technology in general
5th 18 (Sun)	Analysis of the collected data/informations
6th 19 (Mon)	Meeting & discussion at ID, Courtesy call on FERD
7th 20 (Tue)	Meeting & discussion at ID
8th 21 (Wed)	Signing of the Minutes of Discussions Report the result to JICA and Japanese Embassy
9th 22 (Thu)	Lv. Rangoon (Messrs) Niwa, Terazaki, Kimura, Obu) Ar. Bangkok
10th 23 (Fri)	Lv. Bangkok Ar. Tokyo

4. MINUTES OF DISCUSSIONS

MINUTES OF DISCUSSIONS - 1

MINUTES OF DISCUSSIONS

ON

THE ESTABLISHMENT PROJECT

OF

THE IRRIGATION TECHNOLOGY CENTER

IN

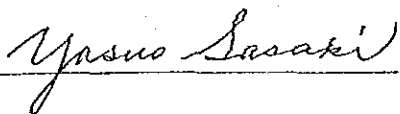
THE SOCIALIST REPUBLIC OF THE UNION OF BURMA

In response to the request of the Government of Burma, the Government of Japan decided to conduct a basic design study on the Establishment Project of the Irrigation Technology Center (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to Burma the basic design study team headed by Mr. Yasuo Sasaki, chief engineer, Japanese Institute of Irrigation and Drainage (hereinafter referred to as "the Team") from February 1 to February 22, 1986.

The Team had a series of discussions on the Project with the officials concerned of the Government of Burma headed by U Kin Maung Hla, Director General, Irrigation Department, Ministry of Agriculture and Forests and carried out field survey.

As a result of the study, both parties agreed to recommend to their respective Governments that the major points of understanding reached between them, attached herewith, should be examined towards the realization of the Project.

Rangoon, February 14, 1986.



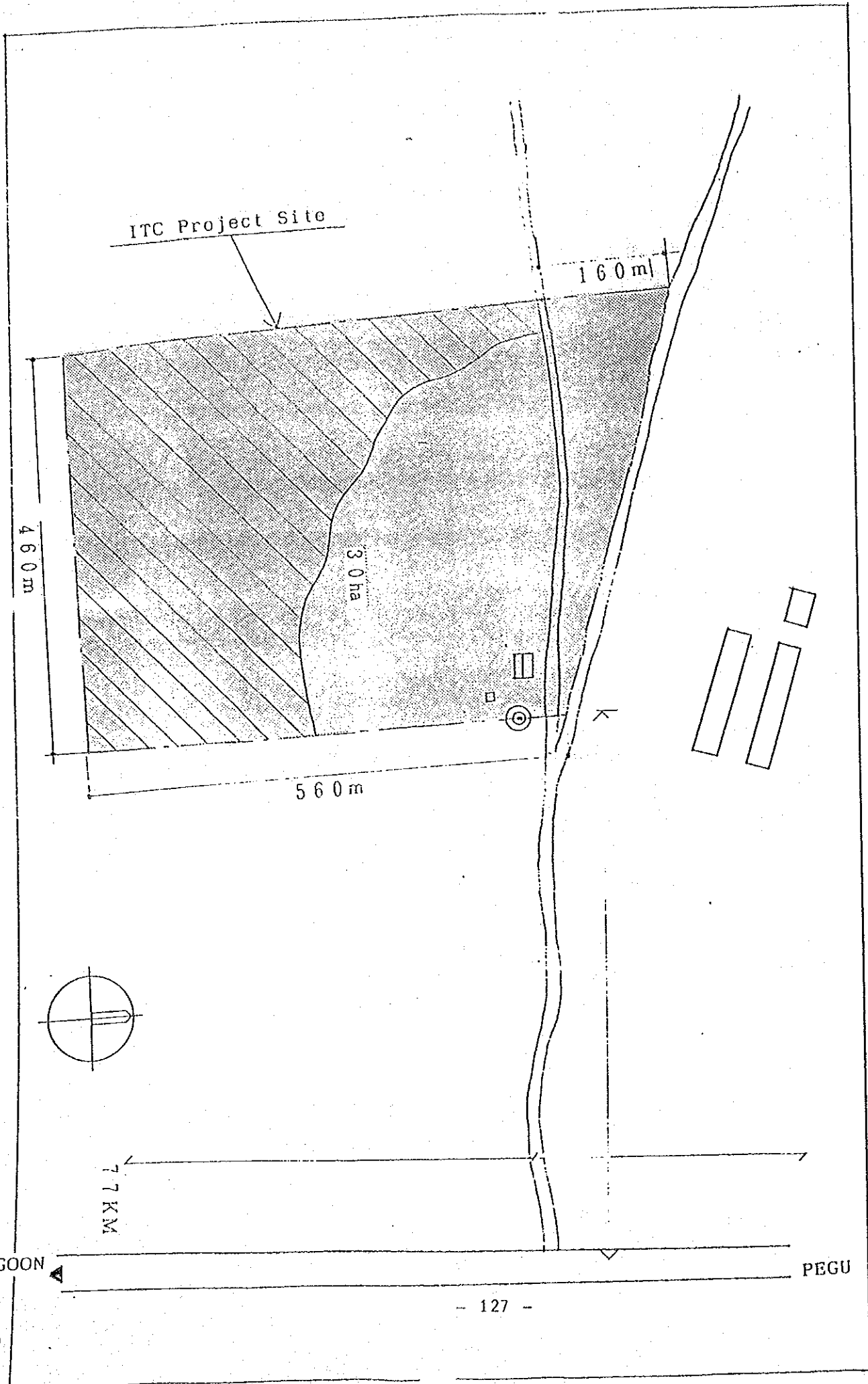
Mr. Yasuo Sasaki
Leader,
Basic Design Study Team,
Japan International
Cooperation Agency,
Japan.



U Kin Maung Hla
Director General,
Irrigation Department,
Ministry of Agriculture
and Forests,
Socialist Republic of the
Union of Burma.

