

7.2 Simpang Geti and Tasik Melati Project (PR-1 & 4)

7.2.1 General description of the project:

Northern boundary of Perlis state constitutes a border line in two senses; Malaysia from Thailand politically, and *Malesia* floral sub-region from continental Asian floral sub-region botanical. This distinction is blurred by the facts that agricultural labourers from Thailand flow into Perlis, on the one hand, rubber and oil-palm plantations extend themselves in both north and south of the border, on the other.

The water use in dry season of project area, middle reaches of the *Chupin-Ngolang* is constrained in triple senses. It is sandwiched between two relatively big local rivers, the *Muda* and the *Timah-Tasoh*. The water stored by two dams in the *Muda* system is meant for double-crop of paddy production in that area, and the water stored by a dam in the *Timah-Tasoh* system is mainly for drinking and industrial purposes.

To make matters worse, virtually all the water available in the upper reaches in the dry season is blocked by two sugar cane plantations of four thousand hectares each. So water does not reach one of our project area, *Simpang Geti* in the dry season, as requirement of its own basin exceeds the supply.

The only dependable local source is pond *Melati* whose ground water source is plenty thanks to its geological formation. Another of our project area, *Alor Baroh* depends solely on the pond.

To make our project feasible, an allocation of water from *Timah-Tasoh* dam would be indispensable. A link canal has been built between *Timah-Tasoh* dam and *Simpang Geti* area via *Alor Baroh* and *Repoh*.

Farmers of *Simpang Geti* belongs to FOA *Mata Ayer*. It is one of the best organised branch of the PPK Malaysia, which was recognised publicly by its efficiency last year. Organisation chart of FOA *Mata Ayer* is given in the following figure.

Figure Organisation chart of FOA *Mata Ayer*

General Manager --->4 Sections + 1 Planning Assistant

*Accounting, Saving, Social Service, Agriculture & Commerce.

Tobacco grows around the existing small ponds along with other secondary crops in *Simpang Geti* in dry season. National Tobacco Board encourages the farmers to grow it, and Bank *Pertanian* Malaysia backs tobacco couriers financially.

If the density of secondary and tertiary canal and drainage increases, more farmers will grow tobacco in the area.

7.2.2 Household survey:

Table 7.1, Socio-Economy (PR 1 & 4) shows the total household survey of some of the farmers in *Simpang Geti* area. The last row of the table gives an average.

Their average annual income for an average household size of 3.7 (60 households) is calculated at RM7,148 with the standard deviation of RM2,099. Income from agricultural sector makes up 50.6 per cent (RM3,616) of the total income. (The poverty line income of Peninsular Malaysia in 1993 for an average household size of 4.8 is RM4,860.)

In Perlis State in 1991, average farm household income was RM 4,986, in which RM3,369 is from agricultural sector and 48 per cent of them brought an average income of RM3,372 from other sectors.

7.3. Kedawang Project (KH-4&5)

7.3.1 General description of the project:

Administratively Langkawi island belongs to Kedah state; it harbours totally a different concept in agricultural development from the peninsular which is the traditional rice-bowl of Malaysia.

The island with clusters of surrounding smaller islands is designated as a tourist centre of international standard that has been developed rapidly by the Langkawi Development Authority (LADA) which is affiliated to the prime minister's office. It has the land use plan that will change the island in due course into an idyllic holiday resort that caters foreign tourists as well as domestic ones. Landscape is to be preserved primarily for tourist attraction. Agriculture likewise. (Even the area is declared as a duty-free zone for consumer goods to invite shoppers.) Our target area is designated as a component of scenes of paddy fields that contoured into the limestone hillsides.

Major constraint is availability of water. Farmers households with water taps have been paying relatively higher water rate.

The residents in the project area had been paddy growers cum fishermen in the subsistence level before tourism development scheme started. They grow paddy which can be carried out by even aged work force.

Vegetable has immediate market in the island the demand of which is covered by import. The district DOA experiments its culture.

The farmers households do not have extra work force for vegetable growing. The tourism industry provides both islanders and migrant workers with far better job opportunity.

Farmers groups are formed and managed by the guidance of the farmers organisation authority (FOA).

Organisation chart of the FOA of Langkawi District is given in the following figure.

Figure Organisation chart of FOA Langkawi

General Manager ----> 5 Sections* + 1 Planning Assistant

* Accounting, Saving, Social Service, Agriculture & Commerce, Tourism.

7.3.2 Household survey:

Table 7.2, Farm Household Survey (KH 1 & 4) shows the sample household survey of the farmers (29 households) in *Mukim Kedawang* area. The last row of the table gives an average.

Their average annual income for an average household size of 4.2 is calculated at RM3,478 with the standard deviation of RM104. Income from agricultural sector makes up 68.7 per cent (RM2,389) of the total income. (The poverty line income of Peninsular Malaysia in 1993 for an average household size of 4.8 is RM4,860.)

In Kedah State in 1991, average farm household income was RM 3,703, in which RM2,332 is from agricultural sector and 52 per cent of them brought an average income of RM2,632 from other sectors.

7.4 Bukit Sedanan Project (MA-16)

7.4.1 General description of the project:

(1) Introduction

The state has been trying to catch up with the neighbouring states of western coastline in the secondary and tertiary industry development. It has come to a stage of planning to go into such capital intensive and high-technology industrial fields as aero- space industries by phasing out labour intensive ones that were started in the '70's. It also aims at developing tourist industry that is the second most important revenue earner of the state.

In the field of agriculture, in order to raise the productivity the state government efforts have been focused on bringing back the under-used or non-used marginal agricultural land to the productive ones. The Melaka Integrated Agricultural Development Plan (MIADP) was given a leading role in implementing the policy.

The state branch of the Federal Land Consolidation and Rehabilitation Authority (FELCRA-MLK) is one of the agencies to work with the plan.

(2) The project and the FELCRA

Our project is to work with FELCRA Bukit Sedanan (FBS), Mukim Selandar, Daelah Jasin, one of the *gugusan* run by the FELCRA- MLK. The FELCRA has got loan from the world bank for the FBS development scheme of fruit tree crops.

Figure Organisation chart of FELCRA Melaka

State Director (SD)-- (Agriculture Officer) *--> 7 Units
[1. Planning 2. Administration and Finance 3. Settlers development 4. Agriculture*--># 5. Project 6. Technical 7. Marketing] #---> six *gugusan*

* An agriculture officer who is head of the agriculture unit assist SD.

The FELCRA- MLK has 64 projects in operation at present, which include six core projects of *gugusan*, three of which have established on the state land under the state's group settlement act (GSA), and the rest on private lands by idle land consolidation provisions. Our target *gugusan* belongs to the first category. Its peculiarity lies in the fact that all the participants so far have come from fisherman's communities of the state. Two exhibits of fisherman's boat at the entrance remind you of the origin of the settlers.

Under the GSA a piece of the state land is allocated to a designated group of poorer section of rural people in the state. Settlers are to form an organisation for agricultural development under the supervision of the FELCRA- MLK. Each settler has a share. All the initial investments on both the settlement land and the agricultural land are made through the FELCRA- MLK. The amount of that investment shall be debited to the participants of the land schemes. The FELCRA-MLK, then, will run the agricultural estate until all the participants of the land schemes have cleared their debt to the state. At this stage title deeds of the agricultural

land will be handed over to the land schemes and those of the settlement to each household, which has one eighth acres of housing plot.

Development of the land has started since Dec.1987. Building of settlers' houses was completed by Oct.90. The spring of the next year saw the completion of paved roads, public utilities, a community hall, playgrounds and a few shop lots, while 108 fisherman families were migrated from their original coastal communities. Their social backgrounds are identical, but surely there are different reasons and motives behind to migrate into uninitiated social environment of farming estate. Some had a little knowledge on agriculture, some did not have even rudimentary one. The FELCRA gave them orientation, planted rubber and fruit trees in an area of 250 ha during the next year. Its office building and staff quarters were ready by the end of 1992. Their years of effort in establishing the new settlement culminated in the building of a mosque in Jun. 1994, which also suggests the number of residents in the area exceeds the minimum requirement for a mosque to serve.

Besides settlers co-operative (yet registered), project development committee and women's society are formed to foster a sense of identity among the settlers to the new community and to encourage them to participate in the group economic activities. Yet it may take some time for the societies to take responsibility of running business. The women's society, for example, could not manage a coffee shop in the premises besides inability to invest, the FBS has let the lot to an entrepreneurial settler household at a rent of RM 100 a month. The family made an initial investment of RM 10,000.

As is stipulated by the GSA, before all the settlers clear their debt mainly by the proceeds of the sale from the estate crops, they will remain wage earners of the state, while the FELCRA manages the estate on behalf of the future group- owners.

Average cumulative household debt to the state has reached around RM ten thousand as of today, and interest of four per cent to the principal is capitalised, whereas ten year grace period is set for amortisation.

At the moment *Gugusan* FELCRA Bukit Sedanan (FBS) has two managers at the top, the one for administration of the settlement and the estate, the other for technical matters.

This may explain a difficulty faced by the FBS at the initial stage of setting up an estate when surrounding socio-economic situations are changing rapidly. Though technologically as well as financially it has been getting support from the state government and various governmental agencies such as the MIADP, rubber research institute, veterinary service department and the MARDI, the idea of assimilating people of fisherman's community into the farmer's community itself is a challenge. The FELCRA has started recruiting residents of nearby farming villages to fill the vacancy of housing plots since the latest selection. Incidentally twelve drop outs have been taken place out of 108 settlers since the commencement.

The FBS has given up for the initial stage an idea of employing at least a worker from each household to its activities in the estate. Providing job opportunity is one thing, coping with pay increase prevalent in the other sectors and neighbourhood is another. The FBS rightly encourages the settlers to find job opportunity outside, preferably more than one earner a household if situation permits.

Settlers have not been found sociable, they tend to gather round within the participants of original community. The FELCRA's interest, therefore, has directed to education of the next generation. Primary and secondary schools are located in Selandar, almost adjacent to the FBS; playgrounds and a roofed badminton court are provided; and a public mobile library is visiting the settlement periodically. It has an

eye to guiding them for good causes. It has been trying to generate the sense of belonging together among the coming generations so that it will be able to entrust the group settlement to them in the near future.

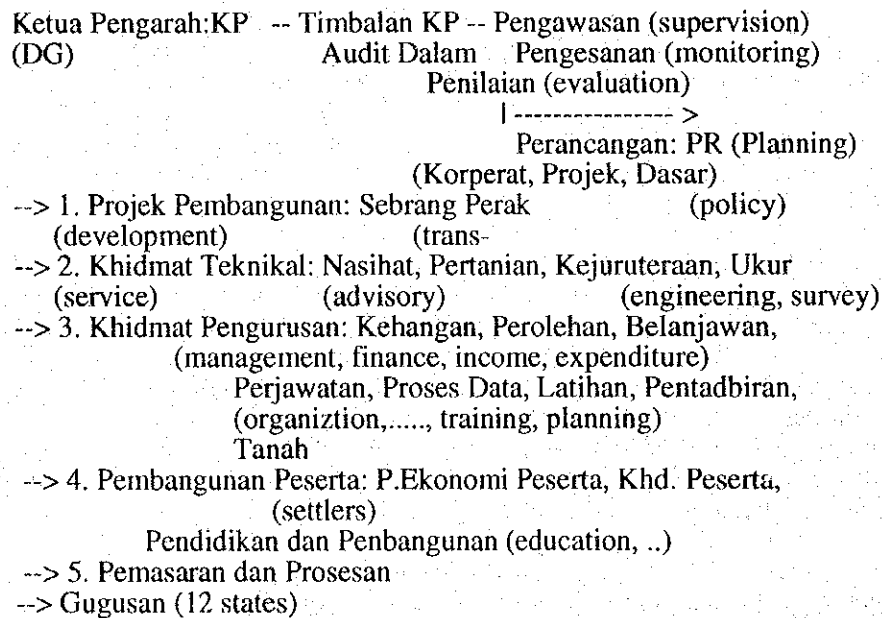
FELCRA itself has been trying to cope with decreased inflow of subsidies that started from 1992 by reducing staff costs and giving away such welfare operations like running of kinder- gardens and crèches to professional organisations. It will hand over kindergarten operation to KEMAS of Ministry of Rural Development, and crèche operation to TASKA-FELCRA, a FELCRA subsidy itself.

