

なお、当センターは今後D I D以外の他機関（DOA, MARDI, FELCRA等）からも研修生を受け入れる予定であり、当初の研修計画範囲を大巾に拡大しようとしている。

注：\* 1981年の研修は期間が11日間と短かく、研修内容も未熟であったが、その受講者は研修生総数に含めている（I.I 29名、T.A 23名）。

#### 7-4 研修効果測定

##### (1) 研修実績の整理

1981年より1984年4月までに17コースの研修が実施されており、受講者のレベル別内訳は以下の通りである。また、研修コースおよび受講者の所属先別一覧表は表7-5および表7-6に示す通りである。

受講者数一覧

年	Eng.	T.A	I.I	I.O	Farmer	Malian
1981	18	23	29	-	78	-
1982	18	19	14	-	15	-
1983	22	22	15	25	30	-
1984	21	11	-	34	125	8
合計	79	75	58	59	248	8

表 7 - 5. Training Courses Completed in 1981, 1982, 1983 and 1984

Year	Training Course For	Duration (Days)	Date	No. of Participants (Nos)
1981	1. Irrigation Inspectors	11	6-16 May	15
	2. Irrigation Inspectors	11	17-27 August	14
	3. Technical Assistants	11	23 June-3 July	14
	4. Technical Assistants	11	15-25 September	9
	5. Engineers	8	12-19 October	18
	6. Farmers	1	18 March	19
	7. Farmers	1	4 April	16
	8. Farmers	1	11 April	14
	9. Farmers	1	29 November	29
1982	1. Irrigation Inspectors	122	2 May-8 July 1 Aug-23 Sept.	14
	2. Technical Assistants	11	16-26 March	19
	3. Engineers	9	11-19 October	18
	4. Farmers	1	25 April	15
1983	1. Irrigation Overseers	62	15 Oct.-15 Dec.	25
	2. Irrigation Inspectors	87	1 March-26 May	9
	3. Irrigation Inspectors	56	1 April-26 May	6
	4. Technical Assistants	18	1-18 August	22
	5. Engineers	13	16-28 February	22
	6. Farmers	1	11 May	30
1984.	1. Irrigation Overseers	30 (M4A)	28 Jan-26 Feb.	16
	2. Irrigation Overseers	30 (M4A)	28 April-27 May	18
	3. Technical Assistants	20 (M2B)	10-29 March	11
	4. Engineers	15 (M1)	10-24 March	21
	5. Malian Officers	20	5-24 May	8
	6. Farmers	1	14 January	18
	7. Farmers	1	17 January	28
	8. Farmers	1	8 February	35
	9. Farmers	1	29 February	44

表 7 - 6. 研修参加者所属先別表

1984年 4月

	1981						1982						1983						1984											
	I.I.		T.A.		Eng.		T.A.		I.I.		Eng.		I.I.		a) I.I.		b) I.I.		T.A.		I.O.		Eng.		T.A.		I.O.			
	I.I.	T.A.	I.I.	T.A.	Eng.	T.A.	Eng.	I.I.	Eng.	I.I.	Eng.	I.I.	Eng.	I.I.	Eng.	I.I.	Eng.	T.A.	I.O.	Eng.	T.A.	I.O.	Eng.	T.A.	I.O.					
A. 州																														
		Peris	1			1													1											
		Kedah		2		1				1	3										3	2							1	
		Pinang					1			2																				
		Perak		2	2	1		1		1	1									1	5	3							2	
		Selangor				2		2		1	1									2	3	3							1	2
		Negri Sembilan				1	1			1																			2	2
		Melaka	2	1			1	2																					2	
		Johore	1	1	1	1																2	1	1					1	
		Kelantan	2	1	1	1	2	2	2	2	1	2										2	4						1	
		Trengganu	2	1	2	1	1	2	1	2	1										1	4	1						4	
		Pahang						1	2		1																		1	
		Sabah		1					2	2	2										2	2							2	
		Sarawak		2	3				2												3		1	1	1				2	
		Wilayah Persekutuan (K.L.)																											1	
B. プロジェクト		Krian. Sg. Manik. Perak	1			1	1														1	2							1	
		North-West Selangor				1	1	1			2	2																		
		Western Johore		1							2										1	1								
		North Kelantan		1		1	1																							
		Besut																												
C. 公 社 地		MADA			2	1	1	2			3	2									2	1	2	2	1	1			1	
		KADA	2	1	2	1	1	2	2			1	5	1	5	1	2	2			1	2	2	2	2				2	
		DID		1			2	3			1	7									6								10	5
												1										1	(FELCRA)							
			15	14	14	9	18	19	14	18	22	9	7	24	25	16	20	11	18											

(2) 研修効果測定

これまでに実施した研修の効果を測定するために次の3種類のアンケート調査を実施した。

- a. 受講生の直属上司へのインタビュー調査
- b. 受講生へのインタビューおよびアンケート調査
- c. 受講農民へのインタビュー調査

上記調査結果は以下に要約する通りである。

a. 受講生 (Ex-trainees) の直属上司へのアンケート調査

本調査はDID's Assistant Director (Mr. Welch) のコメントを採用し行なったものである。調査には表7-7の質問票を作成し、各直属上司に筆記してもらった。時間の関係上、クランタン州およびトルンアゲン州に勤務する関係者に限り4人面接した調査を行なった。直属上司の氏名、所属、地位および研修生の数は次の通りである。

氏名	所属	地位	対象研修生数
1. Ah Mad Ismail	KADA	Director	26
2. Che Amran Mohd, Yusoff	Kelantan Barat	Senior Engineer	5
3. Rashiddi B, Hussiln	Busut, Terengganu	Director	5
4. A. Kulasingam	State DID	Director	2(Engineer)

調査結果は以下の通り。

問1. 研修は研修生の業務に有益であったと思いますか？

全員が有益であったと答えている。

問2. 更に研修生を当センターに送り込む御予定ですか？

全員が派遣の意志があると答えている。

問3. 当センターの訓練内容についての御意見をお聞かせ下さい。

-現在の陣容では最大限努力していると思うが、できれば将来水文解析や流量計等器機の使用方法等も訓練内容に入れて欲しい。(1)

-過去の研修内容は有益であったと思う。(2)

-研修内容はかんがいの農学の全てを含んでいない。色々な背景を持った研修生がいるのでできれば研修範囲を拡げて欲しい。(3)

-O & Mスタッフに対しては契約関係の研修は必要ないと思う。(4)

( )内の数字は上記直属上司の数字に相当する。-以下同じ。

問4. 将来の研修プログラム改善のために御意見を下さい。

-リクリエーション施設が長期研修のためには必要である。(1)

-O & M staff の研修時期は5月-11月の稲の生育期ははずして欲しい。他のスタッフについては時期を問わない。

卒直にあって貴センターでの研修は彼らの経験を増し日常業務の改善につながっている。近い将来更に研修生を送り出す所存である。(2)

-実習時間を増やして欲しい。研修生が農家の出身でないものは稲作について知識が乏しいので、野外での実習を望む。(3)

-小規模かんがいプロジェクトの運営に当たって当面する諸問題に研修内容を集中すべきだと思う。(4)

以上の通り、当センターの研修効果については全員が認めているものの、より実質的な研修を望んでいる声が多いといえる。

表7-7. 受講生直属上司へのアンケート調査, 質問表

THE TECHNICAL COOPERATION

Date: \_\_\_\_\_

ON

WATER MANAGEMENT TRAINING

QUESTIONNAIRE TO THE CHIEF OF EX-TRAINEES

Please encircle the proper number and fill the blanks

1. Your Name: \_\_\_\_\_
2. Your Position: \_\_\_\_\_
3. How many ex-trainees are still working in your office? \_\_\_\_\_
4. Was the training beneficial to their duties?
  - 1) Yes. How many? \_\_\_\_\_
  - 2) No. How many? \_\_\_\_\_
5. Do you want to send your officials to the Center, again?
  - 1) Yes, 2) No
6. How do you find the contents/curriculum of the past courses?
7. For betterment of the training program, please make your comments/suggestions on any matter of the Center?

---

Thank you very much for your kind cooperation.

b. 受講生へのインタビューおよびアンケート調査

本調査表は表7-8の質問票を用意して行なった。受講生は全国に散らばっている  
ので直接インタビューするのは時間的に不可能であった。従って、質問等を受講生に  
郵送し、回収するという方法をとった。質問票はこれまでに実施した16コース(1983  
I Iの2コースは期間が重複しているので1コースとして計算)の参加者の中から無  
作為に1コース5名を抽出し、(表7-9参照)本調査団員が現地に到着前に日本人  
Expertにより郵送してもらった。郵送数は80である。現地調査期間中(59年6月21  
日まで)に回収できた質問票は38であった。更に調査期間中に7名に対して同じ質問  
票を利用してインタビューを試みた。従って合計45名に対して調査したことになる。  
その内訳は次の通りである。

	郵送による回答	インタビュー	合 計	受講者総数
Engineer	11	1	12(15%)	79
T.A	10	1	11(15%)	75
I.I	8	2	10(17%)	58
I.O	9	3	12(20%)	59

( )内数字は受講総数に対する調査人員の比

これまでに実施した16コースの全コースについて、各1名以上の回答を得ることが  
できた。

調査結果は以下の通りである。

問1. 名前、年齢、性別

省略(質問表を郵送した受講生は表7-9に示す通り)

問2. 参加したコース

省略

問3. 現在の職階とその期間

ほとんど全員が2年以上であり、研修後の異動は少ないと推察できる。

問4. 現在の職務

IV-4-3の通り(詳細は省略)

問5. 事前に研修について十分に説明を受けましたか?

	YES	NO	計
Engineer	6	6	12
T. A	9	2	11
I. I	6	4	10
I. O	7	5	12
計	28	17	45

NOと答えたものが約40ある。NOと答えた人数の多いのは、1984年のEngineer およびI.Oコース、1982年のI.Iコースである。

問6. トレーニングコースについて

a) 期間

	短かい	適当	長すぎる
Engineer	1	11	-
T. A	2	8	1
I. I	3	7	-
I. O	3	8	1

短いと答えたT.A, I.Iは、全員が1981年の受講生で、期間が僅か11日間のコースであった。特筆すべきは、1982年I.Iコースでその期間が122日間と長期であったが長すぎると答えたものは皆無であった。

b) 科目の範囲

	不十分	十分	多すぎる	回答なし
Engineer	3	7	2	-
T. A	2	8	1	-
I. I	2	8	-	-
I. O	2	8	1	1

不十分と答えたものは、排水問題、水資源開発・圃場整備等を講義科目に入れて欲しいと思っている。

c) 研修の程度

	むずかしい	適当	易すぎる	回答なし
Engineer	-	6	6	-
T. A	-	4	7	-
I. I	1	7	2	-
I. O	3	4	3	2



上學歷の Engineer, T A にとっては研修の程度が容易すぎると感じているものが多いので、内容をグレードアップする必要がある。

d) その他のコメント

答えが設問10と同様なのでここでは省略する。

問7. 研修で満足したものを下記の中から選んで下さい。

	講 義	教 材	実 習	研修旅行
Engineer	7 ( 5 8 )	1 0 ( 8 3 )	4 ( 3 3 )	5 ( 4 2 )
T. A	8 ( 7 3 )	7 ( 6 4 )	4 ( 3 6 )	4 ( 3 6 )
I. I	6 ( 6 0 )	6 ( 6 0 )	5 ( 5 0 )	3 ( 3 0 )
I. O	1 0 ( 8 3 )	6 ( 5 0 )	6 ( 5 0 )	6 ( 5 0 )

( )内の数字は満足した人の割合(%)

講義・教材については比較的満足しているが、実習・研修旅行については不満であると推察できる。

問8. 研修はあなたの業務に有益でしたか？

	Y E S	N O
Engineer	1 0	2
T. A	8	3
I. I	1 0	0
I. O	1 1	1

問6 c) とも関連して、研修内容が高學歷の人には容易すぎて業務に有益でないと答えた人が居ることに留意すべきである。

問9. あなたの仲間に本研修をうけることをすすめますか？

	Y E S	N O
Engineer	1 1	1
T. A	9	2
I. I	1 0	0
I. O	1 2	0

ほぼ全員が Yes と答えており、研修は一応の成果をおさめていると言える。

問10. 研修計画の改善のためにあなたの御意見をお聞かせ下さい。

- Engineer - 自分が当面している問題点をとりあげてもらいたかった。(1人)  
- KADAの職員の説明をもっとうけたかった。(1人)  
- 排水問題もとりあげてもらいたかった。(1人)  
- 日本の技術が多すぎて、もっとローカル事情を考慮すべきである。(1人)  
- 討論会にもっと時間をさいて欲しかった。(1人)  
- 畑作の水管理もとりあげてもらいたかった。(1人)  
- 視聴覚教材をもっと使って欲しい。(1人)  
- 実習時間を増やすべきである。(2人)  
- 水源計画についても講義して欲しい。(2人)  
- 講義内容をもっと向上すべきである。(1人)  
- 言語(マレー語)がわかりにくかった。(1人)
- T . A - 討論の時間が短かすぎる。(2人)  
- MUDA, BUSUT等に見学に行きたかった。(1人)  
- 圃場整備に関する諸問題もとりあげて欲しい。(1人)  
- 実習と講義を半々にして欲しい。(3人)  
- 講義方法を改善すべきである。(1人)  
- 排水問題も含めて欲しい。(1人)  
- 研修時期とO/Sの稲の生育時期が一致するように。(1人)
- I . I - 視聴覚教材をもっと使って欲しい。(1人)  
- 実習をもっと増やして欲しい。(4人)  
- 研修終了後試験をし、その結果昇進に反映して欲しい。(1人)  
- もっとレベルをあげて欲しい。(2人)  
- もっと自分の業務にあった講義をして欲しい。(1人)
- I . O - 実習旅行を増やして欲しい。(3人)  
- もっとゆっくり講義して欲しい。(1人)  
- 試験結果を昇進に反映して欲しい。(1人)  
- 1科目につき講師は1人にして欲しい。(1人)  
- 研修期間中に洪水が起きトラブルが発生した。研修期間を選んで欲しい。(1人)  
- 自分の業務にあった講義をして欲しい。(3人)  
- ローカルなコンディションにあった水管理について講義して欲しい。(1人)

問11. どのような技術的フォローアップをセンターからうけたいですか？

- |          |                           |         |
|----------|---------------------------|---------|
| Engineer | - ニュースレターを発行して欲しい。        | ( 6 人 ) |
|          | - 農業機械化。                  | ( 1 人 ) |
|          | - 新技術についてのセミナー。           | ( 1 人 ) |
|          | - 水管理の模型。                 | ( 1 人 ) |
| T. A     | - 新技術の紹介。                 | ( 2 人 ) |
|          | - ニュースレターを送って欲しい。         | ( 3 人 ) |
|          | - 水管理の模型                  | ( 1 人 ) |
| I. I     | - ニュースレターを送って欲しい。         | ( 2 人 ) |
|          | - もっと詳しく水管理について知りたい。      | ( 1 人 ) |
|          | - 日本での技術を受けたい。            | ( 1 人 ) |
| I. O     | - 数年後に再教育を受けたい。           | ( 1 人 ) |
|          | - 水管理についてもっと知りたい。         | ( 1 人 ) |
|          | - 研修結果を業務に反映させるよう援助を願いたい。 | ( 1 人 ) |

表 7 - 8 - (1) 受講生へのアンケート調査, 質問表 (英語版)

Questionnaire  
To  
Ex-trainees of the NQMTTC, Kota Bharu

Please encircle the proper number and fill the blanks and return this sheet to the NQMTTC in Kota Bharu within 7 days after delivery.

1. (a) Name: \_\_\_\_\_  
(b) Age: \_\_\_\_\_ (c) Sex: \_\_\_\_\_
2. Training course in which you participated kind of course:  
1) Normal                      2) Crash                      3) Special  
Year: \_\_\_\_\_ Period: From \_\_\_\_\_ to \_\_\_\_\_
3. Present Post and period in the post held:
4. Your present duties
5. Were you fully informed in advance about the training course in which you participated?  
1) Yes                                      2) No
6. Comments on the training course attended:-  
a) Duration: 1) Short                      2) Medium                      3) Long  
b) Subject coverage: 1) Insufficient    2) Enough    3) Too wide  
c) Level: 1) Advanced                      2) Medium                      3) Elementary  
d) Other comments if there is:
7. Please select the components/facilities of the course which satisfied you during the training course:-  
1) Lectures  
2) Training materials (Notes, slides etc.)  
3) Practices  
4) Study tours



Soalselidik bagi Peserta-Peserta  
Yang Telah Manghadiri Kursus di Pusat Latihan  
Penurusan Air Kebangsaan, Kota Bharu

Sila bulatkan nombor yang sesuai serta lengkapkan ruangan yang disediakan bagi soalselidik berikut dan kembalikan borang ini kepada Pusat Latihan Pengurusan Air Kebangsaan, Kota Bharu, selewat-lewatnya 7 hari setelah menerimanya.

1. (a) Nama: \_\_\_\_\_  
(b) Umur: \_\_\_\_\_ (c) Jantina: \_\_\_\_\_
2. Jenis Kursus latihan yang anda telah hadiri  
1) Kursus Biasa                      2) Kursus Kilat                      3) Kursus Khas  
Tahun: \_\_\_\_\_ Bulan: Dari \_\_\_\_\_ hingga \_\_\_\_\_
3. Jawatan sekarang dan tempoh memegangnya:
4. Tugas-tugas sekarang:
5. Adakah anda diberitahu pada awal-awal lagi mengenai kursus latihan yang anda telah hadiri?  
1) Ya                                      2) Tidak
6. Ulasan Mengenai kursus latihan yang anda telah hadiri  
a) Tempoh: 1) Terlalu Pendek    2) Memadai    3) Panjang  
b) Liputan topik/tajuk: 1) Tidak memadai    2) Memadai    3) Terlalu luas  
c) Peringkat: 1) Lanjutan                      2) Pertengahan                      3) Awalan  
d) Ulasan lain jika ada:

7. Sila pilih komponen latihan dan/kemudahan latihan yang anda anggap sebagai memuaskan semasa kursus latihan dijalankan:
- 1) Kuliah
  - 2) Bahan-Bahan Latihan (Nota-nota kuliah, slide dsbnya)
  - 3) Amali
  - 4) Lawatan sambil belajar
8. Adakah dursus latihan yang dihadiri berfaedah dalam menjalankan tugas-tugas anda?
- 1) Ya
  - 2) Tidak
9. Adakah anda akan menggalakkan rakan sejawatan anda supaya memohon bagi menghadiri kursus latihan di Pusat Latihan Pengurusan Air ini?
- 1) Ya
  - 2) Tidak
10. Sila berikan ulasan dan cadangan anda mengenai mana-mana satu aspek kursus latihan serta Pusat Latihan yang anda fikir boleh memperbaiki program-program latihan yang akan dijalankan di Pusat Latihan ini.
11. Apakah jenis-tindakan susulan teknikal (Penyusunan teknikal) yang anda harapkan dari Pusat Latihan Pengurusan Air ini?

---

Kami mengucapkan terima kasih atas kerjasama anda dalam memberikan maklumbalas ini. Semua cadangan dan jawapan yang terkandung dalam soalselidik anda akan digunakan bagi memperbaiki Program Latihan di Pusat Latihan Pengurusan Air.