ATTACHMENT

1. The objective of the Project is to provide necessary buildings, facilities and equipment for the establishment of the Irrigation Technology Center, with a view to contributing the development of Agriculture in Burma.
2. The site of the Project is located near KYAUK TAING GAN Village of Pegu Division.
(Site map is attached as Annex I)
3. The activities of the Irrigation Technology Center are as follows:
 - (1) To collect and analyze data and information concerning irrigation in Burma.
 - (2) To prepare design standards and criteria of irrigation facilities suitable for the conditions in Burma.
 - (3) To conduct necessary tests and analyses on soil mechanics, construction materials and water quality to give recommendations for irrigation engineers.
 - (4) To conduct hydraulic model tests and simulation model tests, to verify the hydraulic phenomena of designed structures.
 - (5) To conduct training in irrigation technology including concrete structures for irrigation engineers.
4. The Team will convey to the Government of Japan the request of the Government of Burma that the former takes necessary measures to cooperate in implementing the Project and bears the cost of facilities and other items as listed in Annex II within the scope of Japanese economic cooperation program in grant form.
5. The Government of Burma will take necessary measures as listed in Annex III on condition that grant assistance by the Government of Japan is extended to the Project.
6. The Burmese side has understood Japan's Grant Aid System explained by the Team.



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Annex II

Item requested by the Government of Burma whose cost will be borne by Government of Japan are as follows:

1. Buildings and facilities

(1) Main Building for

- a. administration
- b. training
- c. research

(2) Laboratory for

- a. soil mechanics
- b. construction materials

(3) Hydraulic model test hanger

(4) Dormitory

(5) Multi-purpose hall

(6) Canteen

2. Equipment

Necessary equipment for the activities in the Irrigation Technology Center.

Annex III

Following arrangements will be required to be taken by the Government of Burma.

1. To secure the site for the Project
2. To clear, level and reclaim the site prior to commencement of the construction
3. To construct fence and gate in and around the site
4. To construct the access road to the site prior to commencement of the construction
5. To obtain the building permit
6. To connect distributing line of electricity to the site
7. To construct two tube wells for water supply
8. To connect the telephone trunk line to the MDF to be equipped inside the building
9. To provide furniture and materials for daily activities
10. To exempt taxes and to take necessary measures for customs clearance of the materials and equipment brought for the Project at the port of disembarkation
11. To accord Japanese national, whose services may be required in connection with the supply of the materials and equipment and the services under the verified contract, such facilities as may be necessary for their entry into Burma and stay therein for the performance of their work
12. To maintain and use properly and effectively the facilities constructed and equipment purchased under the Grant
13. To bear necessary expenses other than those to be borne by the Grant

ys

Handwritten signature and stamp

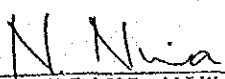
MINUTES OF DISCUSSIONS - 2

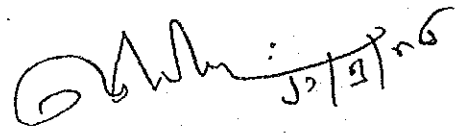
MINUTES OF DISCUSSIONS
ON
THE DRAFT FINAL REPORT OF THE BASIC DESIGN STUDY
ON
THE ESTABLISHMENT PROJECT
OF
THE IRRIGATION TECHNOLOGY CENTER
IN
THE SOCIALIST REPUBLIC OF THE UNION OF BURMA

The Government of Japan has sent, through the Japan International Cooperation Agency (JICA), a Basic Design Study Team to the Socialist Republic of the Union of Burma from 15 to 22 May 1986 for the purpose of presenting and explaining the Draft Final Report of the Basic Design Study on the Establishment Project of the Irrigation Technology Center.

After a series of discussions between the Basic Design Study Team and the relevant authorities of the Government of Burma, both sides confirmed the following results attached herewith (ATTACHMENT).

Rangoon
May 21, 1986.


MR. NORIAKI NIWA
Leader,
Basic Design Study Team,
Japan International
Cooperation Agency.

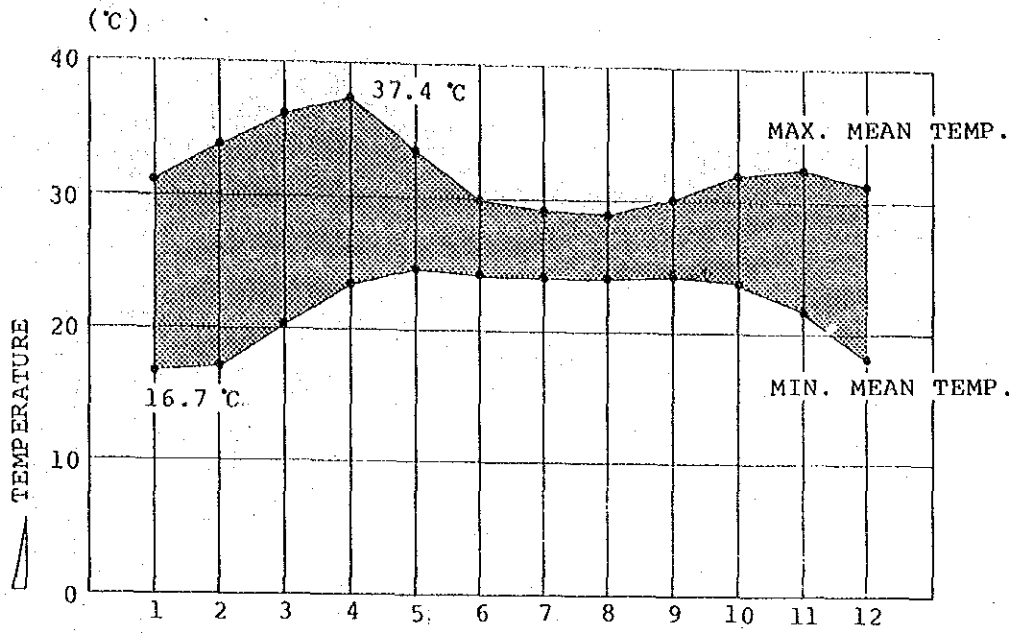

U SAW VAWTER LOO
Director General,
Irrigation Department,
Ministry of Agriculture
and Forests,
Socialist Republic of the
Union of Burma.

ATTACHMENT

1. Both sides agreed to reconfirm the Minutes of Discussions which was mutually signed on February 14, 1986.
2. The Burmese side has agreed in principle to the basic design proposed in the Draft Final Report and appropriate alterations agreed by both sides in the course of discussions will be incorporated in the Final Report.
3. The Burmese side has accepted Japan's grant aid system and the arrangement to be taken by the Burmese side for realization of the Project.
4. The Final Report (10 copies in English) will be submitted to the Burmese side before the end of June, 1986.