This is one of the focal points if we truly envisage women's participation to economic activities. Here we shall delve into the situation a little further.

A teacher of a crèche whose monthly salary is RM250 looks after five children whose parents pay RM20 each as a monthly fee. The rest of the costs have been covered by the FELCRA. RM30 per a child for a salary of teachers and more for other sundry expenses. Neither the FELCRA with strained budget nor the majority of the parents can afford to cover all the expenses.

The FELCRA's oil-palm estate operations have been largely successful, whereas its rubber plantations have been languishing through no fault of its own but because of low international market price and short of labour. The FELCRA itself is a disciplined organisation with strict internal audit system, so it has a fair chance of overcoming this transitional phase, if some system and technical burdens are cleared.

***FELCRA Organisation: Central**



7.4.2 Socio-economic life of settlers: MA16

- (1) Income
- (a) FELCRA

The FBS pays a daily wage of RM nine. Some of regular estate workers including night watches are getting monthly salary of RM 300 provided they do not

absent from their work. At the moment 52 out of 96 households sent a worker each, in which 20 get regular jobs. Number of day labourers that the FBS takes fluctuate; 62 labourers on 16th June, for example, on rainy days 20. Regular attendance's have been also hampered by frailty of some of the workers.

(b) Other primary industries

Rubber and Oil-palm estates nearby or coconuts plantations along the coast provide job opportunities to the settlers. Wages paid there are higher than paid by the FBS a little.

Our sample survey has revealed at least an example of enter-preneurship exhibited by settlers in agriculture sector. He has been doing vegetable farming on 2.5 acre plot with two partners for the last six months. He earns around RM. 500 a month in average by this endeavour. Financial and technical supports have been showered on their project by government agencies such as the MIADP, and the MALDI.

About 15 per cents of the settlers still engage in fishing in the off-shore of their original village. Some of them even sell their catch at their own stalls in a market place. Commuting distance is 35- 40 km, taking one hour to cover.

(c) Other income sources

Labour intensive factories with two or three shifts a day such as biscuit baking, glove making provide women as well as men with jobs. A mother of five children works on the mid-night shift, between 23 and 7 o'clock, and her husband takes care of children. More than two earners a household become common phenomena.

There are construction workers, drivers and clerks among the settlers.

(d) Other social factors.

It seems to be a norm that money earned by grown up children living in their parents household is theirs. The amount is not usually included in our income survey. Per capita income obtained by simply dividing household income by numbers of household members, therefore, will be a misleading concept in this case.

The incidence of heart attack to hyper blood pressure is found among the middle aged males. Those suffered need more rest than those not. It affects the earning power of the family, though medical expenses are covered by the government health care programme.

(2) Expenditure

(a) Food.

Fishermen take it for granted that some parts of their daily catch and coconuts from their back gardens come to their dining table free of charge. This fact is keenly felt in the new life in the settlement.

(b) Education.

Stable life, better education to their children are among the main motives of the settlers. They, especially women, are toiling more pinning their hopes on their children's' brighter future. They try to send them to better schools, but importance of child care centre seems yet to be understood fully.

(c) Others

If we compare the amount of food expenses, higher portion of income goes to satisfy smoking habits. Male is more susceptible to the change of social environment.

Sometimes some wage earning women find no money in their purse for buying milk for their babies.

(3) Balance

When their balance is in the red, settlers rely on *gotong royong*, when in the black they pay back their debt. So a simple monthly balance of account does not seem to give much meaning in their ordinary life.

(4) New settlers

A new comer is from a nearby farming *kampung*. The head of the household of three is a factory hand. He commutes to his glove manufacturing factory by his own car. Prospect of stable life for his children is one of the major motives of his joining the FELCRA Bukit Sedanang.

(5) Household survey

Tables 7.3, Socio-Economy (MA16) show both the total number household survey of FBS participant community and a sample survey of the same population.

The last row of the tables gives an average. An average income of the FBS participant community (96 households) is calculated at RM4,826 with standard deviation of RM1,906 in the total number survey, and at RM5,374 with standard deviation of RM2,234 in the sample survey.

An average income of the FBS participants with an average household size of 5.6 is about the same as RM4860, the poverty line income of Peninsular Malaysia in 1993 for an average household size of 4.8.

In Melaka State in 1991, average farm household income was RM 5,304, in which RM1,917 is from agricultural sector and 85 per cent of them brought an average income of RM3,981 from other sectors.

If all the participant households get a job from the FBS in a long run, with the introduction of the project, their income from agriculture sector will be at least RM3,000.

7.5 Kelompok Kangkar Merlimau Project (JR-10)

7.5.1 General description of the project:

(1) Introduction

A production operator gets RM600 monthly in Johor state, but across the strait he is paid S\$1,300 per month. This is a fact on which manufacturing industry of Johor state faces. Without addressing this gap of pay scale, labour shortage in skilled workers' market cannot be solved by training only. As migration from the east coast of the peninsula has virtually stopped recently, domestic unskilled labour market feels shortage of resources also. With this labour market climate at hand, the state wants to switch from labour-intensive industries to capital-intensive ones anyway.

In the agriculture sector, *Daerah Batu Pahat* has been covered by the Johor West Agriculture Project (JWAP) since 1974. Its aim is to make low laying area of peat soil formation more productive in agriculture. Our project area is next to the alluvial river plain where the acidity of water is very high.

The extension unit of the department of agriculture (DOA) has been guiding and supporting the *Persatuan Dusun Berkelompok Kangkar Merlimau* (PDBKM) since its birth.

(2) The project and the organisation

The area is located in *Kerong Kangkar Merlimau, Mukim Seri Medan, Daerah Batu Pahat*, and the organisation we are working with is the PDBKM. It was founded on 15 Feb. 1986 and formally registered as an fruit producer co-operative on 14 Dec. 1993. [2883/93 (Johor)] Number of members were 36 as of 1993, may increase in 40 this year.

Average holding of the members is less than 2 acres. The area consists of both Malay reserves and non reserves. The area was sold by the state to the original buyers at the unit price of RM 175 an acre (five instalments of RM 35 a year) at the outset. Then each owner has invested according to his own programme and financial limit. 20 owners have built houses on the land. The rest are living outside of the area. Land tax is levied at the rate of RM 3.5 an acre- year for the Malay reserve, RM 6 for the non- reserve. The property, the price of which ranges between RM 8,000 and RM 15,000 per acre at the moment. A few of the plot have changed hands from the original holders. It may pose a threat to the future activity of the co-operative.

The PDBKM is a tiny entity with the assets of some RM 50,000 (The assets was RM 10,000 in 1991, the fifth year after its birth) Annual member fee costs the members RM six. It makes profit to sell fertiliser on credit with annual interest rate of five per cent or lend a small amount of money to the members with the same term.

An extension worker from the state DOA is chief adviser of the co-operative. This is only one of many farmers' groups that he is looking after, though.

Figure Organisation chart of the DOA of Johor State

State Director of Agriculture (SDA) -- Deputy SDA -- 5 Divisions*

- * 1. Production development
- 2. Planning & evaluation
- 3. Crop protection
- 4. Farmers' training and development --> 4 branches**
- 5. Administration & Finance

- ** 1. Farmers development (dev.) -- **extension workers**
- 2. Communication dev., 3. Career dev., 4. Training dev.

Some of the marginal areas of rubber and oil-palm plantations of the surrounding hill area have been changed into commercial vegetable gardens or orchards of papaya and bananas. Some of the modern technology of growing them applied there can be learnt.

Some of labourers, local and foreign, are living in the vicinities. Some members of the co-operative hire a few labourers for their small rubber estates of less than two thousand trees.

Though the orchard of the co-operative are yet fully developed, marketing of *durian* fruits has been done by a son of ex-members. He brings them to *Johor Bharu*, and sells at his own mobile stall along a street. According to him, with the recent change of seasonal cycle, *durian* can expect even three crops a year if fertiliser is applied properly. When no *durian* fruits are available here, he sells ones imported from Thailand.

7.5.2 Household survey:

Table 7.4, Farm Household Survey (JR 10) shows the total household survey of members of the target fruit producer co-operative in *Kg. Kangkar Merlimau* area. The last row of the table gives an average.

Their average annual income for an average household size of 5.3 (36 households) is calculated at RM17,153 with the standard deviation of RM12,708. Income from agricultural sector makes up 29.2 per cent (RM5,010) of the total income. (The poverty line income of Peninsular Malaysia in 1993 for an average household size of 4.8 is RM4,860.)

In Johor State in 1991, average farm household income was RM 5,404, in which RM2,795 is from agricultural sector and 67.5 per cent of them brought an average income of RM3,865 from other sectors.

7.6. Pasir Nering Project (TR-44)

7.6.1 General description of the project:

The economy of Trengganu state had solely relied on such primary industries as farming, fishing and logging before another industry, oil and natural gas joined them in 1987. Now the new sector contributes about two thirds of the state GDP.

The state has two economic development agencies; Trengganu State Economic Development Corporation (TSEDC) and Central Trengganu Development Board (KETENGAH). The TSEDC has overall responsibility for the socio-economic development of the state as a whole, whereas the KETENGAH has a regional interest whose economy mainly consists of agriculture and forestry.

The rural area has been the source of young labour force to the industrial states, now urban area of the state needs skilled labour from other states. The rural areas now have chance to market their agricultural produce to the urban area.

The farmers' group which is the target of our project is located in *Kg. Pasir Nering, Mukim Jenagor, Daerah Hulu Trengganu*. It had been growing vegetables before it made the first trial cultivation of industrial crop of resell this year under the supervision of the DOA. It is a shrub of hibiscus family newly introduced from Sudan.

The state DOA has been involved throughout the research cum commercial project of "Hibiscus juice", from production of raw material to the marketing of the product, juice and fibre. Trial cultivation was carried out on the sandy soil at its experimental farm near the sea shore on the raw material end. A company for manufacturing juice was established in the tertiary sector (capital: private 70 per cent, the state government 30per cent) and its juice extraction factory was built in the premises of the commodity branch of the state DOA on the product end.

Our target group is to be one of those that cultivate resell. District agriculture officer is directly involved in the activity, and an extension worker is appointed to the group.

Organisation chart of the DOA of Trengganu State is given in the following figure.

Figure Organisation chart of the DOA of Trengganu State

State Director of Agriculture (SDA) -- Deputy SDA -- 5 Divisions*

- * 1. Production development --> 3 branches**
- 2. Planning & evaluation
- 3. Crop protection
- 4. Farmers' training and development --> 4 branches***
- 5. Administration & Finance

- ** 1. **Commodity development**
- 2. Soil management
- 3. Agriculture mechanisation

- *** 1. Farmers development -- **extension workers**
- 2. Communication dev., 3. Career dev., 4. Training dev.