表 7 - 9. アンケート調査対象者リスト

LIST OF TRAINEES (1/4)

ENGINEERS

12 - 19.10.81

1. Kasim b. Muhammad	-	Perak
2. Abu Talib b. Abu Bakar	-	Headquarters
3. Mohd Nasir b. Mohd Merican	-	Perlis
4. Ahmad b. Che Ab. Salam	-	KADA
5. Zulkifli b. Hassam	-	Selangor

11 - 19.10.82

1. Shaari b. Ibrahim	-	Negeri Sembilan
2. Wahid Anuar b. ahmad	-	Johor
3. Mohd Zahid b. Hanafi	-	Kedah
4. Chan Chen Ngai	-	Sabah
5. Ismail b. Zakaria	-	Pulau Pinang

16 - 28.2.83

1. Fadzilah bt. Saidin	-	Kedah
2. Raja Roslan b. Raja Baharom Shah	-	Pahang
3. Chong Chee Han	-	Johor
4. Daud b. Mohd Lip	-	Headquarters
5. Tan Tuah Bah	-	Selangor

10 - 24.3.84

1. Twang Ah Tea	-	Headquarters
2. Ooi Huat King	-	MADA
3. Mohd Zaki b. Abdullah	-	Seberang Perak
4. Law Kah Hiuing	-	Serawak
5. Azman b. Ahmand	-	FELCRA

Technical Assistant

23 - 3.7.81

1. Abu Bakar b. sudin	-	Perlis
2. Normah bt shamsuddin	-	Krian
3. Abdullah b. Ismail	-	Trengganu



LIST OF TRAINEES (2/4)

Technical Assistant

23 - 3.7.81 (Continued)

- |                   |   |         |
|-------------------|---|---------|
| 4. Chua Jon Hee   | - | Melaka  |
| 5. Ghazali b. Hip | - | Serawak |

15 - 25.9.81

- |                             |   |              |
|-----------------------------|---|--------------|
| 1. Rahim b. Isa             | - | KADA         |
| 2. Zainal Akama b. Hain     | - | Headquarters |
| 3. Mohd Ramli b. Mohd Nor   | - | Kelantan     |
| 4. Ahmad Bukri b. Ab. Ghani | - | Krian        |
| 5. Ramli b. Rahmat          | - | Selangor     |

16 - 26.3.82

- |                                 |   |                 |
|---------------------------------|---|-----------------|
| 1. Siti Hasmah bt. Osman        | - | Kedah           |
| 2. Ab. Kadir b. Ab. Azri        | - | Perak           |
| 3. shamsuddin Mohd Din          | - | Negeri Sembilan |
| 4. Anthony Lim Hoi Ming         | - | Sabah           |
| 5. Mokabas @ Abas b. Mohd Yusof | - | Melaka          |

1 - 18.8.83

- |                         |   |              |
|-------------------------|---|--------------|
| 1. Husin b. Haron       | - | Selangor     |
| 2. Azizah bt Muhamad    | - | Trengganu    |
| 3. Muridah bt Jazuri    | - | Headquarters |
| 4. Johd Alias b. Hamdan | - | Serawak      |
| 5. Lai voon shin        | - | Johor        |

10 - 29.3.84

- |                             |   |                 |
|-----------------------------|---|-----------------|
| 1. Mukhlis b. Zainal Abidin | - | Kedah           |
| 2. Safii b. Ramli           | - | Selangor        |
| 3. Saipolamin b. Maon       | - | Selangor        |
| 4. Norhayati bt Nordin      | - | Negeri Sembilan |
| 5. Sim Sia Po               | - | Serawak         |

LIST OF TRAINEES (3/4)

I.I

6-16.5.81

1. Sabramalisi Hj. Johd Zabidi	-	Penang
2. Nordin b. ayub	-	Kedah
3. Zainuddin b. Abu Bakar	-	Melaka
4. Sheikh Ali b. Mohamad	-	Johor
5. Mohd Shaiff b. Abu Bakar	-	Trengganu

17 - 27.8.81

1. Hanipa Omar	-	Kelantan
2. Mega- Ibrahim b. Hj.W. Abdullah	-	Negeri Sembilan
3. Basri b. Yusof	-	Perak
4. Sukaimi b. Mukadin	-	Johor
5. Wan alias b. Wan Daud	-	Kelantan

2.5 - 8.7.82

1. Mohd din b. Mohd Yusoff	-	Melaka
2. Marjin b. Hj. Kiah	-	Sabah
3. Baharuddin b. Sulaiman	-	Pahang
4. Abu Zelan b. Manap	-	Selangor
5. Zaki b. Muda	-	Trengganu

1.3 - 26.5.83

1. Ismail b. Hamat	-	Kelantan
2. Rajendran a/l Katan	-	Selangor
3. Zulkifli b. Hamzah	-	Kelantan
4. Sabri b. Kasim	-	Kedah
5. Mohd Ariff b. Mohd Zahari	-	Perak

I.O

15.10 - 15.12.83

1. Zailani Osman	-	Perak
2. Hashim Ibrahim	-	Kelantan
3. Yusof Salleh	-	Kedah

LIST OF TRAINEES (4/4)

I.O

15.10 - 15.12.83

1. Zailani Osman	-	Perak
2. Hashim Ibrahim	-	Kelantan
3. Yusof Salleh	-	Kedah
4. Jaafar Sidek b. Kamsah	-	Selangor
5. Ab. Latif b. Saem	-	Johor

28.1 - 26.2.84

1. Mat Yusof b. Yunus	-	Kelantan
2. Mohd Fauzi b. Lebar	-	Perak
3. Sylvester Salin Kirak	-	Serawak
4. Mohd b. Salleh	-	Trengganu
5. Syed Mohsin Syed Salleh	-	Kedah

28.4.84 - 27.5.84

1. Rozilat b. Embong	-	Trengganu
2. Wan Nasir b. Wan Abas	-	Kelantan
3. Md. Dagang b. Johan	-	Melaka
4. Zahari b. Zakaria	-	Negeri Sembilan
5. Stephen Mozimun	-	Sabah

### c. 受講農民に対する追跡調査

#### (i) 質問票

水管理および稲作栽培に関する要望と、当センターでの訓練結果を知る目的で受講農民にインタビューを試みた。前回調査の反省を踏まえて、質問票素案を作成し、カウンターパート等の意見を取り入れ素案を修正の上、今回の質問票を作成した。英文・マレー語版質問票は表7-10に示す通りである。今回の調査に当ってはマレー語版は使用しなかったが、今回同種の調査を大規模に行なう機会があればマレー語版質問票の使用が有効であろうと考える。

#### (ii) 調査方法

調査時期がイスラムの断食月間(1984.6.1~6.29)に当たっていたため、農家を1軒ずつ廻ってもインタビューする機会が少ない事から調査を能率的に行なうため、KADAを通じて受講農民を1ヶ所に集めてもらうことにした。表に示す通り6月11日12日を調査日と定め合計22人にインタビューを試みる計画を樹てた。しかし実際には10人しか集まらなかったため、調査日を1日延長し、13日にパイロットファーム№1内の農家を訪ねることとした。ここでは5名の農民に面接調査を行なうことができた。調査日時・場所・人数は以下の通りである。

1. 6月11日 KADA Kubang Sepat Farmer's Association 6名  
(Pasir Mas Scheme Area)
2. 6月12日 KADA Sungai Keterch Farmer's Association 4名  
(Kumubu Scheme Area)
3. 6月13日 Pilot Farm №1 5名  
(Kumubu Scheme Area)

調査は用意した質問票を1項目ずつ読みあげ、各人に聞くインタビュー方式によったインタビュアーはセンターの排水・かんがい技師Mr. Hassan Bin Awangが行なった。調査閉からはコンサルタント1名が参加した。

一同に集めてインタビューすると答が前の解答者に影響される傾向が前回の調査で見られたので、今回は別室に1人1人招き入れて行なった。そのため、インタビューに時間がかかり1人に40~20分程度を費やした。なお、今回調査した農民は全て1回以上当センターの一日講習(D/Fの見学)を受けたものである。

#### (iii) 調査結果

質問票の項目に沿って調査結果をまとめると次の通りとなる。

##### 1) 一般

##### 1)-1 農民の名前、年齢

年齢については、はっきりと覚えていない農民が多かった。50才或いは60才以

上ではっきりしたことは解らないといった回答が多い。今回調査した15人のうち14人が男性である。15人の年齢分布は次の通り。

30 - 35才	1人	(調査した農民はいずれも一家の大黒柱であると推定される。)
36 - 40才	0人	
41 - 45才	5人	
46 - 50才	2人	
51 - 55才	2人	
56 - 60才	3人	
61 - 65才	2人	
計	15人	

#### 1)-2 住所

調査した農民は10村にわたる。いずれもインタビューした場所の近くの農民であるのでインタビューした場所を図示すると図7-2の通りである。

(1) Kubang Sepat F.A および (2) Sungai Ketereh F.A は K A D A の支配地区で幹線水路は完成しているが末端20ha以下のOn-Farm Facilityは施工されていない。3-P/F No 1地区は当センターが施工したパイロットファームである。

#### 1)-3 家族数

最大家族数	8人
最小家族数	3人
平均家族数	6人
男	3.07人
女	2.93人
有効労働者数	2~3人

前回の調査と余り隔りが無い。核家族化が進んでおり、一農家当りの家族数は少なく、労働が可能な人数も2~3人と極めて少ない。

#### 1)-4 土地所有面積

平均土地所有面積は2.28エーカー(0.92ha)であった。分類すると以下の通り。

以上 未満	
1.0エーカー未満	1(0.18エーカー-住居のみ)
1.0~2.0	5
2.0~3.0	4
3.0~4.0	3
4.0~5.0	1
5.0エーカー以上	1(5.5エーカー, 2.5エーカーは林地)

1 ha (2.5 エーカー) に満たない農家が約60%を占める。後述する通り、土地の貸借が広く行なわれているので、土地所有と耕作面積は必ずしも一致しない。

#### 1)-5 水田耕作面積

この設問には雨期作・乾期作各々の耕作面積を聞いたが、いずれの農家の答えも、耕作面積は同じであった。各農家の水田耕作面積と所有面積を一覧表にすると次の通りであった。

No	水田耕作面積(エーカー)	土地所有面積(エーカー)	借用地の有無
1	2.0	1.5	有(エーカー)
2	2.0	2.5	無
3	1.5	1.5	有
4	3.0	2.0	有
5	5.0	1.0	有
6	7.0(最大2.83ha)	0.18	有
7	3.0	5.0	有
8	2.5	5.5	無
9	3.0	1.5	有
10※	3.0	3.0	無
11※	3.0	3.0	無
12※	2.0	4.0	無
13※	1.0(最小0.4ha)	1.0	無
14※	2.25	2.5	無
15※	1.5	2.0	無
合計	41.75	34.18	
平均	2.78	2.28	

(※印はP/F No 1地区)

P/F No 1地区以外は土地の貸借が広く行なわれており、パイロットファーム地区ときわだった対称を示している。平均水田耕作面積は2.78 エーカー(1.13 ha)であり、平均土地所有面積は2.28 エーカー(0.92 ha)であった。

#### 1)-6 稲の種類と収量

稲の種類は雨期作・乾期作ともKadaria(MR27)が圧倒的に多かった。

Kadaria(MR27)だけを耕作している農家数 ..... 9戸

Kadaria(MR27)を主とし、他の種類も耕作している農家 ..... 4戸

タイまたはフィリピン種を耕作している農家数(P/F地区にある) ..... 2戸

収量については以下の通り乾期作 (Off-season paddy)の方が雨期作 (Main season paddy)よりも若干多かった。

乾期作		雨期作	
平均	3.32 t/ha	平均	3.26 t/ha
最大	4.86 t/ha	最大	4.86 t/ha
最小	1.26 t/ha	最小	1.88 t/ha

最小値は調査した中でとび抜けて小さい値である。これはねずみ、病虫害による被害が多いためである。

#### 1) - 7 稲作収入の割合

農家経営の中で稲作による収入の割合を調査したものである。

農家の多角複合経営化が進んでいるように見受けられ、調査した15農家のうち2/3に当たる10農家が稲作以外に収入の道を見出している。

稲作に収入の全てを願っている農家も5軒あるが、P/F No 1 地区に集中しているのが特徴である。単純平均すると2/3が稲作収入、残りがその他となる。稲作以外の収入の道は次の通りである。

稲作以外の収入の道	農家数	全収入に占める割合	
タバコ栽培	2	33%	60%
ベチャの運転	1	50%	
散髪屋	1	60%	
銀細工	1	50%	
養鶏	1	70%	
野菜・果物	2	70%	50%
カカオ	1	20%	
不明	1	75%	
計	10		

2) 水管理について

2)-1 農民組合の必要性

K A D A の Farmers' Association を通じて肥料（無料）やもみの供給をうけているので、15人全員が設問に対してYESと答えている。

2)-2 2期作について

1人を除き14人が2期作を実施している。例外の1人はPasir Mas Scheme内の居住者で水不足のため2年3作を実施しているとのことであった。

2)-3 乾期の水利用について

十分であると答えた者…………… 7人

不足すると答えた者…………… 8人

不足すると答えた者のうち3人は時々不足すると答えており、他の5人よりは不足する程度が厳しくない印象であった。不足する理由についての答えは次の様に分類できる。

（三次）水路がないため…………… 3人

耕地が高位置にあるため…………… 2人

幹線、2次水路の水不足…………… 3人

土地の起伏により一部の耕地は幹線、2次水路から取水するには高位置にありすぎる。従ってこのような耕地は水路の支配面積からはずさなければならないが幹線2次水路建設時には詳細な検討が加え得なかったものと推察される。

2)-4 雨期作の耕作上の問題点について

雨期作（Main Season Paddy）は降雨が多いので、一般に耕作上水の問題は少ない。この設問に対する回答は次の通りであった。

問題なしと答えたもの……………13人

問題ありと答えたもの……………2人

問題ありと答えた者の理由は次の通りであった。

排水上の問題……………1人

ねずみ、病虫による被害……………1人

2)-5 労働力について

労働力は十分あると答えたもの……………11人

労働力が不足するため、雇用労働力に頼ると答えたもの……4人

調査した農家では家族数が比較的少ないので、農作業に従事できる人数も少ない（2～3人）。従って耕作面積が大きくなると労働力不足をきたしてくる。労働力が不足すると答えた農家の耕作面積と、有効労働者数は以下の通りであった。



耕作面積(1期当)	有効労働者数	1人当り耕作面積
(5) 5 エーカー	3人	1.7 エーカー/人
(6) 7	2	3.5
(9) 3	2	1.5
(11) 3	3	1.0

( )内の数字はサンプルナンバー

1人当りの耕作可能面積は約1エーカーで、それを越えると、現在の労働条件下では労働力の不足をきたすと推察できる。

### 2)-6 耕作上最も改善したい点

乾期作(Off-season)、雨期作(Main season)別に設問したが、答えは全て同一で乾期作、雨期作とも改善したい点は同じであった。

複数解答があるので答えの数は15以上となるが、結果は以下の通りであった。

		(P/F No 1地区)	(その他)
a. 水確保	8	(1)	(7)
b. 排水の必要性	2	(0)	(2)
c. 病虫害の駆除	10	(5)	(5)
d. 機械化	0	(0)	(0)
e. 高収量品種	0	(0)	(0)
f. 肥料	0	(0)	(0)
g. 農道の整備	5	(0)	(5)

以上より次の点が明らかになってくる。

- 病虫害の駆除が第一位である。これはP/F内の農民が全てこの項目を改善したい点に挙げているからである。P/Fを除くと依然として水確保が第一位となる。
- いずれの方法にしろ、On-Farm Development を実施すると、水確保および運搬の問題点は解消される。
- 機械化については一戸当りの耕作面積が少ないので当面問題になっていないといえる。
- 高収量品種・肥料についてはFarmers Associationを通じて供給をうけているので改善点として取り挙げた者はいなかった。

### 3) 訓練

#### 3)-1 D/Fを見学して最も印象に残ったもの

複数回答があるが、解答を整理し、分類すると次の通りであった。

圃場の均平さ	1
圃場の区画割	3
D/Fの施設	11
田植機による移植	2
印象なし	1 (1982年参加)

現段階ではD/Fは稲の耕作よりも、On-Farm Development について農民を啓蒙する上で大きな役割を果たしていると言える。

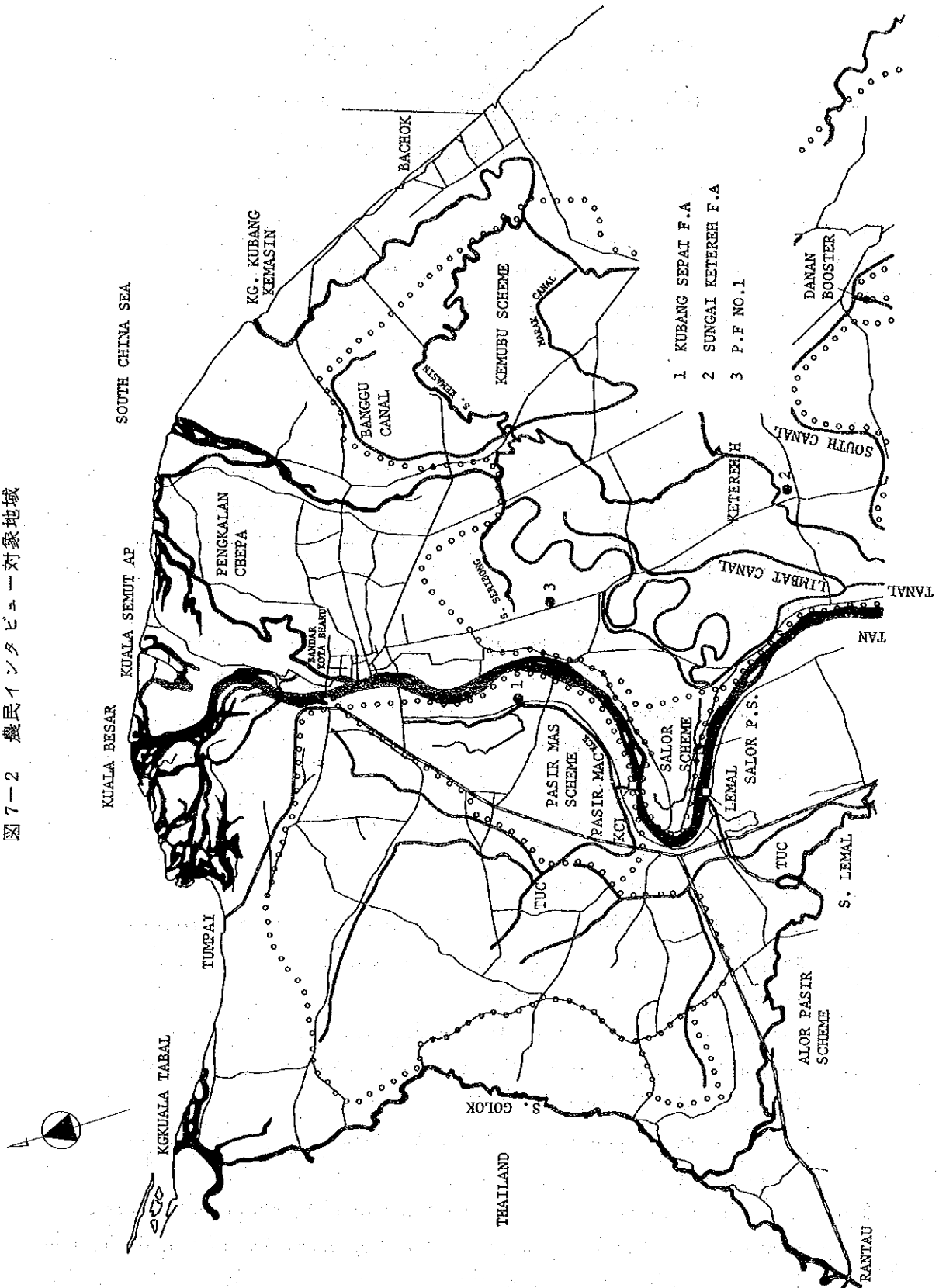
3)-2 D/F見学後耕作に採用した改善点

採用していない	10人
採用した	5人
- 直播	4人
- 水管理	1人

調査結果の要約は上記の通りであるが、インタビューを通じて何かを改善したいという熱意を感じた。採用していないと答えた10人も大部分は、採用しようにも施設がないので採用のしようがないというものである。また、直播を採用したと答えたものが比較的多かったのが、これは耕作する全面積に採用しているのではなく、小部分に採用し、自らその長所を確かめようとする態度である。

D/Fの演示効果は大きいと言える。

图 7-2 農民インタビュー対象地域



THE TECHNICAL COOPERATION PROJECT

ON

WATER MANAGEMENT TRAINING

QUESTIONNAIRE TO THE TRAINED FARMER

Interviewer

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Place: \_\_\_\_\_

1. GENERAL

1.1 Name of Farmer \_\_\_\_\_ Age ( ) (M.F) \_\_\_\_\_

1.2 Address \_\_\_\_\_

1.3 Nos. of Family M( ) F( ) Total( ) \_\_\_\_\_

1.4 Total holding area \_\_\_\_\_ acre

1.5 Paddy Cultivated Area

Main Season \_\_\_\_\_ acre

Off Season \_\_\_\_\_ acre

1.6 Cultivated Paddy \_\_\_\_\_ Main Season Off Season

Variety \_\_\_\_\_

Yield (Pikul/acre) \_\_\_\_\_

1.7 What percentage do you earn from paddy cultivation? \_\_\_\_\_ %

2. WATER MANAGEMENT

2.1 Do you find the necessity of the farmers' group? Yes/No

2.2 Do you cultivate two paddy crops a year? Yes/No

If No, what is your reason?

2.3 Can you use enough water in the off season? Yes/No

2.4 Do you have any problems in the main season? Yes/No

If Yes, what is your reason?