5. METEOROLOGICAL CONDITIONS

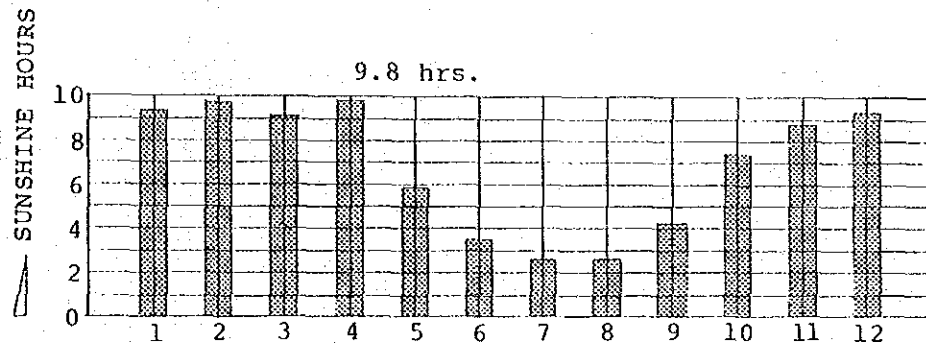
METEOROLOGICAL CONDITIONS



MONTH

TEMPERATURE - PEGU -

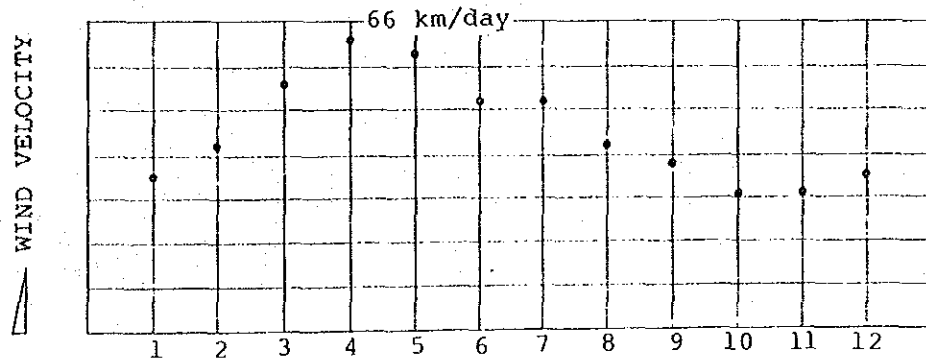
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(FROM I.D.)



MONTH

SUNSHINE - PEGU -

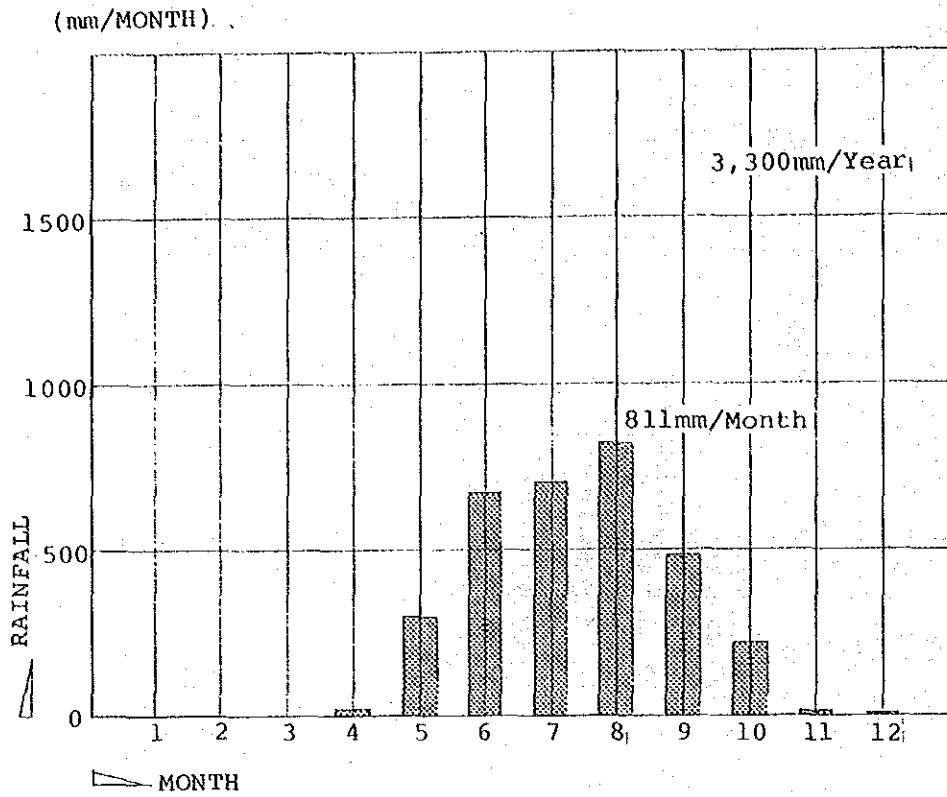
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(FROM I.D.)