Organisation: DOA, District Agriculture Officer, HT.
79: all in future Household: 79 (total area:42ha, 0.53ha/hh)

Farmers Org. being formed under village headman.
Objectives: raise income source for lower income group,
rubber tapers by resell cultivation on their lands.
DOA: DAO, HT, Extension Officer: Abd. Rahman (Ex.teacher)
PROJEK PERCUBAAN JUS HIBISCUS: CPK, JP.

7.6.2 Household survey:

Table 7.5, Farm Household Survey (TR 44) shows the total household survey of the resell growing farmers in *Kg. Pasir Nering* area. The last row of the table gives an average.

Their average annual income for an average household size of 6.5 (34 households) is calculated at RM4,218 with the standard deviation of RM2,185. Income from agricultural sector makes up 52.6 per cent (RM2,210) of the total income. The poverty line income of Peninsular Malaysia in 1993 for an average household size of 4.8 is RM4,860. This means an average household income of the target area is less than the poverty line.

(In Trengganu State in 1991, average farm household income was RM 4,851, in which RM2,257 is from agricultural sector and 76.1 per cent of them brought an average income of RM3,407 from other sectors.)

With the introduction of the project, participants in the project could expect annual income at the rate of RM4,200 per household. If average income from outside the agricultural sector is taken into account, their average total income would be a little above the poverty line.

Tables

Table 7.1 Farm Household Survey (PR1&4)

	INCOME			EXPENDITURE								BALANCE
	FARM	OFF-F	TOTAL	FOOD	CLOTH	HOUSE	EDUC	SOCIO	UTIL	OTHER	TOTAL	
1	4550	3090	7640	3000	100	0	1560	200	20	100	4980	2660
2	1400	1595	2995	1800	50	0	0	0	10	50	1910	1085
3	4200	3025	7225	2400	200	500	0	200	20	400	3720	3505
4	1400	3805	5205	3000	200	0	240	0	20	100	3560	1645
5	2802	960	3762	1200	100	0	0	100	10	420	1830	1932
6	900	5010	5910	2400	300	0	2160	0	240	100	5200	710
7	2700	4990	7690	3000	100	0	1200	0	360	300	4960	2730
8	3000	1865	4865	3000	60	0	0	100	240	350	3750	1115
9	4100	4250	8350	3600	250	3500	1200	600	600	1600	11350	-3000
10	5342	1365	6707	1200	100	1000	0	200	480	350	3330	3377
11	2501	490	2991	1800	50	0	0	0	180	350	2380	611
12	4000	2430	6430	2400	300	0	0	300	60	700	3760	2670
13	2650	1870	4520	2400	100	0	0	250	240	400	3390	1130
14	2750	2260	5010	2400	150	0	0	200	240	400	3390	1620
15	2650	3052	5702	2400	200	0	0	200	240	400	3440	2262
16	10800	1670	12470	2400	150	1050	720	300	720	600	5940	6530
17	4150	3341	7491	2400	200	0	0	0	240	650	3490	4001
18	3800	3340	7140	2400	200	100	0	200	240	450	3590	3550
19	2700	6030	8730	2400	200	2000	0	300	720	950	6570	2160
20	3400	2920	6320	2400	200	200	0	100	240	700	3840	2480
21	6263	3056	9319	2400	200	1000	2400	200	720	500	7420	1899
22	3900	6250	10150	2400	200	1200	0	200	360	800	5160	4990
23	3800	6200	10000	3000	300	200	3600	200	360	500	8160	1840
24	2400	5900	8300	2400	200	200	0	200	480	750	4230	4070
25	2400	4030	6430	2400	200	200	0	100	240	500	3640	2790
26	2400	2000	4400	1200	100	100	0	100	240	300	2040	2360
27	2500	4000	6500	3000	200	100	0	200	360	500	4360	2140
28	3400	3700	7100	3000	250	100	0	100	360	600	4410	2690
29	2000	4020	6020	2400	200	100	0	200	360	500	3760	2260
30	2500	4050	6550	2400	200	0	0	200	360	500	3660	2890
31	2700	2300	5000	2400	200	100	0	100	240	300	3340	1660
32	3900	6500	10400	3000	250	1000	0	100	360	800	5510	4890
33	6350	4075	10425	3600	300	3000	0	200	600	950	8650	1775
34	1300	1900	3200	1560	100	0	12	100	120	300	2192	1008
35	4250	2700	6950	2400	100	0	2160	100	240	400	5400	1550
36	4402	2830	7232	3000	200	0	0	0	240	450	3890	3342
37	4220	3670	7890	2400	200	100	0	100	240	700	3740	4150
38	4551	2950	7501	3600	200	0	12	200	360	500	4872	2629
39	5460	2518	7978	2400	100	100	0	100	240	500	3440	4538
40	900	7900	8800	3000	200	800	0	100	240	700	5040	3760
41	2700	6500	9200	3600	100	0	0	300	720	700	5420	3780
42	4300	2900	7200	2400	200	100	0	200	240	500	3640	3560
43	1400	6800	8200	2400	100	0	2400	100	240	500	5740	2460
44	3201	2960	6161	2400	200	200	0	100	120	350	3370	2791
45	3000	1600	4600	1440	100	100	0	100	120	200	2060	2540
46	500	3839	4339	2400	150	100	0	100	180	350	3280	1059
47	2700	4720	7420	2400	200	1000	0	200	720	750	5270	2150
48	2700	1850	4550	2160	100	100	0	100	120	850	3430	1120
49	3900	7730	11630	3000	300	1300	2400	200	720	700	8620	3010
50	4200	2950	7150	2400	200	0	1800	200	240	320	5160	1990
51	3900	4405	8305	3000	300	0	0	200	240	800	4540	3765
52	3900	5620	9520	3000	240	800	0	200	360	900	5500	4020
53	3800	5010	8810	3000	250	200	0	200	360	800	4810	4000
54	6351	1250	7601	2400	200	3000	0	300	360	1100	7360	241
55	2000	3585	5585	2400	250	0	0	260	240	500	3650	1935
56	6671	2140	8811	3000	250	1500	0	300	720	850	6620	2191
57	6486	2050	8536	3000	300	2500	0	300	720	1100	7920	616
58	6514	3400	9914	3600	300	1500	0	300	480	1250	7430	2484
59	6770	2350	9120	3000	300	2000	0	400	720	1060	7480	1640
60	2600	2350	4950	2400	200	0	0	0	240	600	3440	1510
	3616	3532	7148	2556	189	518	364	169	328	577	4701	2448

Table 7.2 Farm Household Survey (KH4&5)

	INCOME		FOOD	CLOTH	HOUSE	EXPENDITURE			TOTAL	BALANCE		
	FARM	OFF-F				EDUC	SOCIO	UTIL			OTHER	
1	3770	0	1800	100	0	0	0	150	180	200	2430	1340
2	0	3600	3600	100	1000	720	200	200	240	1200	7060	-3460
3	1040	3600	3600	100	0	240	100	200	240	60	4340	300
4	1500	5950	4320	200	0	960	200	200	240	150	6070	1380
5	6960	0	2400	100	0	600	100	216	100	850	3516	3444
6	1500	0	3600	100	400	312	100	180	180	200	5542	-4042
7	2030	0	2400	100	0	0	300	180	180	200	3180	-1150
8	1200	0	2400	80	0	240	100	120	120	0	2940	-1740
9	2300	0	2400	100	0	0	200	120	120	0	2820	-520
10	1600	6000	2400	150	0	0	150	180	180	300	3180	4420
11	1800	0	1800	50	0	360	50	60	60	200	2520	-720
12	2000	300	3600	150	0	120	50	180	180	250	4350	-2050
13	1500	1800	3000	450	0	1800	50	180	180	450	5930	-2630
14	1500	1500	1200	100	0	0	60	108	0	0	1468	1532
15	1200	3000	3600	250	0	1320	30	180	180	200	5580	-1380
16	4000	0	3600	400	0	600	300	300	300	300	5500	-1500
17	8000	400	4800	600	600	3000	150	600	600	700	10450	-2050
18	1800	300	3600	600	0	1800	50	300	300	0	6350	-4250
19	800	3600	3000	500	0	720	50	120	120	500	4890	-490
20	1507	150	3600	400	1500	1440	50	144	50	50	7184	-5527
21	2700	750	2160	120	0	180	50	?	?	250	2760	690
22	6960	0	3600	200	0	960	100	100	120	60	5040	1920
23	3600	0	3600	300	0	0	60	360	360	560	4880	-1280
24	3000	0	2400	100	0	1200	70	204	1100	1100	5074	-2074
25	300	400	2400	100	0	0	50	84	320	320	2954	-2254
26	1800	0	2400	200	0	360	50	240	240	750	4000	-2200
27	1800	250	3600	200	0	600	50	180	180	400	5030	-2980
28	1500	0	2400	150	0	0	30	180	180	0	2760	-1260
29	1600	0	1800	60	0	0	100	144	144	180	2284	-684
	2389	1090	2934	209	121	605	103	199	322	486	486	-1007

Table 7.3 Farm Household Survey (MA-16)