2.5 Do you have enough labour force for paddy cultivation? Yes/No

2.6 Which item do you wish most to improve upon the present farm management? Select from the following items by each crop season.

a) To acquire irrigation water

b) To drain out excess water

c) To prevent pests and diseases

- d) To introduce mechanization for reducing farm labour
- e) To get high improved varieties
- f) To get appropriate fertilizer at right time
- g) To provide farm road for transportation of farm products

Main Season \_\_\_\_\_ Off Season \_\_\_\_\_

### 3. TRAINING

3.1 What are the most interesting matters which you had during your study visit in the centre?

3.2 Do you have a matter which you have adopted to improve your farming after you visited the centre? Yes/No

If Yes, Which is it?

表7-10-(2) 受講農民へのアンケート調査, 質問表 (マレイシア語版)

Pusat Latihan Pengurusan Air Kebangsaan (PLPAK)

Soalidik Pertanian

Nombor sampel: \_\_\_\_\_

Tarikh : \_\_\_\_\_

Nama Ponyoal : \_\_\_\_\_

1. Am

- 1.1 Nama petani ..... Umor ( ) (L/ )
- 1.2 Alamat .....
- 1.3 Bilangan keluarga L( ): P( ): Jumlah ( ) .....
- 1.4 Luas tanah dimilik ..... ekar
- 1.5 Luas tanaman padi:
- Musim utama ..... ekar
- Luar musim ..... ekar
- 1.6 Tanaman padi:
- |                    | <u>Musim utama</u> | <u>Luar musim</u> |
|--------------------|--------------------|-------------------|
| Jenis:             | .....              | .....             |
| Hasil (Pikul/ekar) | .....              | .....             |
- 1.7 Berapa peratus pendapatan anda dari penanaman padi? .....%

2. Pengurusan Air

- 2.1 Adakah anda fikir kumpulan peladang diperlukan? Ya/Tidak
- 2.2 Adakah anda menanam padi dua kali dalam satu tahun? Ya/Tidak
- Jika tidak, kenapa?
- 2.3 Adakah air mencukupi semasa luar musim Ya/Tidak
- 2.4 Adakah anda menghadapi masaalah semasa Musim Utama Ya/Tidak
- Jika ya, beri sebab-sebab
- 2.5 Adakah anda mempunyai cukup tenaga buroh untuk menanam padi? Ya/Tidak

2.6 Item manakah yang anda ingin sekali memperelokan pengurusan ladang sekarang? Pilihlah daripada perkara-perkara berikut mengikut satu musim menanam.

- a. Memerlukan air pengairan.
- b. Membuang air berlebihan.
- c. Mengawal musuh-musoh tanaman dan penyakit.
- d. Menggunakan jentera untuk mengurangkan tenaga buroh.
- e. Mendapat jenis-jenis hasil tinggi.
- f. Menerima baja pada masa yang betul (awal).
- g. Mengadakan jalan ladang untuk pengangkutan bahan-bahan ladang.

Musim Utama ..... Luar Musim .....

### 3. Latihan

3.1 Apakah perkara-perkara yang manarik sekali yang anda mengalami semasa lawatan sambil belajar di Pusat Latihan?

3.2 Adakah anda mempunyai perkara yang anda ikut untuk memperbaiki kerja pertanian selepas anda membuat lawatan ke Pusat Latihan?

Kiranya ya, apakah dia?

表 7 - 11 農民アンケート対象者リスト

SENARAI PETANI KADA YANG AKAN MENYERTAI  
PERBINCANGAN (TEMUBUAL) DENGAN WAKIL  
DARI PUSAT PENGURUSAN AIR KEBANGSAAN

Bertempat di PKP Kubang Sepat  
Pada 11.6.1984

Jam 9.30 pagi

PKP Kubang Sepat

1. Che Abdullan b Mat Ali
2. Che Awang bin Yusuf
3. Hamat b Deris

PKP Kubang Bunut

1. Mat Salleh bin Che Mamat
2. Mat Daud bin Ibrahim
3. Mohamad be Lomer

Jam 11.00 pagi

PKP Alor Mas

1. Deraman b Samat
2. Ibrahim bin Daud
3. Ab. Ghani b Daud

PKP Bakat Baru

1. Ismail b Mamat
2. Jaafar bin Mohamad
3. Yunus b Zakaria

Bertempat di PKP Sungai Ketereh  
Pada 12.6.1984

Jam 9.30 pagi

PKP Tanjong Puri

1. Mat bin Awang
2. Wan Mamat b Wan Omar
3. Mohamad bin Ibrahim

PKP Sungai Ketereh

1. Taib bin Jusoh
2. Awang bin Idris
3. Ibrahim bin Awang Hamat

Jam 11.00 pagi

PKP Bukit Jawa

1. Mohamad Rosli b Mat
2. Hussein bin Mamat
3. Mustapha bin Abdullah

PKP Cherang Rotan

1. Yusof bin Salleh
2. Mat Adam bin Dollah
3. Che Husain b Yakub.



## 7-5 測定結果に基づく今後の研修方針の改善について

当センターはD I D年間訓練計画の中でアンパンリサーチセンター内にある訓練センターとともに大きな位置を占めるに至っている。アンパンリサーチセンターが本採用前の職員を対象に幅広い基礎的な事項について訓練を行っているのに対し、当センターはI.Oから Engineer に至るかんがいプロジェクトの維持・管理・運営に関する全国の技術者を対象に稲作と水管理について程度の高い訓練を実施できるようになってきた。

これまでアンパンリサーチセンターが受け持ってきたT A, I I, I Oの本採用試験についても半島北部の各州については当センターで実施することになっており、当センターは全国水管理訓練センターとして、その名前に負けない充実ぶりであると言える。しかし当センターの訓練内容・運営はやっと緒についたばかりであり、今後更に改善・充実を図っていく必要があると考えられる。主な改善内容は次の通りである。

### (i) 研修内容

研修生の程度および研修期間別に7つの研修計画(コース)が準備されており、各コースの内容は妥当なものであると言えるが、若干理論的すぎる傾向がある。これはパイロットファームの建設の遅れ等により、P/F内での実習が困難であったこと、またD/Fにおいても稲の栽培されていない時期に研修期間がぶつかる等により、実習する対象が限定されていた事に起因すると考えられる。今後はD/F、P/F等での野外研修を増やし、より実務的な研修になるよう研修内容の改善を図っていく事が望まれる。

### (ii) 研修期間

現在の当センターが用意している研修コースの期間は最短2週間、最長2ヶ月である。本プロジェクト実施前の段階では10ヶ月等相当長い期間が考慮されていたが、研修生自身が実務者であるためかんがい期間中長期に亘り研修を受けるのは困難であり、現在の研修期間が決定されるに至っている。

マレーシア政府は最近数年の財政事情逼迫により、D I D職員数を凍結または縮小しており、水管理に関する中堅技術者の業務分担は増加してきていると推察される。

このような状況下では、長期に亘る研修は実現がむずかしいといえる。

従って、D/Fでは常時各生育段階の稲の生長を展示する等の手段を採用し、2ヶ月程度の研修期間でも十分に効果を発揮できるよう対策を講ずる必要があるかと推察する。

### (iii) 受講生の募集先・募集方法

これまでの受講生はState D I DおよびKADA, MADA等のプロジェクトでかんがい施設の維持・管理・運営に関する中堅技術者が主であった。当センターでは稲作栽培と水の関係という点で成果を挙げており、この点での教育効果が大きいと考えられる。これまで稲栽培に関して農民から質問をうけても答えられなかった水管理技術者が受講後はしっかりした答えを農民に与えられる等大きな成果をあげている。

しかし、末端20ha以下の水田の水管理を実際に行うのは農民自身である。また農民に最も密接な関係を持っているのは農業普及に関する中堅技術者である。従って今後はDOA（農業局）の職員も研修対象生として考えていく必要がある。すでにこの試みは一部実施に移されており、受講生の感想も前向きなものである。DID以外の局からの受講生も毎年増えていくものと推察できる。

#### (IV) その他

当センターの教材、レクチャーノート等の内容はこれまで現地の資料が乏しかったため90%以上が日本の稲作技術に準拠して用意されている。今後はD/F、P/F等での各種試験・試行に基づき、現地に更に適応した内容に漸次改めていく必要があると考えられる。また一部の教材（視聴覚教材等）は日本語によるものがあり、教材としての利用効果を半減しているものもある。

当センターの施設は十分に立派なものであるといえる。今後はより効果的な研修ができるよう施設・教材を効果的に使うと同時に研修内容を更に充実する必要がある。

## 参 考

### マレー人農家宿泊体験記



## 断食期のマレー人農家に宿泊して

東北農業試験場 原 城 隆

今回のエバリュエーション調査の忙しい最中に、嶋田団長の許しを得て1泊2日のマレー人農家生活を体験することができた。水管理を中心とした訓練効果が実際にどの程度農家に浸透しているかを知りたいということもあったが、マレーシアの農民の生活を、このpuasa(断食)期間中に体験してみたいという出発前からの念願でもあった。

宿泊先は、マレーシア東海岸コタバル市より車で約15分位南方のpadang Lati 村のマレー人農家であった。マレー農家に単身泊り込むことに遠慮と一抹の不安はあったものの、この農家は、訓練センターに勤務するMr.カメールの夫人の里であるということで、思いきって乗り込むことにした。

カメール夫人の里についたのは、6月21日午後5時頃であった。住まいは昨年、新築したばかりの広さ約57坪の平屋建であった。同じ敷地内に旧住居があり、そこには御両親と娘さんが住んでいた。

私が到着するや早速カメール夫妻の案内で新居の中を見て回った。床の上にきれいなビニールシートを敷かれた居間にはカラーテレビ、応接セットが置かれ、よく整頓されていた。特に印象的なのは寝室で、目を覆う様な真赤なベットをカラフルなカーテンで囲んであり、南国の香水の匂いがぶんぶんたちこめていた。奥の方の台所に行くと、電気釜、石油コンロが備えられていた。台所の横隣にはコンクリート床と高いコンクリート壁に囲まれた水あび場兼洗濯場があった。

私が訪ねた6月はイスラム教徒の年一度の断食の月に当たり、日中は食事はもとより飲み水もとらないしきたりになっている。従って夕食は日没の7時半すぎに始められた。ダイニングキッチンでカメール夫人の姉夫妻、その子供4人、カメール夫妻、小生の総勢9人が食卓を取りかこんだ。チキンフライ、小魚のフライ、サゴヤシの木髓(Sagu)、魚のフレーク等皆んなでつつき合った。ご飯は、当地で普及奨励されているKADARIAと云う品種であった。夕食が終ったのは8時過ぎで、それから両親を交えた一家団欒が12時近くまで続き、床についたのは12時半頃であった。この新居は、旧居に比べものすごく風通しが悪く、むし暑くその上、小さな虫のうるささにも閉口した。うつらうつらしている内に、Mr.カメールが私を呼び起こした。時計を見ると3時40分であった。断食中は朝食が早いことを教えられた。朝食のメニューは昨夜の残り物に、ユデタマゴ、エビセンベイ、紅茶が加わった。朝食のあと1時間余り皆んなで再び床に入り、睡眠不足を補うのであった。

私が再度眠をさました7時前に、一台のトラックが庭先まで入ってきた。話によると、3ha余りの田を他人に借して、収穫高の半分を小作料として貰っている一部が運ばれたのだと云う。

まだ7時だと云うのにカメル夫人の姉は台所の一角でミシンを掛けていた。タイ人から頼まれた婦人服の洋裁で一カ月約4万円になる内職である。

8時前には、Mr. カメルと姉の夫と、両親は稲刈りに出かけた。私も後からついて行った。約500m程離れた所にある不整形な水田で水はけが悪く、20cmほどぬかりながらの手刈り作業であった。稲刈りは高刈りで、刈取った稲は圃場に持ち込まれた桶の中でたゞきつけて脱穀する人力作業である。足場が悪いので稲束の運搬と脱穀作業には相当体力を消耗する。昼間飲まず食わずの断食期間中の収穫作業は非常に酷である。宗教を優先する彼らには、断食の6月に農繁期がくるような栽培体系は極力避けなければならないと思った。

9時ごろ家に戻った。洗濯場には入れ替わり立ち替わり子供達迄も来て洗濯を始めた。今日は6月22日、金曜日でイスラム教徒の休日、学校も休みなのである。

10時すぎにMr. カメルが田圃から帰ってきた。ココヤシの実を棒でたゞき落して中の水を私に飲ませてくれた。断食中とは云え、日本人である私に特別サービスしてくれたのである。稲刈りはもうやらないのかと聞くと、午後も引き続きやり5時頃まで続けると云う。

約1.2haの水田は主に両親が耕作しているが休日には姉の夫やMr. カメルがこうして手伝っているのである。姉の夫は、平日はトラックの運転手でこれは結構収入があり、月7万位稼いでいる。水田では、二期作が行われており、1作・1ha当り3~3.5tの収量をあげているので、1.2ha分の収入は年間約40万円となり、この両親分も含めて一家の農業所得は、私の推定では、農家全所得の4割位になった。マレーシア東海岸のケランタン州では兼業農家が多いと聞いていたが、私が訪ねたこの農家もまさしく第2種兼業であった。

今回の訪問で感じたことは、第1にこの農家の生活水準は、私が予想した以上に高く、これは明らかに兼業に依存していること。第2に稲作技術に関しては、優良品種の導入は地方でも確実に行われていたが、水管理技術になると、それが実施できるような圃場整備をされておらず、用水路から水がくることで彼らは十分満足していた。そして政府から無料配布される肥料と品種の導入で現在の収量水準を維持しているとみられた。また、前述のように収穫作業は人力に依存しており、今後兼業化が進行する中で作業能率を向上させることになる、圃場の基盤整備が先決であることは云うまでもないが、収穫作業と6月の断食をどう調和させてゆくかと云う難しい問題があることも考えておかねばならない。

そのほか、マレー人はしばしば中国人と比較されるが、私が訪ねたこの農家は子供も大人も何時も何か仕事をしており、動きはゆったりしているが、予想以上に働き者であったということ。衛生面では、やゝにごり気味であるが、井戸のくみ水をふんだんに使用できるため、トイレも綺麗にしてあり、ハエが見かけなかった事など印象として残った。

今回の農家での宿泊体験を帰国前のパーティの席上排水かんがい局のWelch計画部長に話したところ、それは非常に良い事をしたと誉められた。とかく海外調査と云えば、政府機関、研究機関、現地圃場の視察で終るのが通例であるが、こうした現地人と肌で触れ合った生活体験

は、真底から彼等を理解する上で役立ち、そんなところから正しい技術援助の道が開けてくるような気がした。数年前になるが、私が中国農試にいたときJICAの依頼で1年間インドネシアの研修生の面倒をみたことがある。その時、彼を私の郷里に連れてゆき一泊二日の農家生活を体験させた。彼は非常に喜んで感謝して呉れた。今回の私と同じ気持だったのであろう。

最後に私を心良く受け入れて呉れたWANさん一家の御多幸を祈って心まない。





## 付 属 資 料

1. 当初マレーシア政府の要請文	108
2. 当初討議議事録	115
3. 第一回の延長要請文	124
4. 第一回の延長討議議事録	126
5. 第二回の延長要請文	127
6. 本調査団現地レポート	131
7. センター所長 ( C C Chan ) Progress Report	160
8. Joint Committee meeting 議事録	169
9. フォローアップ協力討議議事録	173

付属資料 1. 当初マレーシア政府の要請文

Project Proposal for the Setting Up of  
A Water Management Training Centre  
at Kemubu Irrigation Project, Malaysia

I. BACKGROUND AND SUPPORTING INFORMATION

Stabilized and increased food production, particularly rice which is the main staple food, is a principal target of Malaysia's agricultural development strategy. Massive investments have been put into irrigation and development with a view to providing irrigation water to paddy fields, and a number of irrigation projects - including the gigantic Muda and Kemubu Schemes, have been completed in recent years.

As a result about 80 percent of the paddy fields in Peninsular Malaysia have been equipped with irrigation facilities, and paddy production has steadily increased to the extent that Peninsular Malaysia is now nearing the threshold of self-sufficiency in rice. However, due to the ever-increasing population and the consequent demand for rice and other agricultural commodities, the full utilization of a potential created in the irrigated area has become the focal point of agricultural development strategy in the country.

As with other countries in the region, the most common feature of irrigation development has been that spectacular structures such as dams, pumping stations, and main canals dominated the engineering operations from planning to execution, whilst on-farm water management directly related to farmers and agricultural production has been somewhat overlooked or its importance minimized. The importance of on-farm water management, placing farmers at the centre of attention, is now, however, receiving due attention from the authorities concerned. The Malaysian Government has taken an active part in past water management seminars (in 1970 in Manila, sponsored by UNDF/FAO, and in 1972 in Japan organized by the Government of Japan in co-operation with FAO). More recently, in 1973, the Government organized a national water management seminar in Alor Star in co-operation with FAO. The

delegates at this seminar unanimously endorsed the recommendation that on-farm water management, with particular reference to training aspects, be strengthened and that a water management training centre be created.

The full utilization of the potential created by irrigation projects requires integrated and co-ordinated action between engineering agencies and those responsible for agricultural development. Having recognized this important issue, the Malaysian Government has already established agricultural development authorities, such as the Muda Agricultural Development Authority and the Kemubu Agricultural Development Authority (KADA); the latter was organized in 1971. The KADA, which covers five irrigation schemes, namely Kemubu, Alor Pasir, Sg. Lemal, Salor and Pasir Mas, has a total of 84,660 acres (35,000 ha) of gross irrigable area. The table below shows the scope of these main irrigation projects. While these authorities are being operated in a dynamic way, full integration of water and agriculture is yet to be realised.

Name of Scheme	Gross area in acres	Wet and off-season paddy		% O/W
		Wet	Off	
Kemubu	87,500	47,000	25,000	53.2
Alor Pasir	1,960	1,400	-	-
Sg. Lemal	57,100	22,000	10,000	45.5
Salor	6,280	4,100	-	-
Pasir Mas	15,855	5,160	3,850	74.5
Total	168,695	79,660	38,850	48.5

In line with Government's policy to accelerate the development of the east coast of Peninsular Malaysia, attention is being given to the early utilization of the irrigation potential of the Kemubu Irrigation Scheme with a view to promoting increased rice production and the development of diversified agriculture. As an important measure towards achieving this objective, and also to improve water management generally over the 800,000 acres under irrigation in Malaysia it is proposed to establish a water management training centre in the Kemubu Scheme area, which will be used for the training of engineers, agriculturalists, technicians and rural leaders, from the country as a whole.

## II. OBJECTIVES OF THE PROJECT

### A. Long-range objectives

To increase rice production and to promote diversified agriculture in the country through the introduction of proper water management activities associated with improved farming practices, placing emphasis on the training of officials, field workers, rural leaders and ultimately farmers.

### B. Immediate objectives

To assist the Drainage and Irrigation Department of the Malaysian Government in initiating and conducting water management training programmes in a centre to be established in the Kemubu area of the Kelantan Plain. The main purpose of the centre is to carry out water management training programmes for D.I.D. professional and sub-professional personnel and agricultural extension workers. For this purpose, full training facilities with several pilot demonstration farms will be established. To support the training programme, suitable applied studies will be conducted at the training centre and these will include :-

- (i) water management for both rice and other crops;
- (ii) water management techniques, including irrigation systems operation and management and related agricultural practices, including farm mechanization;
- (iii) practical improvement programme for various existing irrigation and drainage systems in the region;
- (iv) land consolidation programme.

## III. WORK PLAN

### A. Institutional framework

The responsibility for irrigation and drainage development rests with the Drainage and Irrigation Division (D.I.D.) of the Ministry of Agriculture and Rural Development. The other functions of D.I.D. include river conservation, flood mitigation and hydrology. The Division operates through its 13 State Drainage & Irrigation

Departments, i.e. one in each state of the country.

D.I.D., as the national executing agency, will be entirely responsible for the planning and implementation of the project. It is essential, however, that D.I.D. maintains close collaboration with other agencies responsible for agricultural development including the Department of Agriculture (Federal and State), MARDI and KADA. Close collaboration should also be maintained with aid-giving agencies operating operational programmes in the country.

B. Works schedule

The training programme is of a long-term nature but external assistance would be required for a period of four years, including a three-year full-scale training period, and a preparatory period of two months.

<u>Project activities</u>	<u>Starting date</u>	<u>duration</u>
1. On-the-spot survey by the mission and the preparation of the project document.	March 1975	2 months
2. Approval of the project	September 1975	
3. Planning and design of the centre/pilot farm	October 1975	3 months
4. Construction of the centre and pilot farm and procurement of equipment and supplies.	January 1976	6 months
5. Training <sup>1/</sup>	June 1976	39 months
6. Supporting applied studies	June 1976	39 months

<sup>1/</sup> On-the-job training will start during the planning and design stage.

