

AGRICULTURAL EXTENSION IMPROVEMENT  
PROJECT - GAMPANA DISTRICT

GENERAL ADMINISTRATIVE REPORT

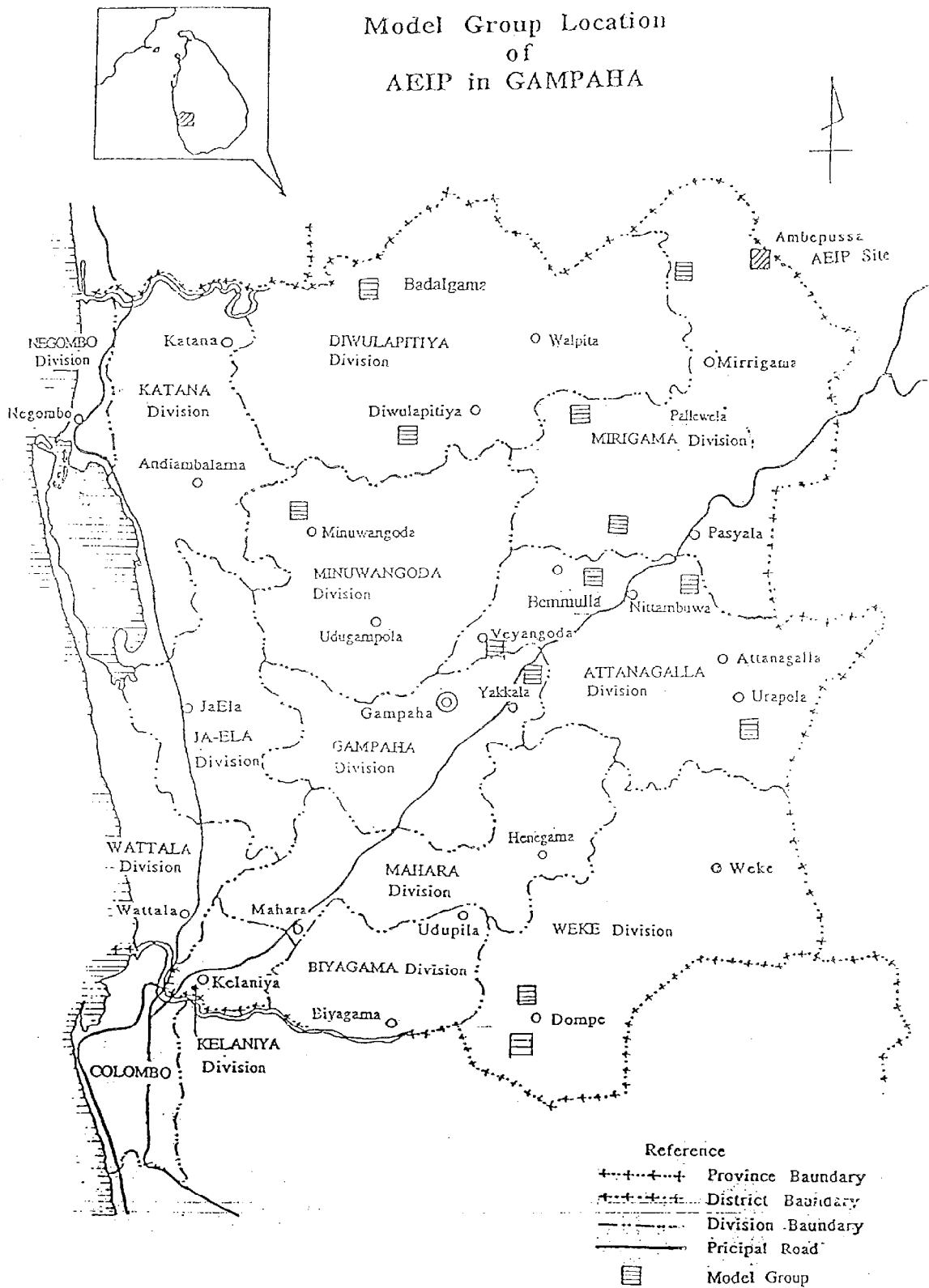
FOR

FINAL EVALUATION

22 APRIL 1999

DISTRICT INTEGRATED RURAL DEVELOPMENT PROJECT  
KACHCHERI COMPLEX  
GAMPANA

# Model Group Location of AEIP in GAMPAHA



AGRAICULTURAL EXTENSION IMPROVEMENT PROJECT-GAMPAHA DISTRICT  
GENERAL ADMINISTRATIVE PROGRESS REPORT-FINAL EVALUATION

Introduction and Background:

Gampaha District, adjacent to Colombo in the south is the most industrialized and commercialized district in Sri Lanka. But the northern and eastern parts of the district largely remained as an agricultural area with coconut and paddy as major products. Higher ratio of the communities are agricultural oriented. But, farming income and productivity is very low. Because the farmers do not consider how to reduce production cost, how to produce the high quality products, how to reap more yield and also consistent supply. Mostly the product is sufficient for consumption. As the reason of low income most of the farmers are neglecting agriculture and occupying as labourers in various fields. Specially, through out the young generation.