FEL	H	WF	SCH	CH	OL	TO	OFF	INCOME				EXPENDITURE						BALANCE		
								FELCR	OFF-A	OFF-O	TOTAL	FOOD	CLOTH	HOUSE	EDUC	SOCIO	UTIL		OTHER	TOTAL
1	1	0	0	3	0	5	F	3600	1200	0	4800	1200	100	0	0	30	360	300	1990	2810
1	1	2	2	0	0	6	F	3600	1200	0	4800	4200	1000	24	1800	60	312	850	8246	-3446
1	1	0	5	0	0	7	F	3600	1200	0	4800	2400	400	0	720	30	480	1800	5830	-1030
1	1	0	2	2	0	6	F	3600	1200	0	4800	2160	550	0	984	0	456	50	4200	600
1	1	2	3	2	0	9	F	3600	1200	0	4800	3600	400	0	1080	0	480	1080	6640	-1840
1	1	0	0	0	1	2	F	3600	860	0	4460	2400	0	0	0	200	360	1299	4259	201
1	1	1	0	0	0	3	F	3600	600	0	4200	2760	450	0	0	0	240	20	3470	730
1	1	0	3	1	0	6	F	3500	200	0	3800	1200	200	0	360	100	600	1080	3540	-260
1	1	0	7	0	0	9	F	3600	160	0	3760	3000	0	0	960	0	492	360	4812	-1052
1	1	0	2	3	0	7	F	3600	125	0	3725	3000	450	0	180	0	420	140	4190	-465
1	1	0	3	2	0	7	F	3600	0	0	3600	3000	100	0	240	100	300	440	4180	-580
1	1	1	4	0	1	6	F	3600	0	0	3600	2400	5000	0	1080	200	600	810	10090	-6490
1	1	0	0	4	0	6	F	3600	0	0	3600	1800	200	0	0	0	240	1460	3700	-100
1	1	1	2	1	0	5	F	3288	1800	396	5484	2760	200	590	360	0	420	38	4368	1116
1	1	0	0	4	0	6	F	3270	0	0	3270	2544	150	0	0	20	144	50	2908	362
1	1	0	3	0	0	5	F	3250	0	0	3250	3000	580	0	420	0	336	415	4751	-1501
1	1	4	1	0	0	7	F	3210	0	0	3210	1800	250	0	360	500	540	670	4120	-910
1	1	0	2	1	0	5	F	3120	600	0	3720	2220	450	0	312	0	456	455	3893	-173
1	1	0	0	3	0	5	F	3120	0	0	3120	1200	200	0	0	100	480	420	2400	720
1	1	1	3	0	0	6	F	3093	0	0	3093	1800	100	0	60	10	360	66	2396	697
1	1	0	3	1	0	6	F	3088	0	0	3088	2148	250	0	432	0	420	330	3580	-492
1	1	0	1	0	0	3	F	3088	0	0	3088	1800	350	0	288	0	456	60	2954	134
1	1	0	6	0	0	8	F	3060	0	0	3060	2400	200	0	1380	0	480	0	4460	-1400
1	1	1	2	0	0	5	F	3044	0	4200	7244	2400	150	0	7860	0	240	35	10685	-3441
1	1	0	2	1	0	5	F	3044	0	0	3044	2640	150	0	240	0	324	0	3354	-310
1	1	0	1	0	0	3	F	3000	0	0	3000	2400	300	0	360	400	540	1000	5000	-2000
1	1	0	3	0	0	5	F	3000	0	0	3000	2160	500	0	336	0	456	480	3932	-932
1	1	0	0	0	0	2	F	2980	0	0	2980	1200	200	0	0	50	480	1180	3110	-130
1	1	0	1	3	0	6	F	2880	0	0	2880	1200	200	0	180	100	480	1080	3240	-360
1	1	0	2	0	0	4	F	2400	0	0	2400	1200	200	0	360	0	240	1550	3550	-1150
1	1	3	3	0	1	9	F	2160	0	0	2160	1800	0	0	360	0	420	90	2670	-510
1	1	0	1	2	0	5	F	2120	0	0	2120	2160	300	0	324	0	240	667	3691	-1571
1	1	0	2	1	0	5	F	1800	0	0	1800	1200	100	0	600	30	420	50	2400	-600
1	1	0	0	3	0	5	F	1800	0	0	1800	1200	200	0	0	0	600	1420	3420	-1620
1	1	1	3	2	0	7	F	1200	0	2400	3600	3000	450	0	936	0	360	20	4766	-1166
1	1	1	4	2	1	8	Fa	3000	3600	0	6600	3600	500	0	360	50	480	0	4990	1610
1	1	5	2	0	0	9	Faa	3600	1200	2400	7200	1200	100	0	600	40	600	30	2570	4630
1	1	2	4	0	0	8	Fb	3345	600	3450	7395	4200	250	0	720	0	432	300	5902	1493
1	1	1	1	0	0	4	Fb	2880	0	2723	5403	3000	600	0	600	10	468	1160	5838	-435
1	1	6	0	0	0	8	Ff	3600	0	1200	4800	2400	100	0	0	30	540	100	3170	1630
1	1	1	0	2	0	5	Ff	3480	0	3732	7212	4200	700	0	0	150	360	1300	6710	502
1	1	1	1	2	0	5	Ff	2400	0	2820	5220	720	100	0	240	40	960	630	2690	2530
1	1	1	2	0	1	6	Ff	2400	0	0	2400	1200	200	0	144	800	1800	1210	5354	-2954
1	1	1	1	1	0	4	Ff	2138	0	2304	4442	3000	300	0	264	0	372	470	4406	36
1	1	1	0	1	0	3	Fu	3600	600	3000	7200	3000	250	0	0	0	420	417	4087	3113
1	1	1	4	2	0	9	Fu	3600	300	784	4684	3600	300	0	1800	200	480	830	7210	-2526
1	1	2	4	0	0	8	Fu	3600	0	3240	6840	3000	2300	0	420	0	324	2746	8790	-1950
1	1	1	2	3	0	7	Fu	3600	0	3000	6600	4200	450	0	480	0	456	536	6122	478
1	1	3	3	0	0	8	Fu	3600	0	3000	6600	4200	450	0	480	0	456	536	6122	478
1	1	1	3	2	0	8	Fu	3044	0	4200	7244	3072	1200	0	576	0	420	150	5418	1826
1	1	2	3	0	0	7	Fu	3044	0	4200	7244	2400	450	0	864	0	420	750	4884	2360
1	1	7	0	0	0	9	Fu	3000	0	3600	6600	4200	580	0	0	0	240	1854	6874	-274
0	1	2	3	0	0	5	Oa	0	7200	0	7200	3600	200	0	228	100	420	0	4548	2652
0	1	1	1	1	0	4	Oa	0	6000	0	6000	3600	50	0	360	50	360	200	4620	1380
0	1	1	2	1	0	5	Oa	0	4800	0	4800	1200	200	0	240	0	276	1176	3092	1708
0	1	1	0	2	0	4	Oa	0	3872	0	3872	1200	200	0	0	0	360	0	1760	2112
0	1	2	1	0	0	3	Oaa	0	3600	0	3600	1200	50	0	360	0	360	100	2070	1530
0	1	2	4	4	0	10	Oaf	0	3600	9600	13200	4800	1000	0	6000	300	480	1260	13840	-640
0	1	2	0	3	0	5	Oaf	0	3280	4080	7360	3000	200	0	0	40	600	755	4595	2765
0	1	2	4	0	0	6	Oaf	0	2821	3810	6431	3600	60	0	624	0	240	320	4844	1687
0	1	2	3	2	0	8	Oaf	0	800	4200	5000	2400	200	0	1200	100	600	800	5300	-300
0	1	2	3	2	0	7	Oau	200	1500	1560	3260	3000	100	0	120	0	360	800	4380	-1120
0	1	2	4	2	0	8	Oau	0	2971	2659	5630	2400	300	0	528	0	672	1512	5412	218
0	1	2	3	2	0	8	Oau	0	2125	2159	4284	2400	1000	0	720	0	408	1300	5828	-1544
0	1	1	2	3	0	7	Ob	0	0	7200	7200	3600	500	200	120	100	600	3600	8720	-1520
0	1	2	2	1	1	5	Oc	383	0	3900	4283	3120	200	0	360	20	270	860	4830	-547
0	1	1	1	2	0	5	Oc	0	0	7870	7870	3000	500	100	60	0	336	1008	5004	2866
0	1	2	6	3	0	12	Oc	0	0	5734	5734	3840	450	200	1200	10	108	10	5818	-84
0	1	1	2	2	0	6	Oc	0	0	2154	2154	600	200	0	120	300	240	800	2260	-106

0	1	1	3	0	0	5	Of	58	0	5746	5804	3000	300	0	1200	10	420	65	4995	809	
0	1	2	3	0	1	5	Of	0	3000	0	3000	2400	100	0	0	0	360	0	2860	140	
0	1	1	3	1	0	6	Of	0	0	5400	5400	1880	150	0	480	0	300	380	2990	2410	
0	1	1	0	2	0	4	Of	0	0	4318	4318	2400	515	0	0	0	300	100	3315	1003	
0	1	1	0	2	0	4	Of	0	0	4200	4200	2400	150	0	0	0	252	1475	4277	-77	
0	1	1	3	0	0	5	Of	0	0	3088	3088	2220	250	0	432	0	420	330	3652	-564	
0	1	1	0	3	0	5	Op	0	0	3823	3823	1800	350	0	0	0	384	400	2934	889	
0	1	1	3	3	0	8	Os	0	8348	0	8348	3600	450	800	480	0	276	1080	6686	1662	
0	1	1	3	3	0	8	Os	0	4080	0	4080	1800	500	0	480	10	516	900	4206	-126	
0	1	1	2	0	0	4	Os	0	3120	0	3120	1200	150	0	720	50	600	1080	3800	-680	
0	1	1	0	1	0	3	Os	0	2936	0	2936	1800	320	0	0	1680	378	1680	5858	-2922	
0	1	2	4	2	1	8	Ost	0	2300	3030	5330	3000	500	0	1080	0	390	780	5750	-420.2	
0	1	2	2	2	0	6	Ost	0	0	6600	6600	1200	150	0	1200	0	384	1095	4029	2571	
0	1	2	5	0	0	7	Osu	0	1800	7680	9480	16800	450	0	0	0	480	730	18460	-8980	
0	1	2	6	0	0	9	Ou	400	0	4820	5220	1800	200	0	1200	30	300	800	4330	890	
0	1	1	0	2	0	4	Ou	360	0	4800	5160	1200	100	0	0	300	600	400	2600	2560	
0	1	1	6	0	0	8	Ou	0	5800	0	5800	1800	300	500	1800	50	960	900	6310	-510	
0	1	1	5	4	0	11	Ou	0	0	6000	6000	4200	595	0	1008	0	480	505	6788	-788	
0	1	1	4	0	0	6	Ou	0	0	5188	5188	2760	150	0	720	10	420	427	4487	701	
0	1	1	0	2	0	4	Ou	0	0	4800	4800	1200	200	0	0	40	540	700	2680	2120	
0	1	1	0	2	0	4	Ou	0	0	4315	4315	3000	50	0	0	180	192	494	3916	398.6	
0	1	1	3	2	0	7	Ou	0	0	4200	4200	2400	300	0	360	100	600	50	3810	390	
0	1	1	5	4	0	11	Ou	0	0	4100	4100	2400	350	0	144	0	480	700	4074	26	
0	1	1	3	3	0	8	Ou	0	0	3996	3996	1800	250	0	360	0	240	405	3055	941	
0	1	1	0	3	0	5	Ou	0	0	3600	3600	1800	0	0	0	0	300	45	2145	1455	
0	1	3	1	0	0	5	Ouu	0	0	8640	8640	5400	300	0	312	0	360	500	6872	1768	
0	1	2	2	2	1	6	Ouu	0	0	6000	6000	2400	400	0	504	100	540	700	4644	1356	
52						6	96	1697	942	2187	4826	2631	376	25	571	71	434	667	4775	51	
*HK=House Keeping, WF=F=Work Force:-FERCRA, SCHCR=School&Creche, OLDSC=Old&Sick, OFF-A=OFF-agri, -O=Others																					
** O=other, a=labour(agri), u=labour(urban), f=factory, c=construction, s=fishery, b=business																					
1	1	1	2	1	1	5	Fa	3000	?	0	3000	1200	300	0	600	100	180	600	2980	20	1
0	1	2	3	0	0	5	u	0	0	8400	8400	3600	200	0	500	200	420	0	4920	3480	2
0	1	1	3	0	0	5	a=b	0	6000	0	6000	6000	450	0	720	400	600	180	8350	-2350	3
0	1	3	1	0	0	4	b	0	0	6000	6000	*4800	600	*1200	2400	3000	*468	*1160	6000	0	4
1	1	0	6	0	0	8	F	3600	0	0	3600	3600	450	0	960	0	456	1350	6816	-3216	5
1	1	0	3	0	0	5	u	0	0	12000	*12000	2160	500	0	336	0	456	30	3482	8518	6
1	1	2	2	0	0	5	Faf	3044	?	4200	7244	2400	300	0	1200	30	300	35	4265	2979	7
1	1	3	3	0	0	7	Ff?	3600	0	4200	7800	2400	450	0	864	0	420	750	4884	2916	8
1	1	1	3	2	0	7	Ffb	1560	0	2600	4160	3000	100	0	120	0	360	800	4380	-220	9
1	1	0	0	3	1	5	Fa	2160	0	0	2160	2400	200	0	72	30	240	0	2942	-782	10
						6		1696	857	3740	5374	2973	355	0	777	376	381	416	4902	1135	
*an extreme sample of income in sample survey is excluded																					

Table 7.4 Farm Household Survey (JR-10)