C. Work programme

Details of the training programme will be worked out at a later stage, but a rough idea is given below:

- (a) Training facilities will accommodate up to 30 people.
- (b) The normal training programme will cover 3 courses of a period of 3 months each. The special training course, which is for in-depth study of specific subjects, will be organised for a period of 12 months. "Crash courses" will be held for a period of one month for senior officials who are unable to participate in the normal training courses.
- (c) The core of the programme is the normal course and under the programme irrigation inspectors (II) irrigation overseers (IO) and extension workers (EW) are trained. Of these, priority will be given in the first instance to irrigation inspectors who are responsible for the guidance and supervision of irrigation overseers. Of the three normal courses per year, two will be allocated to training irrigation inspectors and overseers and one for extension workers. It is hoped that during the three years period about 120 irrigation inspectors and overseers will have been trained (at present there are about 100 officers in these categories in the country, which will have been increased to 120 by 1978).
- (d) Five fellows will be selected from the trainees for study abroad, after which they will become the key counterpart personnel responsible for training and other activities.
- (e) The scope of applied studies, which forms an integral part of the training programme, should be limited to the subjects which are essential for training purposes. Basic research and applied research of a sophisticated nature should be carried out by other agencies, such as MARDI.

IV. INPUTS (excluding preparatory activities)

1. Donor Contributions

<u>1.1 Experts</u>	US \$
1.1.1. Irrigation engineer (Team Leader)	48 m/m
1.1.2. Water management expert	48 m/m
1.1.3. Rice agronomist	39 m/m

1.1.4	Consultants	84 m/m	
	a. Soil and soil fertility expert	12 m/m	
	b. Tropical crop expert	12 m/m	
	c. Agricultural engineer (farm mechanisation)	12 m/m	
	d. Farm management expert	12 m/m	
	e. Irrigation institution expert	12 m/m	
	f. Other consultants/lecturers	24 m/m	
	Total	219 m/m	547,500
1.2	Equipment and supplies		
1.2.1.	Vehicles (4)		20,000
1.2.2	Tractors (8)		80,000
1.2.3	Research and test equipment		50,000
1.2.4	Education equipment/facilities (including audio visual aids)		50,000
1.2.5	Farming equipment		30,000
1.2.6	Farm inputs (fertilizer and pesticides etc.)		30,000
1.2.7	Miscellaneous		11,500
1.3	Subcontract		
1.3.1.	Construction of pilot farm (200 ha)		300,000
1.4	Fellowships (study of 5 fellows for 6 months each)		25,000
1.5	Contingencies		<u>356,000</u>
	Donor contribution total		1,500,000
2.	<u>Government Contribution</u>		
2.1	Counterpart staff		M %
2.1.1	Irrigation engineer (project manager)	48 m/m	120,000
2.1.2	Junior irrigation engineer	192 m/m	224,000
2.1.3	Senior agronomist	39 m/m	95,000
2.1.4	Junior agronomist	117 m/m	134,000

2.1.5	Administrative staff	96 m/m	96,000
2.1.6	General workers	960 m/m	192,000
2.1.7	Lecturers	24 m/m	60,000
		Subtotal	<u>921,000</u>
2.2	Land and buildings		
2.2.1	Land for pilot farm (purchase or rent)	200 ha	700,000
2.2.2	Land for office building and experimental plot	1 ha	8,000
2.2.3	Office/class building	300 m <sup>2</sup>	450,000
2.2.4	Dormitory/house	600 m <sup>2</sup>	250,000
2.2.5	Warehouse	400 m <sup>2</sup>	300,000
		Subtotal	<u>1,708,000</u>
2.3	Operation, maintenance and running cost		
2.3.1	Pilot farms		100,000
2.3.2	Equipment (see 1.2)		100,000
2.3.3	Office building and dormitory		100,000
2.3.4	Miscellaneous		50,000
		Sub-total	<u>350,000</u>
2.4	Expenses of trainee		
2.4.1	Travel and per diem		400,000
2.4.2	Teaching materials		100,000
2.4.3	Miscellaneous		100,000
			<u>600,000</u>
2.5	Contingencies		553,000
		Grand Total	<u><u>4,232,000</u></u>



付属資料2 当初、討議議事録

THE RECORD OF DISCUSSIONS BETWEEN THE JAPANESE  
AGRICULTURAL SURVEY TEAM AND THE DRAINAGE AND  
IRRIGATION DIVISION, MINISTRY OF AGRICULTURE  
OF THE GOVERNMENT OF MALAYSIA WITH REGARD TO  
TECHNICAL COOPERATION PROJECT ON  
WATER MANAGEMENT TRAINING PROGRAMME IN MALAYSIA

---

In pursuance of the detailed design for Water Management Training Programme, the Japanese Agricultural Survey Team, organized by the Japan International Cooperation Agency and headed by Mr. Michio Nakahara, Director, Agricultural Development Cooperation Department, Japan International Cooperation Agency, visited Malaysia from August 24 to September 3, 1977 for the purpose of finalizing concrete plans for the Technical Cooperation Project on Water Management Training Programme which will be carried out in order to contribute to the promotion of agricultural development in Malaysia.

During its stay in Malaysia, the Team exchanged views with the representatives of the Ministry of Agriculture and the Economic Planning Unit of the Government of Malaysia on the necessary measures to be taken by both Governments to successfully implement the above-mentioned Technical Cooperation Project.

As a result of the exchange of views, both parties agreed to recommend to their respective Governments to carry out the various undertakings referred to in the Record of Discussions.

Kuala Lumpur, 3rd September, 1977.

For the Japan International  
Cooperation Agency

Sgd: Michio Nakahara

Mr. Michio Nakahara,  
Head of the Japanese  
Agricultural Survey Team.

For the Drainage and Irrigation  
Department

Sgd: Pang Leong Hoon

Mr. Pang Leong Hoon  
Director-General,  
Drainage and Irrigation Division,  
Ministry of Agriculture,  
Malaysia.

## RECORD OF DISCUSSIONS

1.

1.1 Both Governments, in accordance with the laws and regulations in force in the respective countries, will cooperate with each other in implementing the Technical Cooperation Project on Water Management Training Programme (hereinafter referred to as "the Project") for the purpose of contributing to the promotion of agricultural development in Malaysia through the establishment of water management techniques and its extension.

1.2 The Project, comprises a Training Centre (with a demonstration farm) and four Pilot Farms, will be implemented in accordance with the Project Plan as stipulated in Annex. I.

1.3 The Project will be implemented by the Drainage and Irrigation Division of the Ministry of Agriculture, Malaysia, in accordance with the operational work plan to be formulated annually by the Joint Committee referred to in paragraph 10 of this Record of Discussions.

2.

2.1 The Government of Japan will take necessary measures through the Japan International Cooperation Agency to provide at its own expense the services of the Japanese experts as listed in Annex II under the Colombo Plan Technical Cooperation Scheme.

2.2 The Japanese experts referred to in paragraph 2.1 above and their families will be granted in Malaysia the privileges, exemptions and benefits in accordance with General Circular No. 1 of 1969 of the Government of Malaysia.

3.

3.1 The Government of Japan will take necessary measures through the Japan International Cooperation Agency to provide at its own expense

such equipment, machinery, instruments, vehicles, tools, spare parts and other materials required as listed in Annex III for the implementation of the Project under the Colombo Plan Technical Cooperation Scheme.

3.2 The goods referred to in paragraph 3.1 above will become the property of the Government of Malaysia upon being delivered c.i.f. at the ports of disembarkation to the Drainage and Irrigation Division of the Ministry of Agriculture, Malaysia, and will be utilized exclusively for the implementation of the Project in consultation with the Japanese Team Leader referred to in Annex II.

4.

4.1 The Government of Japan will take necessary measures through the Japan International Cooperation Agency to sponsor Malaysian personnel engaged in the Project for technical training and/or study tours in Japan under the Colombo Plan Technical Cooperation Scheme.

4.2 The Government of Malaysia will take necessary measures to ensure that the knowledge and experience acquired by the Malaysian personnel mentioned in paragraph 4.1 above through technical training and/or study tours in Japan will be utilized effectively for the implementation of the Project.

5.

5.1 Some of the equipment and machinery referred to in paragraph 3.1 may be rented out at reasonable rates to farmers in Pilot Farms and portions of the consumable items such as fertilizers and agricultural chemicals may be supplied at reasonable prices to the farmers in the above-mentioned areas with the joint approval of the Project Director and the Japanese Team Leader.

5.2 The Government of Malaysia will take necessary measures to secure the budget, no less than the amount of the estimated annual proceeds

from the above-mentioned rentals and supplies, for the implementation of the Project.

6. The Government of Malaysia will undertake to bear claims, if any, against the Japanese experts engaged in the Project resulting from, occurring in the course of, or otherwise connected with, the discharge of their official duties in Malaysia, except for those claims arising from wilful misconduct or gross negligence of the Japanese experts.
7. The Government of Malaysia will take necessary measures to provide at its own expense :
  - (i) the services of the Malaysian counterparts and other personnel as listed in Annex IV;
  - (ii) land and buildings as listed in Annex V;
  - (iii) supply or replacement of equipment, machinery, implements, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than those provided by the Government of Japan through the Japan International Cooperation Agency under paragraph 3.1 above.
8. The Government of Malaysia will take necessary measures to meet :
  - (i) expenses necessary for the construction and improvement of buildings, demonstration farms, irrigation facilities, roads, etc. for the implementation of the Project;
  - (ii) customs duties, internal taxes and any other charges imposed in Malaysia in respect of the goods referred to in paragraph 3.1 above;
  - (iii) expenses necessary for transportation within Malaysia of the goods referred to in paragraph 3.1 above as well as for the installation, operation and maintenance thereof;
  - (iv) all running expenses necessary for the implementation of the Project.

9. The Drainage and Irrigation Division of the Ministry of Agriculture of the Government of Malaysia, will be responsible for the administration and implementation of the Project, and the Japanese experts will provide necessary technical guidance and advice for the implementation of the Project.
10. There will be close consultation between the Japanese experts and the officials concerned of the Government of Malaysia for effective implementation of the Project. For this purpose a Joint Committee will be established as specified in Annex VI. The Joint Committee will meet at least once in six (6) months.
11. Both Governments will consult with each other with respect to any major issues that may arise from or in connection with the implementation of this Record of Discussions.
12. The provisions of the various undertakings mentioned in this Record of Discussions will come into force on the date of signature and remain in force for a period of five (5) years, and may be extended by mutual agreement between the two parties for a further specified period. However, either party may, at any time, give notice to the other party of its intention to terminate these provisions in which case the technical cooperation related to the Project will terminate six months after such notice has been given.

## ANNEX I - The Project Plan

### 1. Training Centre

Water Management Training Centre (with a Demonstration Farm) will be set up in Kota Bharu, Kelantan, and the following activities will be implemented :

- (a) establishment of basic water management techniques;
- (b) training of water management officers;
- (c) demonstration of improved paddy cultivation system with emphasis on water management techniques;
- (d) management and operation of Pilot Farms;
- (e) investigation, planning, guidance and advice necessary for the activities related to the items mentioned above.

### 2. Pilot Farms

Training Centre will set up four (4) Pilot Farms each of about 20 ha. nearby and will implement the following activities with the cooperation of authorities concerned :

- (a) installation of irrigation, drainage, farm roads, and other facilities in the Pilot Farms;
- (b) introduction of water management techniques and on-the-job training for technical staff;
- (c) guidance and advice to farmers in Pilot Farms for introduction of improved paddy cultivation system with emphasis on water management techniques;
- (d) guidance and advice on the formation of water management organizations.

ANNEX II - List of Japanese Experts

Category	Subject Matter
(1) Team leader	
(2) Experts	Irrigation Water management Agronomy
(3) Coordinator	

- Note : (i) At least one expert will be provided for each subject matter.
- (ii) Short-term experts on the above-mentioned or other subject matter may be dispatched when necessary.

ANNEX III - List of the Goods to be provided  
by the Government of Japan

1. Construction equipment, machinery and their spare parts.
2. Agricultural machinery, implements and their spare parts.
3. Experimental and research instruments and their spare parts.
4. Teaching materials including audio-visual aids.
5. Fertilizers and agricultural chemicals.
6. Machinery and tools for repair and their spare parts.
7. Vehicles and their spare parts.
8. Other necessary equipment, machinery, tools and materials to be mutually agreed upon.

ANNEX IV - List of Malaysian Counterpart  
Officials and other Personnel

Category	Subject Matter
(1) Project director	
(2) Counterpart officials	Irrigation Water management Agronomy
(3) Field staff	Irrigation Agronomy Agricultural machinery
(4) Administrative support staff	
(5) Labourers	

ANNEX V - List of Land and Buildings

1. Training Centre :

- (a) Land about 11 ha.
- (b) Office
- (c) Classrooms
- (d) Laboratory
- (e) Hostel
- (f) Instructor rooms
- (g) Meeting room
- (h) Sheds for agricultural machinery
- (i) Garages and workshop
- (j) Storehouse for farming materials
- (k) Other necessary buildings and facilities

2. Pilot Farms (on farmers' land) :

- (a) Land about 80 ha. (each Pilot Farm about 20 ha. x 4 Pilot Farms)



ANNEX VI - Composition of the Joint Committee

Chairman : Secretary-General of the Ministry of Agriculture, Malaysia,  
or his representative

Secretary : Project Director of the Training Centre

Japanese Side :

1. Team Leader
2. Experts
3. Coordinator
4. Representative of the JICA

Malaysian Side :

1. Representative of EPU
2. Representative of the State Government of Kelantan
3. Representative of DID
4. Representative of DOA
5. Representative of KADA
6. Representative of MARDI

Note : Officials of the Embassy of Japan and person appointed by the Embassy may attend the meeting of the Joint Committee as an observer.

Abbreviations :

- (1) JICA - Japan International Cooperation Agency.
- (2) EPU - Economic Planning Unit of the Prime Minister's Department.
- (3) DID - Drainage and Irrigation Department.
- (4) DOA - Department of Agriculture.
- (5) KADA - Kemubu Agricultural Development Authority
- (6) MARDI - Malaysian Agricultural Research and Development Institute.

付属資料 3. 第一回の延長要請文



UNIT PERANCANG EKONOMI  
Economic Planning Unit  
JABATAN PERDANA MENTERI  
Prime Minister's Department  
JALAN DATO' ONN  
KUALA LUMPUR 11-01  
MALAYSIA

Telephone: 200133  
Cable: ECONOMICS  
Telex: EPUPM MA 300

Ruj. Tuan:  
Your Ref:

Ruj. Kami: (52)dlm. JPE. 801/100  
Our Ref: Vol. III

Tarikh: 12th February, 1982  
Date:

URGENT/BY HAND

Mr. T. Aoyagi,  
First Secretary (Development Assistance)  
Embassy of Japan,  
6th Floor, AIA Building,  
Jalan Ampang,  
Kuala Lumpur.

Dear Mr. Aoyagi,

National Water Management Training Centre, Kota Baru  
Request for Extension of Technical Cooperation Project  
Period

As you are fully aware, the technical cooperation period between our two Governments for the National Water Management Training Centre Project in Kota Baru is due to end on 2nd September, 1982. During the 4-year cooperation period, the Japanese Government has despatched short and long-term experts, as well as providing equipment and training places for counterpart officers.

2. Due to unavoidable circumstances, the Centre has yet to function fully as originally anticipated and is only expected to be in full operation in early 1984 - i.e. 2 years behind schedule. In view of these circumstances, it is apparent that, in order to get the full benefit from the cooperation, it would be too premature to end this cooperation as scheduled.

3. In this connection, a 2-year extension of the Japanese Government's assistance to this project is requested so as to ensure the successful completion and subsequent potential operation of the Training Centre. A similar team of experts - comprising a team leader, an irrigation engineer, a water management expert, an agronomist and a coordinator - is required during the extended period.

4. It would be highly appreciated if the Government of Japan could consider this request favourably. I look forward to receiving a positive response from you soon.

Thank you.

Yours sincerely,

*Aminuddin*

(Mohd. Aminuddin Hashim)  
for Director General,  
Economic Planning Unit.

C.C.

✓ Mr. N. Abe,  
Japan International Cooperation Agency (JICA)  
23, Jalan Ampang Hilir,  
Kuala Lumpur.

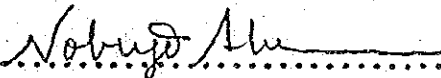
付属資料 4. 第一回の延長討議議事録

THE RECORD OF DISCUSSIONS ON EXTENSION OF  
THE TECHNICAL COOPERATION PROJECT ON WATER  
MANAGEMENT TRAINING PROGRAMME IN MALAYSIA

The Japan International Cooperation Agency (hereinafter referred to as 'JICA') with regard to the recommendations made by the Japanese Evaluation Team which conducted the evaluation survey from June 8 to 25, 1982, had a series of discussions through the Resident Representative of Kuala Lumpur Office, Mr. Nobuji Abe, with the authorities concerned of the Government of Malaysia, in view of the extension of the Technical Cooperation Project on Water Management Training Programme in Malaysia (hereinafter referred to as 'the Project') based on the Record of Discussions signed in Kuala Lumpur on September 3, 1977, and which will terminate on September 2, 1982.

As a result of the said discussions, JICA and the authorities concerned of the Government of Malaysia agreed to recommend to their respective governments that the term of the aforementioned technical cooperation on the basis of the Record of Discussions of September 3, 1977 will be extended until September 2, 1984, in order to fulfill the anticipated targets of the Project.

August 26<sup>th</sup>, 1982.



NOBUJI ABE  
Resident Representative  
JICA Kuala Lumpur Office



PANG LEONG AON  
Director General  
Drainage and Irrigation Department  
Ministry of Agriculture  
Malaysia

付属資料 5. 第二回の延長要請文



UNIT PERANCANG EKONOMI  
Economic Planning Unit  
JABATAN PERDANA MENTERI  
Prime Minister's Department  
JALAN DATO' ONN  
KUALA LUMPUR 11-01  
MALAYSIA

Telephone: 200133  
Cable: ECONOMICS  
Telex: EPUPM MA 30095

Please quote our reference when replying

Ruj. Tuan:  
Your Ref:

Ruj. Kami (58)dlm.UPE.40/240/92  
Our Ref: vol: IV

Tarikh: 4 May 1984.  
Date:

URGENT/BY HAND

✓ Mr. M. Ishijima,  
First Secretary,  
Embassy of Japan,  
no.11, Persiaran Stonor,  
Off Jalan Tun Razak,  
Kuala Lumpur.

Dear Mr. Ishijima,

National Water Management Training Centre (NWMTTC)  
Project, Kota Bharu: Request for Further Extension  
of Technical Cooperation Project Period

I am writing to formally request for an extension of the technical cooperation period for the above project for a further 2 years until September 1986. As you are aware, the cooperation period between our two Governments for the project commenced in September 1977 and is scheduled to be concluded on 2 September 1984 after a 2 year extension. However, due to various problems, particularly land acquisition problems and budgetary constraints, the construction of pilot farms, road works and landscaping have been delayed and could only be completed by mid-1985. It is, therefore, necessary for the cooperation period be extended so that the objectives of the project could be fully achieved. A paper detailing the justification and the extent of assistance required is attached herewith for your perusal and necessary action.

2. We hope that this request merits the favourable consideration of the Government of Japan and look forward to receiving a positive response from you.

Thank you.

Yours sincerely,

( MOHD. AMINUDDIN HASHIM ),  
for Director General,  
Economic Planning Unit.

NATIONAL WATER MANAGEMENT TRAINING CENTRE --  
REQUEST FOR FURTHER EXTENSION OF TECHNICAL  
CO-OPERATION PERIOD UNTIL SEPTEMBER 1986

---

INTRODUCTION

In line with the policy to optimise rice production in irrigated padi fields of the country, the Drainage and Irrigation Department undertook the establishment of a National Water Management Training Centre for the training of technical and agricultural personnel on techniques for efficient water management. The Project was implemented with technical assistance from the Government of Japan under the Japan International Cooperation Agency's (JICA) Project-type Cooperation Programme. Initially, this assistance, provided in the form of expert's services, equipment, farm machinery and counterpart training, was for a period of five years from 3 September 1977 to 3 September 1982.

2. A number of problems were encountered during the construction of the foundation for the main building which prevented the Project from being completed by September 1982. Both the Governments therefore agreed in August 1982 to extend the technical cooperation project by 2 years. In spite of the additional time, it would still not be possible to complete the Project by the due date of 3 September 1984.