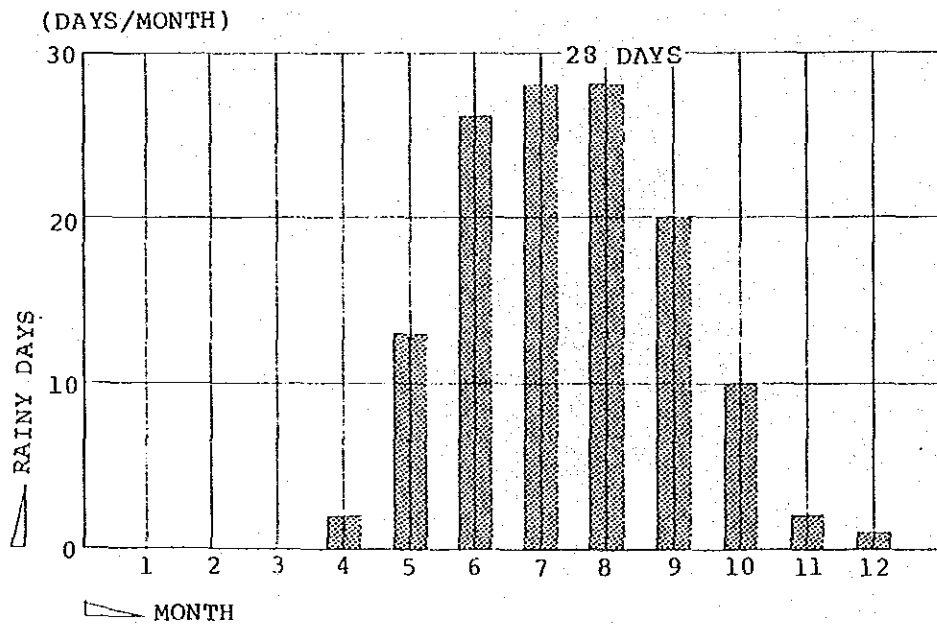
MONTH

WIND VELOCITY - PEGU -

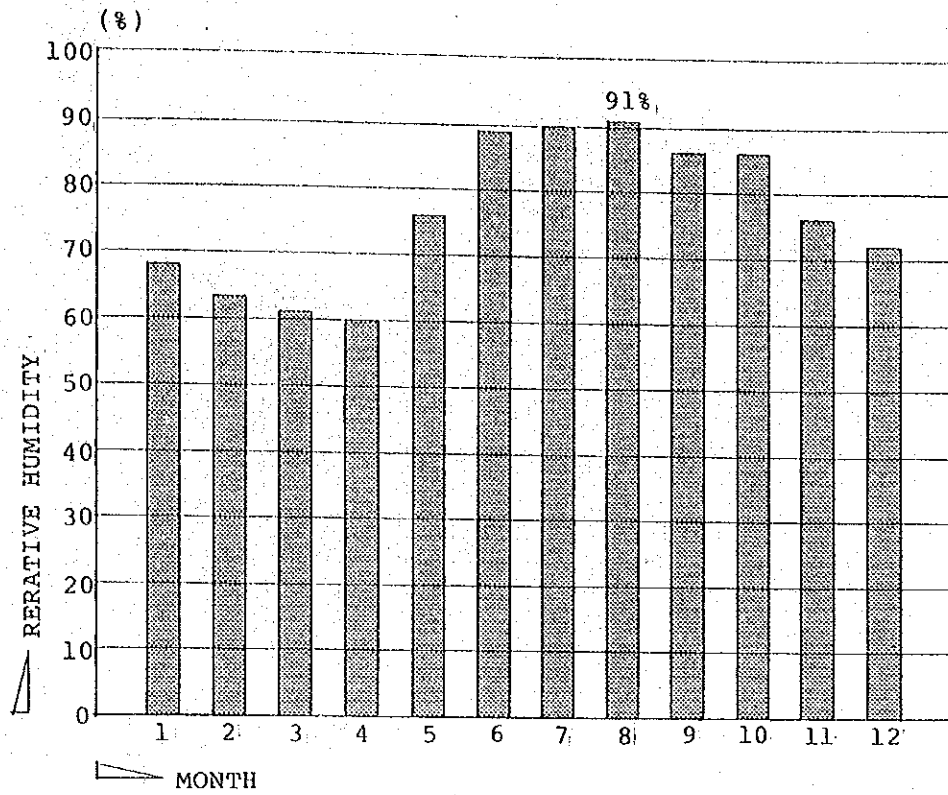
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(FROM I.D.)



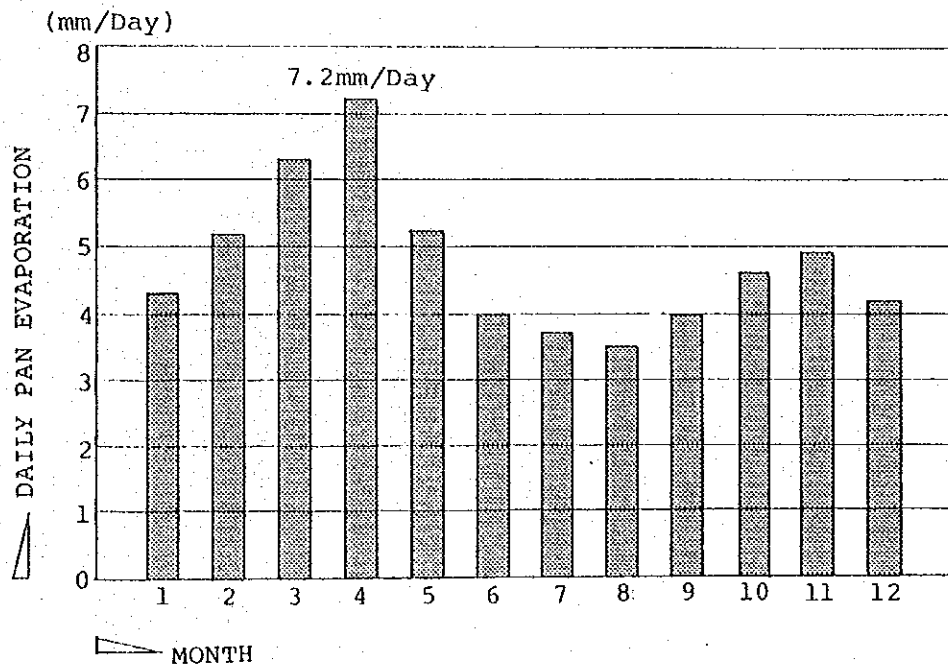
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RECORD; 1961-1980 (FROM I.D.)



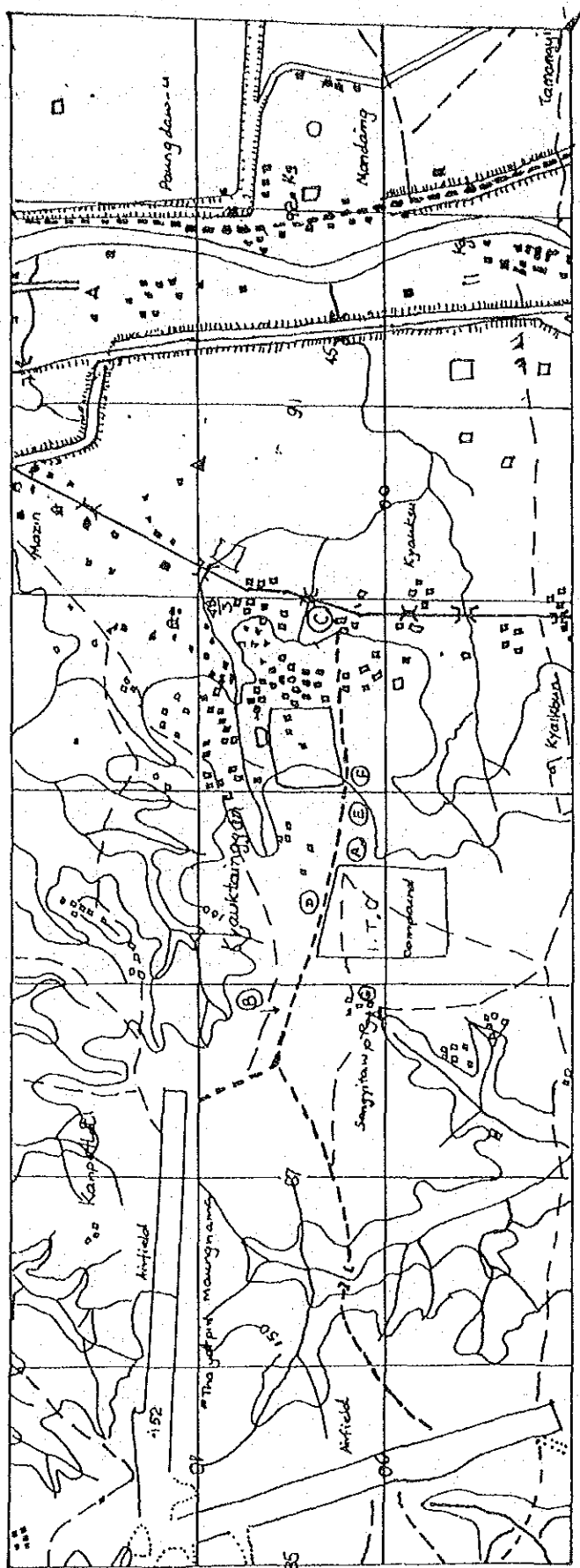
RELATIVE HUMIDITY -PEGU- RECORD; 1961 - 1985 (FROM ID).