OU	ADJ	CHILD	ISK	TO FARM	FARM		INCOME		TOTAL	FOOD	CLOTH	HOUSE	EDUC	SOCIO	UTIL	OTH	EXPENDITURE	INPUT	REP	TAX	G.TOTAL	BALANCE	
					FARM	INCOME	TREE	OFF															EXPENDITURE
2	9	0	1	1	2	14520	1100	0	15620	4160	1800	1000	2160	1000	120	1600	11840	?	0	0	11840	3780	
3	4	1	0	7	2	0	300	9600	9900	5240	600	150	960	250	600	750	8550	250	0	0	8800	1100	
0	3	2	0	0	5	2	3600	0	20760	24360	4600	800	250	360	250	960	524	7744	2188	0	440	10372	13988
0	2	4	0	0	6	2	12000	1000	23760	36760	5400	1500	700	3360	150	840	740	12690	3500	0	1500	17690	19070
0	2	5	0	0	7	2	18000	400	1116	19516	3600	1400	100	10800	300	460	3700	20380	?	0	0	20380	-864
0	2	5	0	0	7	2	4800	450	36600	41850	6460	800	600	300	1200	724	10684	2682	12000	2350	27716	14134	
0	2	2	5	0	4	2	0	5400	5400	3160	350	70	360	100	600	274	4914	274	0	0	5188	212	
0	3	1	3	1	4	2	1200	0	16800	18000	7800	600	100	100	1200	3480	14240	1000	0	1100	16340	1660	
0	2	1	3	0	3	2	60000	0	60000	7800	1000	1800	1200	1300	5400	3374	21874	1030	0	8800	31704	28296	
0	2	1	6	0	3	2	0	500	3600	4100	3000	200	50	240	300	240	4150	500	0	0	4650	-550	
0	2	3	0	1	5	1	0	38400	38400	5150	600	700	1200	450	1200	1200	10500	0	9000	2100	21600	16800	
3	5	0	0	8	3	4800	1000	6000	11800	5100	700	200	1800	200	240	400	8640	5800	0	1475	15915	-4115	
2	3	1	1	5	1	3	3600	0	10368	13668	3600	1000	350	840	250	960	424	7424	1550	0	105	9079	4889
0	2	1	4	0	3	1	0	13560	13560	5400	1000	80	2400	200	840	374	10294	250	0	105	10649	2911	
0	2	1	4	0	3	1	0	18600	18600	3600	550	300	0	300	960	724	6434	316	4200	1240	12190	6410	
0	3	4	0	1	7	1	3600	500	3000	7100	2550	1000	230	480	50	360	320	4990	2200	0	0	7190	-90
0	2	7	0	0	9	2	21600	0	3600	25200	7500	1000	300	2400	500	1200	2200	15100	3600	500	24780	420	
0	2	2	3	1	4	2	0	750	11400	12150	5000	1200	250	400	1560	500	8910	1035	0	179	10124	2026	
2	1	4	0	4	3	1	0	2700	11760	14460	3840	500	320	0	200	720	624	6204	1100	0	128	7432	7028
2	2	6	0	4	2	1	4080	3500	6000	13580	3720	500	350	1200	80	960	600	7410	1925	0	500	9835	3745
2	3	5	1	5	0	2	0	850	11040	11890	3000	700	130	840	200	780	1374	7024	353	0	0	7347	4543
2	6	0	1	8	0	3	0	36000	36000	7200	200	100	1800	100	1800	1560	12760	100	3600	500	16960	19040	
1	0	4	1	0	3	4	80	300	1800	2580	600	0	0	50	276	200	1126	120	0	0	1246	1334	
3	3	1	0	6	1	2	1080	200	14160	15440	4700	1000	150	1200	250	840	574	8714	850	0	105	9669	5771
3	0	0	1	3	3	4	2400	0	9000	11400	5760	250	0	360	480	380	7230	150	0	0	7380	4020	
2	4	1	1	0	6	3	2400	300	3600	6300	3000	400	50	1200	80	360	50	5140	200	0	0	5340	960
2	4	0	0	6	1	2	3600	300	1200	5100	1800	50	0	0	120	900	2870	560	0	0	3430	1670	
0	2	1	6	0	3	0	2400	0	2400	4800	1800	100	100	720	200	444	150	3514	800	0	0	4314	486
2	3	0	0	5	1	2	0	12000	12000	3700	400	100	1200	200	600	1345	7545	100	0	105	7750	4250	
0	2	3	1	0	5	2	0	8400	8400	3600	250	100	720	100	480	50	5300	140	0	0	5440	2960	
0	2	3	0	0	5	2	0	24000	24000	4800	500	300	1200	200	600	700	8300	0	0	2000	10300	13700	
0	2	5	0	0	7	2	1200	0	32400	33600	7200	1000	150	840	300	1200	524	11214	590	9600	22364	11236	
1	1	1	0	2	2	0	550	5400	5950	2460	250	130	0	200	720	344	4104	306	0	105	4515	1435	
0	2	1	0	0	3	2	0	9600	9600	2500	350	300	0	100	840	224	4314	0	1464	105	5883	3717	
3	1	2	0	4	6	3	0	320	13200	13520	4800	800	100	200	540	624	7064	338	0	0	7402	6118	
0	2	5	0	0	7	1	0	12600	12600	4600	500	1900	1080	150	720	624	9574	695	0	450	10719	1881	
16	1	1	1	0	2	2	4593	417	12142	17153	4394	663	320	1170	260	873	897	8577	1072	1207	690	11487	5666
*OUT=Live outside																							
2	1	6	0	3	2	2	0	500	3600	4100	3000	200	50	240	300	240	120	4150	500	0	9	4659	-559
2	2	6	0	4	2	1	6000	3500	4000	13500	3600	300	350	1200	80	1320	1200	8050	1925	0	100	10075	3425
2	6	0	1	9	0	3	0	36000	36000	7200	200	100	1800	100	1800	1560	12760	100	3600	55	16466	19535	
3	4	0	4	7	0	3	480	300	1800	2580	3600	300	300	276	0	5976	120	0	6	6102	-3522	4	
2	0	5	0	2	1	2	1080	200	14160	15440	4320	20	0	180	840	0	5360	850	0	18	6228	9212	
2	4	2	0	6	3	1	2400	0	3600	6000	3000	400	50	1200	80	276	50	5058	200	0	0	5256	744
2	5	0	0	7	1	2	2400	300	6000	6700	1800	20	500	600	100	1032	300	4352	560	0	0	4912	3788
1	1	1	0	2	2	2	0	550	5400	5950	2400	250	130	0	200	720	344	4044	306	0	105	4455	1495
11	1	1	1	5	1	2	1545	669	9320	11534	3615	211	185	780	168	813	447	6219	570	450	30	7269	4265

ANNEX VIII
MINUTES OF MEETINGS

LIST OF MINUTES OF MEETINGS

- 1 Technical Committee for the Feasibility Study on Small Reservoir Development held on August 26, 1993
- 2 Steering Committee on The Inception Report for the Feasibility Study on Small Reservoir Development held on August 27, 1993
- 3 Steering Committee for the Feasibility; Study; on Small Reservoir Development held on March 10, 1994
- 4 Steering Committee for the Feasibility Study on Small Reservoir Development held on September 27, 1994
- 5 Steering Committee for the Draft Final Report of the Feasibility Study on Small Reservoir Development held on January 18, 1995

The Feasibility Study
on
Small Reservoir Development
in
Peninsular Malaysia

Minutes of Technical Committee Meeting 1/93

Venue : Bilik Gerakan,
Dept. of Irrigation and
Drainage, Malaysia.

Date : 26 Aug 1993

Time : 10:00 - 11:45 am

1. Attendance is as per annex I.
2. Welcome address by Chairman of Technical Committee.

Mr. Shanmuganathan, the Director of Irrigation Division, DID, as Chairman of the Technical Committee welcomed the Study Team and representative JICA Malaysia and introduced members of the Technical Committee. He explained that the purpose of this meeting was to discuss the Inception Report prepared by the JICA Study Team. He then invited Mr. Ohtani, the Study Team Leader to present the Inception Report.

3. Presentation of Inception Report by Study Team Leader

Mr. Ohtani introduced members of his Study Team and the JICA Malaysia representative and proceeded to explain in detail the inception report. He explained that this report was prepared in accordance with the Minutes of Meeting and the Scope of Works agreed between the Governments of Japan and Malaysia signed on 16 February 1993.

The aspects presented included the Study background and objectives and the scope. The detailed work plan which included the basic approach and implementation details of the Study was also briefed.

4. Discussion

The Chairman thanked the Study Team Leader for the detailed briefing and subsequently the meeting discussed and agreed on the following points:-

- a) Although the focus of the Study will be on reservoir for irrigation purpose, at the preliminary identification of potential sites should include reservoirs for other purposes as well and inventorised so that it can be useful source of information for other agencies such as Public Works

Department, Water Supply Authorities, Fisheries Dept. etc.

- b) The various forms of small reservoirs should include the use of existing lakes where possible.
- c) The DID State coordinators have been appointed to assist the the Study Team in data and information collection in their respective States. A meeting will be called in early September to explain the concept of this Study and their expected roles and where possible to start preparatory works. Once the Study Team has finalised the questionnaires, another meeting will be held with the coordinators on 14 Oct 1993 for detailed explanation and implementation of data collection phase.
- d) For the appointment of local consultant to assist the study team, the Team Leader requested DID to provide a list of suitable local consultancy firms for their consideration and appointment.
- e) The type of software for database and information storage and retrieval will be decided in the course of the study. The system selected should be one that the DID technicians are already familiar with.
- f) For the selection of the 5 sites for detailed feasibility study, the Study Team is requested to shortlist at least 1 potential site in each State for the consideration of the Government of Malaysia. The Government of Malaysia will recommend which of these should be selected as the final 5 sites so that they can also be considered for implementation.
- g) The Study Team clarified that there will be one workshop for Engineers regarding the use of the guidelines for the planning, design and O&M of Small Reservoirs.
- h) There will also be a National Seminar at the end of this Study to disseminate the results of this study to policy makers and implementors at the end of the Study.
- i) The Technical Committee informed the Study Team that the study should not be biased towards irrigated paddy areas identified in the Rationalisation and Feasibility Study on Crop Diversification in non-Granary Irrigated Areas in Malaysia undertaken by JICA in 1989. Other areas outside paddy such as those identified for commercial orchards and other agriculture development should equally be considered.
- j) The DID will provide all assistance necessary for the smooth implementation of the Study. The details of the site survey works on the potential sites will have to be established and funding source and manpower will be discussed in detail later.

5 Closing remarks

The Chairman of the Technical Committee thanked the Study Team and the members of the Technical Committee for their contribution to the meeting. He also requested that close cooperation be maintained by all parties concerned in order to make the study a success. In return the Study Team Leader also expressed similar expectations from all concerned.

The meeting was adjourned at 11:45 am.