3. The main features of the Project are the construction of a building for administration and classrooms, a hostel, 4 Pilot Farms and a Demonstration Farm. To service the operation of the training centre, the Japanese Government undertook to supply several items of construction equipment, agricultural machinery, research instruments, teaching materials and other similar items. In addition, a team leader, a Coordinator and several experts both long-term and short-term were also provided by the Japanese Government through JICA to assist the local staff in implementing the Project and in putting the training centre into operation.

PRESENT STATUS OF THE PROJECT

4. At the expiry of the present term of the technical cooperation project, most of the Project works would have been completed. However, the construction of three (3) of the pilot farms, some road works and

the landscaping would still be in various stages of completion. These works could not be committed until 1984, due to land acquisition problems and budgetary constraints encountered earlier. Most of the causes for delay have now been resolved as a result of which two (2) of the pilot farms are already under construction and the third would be tendered for in May 1984. Tender has also been called for the remaining infrastructural works and this is being currently processed. It is now anticipated that the entire construction programme for the training centre would only be completed by May 1985.

EXPERT SERVICES NEEDED DURING EXTENSION PERIOD

5. During the execution of the remaining physical works and for a short period of commissioning the training centre, it is essential that the services of the following Japanese experts be retained.

a) 1st. year of extension:

- i) the Team Leader
- ii) the Water Management Expert
- iii) the Agronomist

b) 2nd. year of extension:

- i) the Water Management Expert
- ii) the Agronomist

These experts are required to undertake the following works:-

- a) Pilot Farms: The experts are required to provide technical guidance and assistance for the construction of the remaining three pilot farms. When these pilot farms are completed and brought into operation, they will give both technical and agricultural advice for proper water management and improved cultivation practices in order to achieve higher yields and

production as well as more organised farming. Certain socio-economic and agronomic studies will also be carried out by the experts on the pilot farms.

- b) Training Courses: The experts are required as subject matter specialists to develop the training curricula and teaching materials. The Malaysian counterparts will consult the respective Japanese experts for advice and guidance for course work and preparation of lectures. The experts will provide the necessary advice for the setting up of training facilities like laboratory, exhibition hall and demonstration farm lots.
- c) Technical Reports: Over the last few years of cooperation on the Project, a number of studies pertaining to water management and cultural practices have been undertaken and various useful data have been collected. The experts require ample time to analyse these data and to prepare the technical reports and operation manuals for use and reference.
- d) Technology Transfer: The proposed further extension will serve as a period necessary for phasing out the final termination of this technical cooperation project. This will enable the gradual transfer of technology as well as the smooth taking over of all the responsibilities of the Japanese experts by the Malaysian counterparts.

#### CONCLUSION

6. In view of the situation stated above, it is hoped that the Japanese Government would give favourable consideration to the Malaysian Government request for extension of the period of the technical cooperation project until September 1986.

Government of Malaysia,  
Kuala Lumpur.

30 April 1984.



付属資料 6. 本調査団現地レポート

**REPORT OF JOINT EVALUATION  
ON  
THE WATER MANAGEMENT TRAINING PROGRAMME  
IN MALAYSIA**

**THE JAPANESE AND MALAYSIAN  
JOINT EVALUATION TEAM**

**JUNE, 1984**

**KUALA LUMPUR**

NOTE OF EVALUATION AND RECOMMENDATION  
ON  
THE WATER MANAGEMENT TRAINING PROGRAMME IN MALAYSIA

Proper water management at on-farm level is imperative for the present and future agricultural development in Malaysia. This fact was recognised and steps were taken to introduce water management training programmes in Malaysia through this Project which was started in September, 1977 under the technical assistance of Japan through JICA. The Japanese technical assistance for this Project which was due to end in September, 1982 was extended for another two years and is now due to end by September, 1984.

A joint Evaluation Team has now been formed by both the Governments to carry out a fact-finding survey and evaluate the Project's achievements to date, focusing especially on the Project's performance during the extended period of two years. The team is to recommend to both the Government further measures to be taken for the completion of this Project.

We sincerely hope that the Centre will play a greater and more important role for the agricultural development in Malaysia and in particular in the State of Kelantan.

Finally, we would like to express our highest regard to the late Dr. K. Deguchi and other Japanese and Malaysians who have contributed to the implementation of this Project so far.

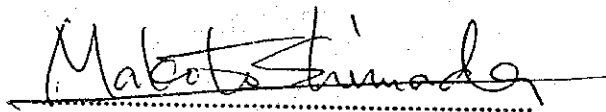
KUALA LUMPUR

JUNE, 1984



.....  
TAN LEONG TIAM,

Team Leader For  
The Malaysian Evaluation Team



.....  
MAKOTO SHIMADA,

Team Leader For  
The Japanese Evaluation Team

**REPORT OF JOINT EVALUATION  
ON  
THE WATER MANAGEMENT TRAINING PROGRAMME IN MALAYSIA**

**TABLE OF CONTENTS**

	Page
<b>I BACKGROUND</b>	<b>1</b>
<b>II METHOD OF EVALUATION</b>	<b>2</b>
<b>III PROJECT IMPLEMENTATION</b>	<b>3</b>
<b>IV EVALUATION</b>	<b>9</b>
<b>V RECOMMENDATIONS</b>	<b>12</b>
<b>FIGURES</b>	<b>14</b>
<b>TABLES</b>	<b>18</b>

## I BACKGROUND

- 1.1 The Government of Japan and the Government of Malaysia agreed to cooperate in implementing the National Water Management Training Centre Project (the Project) based on the Record of Discussions (R/D) signed by Mr. Michio Nakahara and Mr. Pang Leong Hoon on 3rd. September, 1977 with the aim of introducing on-farm water management techniques to irrigated paddy fields, for the increase in the production of rice.
- 1.2 The Project involves Japanese technical assistance through JICA for the provision of Japanese experts, machinery and equipment, and the training of counterpart personnel in Japan. The Japanese technical assistance was for an initial period of five years ending 2nd. September, 1982. However, the Project could not be completed by September, 1982 due mainly to the delay in the construction of related facilities. Both the Governments therefore agreed in August, 1982 to extend the period of technical cooperation by another two years.
- 1.3 During the extended period, the Project has been progressing remarkably well through efforts put in by both sides. However, judging from the present achievement and what can be achieved during the remaining period, it is expected that the original anticipated goal of the Project will not be fully attained by September, 1984. Therefore, in May 1984 the Government of Malaysia requested a follow-up programme by JICA for the achievement of the targets of the Project.
- 1.4 Accordingly, the Government of Japan dispatched an evaluation team headed by Mr. M. Shimada to Malaysia in June 1984. In conjunction with this, the Government of Malaysia organized a team of counterpart officials to conduct the survey and evaluation the Project jointly with the Japanese team.

## II METHOD OF EVALUATION

2.1 The assignments for the Joint Evaluation Team (the Team) were as follows:--

- (a) to carry out a fact-finding study on the activities carried out so far during the course of the Project implementation,
- (b) to evaluate the achievement of the Project, in accordance with the articles described in the R/D, and
- (c) to recommend further necessary measures to be taken by both the Governments for the completion of the Project.

2.2 To ensure this, the Team carried out the following:--

- (a) collected and reviewed all relevant data and information available,
- (b) carried out the field survey by visits to the various sites of the training centre (the Centre), the Demonstration Farm, four Pilot Farms and the main structures of the KADA irrigation scheme,
- (c) held detailed discussions with the Principal and senior staff of the Centre and Japanese Experts assigned to the Project on the data and information prepared by them,
- (d) conducted interviews with ex-trainees of the Centre, their chiefs and trained farmers by using prepared questionnaires, and
- (e) exchanged views with the officials concerned from DID, DOA and KADA.

2.3 The evaluation and recommendations from the above mentioned study were derived after full discussions by both sides.

2.4 The list of members of the Team and its itinerary are shown in Table-1 and Table-2, respectively. Malaysian officers involved with the evaluation are shown in Table-3.

### III PROJECT IMPLEMENTATION

3.1 Existing irrigation schemes in Malaysia are generally provided with irrigation facilities ending at an off-take to the paddy field. Each off-take commands about 20 ha of farm land on the average. From the off-take, water is distributed by plot to plot practice, resulting in inefficiency and delay in the distribution of water in the farms. Thus, the provision of on-farm facilities and water management techniques attract keen interest in the present and future agricultural development in Malaysia.

3.2 The Project envisages a long term plan to increase the paddy production by fully utilizing the agricultural development potential in the State of Kelantan and the whole of Malaysia. The components of the Project can be summarized from the R/D as follows:—

- (a) Construction of four Pilot Farms and a Training Centre with facilities comprising an office building, a hostel and a demonstration farm.
- (b) Introduction of basic water management techniques at farm level.
- (c) Provision of training for engineers and other staff engaged in water management in irrigation schemes, in order to increase their capability and efficiency.

3.3 DID, as an executive agency of the Project, is actively engaged in the development and operation of the Project. JICA has assisted in implementing the Project under project-type cooperation. Annual budget contributions by both sides are tabulated in Table—4 and Table—5. Japanese experts assigned to the Project and the participants in the counterpart training in Japan are listed in Table—6 and Table—7, respectively.

3.4 The progress of the construction of the main facilities of the Project up to the middle of June, 1984 is mentioned below:—

#### (1) Training Centre

One 4 storey administration cum classroom block was completed in August, 1983. With the completion of this main building, the major facilities stipulated in Annex V of the R/D for the Training Centre had been completed, with the exception of some ancillary works such as pavement for access road, internal drains, recreational facilities and landscaping. It is understood that these remaining construction work will be completed before the official opening ceremony, which is scheduled to be held in August, 1984. The demonstration farm together with its facilities had been completed in June, 1979. The layout plan of the Training Centre is shown in Fig. 1.

## (2) Pilot Farms

It is stipulated in Annex I of the R/D that four Pilot Farms will be set up to implement the various activities of water management techniques. The main features of the Pilot Farms are summarized in Table-8. Implementation of the four Pilot Farms, however, has been delayed because of land acquisition and budgetary constraints. Up to the middle of June, 1984 only one Pilot Farm was completed. This farm i.e. Pilot Farm No. 1 was completed in July, 1982 and put into operation in the same year. However, the progress in the construction of the remaining three Pilot Farms is still very much behind the revised construction schedule prepared in 1982. Major work carried out at these three Pilot Farms and the present progress of construction are summarized below. The locations of the four Pilot Farms are shown in Fig. 2.

### (a) Pilot Farm No. 2 At Kampung Kadok

Detailed designs and the land acquisition for the construction of this pilot farm had been completed by the end of August, 1982. Due to financial constraint, however, the contract was only awarded in February, 1984. The progress of construction is rather slow, because the area is presently under paddy cultivation. The progress is estimated at about 10 percent at present (June, 1984).

### (b) Pilot Farm No. 3 At Kg. Seberang Lating

Detailed designs were completed in early 1983 with the combined efforts of the Japanese Experts and their counterpart personnel. Since the required budget was not obtained, the Principal proposed, with the approval of the DID HQ, that land levelling works be carried out by using two bulldozers from DID's workshops in Ipoh and Kelantan. The work started in July, 1983 and will be completed by June, 1984 under the guidance of Japanese experts. The use of departmental machines together with the land levelling techniques introduced by the Japanese Experts will result in the reduction of about 30 percent of the estimated original cost of construction.

The contract for the construction of the remaining infrastructures was awarded in February, 1984. The progress is about 25 percent at present (June, 1984).

### (c) Pilot Farm No. 4 at Kg. Padang Lindong

The land acquisition was initiated two years ago and all the necessary land was obtained by the end of May, 1984. The tendering process for the construction of infrastructure for this farm has now

been completed and the contract is expected to be awarded by June, 1984.

The construction schedule of these Pilot Farms are shown in Fig. 3.

### 3.5 Training at the Centre

Two training courses for Engineers, five each for T.A. and I.I., and three for I.O. were conducted at the Centre from 1983 to 1984. The total numbers of personnel trained since 1981 amount to 79 Engineers, 75 T.As., 58 I.Is., and 59 I.Os. as mentioned in Table--9. In addition to the above, a number of one-day training programmes were provided for a total of 248 farmers. A special training course was conducted for 8 trainees from the Republic of Mali during May, 1984.

The Centre has provided 7 training modules for the I.O., I.I., T.A. and Engineers to date. The duration of the training varied from two weeks to two months. Almost all the lecture notes for these training programmes were prepared in Bahasa Malaysia and English.

The operation of the Centre is presently carried out by 34 staff. The organisation chart is shown in Fig. 4. The chart shows that 7 posts approved for the Project are still vacant. For the efficient operation of the Centre, important posts such as the Senior Irrigation Inspector, the Laboratory Assistant and the Mechanical Foreman have to be recruited as soon as possible.

### 3.6 Activities at Demonstration Farm

As a result of the paddy cultivation during four growing seasons from 1982 to 1984, the following studies were carried out.

#### (a) Water Requirements Study

Observations were made on evapotranspiration, percolation losses and water depth during the period. The meteorological measurement on rainfall, temperature, evaporation, relative humidity and sun-shine hours were also carried out.

The data collected from the above observations were analysed and the basic information pertaining to the water requirements by paddy were obtained. Through the study, the operational and analytical methods of various instruments were transferred to the counterpart personnel. These operational and analytical methods have been summarised in the Technical Notes for Basic Study of On-Farm Water Management.



**(b) Study on Irrigation Methods**

Four kinds of irrigation methods by continuous flooding and intermittent irrigation, with and without mid-season drainage were studied in the D/F. The yields from each irrigation method were compared. The study shows that the continuous flooding method without mid-season drainage is the most suitable irrigation method under the prevailing conditions in the D/F.

**(c) Study on Paddy Cultivation Under Continuous Flooding Irrigation Without Mid-Season Drainage**

The most suitable water depth for paddy growth by stages were studied through field observations and laboratory tests over 6 seasons of paddy cultivation. Studies were carried out during the period to determine the optimum water depth for different stages of crop growth, taking into consideration the relationship between the water depth in the field and paddy cultivation work such as land preparation, transplanting, top-dressing, weed control, agro-chemical applications and pest/rat control. From the result of these studies carried out so far, the optimum water depth by stages was determined and these are shown in Table-10. The most suitable time schedule for the drainage of residual water was also determined.

The summary of the study of the above two items is incorporated in the technical note entitled "The Rice Field Water Management Techniques of Mechanized Rice Cultivation Under Flood Irrigation".

**(d) Demonstration Farm**

For the purpose of carrying out demonstration to the trainees as well as farmers, the mechanized rice cultivation technique has been established in the D/F. Soil fertility development in the farm has also been carried out and the yield of paddy in the main season in 1982/83 was as high as 5 ton/ha. The demonstrations in the D/F include the following:—

- Mechanised paddy cultivation
- Mechanical transplanting
- Broadcast transplanting
- Direct seeding
- Varietal demonstration
- Fertilizer application
- Farm machinery

To demonstrate the above items, three comprehensive tables have been prepared, which are (1) Mechanised rice cultivation techniques in

relation to good water management practices, (2) Rice cultivation master calendar under flood irrigation, (3) Rice mat-type seedling preparation flow chart for mechanical transplanting.

### 3.7 Activities in Pilot Farms

Paddy cultivation with improved water management techniques commenced in Pilot Farm No. 1 in October, 1982 with the completion of the construction work. Paddy has been cultivated for two seasons and the third cultivation is in progress at present. Principal surveys/studies and measures taken for the studies in Pilot Farm No. 1 are summarized below:—

#### (a) Water Balance Study

Water discharged into the pilot farm and water drained off from it was measured for each season. Meteorological data such as rainfall and evaporation were collected at the temporary observation station established on the pilot farm. Water balance analysis was made on the off-season paddy cultivation in 1983. The result of the analysis showed that the data collected are reliable for the pre-saturation period. It is confirmed that pre-saturation water requirements including the standing water layer (100 mm) is in the order of 230 mm. However, no conclusive data have been obtained for the growing period.

#### (b) Introduction of Rotational Irrigation

The rotational irrigation method was introduced for the pre-saturation period for the off-season paddy cultivation in 1983, by dividing the pilot farm area into four rotational irrigation blocks. By introducing the rotational irrigation method, the period for pre-saturation was shortened to 12 days, with abundant rainfall of 116 mm during the period. The previous pre-saturation period in this area before the completion of the infrastructural work was about 57 days.

#### (c) Water Depth Control

The water depth in the field was continuously measured at various locations in the Pilot Farm No. 1 with pre-planned gate operations at the off-take. Water flow direction in the farm was also observed and recorded. The data collected will be used to decide on the suitable size of irrigation blocks in order to achieve good water management at field level. Data collected are being analysed by a Japanese short-term expert using the computer in the Centre.

#### (d) Setting Up of Management and Working Committee

For carrying out the water management in the Pilot Farms, a Management and Working Committee was formed in June, 1982, the members of which include personnel from KADA, MARDI, the Centre

and Japanese Experts. The main functions of the Committee are to establish suitable farmer groups in the pilot farm area and to advise and guide the farmers on water management and paddy cultivation techniques. In Pilot Farm No. 1, the farmers have been formed into four groups according to the number of irrigation blocks.

The farmer groups have functioned fairly well in terms of cooperation in cultivation and gotong royong work in the Pilot Farm No. 1 area. As a result, the average paddy yield of the main-season in 1982/83 was as high as 4.6 ton/ha. In the following off-season cultivation in 1983, however, the average yield was 2.8 ton/ha due mainly to damages by rice bugs and uneven ripening.

(e) Communal Nursery

Communal nursery involves raising of seedling cooperatively in a selected area, normally at a place near a field off-take, in order to follow the cropping schedule closely and to minimise irrigation water losses. Communal nurseries have been established since the first cultivation in 1982. The purpose of communal nurseries has been fulfilled as anticipated.

(f) Cropping Time Schedule

Cropping time schedule in the Pilot Farm area was prepared before the cultivation started in accordance with KADA's operation programme. Field guidance to the farmers were conducted by the staff of the Centre and by the agricultural extension workers of KADA in respect of variety selection, irrigation water control, seed preparation, fertilizer application, protection from pests and diseases. As a result, the cropping time schedule was closely followed, and damages by pests and water losses were minimised considerably. The final drainage of the area before harvesting was carried out simultaneously to facilitate the introduction of mechanised harvesting in the area.

## IV EVALUATION

### 4.1 Construction of Project's Facilities

The construction of the Centre's main building was completed as scheduled in August, 1983. It is noted however, that the implementation of three Pilot Farms (No. 2, 3 and 4) is behind schedule due to budgetary constraint. For the construction of Pilot Farm No. 3, the land levelling work was carried out by departmental bulldozers. This enabled the work to be started immediately and at the same time resulted in the reduction of about 30 percent of the original construction cost.

Under the present financial constraint prevailing in the nation, it is recognized that DID has undertaken steps to complete the work as soon as possible.

### 4.2 Activities in the Training Centre

#### (1) Establishment of Training Programmes

Valuable data and information on field water management have been collected at the Centre. Modern paddy cultivation methods and water management techniques have been transferred to Malaysians at the Centre. The Japanese Experts and their counterpart personnel have jointly helped to further develop the concept of on-farm water management. These are reflected in the lecture notes and curricula prepared. However, the curricula can be further improved by introducing more practical training when all pilot farms are in operation. Three senior members of the staff from the Centre had been invited to deliver lectures on water management concept to the staff of two IADP projects in the State of Perak. This shows that the competency of the staff of the Centre has improved considerably and has been recognised during these two years. The senior staff in the Centre are now quite confident in delivering lectures on the subject.

As a follow-up of the training programme, a Newsletter of the Centre is being published quarterly. Taking these facts into considerations, it is noted that the training programme in the Centre has been established, but will need further improvement.

#### (2) Training

The Centre has provided training for trainees from all states in Malaysia. In addition, a special training programme was conducted for trainees from the Republic of Mali. With the completion of the main building and the D/F, the Centre can now carry out satisfactory training for these trainees. Five categories of training courses have been conducted since 1981 and the total number of trainees amounted to 279. The training course puts emphasis especially on the relationship between the water

management and paddy cultivation techniques in the field. A suitable method of mechanized paddy cultivation has been developed to suit local conditions. The number of visitors to the Centre is gradually increasing year by year. The Centre now plays an important role in the water management training programme of the DID. It is noted that the training in the Centre has achieved remarkable results, and the efforts of the Centre's staff in this aspect are commendable.

The interviews and feedback from the extrainees show that the Centre's training is very beneficial and relevant to their duties. This fact is also recognised by their superiors who have observed the improvement in their efficiency after attending the training courses. However, it is generally felt that the present contents of the training course is too theoretical and should be improved to contain more practical aspects by reflecting the survey/study obtained from the Pilot Farms.