DAILY PAN EVAPORATION -PEGU- RECORD; 1966 - 1979 (FROM ID)

6. WATER QUALITY TEST RESULT

WATER QUALITY TEST RESULT



(A)

1. Location - Forest nursery. (East of I.T.O.)
2. Depth - 250 ft.
3. Type of well - Tube well
4. ϕ of well - 4 inches.
5. ϕ of Air pipe - 1/2 in.
6. Depth of Air Pipe - 160 ft.
7. Screen depth - 200 ft.
8. Screen length - 20 ft.
9. Yield - 1600 gall./hr.

(B)

1. Location - Regiment 7 & 8.
 2. Type of well - Tube well.
 3. No of well - 2 Nos. (200' apart)
- | | (1) | (2) |
|-------------------------|---|---------------|
| 4. Depth | - 250' | 180' |
| 5. ϕ of well | - 8" | 8" |
| 6. ϕ of Air pipe. | - 1" | 1/2" |
| 7. Depth of Air pipe | - - | - |
| 8. Screen depth. | - 160', 200' | 120' |
| 9. Screen length. | - 20', 40' | 20' |
| 10. Yield | - 3000 Gall/hr. | 3500 Gall/hr. |
| 11. Water bearing level | - 150' | 150' |
| 12. Lithology | - Sandrock, whitish colour, fine grained. | |

(C)

1. Location - Corner of Main road & 7 & 8 regiment road.
2. Type of well - Tube well
3. Depth - 80 ft.
4. ϕ of well - 2 1/2"
5. ϕ of Air pipe - 1/2"
6. Depth of Air pipe - 60'
7. Screen depth - 70'-80'
8. Yield - 2400 Gall/hr. at rainy season.
1400-1500 Gall/hr at Summer.

Remarks. Water bearing layers as .
Gravel bed are found at 60' depth and 10 ft thick.

(D)

1. Location - Middle high school compound
(Facing of I.T.O.)
2. Type of well - Tube well
3. Depth - 190'
4. Water level - 55' at summer.
5. Remarks - no using.

(E)

1. Location - East of Forest Plantation.
2. Type of well - Tube well
3. Depth - 135 ft.
4. ϕ of well - 2 $\frac{1}{2}$ inch.
5. ϕ of Air pipe - $\frac{1}{2}$ inch.
6. Depth of Air pipe - 120 ft.
7. Screen depth - 125'-135'
8. Yield - 800 - 900 Gall/hr. at summer.

(F)

1. Location - Sodium sulphide factory.
2. Type well - Dug well
3. No of well - 2 Nos.
4. Depth - 36' - 27'
5. Lithology - Latiritic clay and whitish sandrock.
6. Thickness of Latiritic clay - 30' - 15'
7. Water level - 15' - 10' at rainy season.
30' - 15' at summer.
8. Remark - Not dry.

(G)

1. Location - Sangyitawya Phonegyikhaung.
2. Type of well - dug well
3. No of well - 2 Nos.
4. Depth - 18' - 18'
5. Water level - 1 $\frac{1}{2}$ 1 $\frac{1}{2}$ ' - 1 $\frac{1}{2}$ ' at rainy season.
15' - 15' at summer.
6. Remarks - Not dry.

7. SOIL INVESTIGATION DATA

SOIL INVESTIGATION DATA

Telephone No.
Office: 60865
House: 60523

THE SOCIALIST REPUBLIC OF THE UNION OF BURMA
MINISTRY OF AGRICULTURE AND FORESTS
IRRIGATION DEPARTMENT
IRRIGATION PROJECT SECTION

~~8 1/2 Miles~~ - Irrigation Compound - Proms Road - Rangoon -
Kunbe Road, Yankin P.O. Rangoon

Ref. No. D. 9. 3. 9. 40 / 23040

Date 10, March, 1986.

To

Director

JICA office

Japanese Embassy

Rangoon.

Soil Test Results of Irrigation Technology Centre

Dear Sir,

In regards to the preparation of above mentioned project, the Japanese facts finding mission asked the soil test result made on foundation material at the site. Here with attached are some of the data and would you be kind enough to pass these data to them timely.

Thanking You in anticipation

Attachment Data (6) sheets

Sincerely, Yours

Oh jinh
10/3/86
(OHN MYINT)