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Technical Committee Meeting 1/93
List of Attendance

Malaysian Side

- | | | | |
|-----|---------------------------|---|----------|
| 1. | Ir. M. Shanmuganathan | Director,
Irrigation Div. DID. | Chairman |
| 2. | Ir. Chan Choong Cheong | Dep. Director,
Irrigation Div. DID. | |
| 3. | Dr. Azizan Asmuni | Planning and Evaluation Div.
Department of Agriculture | |
| 4. | Mr. Ahmad b. Ibrahim | Mapping Division,
Survey Department & Mapping | |
| 5. | Ir. Ferng Meow Chong | Director Technical Division | |
| 6. | Ir. Ooi Choon Aun | DID Director of Planning & Evaluation | |
| 7. | Ir. Tan Swee Kee | DID Chief Engineer Research Branch | |
| 8. | Ir. Mohd. Adnan Mohd. Nor | DID Senior Engineer
Irrigation Div. | |
| 9. | Ir. Mansor bin Bechik | DID River Engineering Div. | |
| 10. | Ir. Roslan bin Sahat | DID Engineer Hydrology Branch | |

Study Team

- | | | |
|----|------------------------|-------------------|
| 1. | Mr. Toshiyaki Ohtani | Team Leader |
| 2. | Mr. Nobuo Sambe | Meteo-Hydrologist |
| 3. | Mr. Masayochi Shi bata | Meteo-Hydrologist |
| 4. | Mr. Shoichiro Ban | Design Engineer |

JICA Malaysia

- | | | |
|----|---------------------|----------|
| 1. | Mr. Toshiyuki Arita | JICA KL. |
|----|---------------------|----------|

MINUTES OF STEERING COMMITTEE MEETING
ON THE INCEPTION REPORT FOR
THE FEASIBILITY STUDY ON
SMALL RESERVOIR DEVELOPMENT IN PENINSULAR MALAYSIA

AGREED UPON BETWEEN

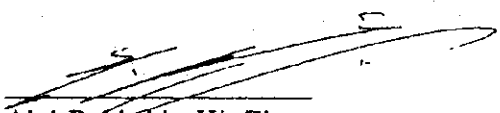
THE ECONOMIC PLANNING UNIT,
THE PRIME MINISTER'S DEPARTMENT,

ON BEHALF OF THE GOVERNMENT OF MALAYSIA

AND

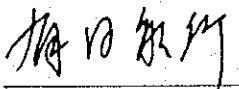
THE JAPAN INTERNATIONAL COOPERATION AGENCY

KUALA LUMPUR, 27 AUGUST 1993


Abd Bakir bin Hj. Zin
Principal Assistant Director,
Agriculture Section,
The Economic Planning Unit,
on behalf of
the Government of Malaysia.


Toshihito Ohtani
Leader, JICA Study Team.

Witnessed by:


Toshiyuki Arita
Japan International Cooperation Agency
Malaysia Office

1. Objective of the Meeting

The meeting was convened to discuss the Inception Report of the Feasibility Study on Small Reservoir Development in Peninsular Malaysia prepared by JICA Study Team.

2. Attendance

The list of attendance is as shown in Annex 1.

3. Welcome remarks by Chairman of Steering Committee

The Chairman of the Steering Committee welcomed members of the JICA Study Team and the Representative of JICA Malaysia Office and introduced members of the Steering Committee. He then invited Mr. Ohtani, the JICA Study Team Leader to give his opening remarks and brief the committee on the contents of the Inception Report.

4. Briefing by JICA Study Team Leader

Mr. Ohtani, the JICA Team Leader, expressed his views on the importance and usefulness of this Study in developing and sustaining agriculture in Malaysia. He then proceeded to brief the meeting on the scope, approach and methodology that the Study Team will adopt to achieve the objectives of the Study. The Study will be carried out over 20 months in 2 phases. Phase I will concentrate on the preparation of potential sites for small reservoirs, categorization of those sites and to select pilot schemes. Phase II will focus on the feasibility study on the selected pilot projects, preparation of the planning and design guidelines as well as the final report of the Study.

5. Briefing by Chairman of the Technical Committee.

Ir. Shanmuganathan, the Chairman of the Technical Committee for this Study informed the meeting that the Committee met and discussed the technical aspects of the Inception Report on 26 August 1993. He explained to the meeting that the Technical Committee agreed in principle with the Inception Report.

6. Discussion

The following points were discussed and agreed:-

- a) The Chairman inquired whether the small reservoirs identified will include those for other non-agriculture purposes. In response, the Study Team Leader explained that at the Phase I stage, all the potential sites identified will be subsequently categorised by their potential usage such as irrigation, domestic water supply, recreation and tourism etc.
- b) The definition of small reservoir was discussed. The Study Team Leader informed the meeting that this definition will be developed in the course of the Study when basic data and information have been collected and analysed. He added that environmental aspects of the development will be given special emphasis in this Study.
- c) The representative of the Ministry of Agriculture (MOA) advised the meeting that the Study objective should be in line with the National Agriculture Policy (1992-2010). He also added that in the development of the small reservoirs, aspects of landscaping and beautification as well as the potential of agro-tourism should be seriously considered.
- d) The JICA Team Leader explained that in formulating priority ranking for the developing small reservoirs, the criteria will not be based solely on financial viability alone. Other aspect especially with regards to socio-economic improvements of the rural community will be given high consideration.
- e) In the execution of the Study, the Study Team members suggested that close inter-action with all personnel concerned be maintained and that weekly meetings be held with the DID officers directly in-charge of the Study.
- f) For the transfer of technology, a workshop on planning, design and operation and maintenance of small reservoirs will be held for engineers. A National Seminar for policy makers and implementors as well as the private sector will also be organised to disseminate the results and findings of this Study. JICA also invited DID to nominate counterpart personnel for appropriate training in Japan under this Study.
- g) In general, the Steering Committee accept, in principle, the proposals forwarded in the Inception Report.

7. Closing remarks

The Chairman in his closing remarks expressed his thanks to all those present and wish all parties involved every success in carrying out the Study.

The meeting was adjourned at 11:00 am.

List of Attendance

Malaysian side

- | | | | |
|----|-------------------------|--|----------|
| 1. | Mr. Abd Bakir Hj. Zin | Principal Assistant Director,
Agriculture Section,
Economic Planning Unit,
Prime Minister's Department. | Chairman |
| 2. | Mr. Koshy Thomas | Ministry of Agriculture | |
| 3. | Mr. M.Shanmuganathan | Director of Irrigation,
Drainage and Irrigation Department. | |
| 4. | Mr. Chan Choong Cheong | Deputy Director of Irrigation,
Drainage and Irrigation Department. | |
| 5. | Mr. Mohd Adnan Mohd Nor | Senior Engineer,
Drainage and Irrigation Department. | |
| 6. | Mr. Badaruddin Mahyudin | Economic Planning Unit,
Prime Minister's Department. | |

Study Team

- | | | |
|----|-----------------------|-------------|
| 1. | Mr. Toshihito Ohtani | Team Leader |
| 2. | Mr. Nobuo Sambe | |
| 3. | Mr. Masayoshi Shibata | |
| 4. | Mr. Shoichiro Ban | |

JICA Malaysia Office

- | | |
|----|---------------------|
| 1. | Mr. Toshiyuki Arita |
|----|---------------------|

MINUTES OF MEETING
OF
THE STEERING COMMITTEE
FOR
THE FEASIBILITY STUDY
ON
SMALL RESERVOIR DEVELOPMENT
IN PENINSULAR MALAYSIA


Agreed upon between

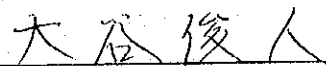
THE ECONOMIC PLANNING UNIT
OF
THE PRIME MINISTER'S DEPARTMENT
on behalf of the Government of Malaysia

AND

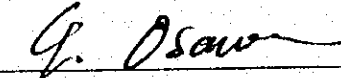
THE JAPAN INTERNATIONAL COOPERATION AGENCY.

KUALA LUMPUR, 10th MARCH 1994


Abd. Bakir Hj. Zin,
Principal Asst. Director,
Agriculture Section,
The Economic Planning Unit,
The Prime Minister's Department
on behalf of the Government of Malaysia


Toshihito Ohtani,
Leader,
JICA Study Team.

Witnessed by:


Yoshiyuki Osawa
JICA Advisory Team

1. Objectives of the Meeting

The meeting was convened to:

- a) discuss the Interim Report prepared by the JICA Study Team at the end of Phase I of the Study,
- b) to select the sites for feasibility studies and
- c) to finalise the program of works and activities for Phase II of the Study.

2. Attendance

The list of attendance is shown in Annex 1.

3. Opening remarks by Chairman

Mr. Abd. Bakir Hj. Zin on behalf of the Chairman of the Steering Committee welcomed members of the JICA Advisory Team, representatives of the Embassy of Japan and JICA Malaysia as well as the Study Team and introduced members of the Steering Committee. He then invited Mr. Osawa to give his opening remarks.

In his opening remarks, Mr. Osawa informed the meeting that the Advisory Team arrived Malaysia on the 5 March 1994 and the following day started on a series of visits to sites with the potential of being selected for feasibility studies. He thanked the Malaysian counterparts for their assistance. He expressed his confidence that this meeting will positively identify the sites for the feasibility studies and that the Study will proceed into Phase II smoothly and achieve the intended objectives.

4. Briefing by Chairman of the Technical Committee

Mr. C.C. Chan on behalf of the Technical Committee Chairman briefed the meeting on the progress of works undertaken in Phase I of the Study and the technical cooperation extended by all the Malaysian Departments and Agencies involved in this Study. He then proceeded to present recommendations of the Technical Committee for the consideration of this meeting as follows:-

- a) Proposed sites for feasibility studies

Mr. Chan explained that through close cooperation with the Study Team a number of sites was identified as potential and after careful deliberation, the DID has recommended 12 projects to be considered for the feasibility studies under Phase II of the Study.

- b) Proposed approach for feasibility studies

The Technical Committee strongly recommended that the approach for feasibility studies in the Phase II be structured in a manner that it will allow a more active participation of local professionals but under the assistance and guidance of the JICA Study Team. A suitable approach should be developed to facilitate this. Apart from counterpart training program and the National Seminar, this will be another effective method of transfer of technology.

5. Presentation of Interim Report

Mr. Ohtani, the Study Team Leader presented the Interim Report. He reported on the Study methodology adopted by the team. He informed the meeting that a local consultancy firm was appointed to assist in the data collection and database formulation. He subsequently explained to the meeting on the criteria for identification of small reservoirs and the problems and issues encountered during the survey. A total of 266 small reservoirs was identified. Out of these, 114 were shortlisted as having the potential of further studies and development. Mr. Ohtani then explained the process of categorizing the small reservoirs either by type, purpose, benefits, land ownership, environmental problems and State's view of project priority.

On the selection of sites for feasibility studies, Mr. Ohtani informed the meeting that 33 project sites were identified through State coordinators. All these sites were visited and out of these 18 were found suitable to be candidates for further selection.

6. Discussion

6.1 Comments on the Interim Report

The Interim Report was generally accepted. In formulating proposed agriculture projects, the Study Team was advised to take note of the Malaysian agriculture scenario where the average age of farmers is 52 years old. There is also the problem of labour shortage in this sector. Environmental issues should be seriously attended to and that problems associated with resettlement of people should be avoided as far as possible.

In the final report, the aspects of physical and development characteristics of existing small reservoirs and their importance should be highlighted. Problems and issues faced or anticipated in the development and management of these reservoirs should also be noted. The Study should also identify potentials for future development and propose ideas on how to manage these potentials and formulate appropriate strategies to realise them.

Regarding the database prepared by the Study Team, a computer trial run should be carried out together with DID and necessary adjustments be made accordingly.

6.2 Selection of sites for the feasibility studies.

Based on the discussions held between DID and the Advisory Team during their field visits and the opinions expressed by the Technical Committee, the Steering Committee agreed that the following 5 (five) feasibility studies be carried out by the JICA Study Team under Phase II of the Study:-

- (1) Project No PR1 and PR4 in Perlis,
- (2) Project No KH4 and KH5 in Kedah,
- (3) Project No TR44 in Terengganu,
- (4) Project No MA16 in Melaka, and
- (5) Project No JR10 in Johor

For the remaining projects NS1 (Negeri Sembilan), PH20 (Pahang), TR3 (Terengganu), KN16 (Kelantan) and PP3 (Pulau Pinang), the Steering Committee informed the JICA Advisory Team that the DID, with the cooperation of other relevant agencies or through the appointment of local consultants, is keen to undertake the feasibility studies (or detailed design) for these projects. The Steering Committee believes that this approach provides an interesting and useful opportunity for transfer of technology to the Malaysian professionals. The DID shall be responsible to form teams comprising local professionals and apply for adequate financial resources to ensure the successful completion of the studies. Overall, the DID shall assume full responsibility for the planning and execution of the studies. To assist and guide as well as review the output of these teams, the Steering Committee strongly requests JICA Advisory Team that the JICA Study Team provide the necessary services and support to transfer their knowledge and skills to members of those teams. The JICA Advisory Team agreed to convey this request to JICA Headquarters.