It is envisaged that the Centre will increase its training activities after 1985 when the last pilot farm No. 4 is completed. It is likely that the training activities will be extended to include more personnel from other related Government's agencies such as DOA, MARDI and FELCRA. To cope with this situation, it is imperative that additional officers to be provided for the Centre.

One-day training courses have been conducted for a total of 248 farmers from the KADA area. They showed keen interest in the facilities of the Demonstration Farm. Some of the farmers have adopted the paddy cultivation techniques which were demonstrated such as direct seeding and water depth control in their own field, though these are still limited in number and are on a trial basis.

The Centre's activities are having a direct impact on the nearby farmers. It is felt that the training provided to the farmers has been very beneficial and should be continued.

#### 4.3 Activities in Pilot Farm

##### (1) Implementation

In the planning of the four Pilot Farms, various on-farm development methods were initiated. Through its implementation, techniques on planning, designing and construction supervision were transferred to the Centre's Staff. However, the transfer of knowledge and techniques was limited to Pilot Farm No. 1 since the construction of the other three pilot farms has been delayed. The effort will be continued in the other Pilot Farms.

It was learnt that during the period of the training courses some of the senior staff were not able to take part actively in the planning and designing of the pilot farms because of their heavy commitments. The sort of situation will definitely prevent the speedy and smooth transfer of knowledge and techniques to their counterparts. For the implementation of the remaining pilot farms, it is hoped that this situation will be rectified.

(2) Introduction of Water Management Techniques to the Pilot Farms

In order to establish farmer groups in the Pilot Farm area, a Pilot Farm Management and Working Committee was established, whose members consist of officials from KADA, MARDI and NWMTC as well as Japanese Experts. The Committee has functioned well with co-operative efforts from the members. Modern cultivation/irrigation methods such as communal nurseries and rotational irrigation methods have been introduced in Pilot Farm No. 1 area. These are, however, still on a trial basis. Further survey/study will be conducted in the remaining Pilot Farm areas, and the final result will be incorporated in future training programmes carried out at the Centre.

(3) Guidance and Advice to Farmers

Through paddy cultivation in Pilot Farm No. 1 area, necessary guidance and advice has been given to the farmers by the Pilot Farm Working Committee. This Committee has guided the farmers on matters such as selection of variety, rotational irrigation during the pre-saturation period, communal nursery and application of fertilizer.

As a result of this, it was possible to follow the cropping schedule in the Pilot Farm area closely. The yield of the said area has increased to a relatively high level as compared to the surrounding areas. These improved cultivation techniques have gradually been disseminated to the neighbouring farmers.

These activities and achievements in Pilot Farm No. 1 area should be extended to the remaining three Pilot Farm areas.

## V RECOMMENDATIONS

5.1 Although the Centre and its facilities have been substantially completed and the training programmes for various categories of personnel have commenced, it is noted that the following construction works have yet to be completed:—

- (i) the three remaining pilot farms.
- (ii) the ancillary works at the Centre.

It is hoped that every effort will be taken to have the above works completed according to the schedule given in Fig. 3.

5.2 Apart from the above construction work, technical assistance from the Government of Japan is still required in order to achieve the original objectives of the Project. This technical assistance will be in the form of further assignment of technical experts and the provision of necessary machinery and equipment to undertake the following:—

- (i) to advise on and assist in the construction and operation of the pilot farms.
- (ii) to develop modern operational techniques for water management and paddy cultivation in pilot and demonstration farms, including supply of the machinery and equipment found necessary by the experts.
- (iii) to improve present training curricula following the completion and operation of the remaining pilot farms, so as to include more practical aspects.
- (iv) to assist in the preparation of lecture notes on specialised subjects.
- (v) to prepare with counterpart's staff technical reports on all studies carried out, and operation and maintenance manuals for the pilot and demonstration farms.

5.3 A proposed schedule for the implementation of the remaining works is shown in Fig. 3. Taking into consideration the Malaysian Government's request and the latest construction schedule for the remaining works, it is recommended that the assignment of the experts be further extended in the following manner, so that the original objectives of the Project can be achieved:—

Expert	Period To be Extended To
Irrigation	31st. March, 1985
Agronomy	31st. March, 1986
Water Management	31st. March, 1986

5.4 From the above recommendations, it will be observed that the present Team Leader who will be completing his assignment by 2nd. September, 1984 will be reassigned as an irrigation expert for the Project up to 31st. March, 1985.

He will advise on and assist in the construction and commissioning of all the pilot farms which are expected to complete by that time. However, experts on agronomy and water management will be required up to 31st. March, 1986 to advise on the operation of the pilot farms, especially in Pilot Farm No. 4 where the cultivation will begin only in mid-April, 1985. By the end of the recommended period, these experts will have assisted in the operation and planting of at least five seasons in Pilot Farm No. 1, two seasons each in Pilot Farm No. 2 and 3, and one season in Pilot Farm No. 4. By that time, all the operational problems in the Pilot Farms will have been overcome, and sufficient data on the studies will have been collected for documentation and reports.

5.5 In order to achieve the original objectives of the Project, it is also recommended that the following measures be taken immediately by the Government of Malaysia:—

- (i) Fill all existing vacant posts, especially the post for the Senior Irrigation Inspector, the Laboratory Assistant and the Mechanical Foreman.
- (ii) In consultation with the Japanese experts, prepare the man-power requirements of the Project to enable the efficient transfer of techniques and smooth take-over of responsibilities and duties of the Japanese experts at the end of the technical cooperation period.
- (iii) The Joint Committee should meet in accordance with the provision in the R/D in order to monitor the progress and to discuss/solve any problems.



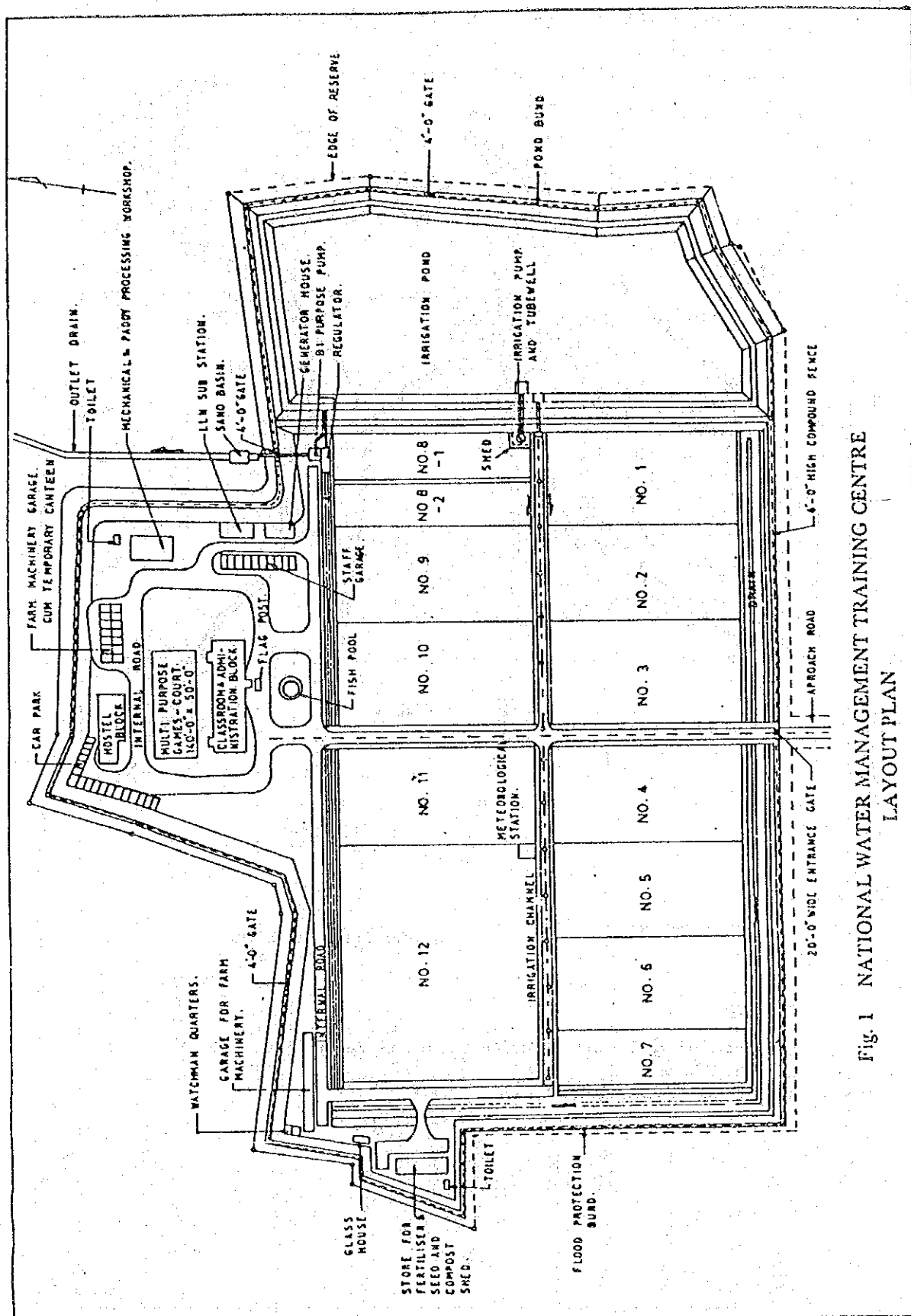
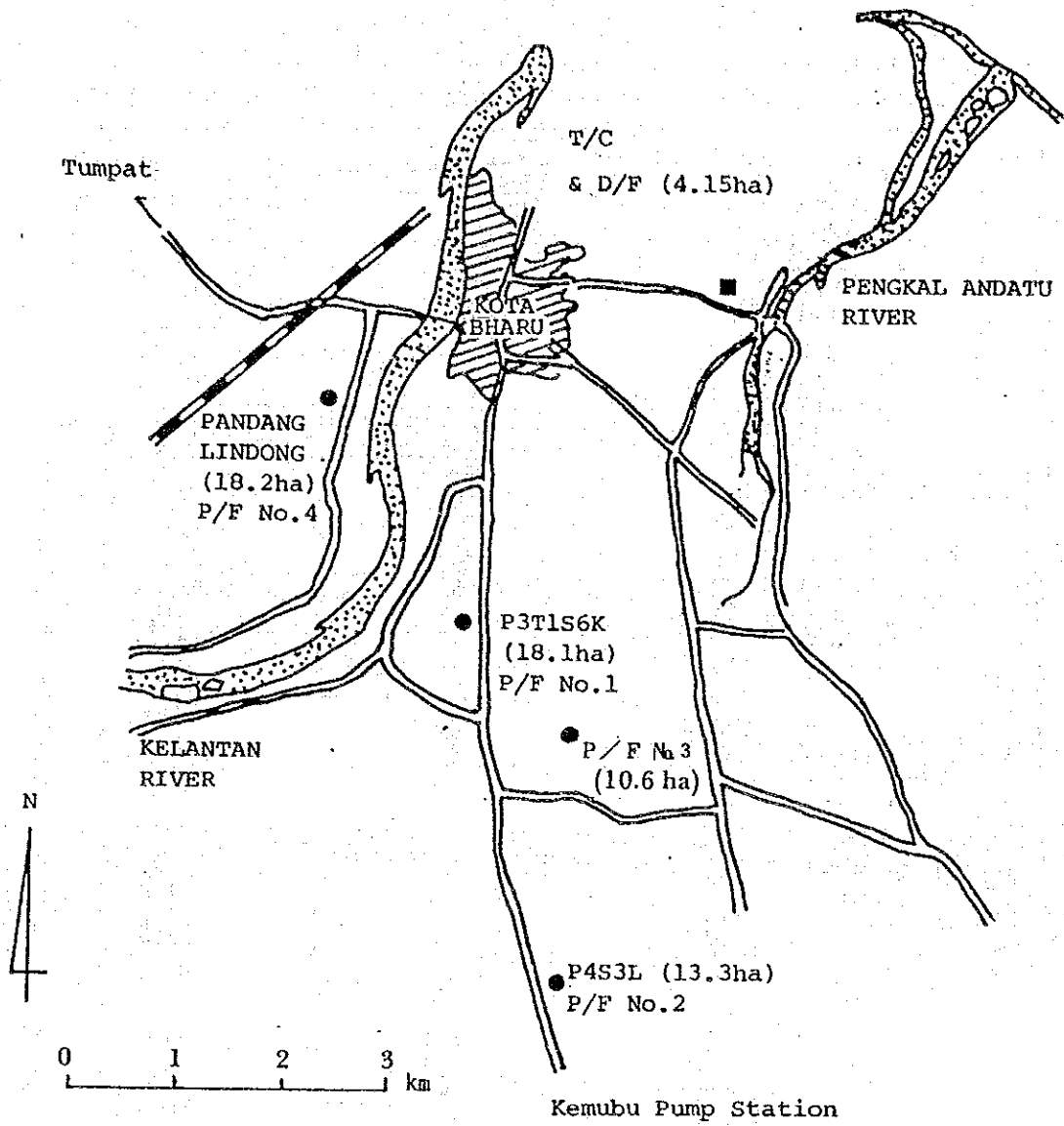


Fig. 1 NATIONAL WATER MANAGEMENT TRAINING CENTRE  
LAYOUT PLAN

FIG. 2 LOCATION OF PILOT FARMS



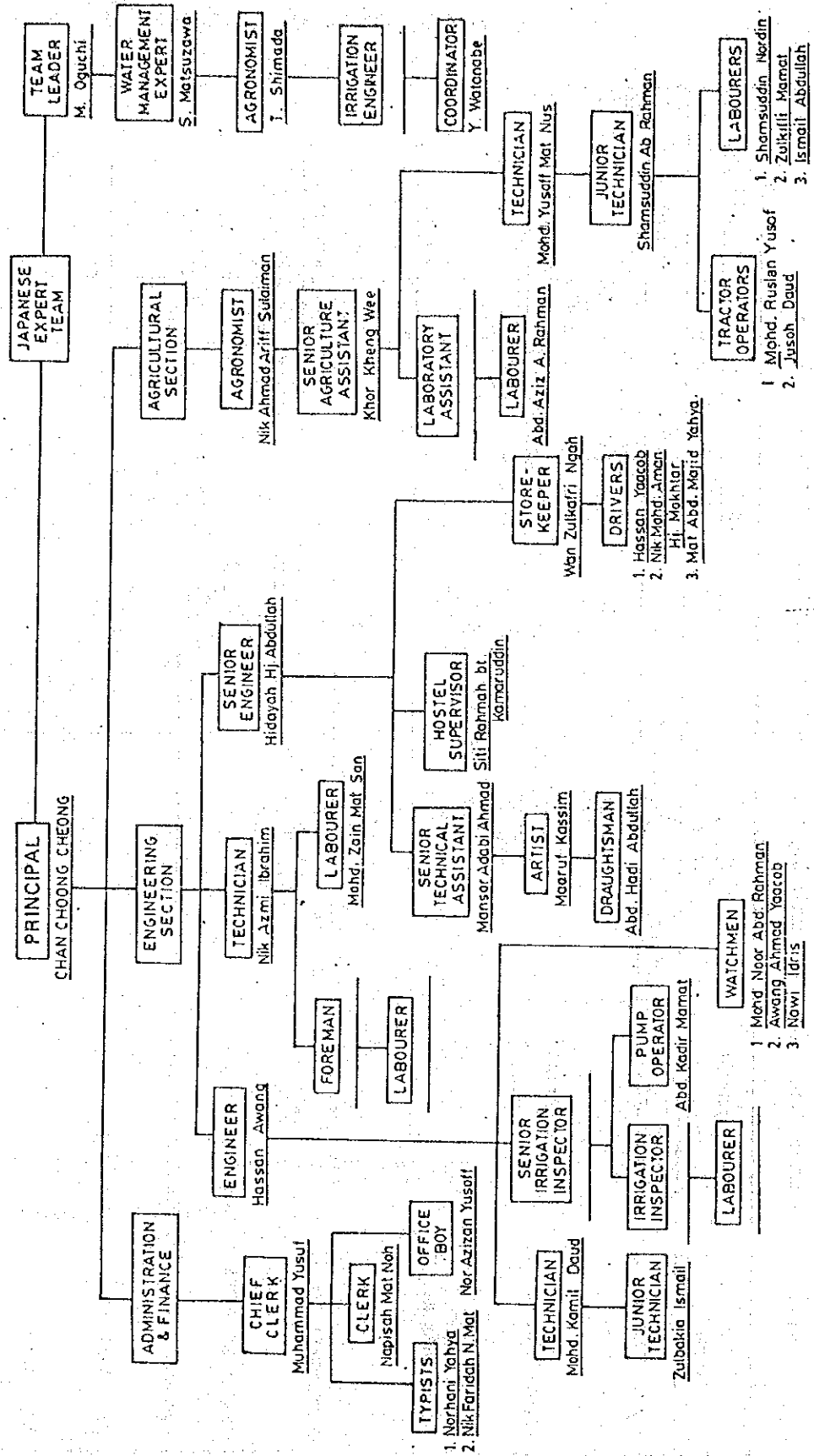
LEGEND

- Training Centre & Demonstration Farm (T/C & D/F)
- Pilot Farm (P/F)

Fig. 3 Revised schedule for remaining works and proposed assignment of experts

ITEM	YEARS/MONTHS																							
	1984				1985				1986															
	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M
PILOT FARM NO. 1	Season 3				Season 4				Season 5				Season 6											
PILOT FARM NO. 2	Season 1				Season 1				Season 2				Season 3											
PILOT FARM NO. 3	Season 1				Season 1				Season 2				Season 3											
PILOT FARM NO. 4	Season 1				Season 1				Season 1				Season 2											
ANCILLARY WORKS AT THE CENTRE	Season 1				Season 1				Season 1				Season 1											
Upgrading airricula/Training Course	Season 1				Season 1				Season 1				Season 1											
Data Analysis/Technical Report	Season 1				Season 1				Season 1				Season 1											
Experts:	Season 1				Season 1				Season 1				Season 1											
Team Leader	Season 1				Season 1				Season 1				Season 1											
Agonomist	Season 1				Season 1				Season 1				Season 1											
Water Management	Season 1				Season 1				Season 1				Season 1											
	4 MP				4 MP				4 MP				5 MP											

FIG. 4 ORGANIZATION CHART OF THE TRAINING CENTRE IN 1984



**TABLE 1: LIST OF MEMBERS OF THE JOINT EVALUATION TEAM**

<b>Assignment</b>	<b>Name</b>	<b>Present Position</b>
<b>Japanese Team</b>		
1. Team Leader (Water Management)	Mr. Makoto SHIMADA	Deputy Director, Irrigation & Drainage Division, Construction Department, Agricultural Structure Improvement Bureau, MAFF
2. Agronomy	Dr. Takashi HARAHI	Chief, The First Research Laboratory for Mechanized Cultivation, Agricultural Technique Department, TOHOKU National Agricultural Experiment Station, MAFF
3. Project Effects	Mr. Hironobu TOMIYAMA	Director, Irrigation Department, KYOWA Engineering Consultants Co., Ltd.
4. Coordination	Mr. Yoshitaka SUMI	Officer, Technical Cooperation Division, Agriculture Development Cooperation Department, JICA
<b>Malaysian Team:</b>		
1. Team Leader	Ir. Tan Leong Tiam	Director, D.I.D. Research Station, Kuala Lumpur.
2. Member	Ir. Sheng Kheng Lian	Deputy Director, State DID, Kelantan. (Representative to Ir. A. Kulasingam, Director, State DID, Kelantan)

**TABLE 2: ITINERARY OF THE JOINT EVALUATION TEAM**

June	3 (Sun)	Arrival in Kuala Lumpur (Mr. Tomiyama)
	4 (Mon)	Courtesy call on DID HQ and Discussion on a method of evaluation
	5 (Tue)	Collection of relevant data, Move to Kota Bharu and Discussion with the Japanese experts
	6 (Wed)	Interviews with farmers, ex-trainees and their chiefs on training effect until 14th June
	12 (Tue)	Arrival in Kuala Lumpur (Dr. Haraki and Mr. Sumi)
	13 (Wed)	Visit to JICA, KL and Courtesy call on the Japanese Embassy
	14 (Thu)	Courtesy call on DID HQ and Discussion on the evaluation Arrival in Kuala Lumpur (Mr. Shimada)
	15 (Fri)	Move to Kota Bharu (Mr. Shimada, Dr. Haraki and Mr. Sumi) Meeting with the Japanese experts
	16 (Sat)	Meeting with Malaysian senior staff in the Centre and the Japanese experts.
	17 (Sun)	Discussions with the Japanese experts
	18 (Mon)	Malaysian evaluation team (Ir. Tan and Ir. Sheng) joined to the Team Courtesy call on the State DID, KADA and the State DOA Observation of Pilot Farm No. 1, No. 2 and No. 3, and KADA's main structures
	19 (Tue)	Discussions with the senior staff in the Centre and Preparation of the Report
	20 (Wed)	Meeting with the Malaysian staff and the Japanese experts and Preparation of the Report
	21 (Thu)	Meeting with Messrs. A. Kulasingam and C.C. Chan Finalizing Report Move to Kuala Lumpur (Ir. Tan and Messrs. Tomiyama and Sumi)
	22 (Fri)	Compiling Report
	23 (Sat)	Printing Report Move to Alor Setar (Mr. Shimada and Dr. Haraki), Visit to TARC and MADA
	24 (Sun)	Move to Kuala Lumpur (Mr. Shimada and Dr. Haraki)
	25 (Mon)	Submitting Report to DID HQ
	26 (Tue)	Joint Committee Meeting
	27 (Wed)	Revising Report and Visit to the Japanese Embassy.
	28 (Thu)	Meeting at JICA KL Office and Submitting Final Report to DID HQ
	29 (Fri)	Leave Kuala Lumpur for Tokyo