Executive Engineer

Irrigation Project Section

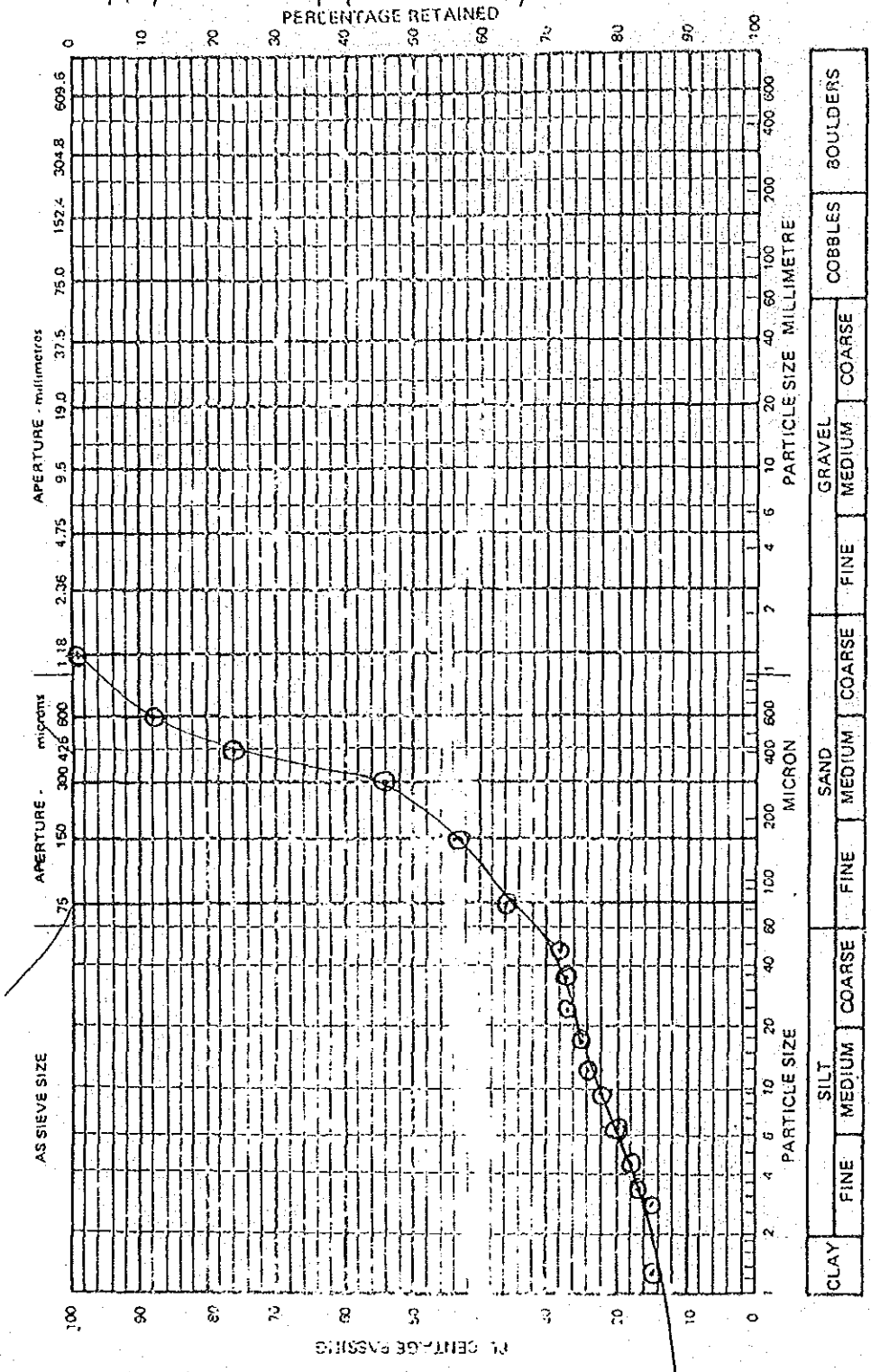
Irrigation Department.

CC. Deputy Director (Planning)
Irrigation Department.

I.D.C (9/86)

PARTICLE SIZE DISTRIBUTION CHART

Tested by N.N.A Plotted by T.A Checked by AD SAMPLE NO. TP 2
 Date 24/2/86 Date 28/2/86 Date 28/2/86 REGISTRATION (CO)

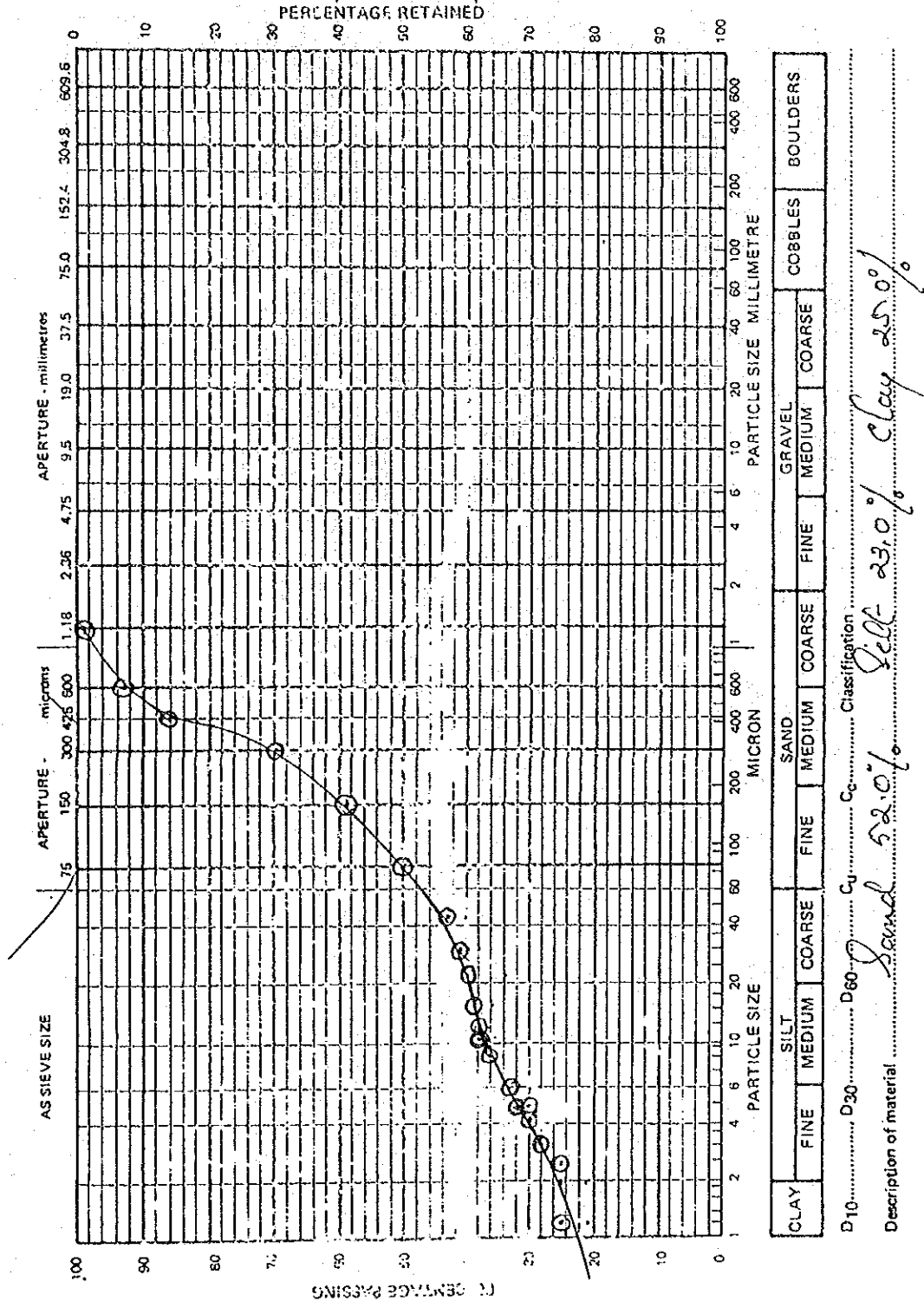


Classification
 D10..... 0.30..... Cu.....
 D60..... 0.60..... Cc.....
 Sand 68.0% Silt 17.0% Clay 15.0%