6.3 Program of works for Phase II

Mr. Ohtani informed the meeting that Phase II will begin in May or June. After a period of data collection, the Study Team will carry out analysis and report writing and preparation of planning, design and management guidelines in Japan. The Draft Final Report will be submitted in December 1994. At that time a National Seminar to disseminate the findings and recommendations of this Study to the relevant Malaysian personnels will be held.

7. Closing Remarks

In his closing remarks the Chairman once again expressed his appreciation to all those involved in this study and hope that the results can be used to formulate programs in the 7th Malaysia Development Plan (1996-2000).

The meeting was adjourned at 3:30 pm

List of Attendance

Malaysian Side

- | | | | |
|----|--------------------------|---|----------|
| 1. | Mr. Abd. Bakir Hj. Zin | Principal Assistant Director
Agriculture Section,
Economic Planning Unit,
Prime Minister's Department. | Chairman |
| 2. | Ir. Chan Choong Cheong | Deputy Director,
Irrigation Division,
Department of Irrigation and Drainage. | |
| 3. | Mr. Koshy Thomas | Ministry of Agriculture | |
| 4. | Ir. Mohd Adnan Mohd Nor | DID | |
| 5. | Mr. Badaruddin Mahyuddin | EPU | |
| 6. | Mr. Tsutomu Asada | JICA Expert, DID | |

JICA Advisory Team

- | | | |
|----|-----------------------|-------------|
| 1. | Mr. Yoshiyuki Osawa | Team Leader |
| 2. | Ms. Yoshimi Katsumata | Coordinator |

Embassy of Japan

- | | | |
|----|----------------------|------------------|
| 1. | Mr. Hidenao Sawayama | Second Secretary |
|----|----------------------|------------------|

JICA Malaysia

- | | | |
|----|---------------------|--|
| 1. | Mr. Toshiyuki Arita | |
|----|---------------------|--|

JICA Study Team

- | | | |
|----|-----------------------|-------------|
| 1. | Mr. Toshihito Ohtani | Team Leader |
| 2. | Mr. Shoichiro Ban | |
| 3. | Mr. Masayoshi Shibata | |
| 4. | Mr. Nobuo Sambe | |
| 5. | Mr. Tadashi Yasuda | |
| 6. | Mr. C. Murugaboopathi | |

MINUTES OF MEETING
OF
THE STEERING COMMITTEE
FOR
THE FEASIBILITY STUDY
ON
SMALL RESERVOIR DEVELOPMENT
IN PENINSULAR MALAYSIA

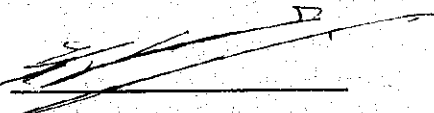
Agreed upon between

THE ECONOMIC PLANNING UNIT
OF
THE PRIME MINISTER'S DEPARTMENT
on behalf of the Government of Malaysia

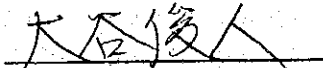
AND

THE JAPAN INTERNATIONAL COOPERATION AGENCY

KUALA LUMPUR, 27 SEPTEMBER 1994



Abd. Bakir Hj. Zin
Principal Asst. Director,
on behalf of
The Director, Agriculture Section,
Economic Planning Unit,
The Prime Minister's Department



Toshihito Ohtani
Leader,
JICA Study Team

Feasibility Study on Small Reservoir Development in Peninsular Malaysia

Minutes of Steering Committee Meeting 27 September 1994

1. Objectives of the Meeting

The meeting was convened to:

- (a) Review the progress of Phase II of the Study and discuss preliminary findings and implementation issues.
- (b) To discuss subsequent plan of action related to the Study

2. Attendance

The list of attendance is shown in Annex 1

3. Opening Remarks by the Chairman

Mr. Md. Rosnan bin Sulaiman, Chairman of the Steering Committee welcomed representatives from the Embassy of Japan and the JICA Malaysia Office and also members of the Study Team. He also welcomed members of the Malaysian side represented by the Ministry of Agriculture and the Department of Irrigation and Drainage. He then invited Mr. T. Arita, representative of JICA Malaysia Office, to give his opening remarks.

Mr. Arita expressed his gratitude for the full cooperation extended to the JICA Team by all those involved in the Study. He also noted that the formation of a Local Team to work along side the JICA Team in this project is unique and has benefitted both sides in many ways.

4. Briefing by Chairman of the Technical Committee

Mr. Peh Kay Soon, the Chairman of the Technical Committee, briefed the meeting on the status of works undertaken during this Phase II of the Study. He recorded his appreciation that JICA has accommodated the request of the Steering Committee at the meeting on 10 March 1994 that a Local Team carry out selected feasibility studies under the guidance of the JICA Study Team. He informed that this arrangement has resulted in close interaction between members of both teams and has been successful in the transfer of knowledge and technology. This arrangement has allowed the formation of a group of local personnel capable of subsequent implementation of small reservoir development. He also informed the meeting that the members of the local team will form the resource personnel for a new training course on small reservoir and irrigation planning and design scheduled for 1995. He recommended that similar arrangement could be considered for future studies by JICA.

On the works carried out by the Local Team, he explained that detailed feasibility studies undertaken are projects NS1 (Negeri Sembilan), KN16 (Kelantan) and PP3 (Pulau Pinang). Project PH20 (Pahang) had to be dropped because it involves a review of the major Pahang River and therefore not practical for the duration allocated for this Study. Project KN16 (Terengganu) was dropped because a similar model on the use of ex-mining pond is currently being studied in the State of Perak.

For the sites selected, basic data collection is almost completed. Preliminary development concept for each site has been formulated. Results of geological survey and topographical survey are expected to be submitted by the contractors and surveyors appointed for this study. Upon their submission, the Local Team will proceed with finalization of the feasibility report. It is expected that the draft final report will be completed in December as scheduled.

As agreed in the Scope of Works, the DID in cooperation with the JICA Study Team has begun planning for a National Seminar. The tentative dates are from 16 to 18 January 1995 in Langkawi. A Technical Committee Meeting could be held on 14 January 1995 in Kuala Lumpur and a Steering Committee meeting in Langkawi on the 15 January 1995. The purpose of these meetings will be to discuss and finalise the Draft Final Report concerning this Study.

5. Briefing by JICA Study Team Leader

Mr. Ohtani, the JICA Team Leader, briefed the meeting based on the Progress Report II on works carried out from 31 May 1994 to date. The activities reported included arrangement for appointment of contractors where JICA funded for the geological surveys and the Malaysian side funded the topographical surveys for all sites selected for feasibility studies. He also outlined the activities related to data and information collection performed by both teams and the guidance provided to the Local Team. For the preliminary plans formulated, the relevant agencies were briefed to seek their views and support for the project.

The Team Leader also highlighted several interesting preliminary findings on the development of the small reservoir. These included the climatic and agriculture characteristics of the country that indicated the need for small reservoir development. Based on targets set by the National Agriculture Policy (1992-2010), he estimated that for vegetable production, 7,500 ha or 180 small reservoir projects (based on 40 ha/project) will need to be developed between 1990 and 2000 and 11,000ha or 275 projects between 2001 to 2010. For fruits, 50,000 ha will be needed for period between 1990-2000 and 118,000 ha between 2001-2010.

The Study Team also expressed their concern on the safety of the small reservoirs and proposed that measures be taken to regulate its development.

For the implementation plan, several options will be considered. These will take into account the role of the Government, areas for cost sharing between the Government and private sector and organizational and financial arrangements.

Mr. Ohtani also briefed the meeting on the salient features of the projects selected for feasibility studies. On the planning, design, operation and maintenance guidelines, the basic framework and contents are currently being studied.

6. Discussion

The meeting agreed that the Study has made good progress and that there are no major problems faced by both Teams. Preliminary findings also indicated there are no major policy issues that need addressing.

The Chairman stressed the importance of a comprehensive implementation plan to ensure effective small reservoir development. From the report presented, clearly, small reservoir developments involve many Government agencies. The implementation plan should therefore consider various aspects of coordination between those involved. The meeting also recognised that there are many small reservoirs developed by the private sector and that they will be encouraged to do more in the future instead of relying on the Government. Thus, the implementation model should also allow for active private sector role in the small reservoir development.

On the use of Effective Micro-organism (EM) in agriculture, the meeting was advised that perhaps it is still premature to recommend this on a broad basis. It was agreed that at this juncture, the recommendation should be restricted to experimental applications only.

The meeting also noted the concern of JICA Team on reservoir safety. It was suggested that, as a start, the DID initiate a register of small reservoirs (especially for agriculture purposes) and their owners. Eventually, it may be possible to use the register to formulate practical safety monitoring systems for these reservoirs.

Referring to the guideline for the planning, design, operation and maintenance of small reservoirs for irrigation, the meeting was informed that members of the technical committee will provide their comments and suggestions regarding its contents. Apart from technical aspects, the meeting felt that the guideline should include project identification guide. The guide should also contain a format to encourage owners to register their small reservoirs.

The JICA Study Team agreed that the points raised will be considered in the preparation of the final report for the Study.

7. Other matters

7.1 Home Office Work

The JICA Team Leader informed the meeting that the Home Office work will commence in October and the Draft Final Report will be submitted in December 1994. Following the comments received, the Final Report will be submitted in March 1995.

7.2 National Seminar

The meeting agreed that JICA will finance the cost of conference room and related facilities and also in the preparation of papers to be presented. The Malaysian side will bear the cost of travel and transport for local officers.

7.3 Transfer of office equipment and survey equipment

The Malaysian side requested that JICA handover equipment used for this study to the DID for their future use. The JICA representative advised that this request be made in through the JICA Malaysia Office.

7.4 Training on policy and project implementation

The Malaysian side highlighted that, as in all studies of this nature, there are bound to be non-technical aspects such as policy and implementation issues requiring careful deliberation. It is felt that training in these areas concerning the implementation of the small reservoir development would be useful to local officers. To this the JICA representative advised that requests for such training may be forwarded in the normal manner.

8. Closing Remarks

In his closing remarks, the Chairman thanked both the JICA and Local Teams for their efforts in the Study. He wished that the works will be completed successfully and that the implementation of the projects will bring expected benefits to the people and the country. He also thanked all members of the Steering Committee for their contribution and recorded his appreciation to all those who have provided the necessary cooperation to facilitate the Study.