**TABLE 3a: MALAYSIAN OFFICERS INVOLVED IN THE EVALUATION**

1.	Ir. D.N. Welch	—	Assistant Director-General (Planning), DID
2.	Ir. A. Kulasingam	—	Director, State DID, Kelantan
3.	Ir. Tan Leong Tiam	—	Director, DID Research Station.
4.	Ir. Sheng Kheng Lian	—	Deputy Director, State DID, Kelantan
5.	Ir. C.G. Chan	—	Director, NWMTC
6.	Ir. Hidayah Abdullah	—	Senior Engineer, NWMTC
7.	Ir. Hassan Awang	—	Engineer, NWMTC
8.	Mr. Nik Ahmad Ariff Sulaiman	—	Agronomist, NWMTC
9.	Mr. Mansor Abadi Ahmad	—	Senior Technical Assistant, NWMTC
10.	Mr. Khor Kheng Wee	—	Senior Agricultural Assistant, NWMTC

**TABLE 3b: MALAYSIAN OFFICERS MET BY EVALUATION TEAM**

1.	Dr. Nik Hassani Mohamad	—	General Manager, KADA
2.	Mr. Wan Zulkifli Hassan	—	Director, State DOA, Kelantan

TABLE 4: EXPENDITURE BY THE GOVERNMENT OF JAPAN

(Unit; Thousand Yen)

Items	1975-1981	1982	1983	Total
Survey Team	40,697	6,949	2,477	50,123
Expert Man-months	160,099	46,053	45,419	257,571
1. Long-term	285.5m/m	60.0m/m	60.0m/m	358.5m/m
2. Short-term	27.5m/m	1.0m/m	7.0m/m	35.5m/m
Equipment	210,972	25,762	36,483	273,217
Local-Cost Finance	61,627	3,750	5,280	70,657
Total	479,395	82,514	89,659	651,568

TABLE 5: EXPENDITURE BY THE GOVERNMENT OF MALAYSIA

(Unit; Ringgit)

Items	1976-1981	1982	1983	Total
Development				
1. Centre	3,401,000	975,000	825,000	5,201,000
2. Pilot Farms	184,000	265,000	43,000	492,000
Operation	471,632	408,953	397,000	1,277,585
Total	4,056,632	1,648,953	1,265,000	6,970,585



TABLE 6: LIST OF JAPANESE EXPERTS

1. LONG TERM EXPERTS

(1) Team Leader	Dr. Katsumi DEGUCHI Mr. Takehiko YANO Mr. Mikio OGUCHI	1978. 2.16--1980. 8. 8 1980.10.19--1983. 3.30 1983. 3.15--1984. 9. 2
(2) Irrigation	Mr. Shintaro HAYASHI Mr. Mutsuo MIMOTO Mr. Yusuke MURAMATSU	1978. 3. 2--1980. 2.29 1980. 2.18--1982. 4.17 1982. 4. 5--1984. 4. 4
(3) Water Management	Mr. Genichi SHIMOMURA Mr. Shin IMAI Mr. Seishi MATUZAWA	1978. 4. 4--1980. 4. 3 1980. 5.27--1983. 3.30 1983. 4. 6--1984. 9. 2
(4) Agronomy	Dr. Katsuo SUGIMOTO Mr. Teruo SHIMADA	1978. 2.16--1980. 2.15 1980. 4. 8--1984. 9. 2
(5) Coordinator	Mr. Yoshikatsu NAKAMURA Mr. Masahiro YONEYAMA Mr. Yoshitaro WATANABE	1978. 3.11--1980. 6.10 1980. 8. 5--1982. 9. 2 1982. 9.27--1984. 9.26

2. SHORT TERM EXPERTS

(1) Reconnaissance	Dr. Katsumi DEGUCHI	1977. 4. 1--1977. 8.31
(2) Reconnaissance	Dr. Katsuo SUGIMOTO	1977. 4. 1--1977. 8.31
(3) Supervising Construction supervision of the Demonstration Farm	Mr. Masafumi WATANABE	1978.10.10--1979. 7.31
(4) Pump installation	Mr. Kiyoshi HIGAMI	1979. 3.27--1979. 7.31
(5) Design of underground drainage system	Mr. Masao CHIBA	1981. 3.26--1981. 4.15
(6) Supervision of underground drainage construction works	Mr. Yukinobu NAKAYAMA	1981. 3.26--1981. 4.15
(7) Farm Machinery	Mr. Tetsuji HAGITA	1982. 2.10--1982. 4. 9
(8) Management of Paddy Soils	Mr. Teruhisa MOTOMATSU	1983. 3. 2--1983. 5. 1
(9) Training Curriculum on Farm Machinery	Mr. Toru WATANABE	1983. 4. 6--1983. 5. 5
(10) Land Levelling Operation	Mr. Tomizou NAKAGAWARA	1983. 7.11--1983.10.10
(11) Training Curriculum on Insect Pests	Mr. Tadao SUZUKI	1983.12.21--1984. 2.20
(12) Simulation of Paddy Field Irrigation	Mr. Koji KOYAMA	1984. 5. 9--1984. 8. 7

TABLE 7: LIST OF PARTICIPANTS IN COUNTERPART TRAINING IN JAPAN

No.	Name	Department	Training Course	Duration
1.	A. Kulasingam	Kelantan State D.I.D., Kota Bharu	Study Tour	2 weeks, March, 1978
2.	Tg. Mohamad Raja Daud	Kelantan State D.I.D., Kota Bharu	Agricultural Land and Water Resources Development	2 months, June, 1978
3.	A. Lyander	Western Johore Project	Study Tour	2 weeks, September, 1978
4.	Khoo Soo Hock	D.I.D. Headquarters, Kuala Lumpur	Study Tour	2 weeks, September, 1978
5.	Wan Alias Wan Daud	KADA, Kota Bharu	Agricultural Land and Water Resources Development	2 months, June, 1979
6.	Lim Thye Lian	KADA, Kota Bharu	Study Tour	2 weeks, November, 1979
7.	Nik Yusoff	KADA, Kota Bharu	Study Tour	2 weeks, November, 1979
8.	Chan Choong Cheong	Water Management Training Centre, Kota Bharu	Study Tour	2 weeks, September, 1980
9.	Nik Ariff Sulaiman	Water Management Training Centre, Kota Bharu	Study Tour	3 weeks, December, 1980
10.	Mansor Adabi Ahmad	Water Management Training Centre	Irrigation and Drainage	8 months, March, 1981
11.	Abdul Malek bin Dollah	Water Management Training Centre	Irrigation and Drainage	1 month, February, 1982
12.	Chan Choong Cheong	Water Management Training Centre	Irrigation and Drainage	1 month, October, 1982
13.	Hassan Awang	Water Management Training Centre	Irrigation and Drainage	1 month, October, 1982
14.	Hidayah Hj. Abdullah	Water Management Training Centre	Irrigation and Drainage	5 weeks, September, 1983
15.	Ariffin Mahamud	D.I.D. Headquarters	Irrigation and Drainage	10 months, February, 1984

TABLE-8: MAIN FEATURES OF PILOT FARMS

	No.1	No. 2	No. 3	No. 4
Area (Paddy Area)	18.08 (17.13)	13.27 (13.27)	10.6 (9.5)	18.02 (18.02)
Off-takes name	P3T1S6K (Kemubu)	P453L (Kemubu)	P23L (Kemubu)	No. 1 and No. 2 (Pasir Mas)
Presaturation Period Discharge (l/s)	30.0	50.0	50.0	60.0
Normal Irrigation Period Discharge (l/s)	14.0	11.0	8.0	14.4
Presaturation Period (days)	25	11	9	11 - 12
Length of canal (m)	1,168.0	760.0	1,346.0	926.0
(Density ÷ m/ha)	(65.0)	(57.0)	(127.0)	(51.0)
Length of Drain (m)	1,291.0	696.0	1,499.0	1,037.0
(Density ÷ m/ha)	(71.0)	(52.0)	(141.0)	(58.0)
Length of Farm Road (m)	1,677.0	429.0	1,498.0	1,258.0
(Density ÷ m/ha)	(93.0)	(32.0)	(141.0)	(70.0)
Canal Type	U-Shaped Concrete	Cast Sito Concrete	Cast Sito Concrete Pre-Cast Pipe	Earth
Farm Road Width (m)	3.0	4.0	3.0	3.0 - 3.5
Construction Cost (M\$)	255,686	143,406	*370,433	127,433
Rate (M\$/ha)	14.142	10.806	34.905	7.072
Land Acquisition (M\$)	137,186	55,614	-	93,547
Total Cost (M\$)	392,872	199,020	370,433	220,980
Rate (M\$/ha)	21,730	14,997	34,905	12,263
Irrigation Block (Nos.)	4	8	8	No. 1 - 4 No. 8 - 3
Number of Field off-takes	8 (2 x 4 Block)	10	Per Lot 51 Lots	7
Irr. Area of Field off-takes (ha)	1.47 - 3.61	0.77 - 269	0.07 - 0.34	2.24 - 2.59
Construction Period	1981.5.15 - 1982.7.5	1984.5 - 1984.10	1983.7 - 1984.10	1984.8 - 1985.2

\* Excluding Earth Work (leveling, Road And Batas).

TABLE-9: TRAINING COURSES COMPLETED IN 1981, 1982, 1983 AND 1984

Year	Training Course For	Duration (Days)	Date	No. of Participants (Nos)
1981	1. Irrigation Inspectors	11	6 – 16 May	15
	2. Irrigation Inspectors	11	17 – 27 August	14
	3. Technical Assistants	11	23 June – 3 July	14
	4. Technical Assistants	11	15 – 25 September	9
	5. Engineers	8	12 – 19 October	18
	6. Farmers	1	18 March	19
	7. Farmers	1	4 April	16
	8. Farmers	1	11 April	14
	9. Farmers	1	29 November	29
1982	1. Irrigation Inspectors	122	2 May – 8 July & 1 Aug. – 23 September	14
	2. Technical Assistants	11	16 – 26 March	19
	3. Engineers	9	11 – 19 October	18
	4. Farmers	1	25 April	15
1983	1. Irrigation Overseers	62	15 October – 15 December	25
	2. Irrigation Inspectors	87	1 March – 26 May	9
	3. Irrigation Inspectors	56	1 April – 26 May	6
	4. Technical Assistants	18	1 – 18 August	22
	5. Engineers	13	16 – 28 February	22
	6. Farmers	1	11 May	30
1984	1. Irrigation Overseers	30(M4A)	28 January – 26 February	16
	2. Irrigation Overseers	30(M4A)	28 April – 27 May	18
	3. Technical Assistants	20(M2B)	10 – 29 March	11
	4. Engineers	15 (M1)	10 – 24 March	21
	5. Malian Officers	20	5 – 24 May	8
	6. Farmers	1	14 January	18
	7. Farmers	1	17 January	28
	8. Farmers	1	8 February	35
	9. Farmers	1	29 February	44

**TABLE-10: A MODEL OF WATER MANAGEMENT PATTERN IN RELATION TO RICE PLANT GROWTH STAGES UNDER CONTINUOUS FLOOD IRRIGATION**

Riceplant Growth Stage	Days from		Water Depth (cm)
	Transplanting	Heading	
1. Immediately after transplanting	0 to 3		2.5 to 5
2. Establishment stage	4 to 7		5 to 10
3. Effective tillering stage	8 to 30		5 to 10
4. Non-effective tillering stage	31	to (-)31	0 to 2.5
5. Young panicle formation stage		(-)30 to (-)13	2.5 to 5
6. Reduction division stage		(-)12 to 0	5 to 10
7. Heading, flowing & milktipe stage		0 to 15	5 to 10
8. Dough ripening stage		16 to 20	0 to 2.5
9. Full ripening stage		21 to 30	0

付属資料 7. センター所長 ( C. C. Chan ) Progress Report

Progress Report on the Implementation  
of the National Water Management Training  
Centre as on 15th, June, 1984

---

A. INTRODUCTION

In line with the policy to optimise rice production in irrigated padi fields of the country, the Drainage and Irrigation Department undertook the establishment of a National Water Management Training Centre for the training of technical and agricultural personnel on techniques for efficient water management. The Project was implemented with technical assistance from the Government of Japan under the Japan International Cooperation Agency's (JICA) Project-type Cooperation Programme. Initially, this assistance, provided in the form of experts' services, equipment, farm machinery and counterpart training, was for a period of five years from 3rd. September, 1977 to 3rd. September, 1982.

Due to the delay in the construction of the main building of the Centre, the Project was prevented from being completed by September, 1982. Both the Governments therefore agreed in August, 1982 to extend the period of technical cooperation on the Project by two years till 3rd. September, 1984.

B. OBJECTIVES

The main objectives of the Centre are as follow:

1. To provide in-service training to personnel who are involved in the planning and operation of irrigation projects in water management techniques for padi cultivation.
2. To provide training to padi farmers in water management techniques to improve cultivation and increase crop production.
3. To assist in the transfer of new technologies related to irrigated padi cultivation to padi farmers through the water management training programme.
4. To establish better understanding and cooperation between the engineering and agricultural personnel in the operation of irrigation projects through the water management training courses.

C. FACILITIES

The NWMTTC occupies a 12 ha. site at Kampong Panji, about 6 km east of Kota Bharu, Kelantan. The site is situated in a rain-fed padi area which cultivates one crop a year during the monsoon season. The facilities available at the Centre are as follow:-

a) Buildings:

- i) One 4-storey administration cum classroom block.
- ii) One 3-storey hostel block.
- iii) Mechanical and padi processing workshops.
- iv) Utility buildings such as agro-chemical stores, garages, etc.

b) Demonstration Farm:

- i) Twelve padi lots totalling about 4 ha.
- ii) An irrigation pond (50,000 m<sup>3</sup> storage capacity).
- iii) Irrigation and drainage facilities.
- iv) A tube-well and submersible pump.

c) Farm Machineries:

Various agricultural machineries consisting of tractors, combine-harvesters, mechanical transplanters and different implements and farm equipments.

Annex 1 shows the layout of the Centre and the Demonstration Farm. Besides the above training facilities available at Kampong Panji, there are also four pilot farms attached to the Centre. These pilot farms are:-

- i) Pilot Farm No. 1 at Tunjung (18.08 ha.)
- ii) Pilot Farm No. 2 at Kadok (13.29 ha.)
- iii) Pilot Farm No. 3 at Kg. Seberang Lating (10.06 ha.)
- iv) Pilot Farm No. 4 at Padang Lindong (18.02 ha.)

The basic objective of the pilot farms is to provide the on-farm irrigation, drainage and road facilities to practice proper water management techniques relating to rice cultivation. Through this improved cultivation and practice, it is aimed to raise production of these existing padi areas. At the same time, the pilot farms serve to provide field training facilities to the course participants.

D. IMPLEMENTATION PROGRESS

1) Training Centre:-

Until now, nearly all the facilities at the Centre have already been completed for operation. The main building for administration and classrooms had been completed in August 1983, and is now occupied by the staff and used for conducting the training courses. The only remaining works consisting of the construction of bituminous road pavements, internal drains, recreational facilities and landscaping are now in progress and expected to be completed in middle of August this year.

The Demonstration Farm was completed in 1979, and since then it has been cultivated two crops annually. Methods of cultivation such as direct sowing and manual, mechanical and broadcast transplanting have been carried out successfully. Under the guidance of the Japanese Experts, the Centre's staff have also undertaken a number of experiments pertaining to varieties adaptation, chemicals and fertilisers applications, and water management techniques. Considerable experience has been gained by the staff on mechanised rice farming by employing the various agricultural machineries donated by the Government of Japan

2) Pilot Farms:-

Implementation of the four Pilot Farms has been much delayed due to land acquisition and financial problems. Until now, only Pilot Farm No. 1 has been completed for operation.

a) Pilot Farm No. 1 at Tunjong - (Actual Cost = \$406,328/=)

This pilot farm had been completed for operation during the main season of 1982/83. Now, the third season planting is in progress. Results obtained from the previous two seasons relating to yields, production and farmers' cooperation in cultivation and gotong royong works were encouraging.

b) Pilot Farm No. 2 at Kadok - (Estimated Cost = \$200,000/=)

Due to financial problem, contract for this pilot farm was only awarded in early 1984, though tenders were closed during last year. Construction progress achieved so far is about 10% completed. The somewhat slow progress is due to the existing planting season.

c) Pilot Farm No. 3 at Kg. Seberang Lating - (Estimated Cost = \$420,000/=)

In this pilot farm, land levelling works are undertaken by two departmental bulldozers. These land levelling works are nearing completion. Contract for the construction of the remaining infra-structures was awarded in early 1984, and the progress until now is about 25% completed.

d) Pilot Farm No. 4 at Padang Lindong - (Estimated Cost = \$250,000/=)

Land acquisition for this pilot farm has been completed in May, 1984. Tenders for the construction works have been closed, and the contract is expected to be awarded soon.

For the effective operation of the pilot farms, a Management Committee and a Working Committee have been formed. The two committees comprise members from KADA, MARDI, NWMTC and the Japanese Experts at the Centre. KADA provides the annual operating budgets for the pilot farms, and it is giving good cooperation and strong support to the Centre.

E. JAPANESE ASSISTANCE

Under the technical cooperation, the Japanese Government provide assistance in the form of experts, machineries, instruments, vehicles, related materials as well as technical training to Malaysian officers who are engaged in the Project. The total cost of assistance provided up to the end of fiscal year 1982 was about \$5,700,000/= (570,000,000 yen).

1) Japanese Experts:-

Until now, a total of fourteen long-term experts in three separate successive teams have been assigned to the Centre since 1977. Each team consists of a Team Leader, an Agronomist, a Water Management Expert, an Irrigation Engineer and a Coordinator. Besides giving advices for the setting up of the Centre, the experts also play an



active role in the training courses, cultivation and experimental works in the Demonstration Farm as well as the implementation and operation of Pilot Farms. In addition to these long-term experts, so far twelve short-term experts covering different technical and agricultural fields had also been despatched to the Centre.

2) **Machineries and Equipments:-**

Each year during the technical cooperation period, the Japanese Government has made available budgets for the donation of machineries and equipment for the setting up of the Centre. These include agricultural machineries for the rice cultivation works in the Demonstration and Pilot Farms, transport vehicles, laboratory equipment, survey and soil investigation instruments as well as office equipment. The total cost of these donated machineries and equipment up to 1982 was about \$2,350,000/= (235,000,000 yen).

3) **Training in Japan:-**

Until 1983, a total of fourteen officers from D.I.D. and KADA had been provided training in Japan under this technical cooperation. These officers included Engineers, Agricultural Officers, Technical Assistants and Irrigation Inspectors.

**F. TRAINING COURSES**

The training courses of the Centre cover staff of the Drainage and Irrigation Department such as Irrigation Inspectors and Overseers, Junior Technicians, Technicians, Technical Assistants and Engineers as well as officers from other Government Agencies involved in the management and operation of irrigation projects. Also included in the training programme are the participation by farmers of the four pilot farms and training of leader farmers from the irrigation projects of the country.

The main emphasis of all the training courses is on water management for irrigated padi cultivation. The subjects covered are on water management, irrigation and drainage, rice cultivation and the related subjects on agricultural extension services, farm mechanisation and crop protection. The courses consist of classroom lectures, field demonstration and practices as well as study tours to nearby irrigation projects. Trainees are also given the opportunity to study the improved water management techniques and cultural practices of the farmers in the four pilot farms.