PARTICLE SIZE DISTRIBUTION CHART

IPC (9/86)

Tested by H.O. Plotted by T.A. Checked by JA. SAMPLE NO. TP 2
 Date 24/2/86 Date 25/2/86 Date 25/2/86 REGISTRATION 51

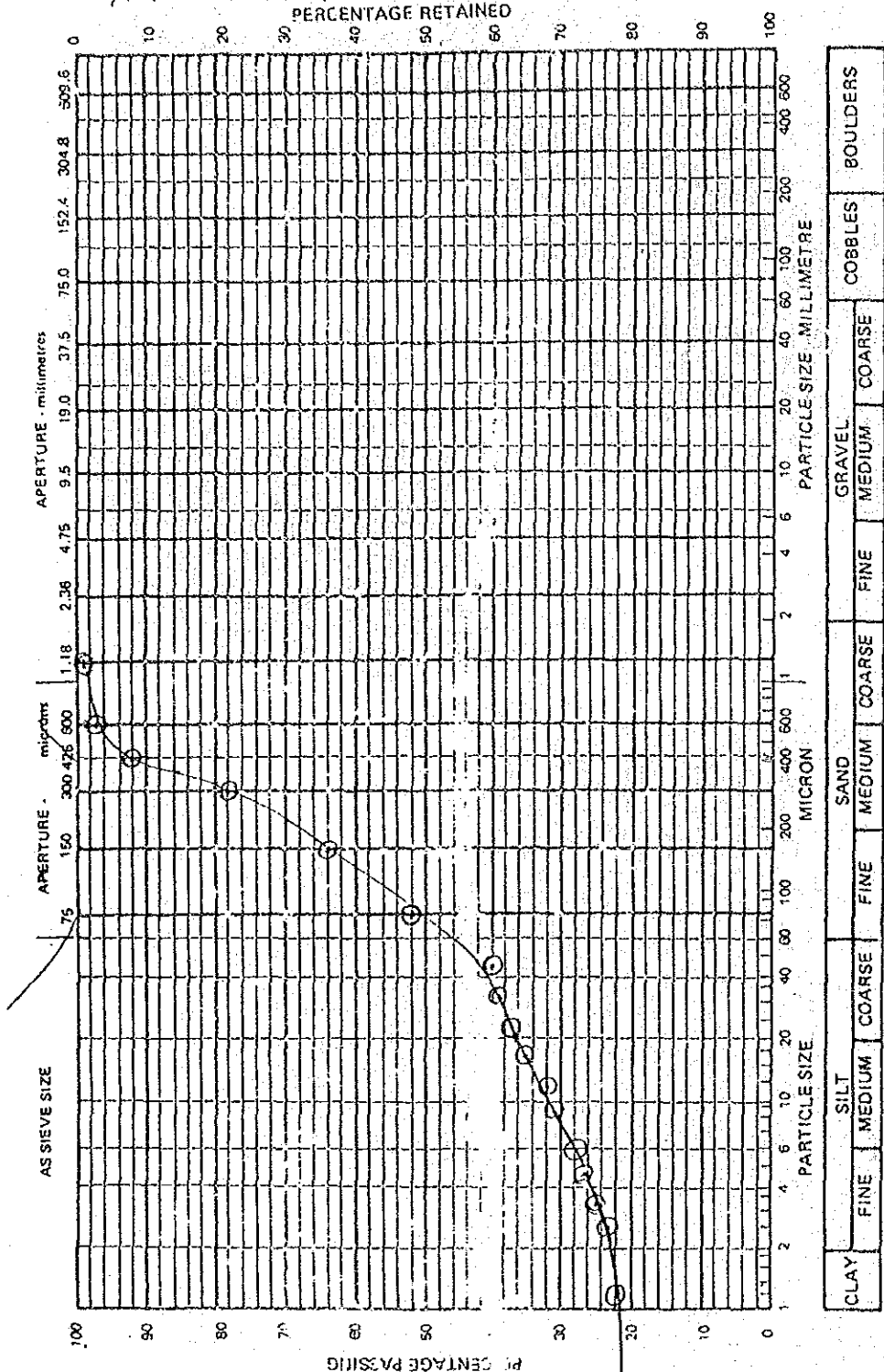


SNOWY MOUNTAINS ENGINEERING CORPORATION

PARTICLE SIZE DISTRIBUTION CHART

I.D.C. (7/06)

Tested by H.C. Plotted by T.A. Checked by J.H. SAMPLE NO. TP 1
 Date 7/2/56 Date 3/3/56 Date 3/3/56 REGISTRATION (4'-5)