Feasibility Study on Small Reservoir Development in Peninsular Malaysia

Steering Committee Meeting, 27 September 1994

List of Attendance

Malaysian side

- | | | |
|--------------------------------|---|----------|
| 1. Mr. Md. Rosnan bin Sulaiman | Director,
Agriculture Section, EPU | Chairman |
| 2. Ir. Peh Kay Soon | Director,
Irrigation Division, DID | |
| 3. Mr. Abd. Bakir Hj Zin | Principal Asst. Director,
Agriculture Section, EPU | |
| 4. Mr. Raj Ratnakumar D'Nathan | Ministry of Agriculture | |
| 5. Ir. Chan Choong Cheong | DID | |
| 6. Ir. Mohd Adnan Mohd. Nor | DID | |
| 7. Hj. Shaharuddin Ibrahim | DID | |
| 8. Mohd Sani Mistam | EPU | |
| 9. Mr. Tsutomu Asada | DID | |

JICA Malaysia Office

10. Mr. Toshiyuki Arita

Embassy of Japan

11. Mr. Hidenao Sawayama

JICA Study Team

12. Mr. Toshihito Ohtani
13. Mr. Shoichiro Ban

**MINUTES OF MEETING
OF
THE STEERING COMMITTEE
FOR
THE DRAFT FINAL REPORT
OF
THE FEASIBILITY STUDY ON SMALL RESERVOIR DEVELOPMENT
IN PENINSULAR MALAYSIA**

Agreed upon between

**THE ECONOMIC PLANNING UNIT
OF
THE PRIME MINISTER'S DEPARTMENT
on behalf of the Government of Malaysia**

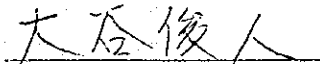
AND

THE JAPAN INTERNATIONAL COOPERATION AGENCY

LANGKAWI, 18 JANUARY 1995



Mr. Md. Rosnan bin Sulaiman
The Director, Agriculture Section,
Economic Planning Unit,
The Prime Minister's Department.



Mr. Toshihito Otani
Leader,
JICA Study Team

Witness



Mr. Hideo Osawa
Agriculture, Forestry and Fisheries
Development Study Department
Japan International Cooperation Agency

**FEASIBILITY STUDY ON SMALL RESERVOIR DEVELOPMENT
IN PENINSULAR MALAYSIA**

Minutes of Steering Committee Meeting

Date : 18 January 1995

Time : 3.00 p.m. - 4.00 p.m.

Venue : Meeting Room,
Hotel Grand Continental,
Langkawi.

Chairman : Mr. Md. Rosnan bin Sulaiman
Director of Agriculture Section
Economic Planning Unit

Participants : As listed in Annex I

1. Objectives of the Meeting

The meeting was convened for discussion and acceptance of the Draft Final Report by JICA.

2. Opening Remarks by the Chairman

The chairman welcomed the JICA representatives, members of the Study Team and members from the Malaysian side represented by the Department of Irrigation and Drainage. The Chairman expressed his gratitude and appreciation to JICA for funding the study and on the efforts of the Study Team to complete the Draft Final Report. He then invited Mr. H. Osawa, representative of JICA to give his opening remarks.

3. Opening Remarks by JICA Representative

Mr. H. Osawa, on behalf of Japan International Cooperation Agency, appreciated for close cooperation given from the Malaysian side to carry out this study. There is a good close interaction between Local Study Team and JICA Study Team exchanging views and technological know how. It is hoped that the result of this study will contribute to future water resource and agriculture development in Malaysia. Finally it is hope that friendly relationship between Malaysia and Japan will continue.



4. Briefing by Chairman of Technical Committee

Mr. Peh Kay Soon, the Chairman of the Technical Committee, briefed the meeting on the status of the study. He then proceeded to report the discussions and actions taken to the Minutes of the Steering Committee Meeting held on 27 September 1994 and Technical Committee Meeting held on 14 January 1995 as shown in Annex 2.

The Technical Committee then recommended to the Steering Committee that the Draft Final Report to be accepted.

5. Briefing by Study Team Leader

Mr. T. Otani, JICA Study Team Leader, briefed the meeting on the Draft Final Report highlighting the basic concepts of small reservoir development, result of feasibility studies, implementing models and procedures, and conclusion and recommendations of the feasibility studies. The Team Leader presented the estimates of required small reservoir development areas for vegetables and fruits based on the production targets set in the National Agriculture Policy (1992-2010). The Team Leader stated that the five pilot projects would be feasible from technical, economic and environmental points of view. He presented three implementation models proposed by the Study Team : (1) Farmers/owners construct and operate, (2) Government construct and farmers/owners operate, and (3) Government construct and operate. The Team Leader stressed that during planning and implementation, LPP or IADP should be the lead agency. He also showed a schematic flow chart of implementation procedure.

Finally, the Team Leader presented the conclusions and recommendations placing emphasis on the dissemination of basic concepts of small reservoir development to the private sector including farmers organisations through Government Agencies at Federal and State levels.

6. Discussion

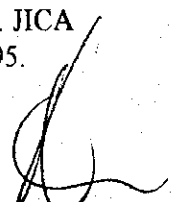
6.1 The Chairman recommended and agreed by members that some words be amended in Item 13 (5), 13 (6) and 13 (7) in the summary of Main Text (Volume -I).

6.2 Acceptance of Draft Final Report

The Steering Committee agreed to accept the Draft Final Report.

6.3 Submission of Final Report

JICA will appreciate further comments, if any, can be sent through the Chairman of Technical Committee to JICA Malaysia Office before 30 January 1995. JICA will submit the Final Report to the Government of Malaysia in March 1995.



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**Feasibility Study on Small Reservoir Development in Peninsular Malaysia
Steering Committee Meeting, 18 January 1995**

List of Attendance

Malaysian side

1. Mr. Md. Rosnan bin Sulaiman (Chairman) Director, Agriculture Section, EPU
2. Ir Peh Kay Soon Director, Irrigation Division, DID.
3. Mr. Abd. Bakir Hj. Zin Principal Asst. Director, Agriculture Section, EPU
4. Ir. Hj. Shaharuddin Ibrahim DID
5. En. Azizan Mohd Sidin EPU
6. Mr. Tsutomu Asada DID

JICA Headquarters, Japan

7. Mr. H. Osawa

JICA Study Team

8. Mr. Toshihito Otani
9. Mr. Shoichiro Ban
10. Mr. M. Shibata
11. Mr. F. Onoda



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No.	Discussion Recorded	Action / Decision
	<p><u>Minutes of Steering Committee Meeting on 27 September 1994</u></p>	
i	The implementation plan should therefore consider various aspects of coordination between those involved.	Action has been taken by JICA in the Draft Final Report
ii	On the use of Effective Micro-Organism (EM) in agriculture, the meeting was advised that perhaps it is still premature to recommend this on a broad basis.	Action has been taken by JICA not to include EM in the Report.
iii	It was suggested that, as a start DID initiate a Register of small reservoirs (especially for agriculture purposes) and their owners.	DID will take action.
iv	The meeting was informed that members of the Technical Committee will submit comments and suggestions regarding its contents. (before Draft Final Report is prepared).	Comments have already been sent to JICA.
v	Apart from technical aspects, the meeting felt that the guidelines should include project identification guidelines and should contain a format to encourage owners to register small reservoirs.	JICA has taken action.
vi	Submission of Draft Final Report from JICA by December 1994.	Report has been received and circulated to the members.
vii	National Seminar on 16 - 18 January in Langkawi.	Done on time.
viii	Transfer of office and survey equipment	DID has received the equipment.

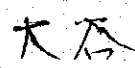
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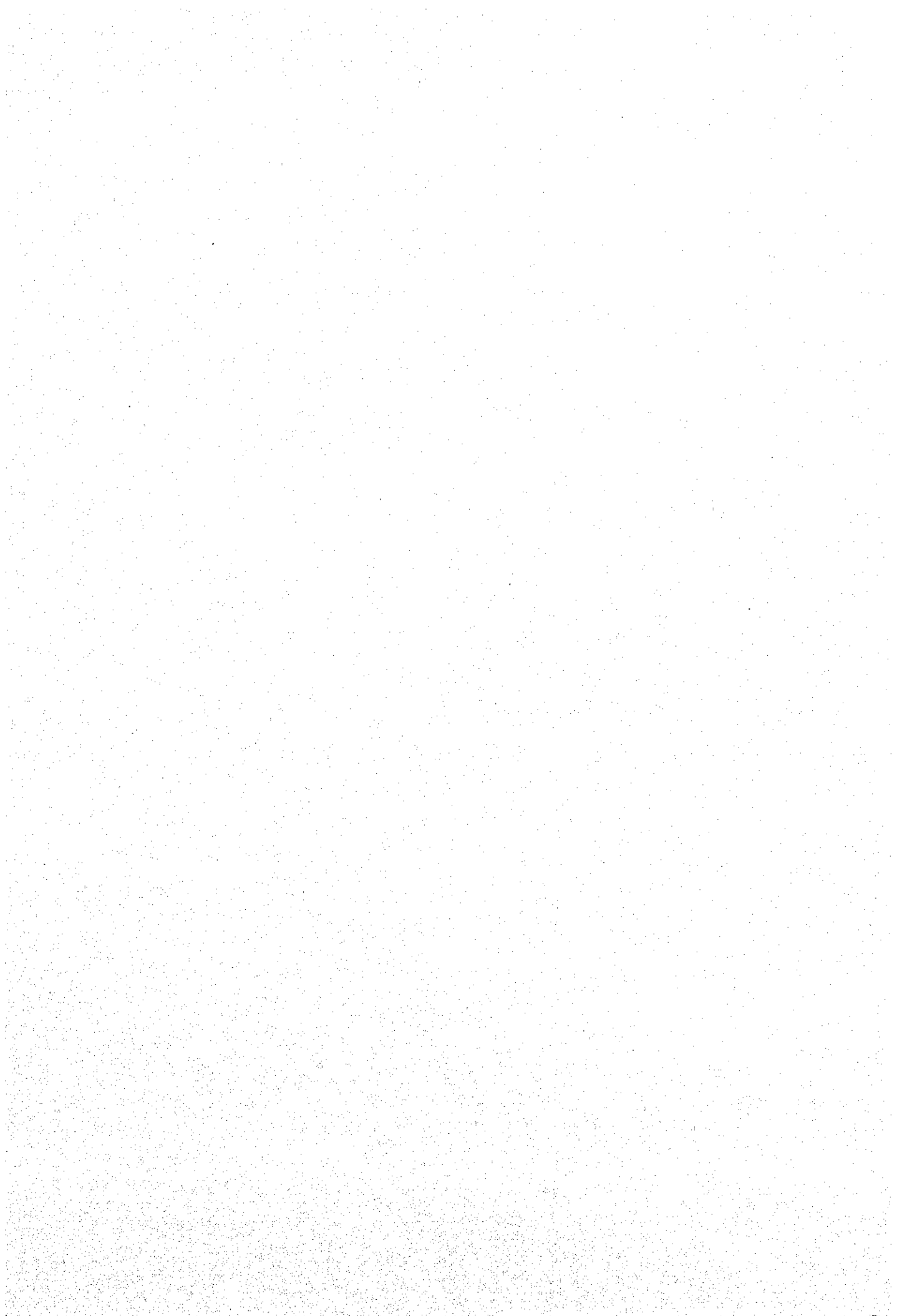
No.	Discussion Recorded	Decision
	<p>Technical Committee Meeting on 14 January 1995 discussing the Draft Final Report</p> <hr/> <p>a) The definition of type A - dam where storage capacity should be less than 1 million cubic meters and statement of low hazard category dam must be written.</p> <p>b) The lead agency 'PPK' should be replaced by FOA (Farmers Organisation Authority)</p> <p>c) The outcomes of the Advisory Committee meeting in Japan were discussed :</p> <p>i)EM Ministry of Agriculture, Forestry and Fisheries in Japan is not sure of effects of EM. EM matters should not be mentioned in the report.</p> <p>ii)More explanation is necessary on water resources development plan for Simpang Geti and Tasik Melati.</p>	<p>Correction will be made in the Final Report</p> <p>Correction will be made in the Final Report</p> <p>Correction will be made in the Final Report</p> <p>Correction will be made in the Final Report</p>

HjShah/LST/Minste2/18.1.95.



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