Since 1981, the centre has conducted several training courses on water management for the D.I.D. staff mentioned above and also participants from KADA, MADA, DOA and FELCRA as well as farmers from Kelantan State. Information on the training courses completed in 1981, 1982, 1983 and 1984 is given in Annex 2. Over the last four years, the Centre's staff have obtained experience in conducting training courses, and at the same time, various training materials have been either developed or collected. Standard modules of training courses ranging from 60 - 240 hours durations have been developed for courses commencing in 1984. Starting from 1982, the Centre has also taken over the function of preparing and conducting departmental examinations for Irrigation Inspectors at the Centre.

G. CENTRE'S STAFF AND EXPENDITURES

1) Staff:-

Over the past few years, the number of staff at the Centre has increased progressively. This year, the Centre has a total of 40 posts approved, however, to-date only 33 posts have been occupied. Important posts for Senior Irrigation Inspector, Mechanical Foreman and Laboratory Assistant are still vacant. Two of the posts at the centre are filled by officers from DOA on a cadre basis. Since 1980, the necessary Malaysian Counterparts to the Japanese Experts have been made available. Nearly all the senior staff at the Centre had attended training in Japan. Annex 3 gives the staff organisation of the Centre.

2) Expenditures:-

a) Development:

The total cost of the project is estimated at \$5,900,000/=. Until the end of 1983, about \$5,201,000/= has been spent for the various construction works, experts' allowances and others. In addition, an estimated total budget of about \$1,300,000/= is required for the implementation of the four pilot farms.

	1976-80	1981	1982	1983	1984
1. Centre	\$2,268,000	\$1,133,000	\$975,000	\$825,000	\$500,000
2. Pilot Farms	- (actual)	\$ 184,000 (actual)	\$265,000 (actual)	\$ 43,000 (actual)	\$600,000 (allocate)

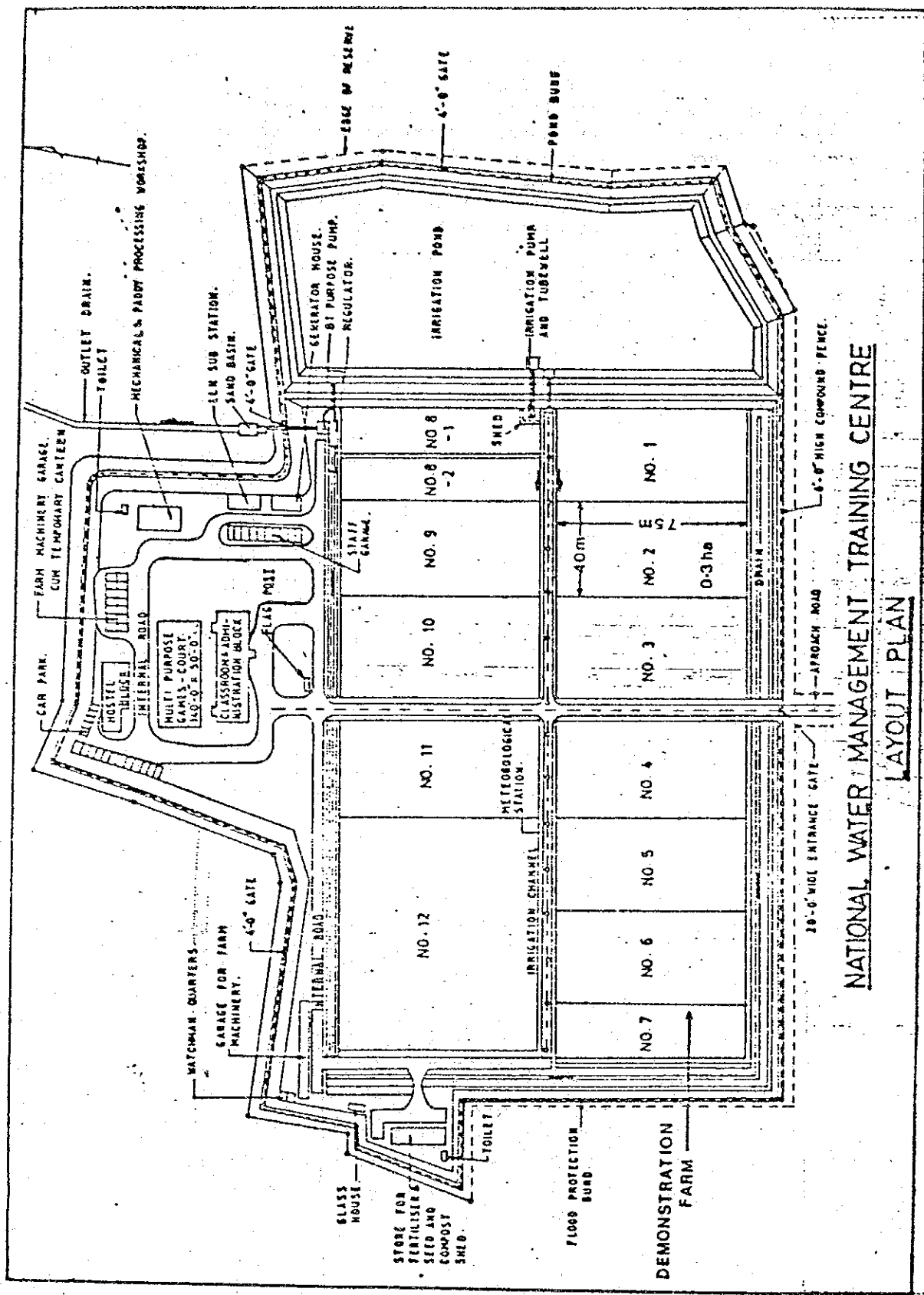
b) Operation:

With the increase in the number of staff and the expansion of activities, the annual operating budgets have also increased significantly over the years. The operating budget for this year is \$540,000/= and that for 1985 is estimated as \$571,000/=.

1979	1980	1981	1982	1983	1984	1985
\$67,743 (actual)	\$136,636 (actual)	\$267,253 (actual)	\$408,953 (actual)	\$397,000 (actual)	\$540,000 (allocate)	\$571,000 (estimate)

H. JOINT COMMITTEE

The main purpose of the Joint Committee is for the effective implementation of the Project. The Committee has not met since the signing of the Record of Discussions in 1977. It has been generally felt that since the centre is still under construction and not yet in full operation, the need for the Joint Committee to meet is not so urgent. Moreover, at the ground level, two committees - the Pilot Farm Management and Working Committees - have been formed to look into the effective operation and management of the Pilot Farms as mentioned in Section D above.



NATIONAL WATER MANAGEMENT TRAINING CENTRE  
LAYOUT PLAN

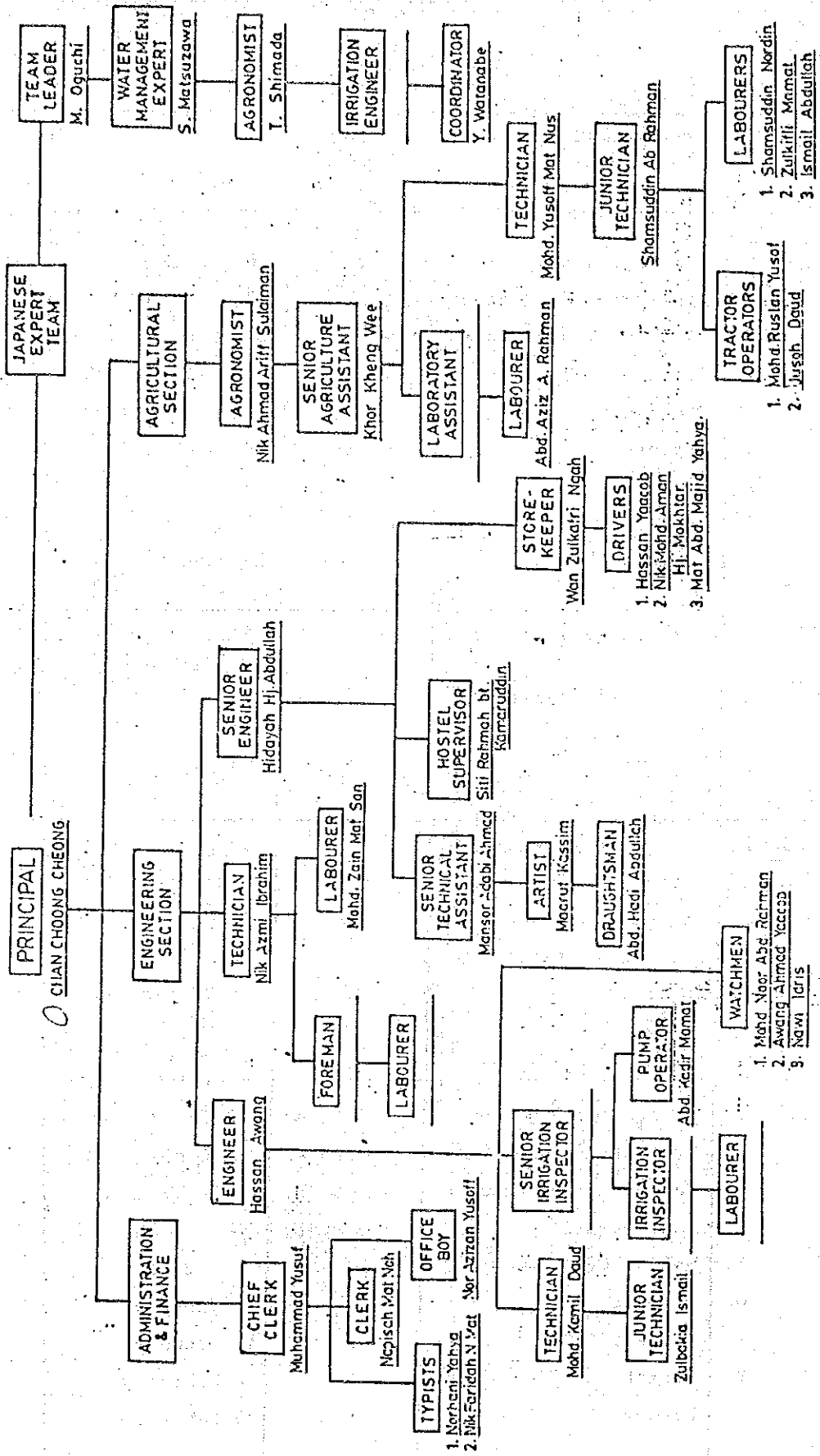
## Training Courses Completed in 1981, 1982 1983 and 1984.

Year	Training Course For	Duration (Days)	Date	No. of Participants (Nos)
1981	1. Irrigation Inspectors	11	6 - 16 May	15
	2. Irrigation Inspectors	11	17 - 27 August	14
	3. Technical Assistants	11	23 June - 3 July	14
	4. Technical Assistants	11	15 - 25 September	9
	5. Engineers	8	12 - 19 October	18
	6. Farmers	1	18 March	19
	7. Farmers	1	4 April	16
	8. Farmers	1	11 April	14
	9. Farmers	1	29 November	29
1982	1. Irrigation Inspectors	122	2 May - 8 July & 1 Aug.-23 Sept.	14
	2. Technical Assistants	11	16 - 26 March	19
	3. Engineers	9	11 - 19 October	18
	4. Farmers	1	25 April	15
1983	1. Irrigation Overseers	62	15 Oct.-15 Dec.	25
	2. Irrigation Inspectors	87	1 March-26 May	9
	3. Irrigation Inspectors	56	1 April-26 May	6
	4. Technical Assistants	18	1 - 18 August	22
	5. Engineers	13	16-28 February	22
	6. Farmers	1	11 May	30
1984	1. Irrigation Overseers	30(M4A)	28 Jan-26 Feb	16
	2. Irrigation Overseers	30(M4A)	28 April-27 May	18
	3. Technical Assistants	20(M2B)	10 - 29 March	11
	4. Engineers	15 (M1)	10 - 24 March	21
	5. Malian Officers	20	5 - 24 May	8
	6. Farmers	1	14 January	18
	7. Farmers	1	17 January	28
	8. Farmers	1	8 February	35
	9. Farmers	1	29 February	44

PUSAT LATIHAN PENGURUSAN AIR KEBANGSAAN

ANNEX 3

STAFF ORGANISATION 1984



付属資料 8. Joint Committee meeting 議事録

Minutes of Meeting of Joint Committee for the  
National Water Management Training Centre

Place: D.I.D. Headquarters, Kuala Lumpur.

Date : 26.6.84

Present:-

Chairman: : Ir. Pang Leong Hoon, Director-General, DID.  
Secretary : Ir. Chan Choong Cheong, Principal

Japanese Side:-

Mr. M. Oguchi : Team Leader, NWMTTC.  
Mr. T. Shimada : Agronomist, NWMTTC.  
Mr. S. Matsuzawa : Water Management Expert, NWMTTC.  
Mr. Y. Watanabe : Coordinator, NWMTTC.  
Mr. M. Nakamura : Resident representative, JICA, Kuala Lumpur.  
Mr. M. Iwasa : Officer, JICA, Kuala Lumpur.

Malaysian Side:-

Mr. Mohd Aminuddin Hashim : Representative, EPU.  
En. Abi. Aziz Abd. Rahman : Representative, Kelantan State Government.  
Ir. D. N. Welch : Representative, DID.  
En. Abd. Wahid Jais : Representative, DOA.  
Ir. Ahmad Ismail : Representative, KADA.  
Ir. Cho Weng Keong : Senior Engineer, DID.  
Ir. Hidayah Hj. Abdullah : Senior Engineer, NWMTTC.

Joint Evaluation Team:-

Mr. M. Shimada : Leader, Japanese Evaluation Team.  
Dr. T. Haraki : Member, Japanese Evaluation Team.  
Mr. M. Tomiyama : Member, Japanese Evaluation Team.  
Mr. Y. Sumi : Member, Japanese Evaluation Team.  
Ir. Tan Leong Tiam : Leader, Malaysian Evaluation Team.  
Ir. Sheong Kheng Lian : Member, Malaysian Evaluation Team.

Observer at Meeting:-

Mr. M. Ishijima : First Secretary, Embassy of Japan.

Absent:-

Representative, MARDI.

1. Opening Address by the Chairman:

The Chairman welcomed all the members to the first meeting of the Joint Committee for the Technical Cooperation Project on National Water Management Training Centre, and he then briefly related the background history pertaining to the implementation of the project.

2. Progress Report by the Principal, NWMTTC, Kota Bharu, Kelantan.

Ir. Chan reported on the implementation progress of the project, and he highlighted on the objectives, facilities, training courses, staff and expenditures of the centre as well as the assistance received from the Government of Japan.

3. Matters arising from the Progress Report:

i) Vacant Posts:

Ir. Chan requested D.I.D. Headquarters to obtain approval from the Treasury to fill up all the existing vacant posts at the centre early for its full operation.

ii) Cadre Posts:

Ir. Chan requested cooperation and support for two cadre posts, an Agricultural Officer and a Senior Agricultural Assistant, from DOA. Ir. Welch also requested DOA to notify a few months earlier when the Agricultural Officer at the centre, En. Nik Ariff Sulaiman, is due for promotion. This would enable the centre to have sufficient time to get a replacement. The same request was also made on the Senior Agricultural Assistant at the Centre, Mr. Khor Kheng Wee.

iii) Invited Lecturers:

Following the request from Ir. Chan to invite officers from the related Government Agencies to deliver lectures for the training courses, Chairman asked Ir. Chan to draw up a list of specialists required from the respective agencies and further action would then be taken. Representatives from the respective agencies present gave their support.



iv) Pilot Farms:

Chairman enquired whether the Pilot Farms were in line with the proposals of KADA II or otherwise. In reply, Ir. Chan explained that Pilot Farm No. 3, where the lots have been readjusted, is of Type II A under KADA II. Ir. Ahmad pointed out that Pilot Farm No. at Tunjung is of Type II of KADA II proposals.

v) Padi Cultivation Techniques:

En. Abd. Wahid enquired whether the techniques of direct sowing developed at the centre have been disseminated to the farmers through the 2L system of DOA. He also requested the centre to share any new farming techniques developed at the Centre. Ir. Chan clarified that the cultivation techniques developed such as direct sowing are only confined to the demonstration farm in the centre. Chairman asked Ir. Chan to look into the matter as requested.

4. Report of the Joint Japanese/Malaysian Evaluation Team:

The Joint Japanese Malaysian evaluation Team delivered the full context of the Evaluation Report on the Technical Cooperation Project.

5. Matters arising from the Joint Evaluation Report:

Following the report, the Chairman and the other members raised a number of points for discussions. These included some recommendations and corrections to the report which the Joint Evaluation Team consented. The Chairman finally went through Part V of the report on recommendations in details. The following are some of the important matters raised on the Joint Evaluation Report.

i) Pilot Farms Management and Working Committee:

ii) Padi Yields:

Chairman enquired how were the padi yields obtained in Pilot Farm No. 1 as compared to the other KADA areas. Ir. Ahmad pointed out that the padi yields obtained in the Kors Bharu District averaged between 4.0 and 4.2 ton/ha. Ir. Chan explained that besides increasing the padi yields in the Pilot Farm No. 1 area, there were other improvements such as increasing the total area planted, farmers were better organised and the cultivation activities followed closely the planting schedule by introducing the communal nursery.

iii) Senior Posts:

On the recommendation for more senior posts for the centre, Chairman asked Ir. Chan to consult the Japanese Experts to work out the manpower requirements of the centre.

iv) Further Extension of the Technical Cooperation Programme:

Chairman and the other members agreed to the proposals of the Joint Evaluation Team for the further extension of the Technical Cooperation Programme. For the proposed three experts, Mr. Nakamura requested that the AI Forms to apply for the services of the three experts be prepared and submitted to the Embassy of Japan early since there are only two months left before the present extension period expires on September, 1984.

Before the meeting ended, the Chairman once again expressed his appreciation and thanks to all the members for their cooperation and support on this Technical Cooperation Project. The Meeting was adjourned at 5.00 pm.

Recorded by:

Ir. Chan Choong Cheong,  
Secretary,  
Joint Committee for the  
National Water Management Training Centre.

付属資料 9. フォローアップ協力討議議事録

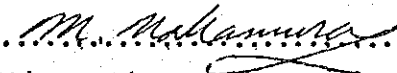
THE RECORD OF DISCUSSIONS ON EXTENSION OF  
THE PERIOD OF THE TECHNICAL COOPERATION  
FOR THE WATER MANAGEMENT TRAINING PROGRAMME  
IN MALAYSIA

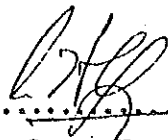
---

With regard to the recommendations made by the Malaysian-Japanese Joint Evaluation Team which conducted the evaluation study on the technical cooperation for the above-captioned programme, the Japan International Cooperation Agency (hereinafter referred to as "JICA") had a series of discussions through Mr. Makoto Nakamura, the Resident Representative of JICA in Malaysia, with the Authorities concerned of the Government of Malaysia on the extension of the period of the Technical Cooperation for the Water Management Training Programme in Malaysia which is underway, based on the Record of Discussions signed in Kuala Lumpur on 3rd September, 1977, and which will terminate on 2nd September, 1984.

As a result of the discussions, both parties agreed to recommend to their respective Governments to make necessary amendments to the "ANNEX II" of the above-mentioned Record of Discussions as "AMENDED ANNEX II" attached hereto and to carry out a follow-up cooperation and to extend the period of the Technical Cooperation on the basis of this amended Record of Discussions until 31st March, 1986, in order to attain the anticipated objectives of the Project.

Kuala Lumpur, 30th August, 1984

  
.....  
Makoto Nakamura  
Resident Representative  
of Japan International Cooperation  
Agency (JICA)

  
.....  
Pang Leong Hoon  
Director-General  
Drainage and Irrigation Department  
Ministry of Agriculture

AMENDED ANNEX II - List of Japanese Experts

Subject Matter	Duration
(1) Irrigation	3rd September, 1984 to 31st March, 1985
(2) Agronomy	3rd September, 1984 to 31st March, 1986
(3) Water Management	3rd September, 1984 to 31st March, 1986

- Note :
- (1) One of the Japanese experts listed above will act as a Team Leader
  - (2) Short-term experts in the fields listed above as well as other fields may be dispatched, if necessary
  - (3) Japanese experts listed above will advise on and assist in mainly the following subjects;
    - i) Construction and operation of the Pilot Farms
    - ii) Development of modern operational techniques for water management and paddy cultivation in the Demonstration Farm and the Pilot Farms
    - iii) Improvement of present training curricula following the completion and operation of the remaining Pilot Farms, so as to include more practical aspects
    - iv) Preparation of lecture notes on specialized subjects
    - v) Preparation of technical reports on all studies carried out, and operation and maintenance manuals for the Demonstration Farm and the Pilot Farms

*M.M.*







JICA