CLAY FINE MEDIUM COARSE SAND FINE MEDIUM COARSE GRAVEL MEDIUM COARSE COBBLES BOULDERS

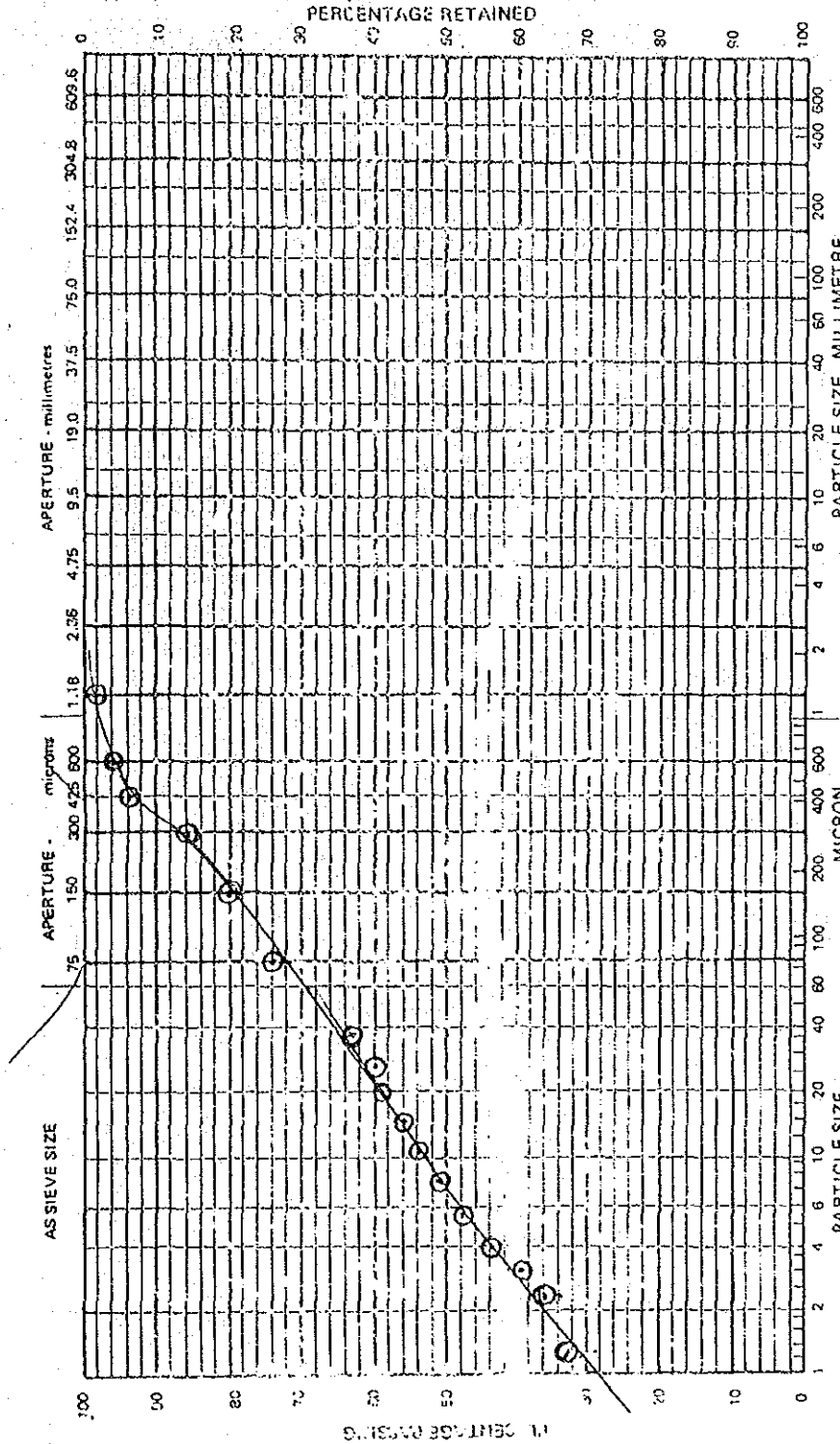
D₁₀ D₃₀ D₆₀ Classification
 Description of material Sand s.s.c/ silt - s.c/ clay

Form No. 6/177 (11/74)

Report No. Sheet

PARTICLE SIZE DISTRIBUTION CHART

Tested by W.W.O. Plotted by T.A. Checked by JA SAMPLE NO. TP 1
 Date 24/2/86 Date 28/2/86 Date 28/2/86 REGISTRATION 16



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	SAND	FINE	MEDIUM	COARSE	GRAVEL	FINE	MEDIUM	COARSE	COBBLES	BOULDERS
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D₁₀ 0.30 C_u 9.60 C_c 1.0
 Classification
 Description of material Sand 31.0% Silt 33.0% clay 36.0%

SUBSURFACE EXPLORATION - PENETRATION RESISTANCE & LOG

Feature - Foundation testing, Grd. Elevn. Hole Number - SPT 1
 Project - I.T.C Building GWL. Elevtn. - nil Location - Kyauktonggan
 District - Pegu Date GWL: gaged _____ Coordinates _____
 Foreman - U Thein Lwin Wt. of hammer - 140 lbs. Total depth - 22 ft.
 Logged by - U. Mg. Mg. Khin Ht. of drop - 30 inches. Date of begun - 7.2.86.
 Sampler - Split spoon 2 in. (Ø) Date completed 9.2.86.

METHOD OF BORING	Sample for testing	Depth (ft.)	Graphic log.	DESCRIPTION AND CLASSIFICATION OF MATERIAL	G.W.L.	Nos. of blows.	PENETRATION RESISTANCE (BLOW/FT.)			
							20	40	60	80
STANDARD PENETRATION TEST (Manual)	Samples are taken every 3 ft.	5		0' - 2 1/2' silty clay & little sand, yellowish brown, semi plastic,	nil.	12				
						3				
						8				
						28				
						19				
						20				
						14				
						20				
						25				
						38				
						28				
						46				
						32				
						42				
						33				
	57									
	60									
	58									
	59									
	77									
	68									
	74									
		20		19' - 22' Mudstone, yellow colour, stiff, dry, compacted,						

SUBSURFACE EXPLORATION - PENETRATION RESISTANCE & LOG.

Feature - Foundation testing. Grd: Elevtn Hole Number - S.P.T 2
 Project - I.T.C Building. GWL Elevtn - 21 ft. Location - Kyauktangyan.
 District - Pegu. Date GWL gaged - 11-2-86 Coordinates
 Foreman - U. HMUT. Wt of hammer - 140 lbs. Total depth - 30 ft.
 Logged by - U. MG. MG. KHIN. Ht of drop - 30 inches. Date of begun - 9.2.86
 Sampler - Split spoon 2 in: (φ) Date completed - 11-2-86

METHOD OF BORING	Sample for testing.	Depth (ft.)	Graphic log.	DESCRIPTION AND CLASSIFICATION OF MATERIAL	G.W.L.	Nos. of blows.	PENETRATION RESISTANCE (BLOW/FT)				
							20	40	60	80	
STANDARD PENETRATION TEST (Manual)	Samples are taken every 3ft.	0 5 10 15 20 25 30		0'-2': silty Clay & little sand, yellowish brown colour, semi-plastic, dry.			61				
				27							
				30							
				22							
				16							
				19							
				29							
				23							
				14							
				24							
				30							
				54							
				78							
				94							
				73							
				80							
				60							
				63							
				56							
				50							
20											
30											
24											
33											
29											
40											
30											
32											
27											
90											

8. LIST OF COLLECTED DATA

LIST OF COLLECTED DATA

Title of Data	Source
1. List of Irrigation Project (1962-1982)	ID
2. Irrigation Projects in the Fifth Four-Year Plan	ID
3. Educational Program for Irrigation Engineer Training	ID
4. List of Present Status of Computer	ID
5. Design Standard/Criteria for Irrigation	ID
6. Design Standard for Fill-type Dams	ID
7. List of Soil Testing Equipment of ID	ID
8. Analysis of Rates (Standard Data for Working Out Rates Per Unit Quantitiy of Items of Work)	ID

JICA