As the solution, we have planned to promote a profitable farming system for Gampaha farmers to motivate them for land using effectively, considering the advantage of the conditions and the location of the district.

According to the request of the IRDP, the Ministry of Plan Implementation, submitted the basic proposals and requested a project type technical cooperation from the Japanese Government in 1990.

Basic Survey:

Based on the proposal, Japan International Cooperation Agency dispatched the preliminary survey team to study the scope, clarify the objectives, priorities of the subjects and to explore the concept in the year 1993. The team proposed to obtain a detailed information regarding the farming systems, agricultural organizations, the function of agricultural extension system, government policy on agriculture sector and the rural development, production and marketing systems.

**Signing the agreement:**

The Japanese Implementation Survey Team has visited Sri Lanka for the purpose of working out the details of the programme in April 1994. The team exchanged the views and had held series of discussions with the Sri Lankan authorities for the successful implementation of the project and signed the agreement.

**Commencement:**

According to the agreement signed between both countries, the project commenced on 01-07-1994 with the cooperation extended by the government of Japan under the technical cooperation programme, which is the objective of developing an effective farmland use and crop diversification in Gampaha.

**Project Purpose:**

An effective farmland use and crop diversification are to be achieved in the coconut field in Gampaha District.

3. (i) Major Activities & Out puts of the Project:

- (1). Improvement of crop production system of intercropping in the coconut fields.
  - a). Improvement of cultivation technology
  - b). Introduction of trials of suitable crops
  - c). Improvement of cropping system of economical crops
  - d). Improvement of water management technology
  - e). Development of crop production system of the verification field
  
- (2). Improvement of Agriculture Extension Method
  - a). Introduction of the bottom-up extension method
  - b). Promotion of self motivated production group
  - c). Demonstration of the effective extension method
  - d). Evaluation of extension activities.
  
- (3). Development of Training Materials
  - a). Development and preparation of Training Materials necessary for the training.
  
- (4). Implementation of Training
  - a). Training on the improved extension method for extension personal.
  
  - b). Training on the crop production technology for extension personal.

(See Annex-1)

### Implementation Method:

Having held several round of discussions between the Japan International Cooperation Agency and the Democratic Socialist Republic of Sri Lanka the Tentative Schedule of Implementation was formulated in order to implement the Agricultural Extension Improvement Project of the Gampaha District. This schedule consisted of the major and sub activities of the project as well as the time frame, and having formulated the annual work plan based in the T.S.I., the project was smoothly implemented. The T.S.I. was revised slightly in 1998 for the convenience of effective implementation of the project, with the agreement of both countries.

### Implementation of the Project:

#### Japanese Side

- A. Team Leader
- B. Coordinator
- C. Experts in the field of
  - i. Agricultural Extension
  - ii. Upland Crop Cultivation (Vegetable)
  - iii. Upland Crop Cultivation (Other Crops)
  - iv. Water Management

(Annex-2)

#### Joint Coordinating Committee

The committee meetings were held usually once a year and when necessity arose;

- a). for the purpose of giving direction and guidance, and to review and approve annual work plan and the financial plan under the frame work and also, reviewed overall progress as the achievements of the annual work plan.

Composition:

- Chair person - Director General-Regional Development  
Ministry of Plan Implementation.
- Secretary - Director-Regional Development, Ministry of Plan  
Implementation.
- Members - a). Deputy Commissioner (Western Province)  
Dept. of Agrarian Services
- b). Representative-Dept. of External Resources  
Ministry of Finance
- c). Director-Horticulture Research & Development
- d). Director- Dept. of Export Agriculture Development
- e). Director-Coconut Research Institute
- f). Provincial Director-Agricultural Development  
Authority.
- g). Regional Manager-Coconut Cultivation Board-  
Gampaha.
- h). Chief Secretary-Western Province
- i). Secretary-Ministry of Agriculture and Lands (W.P.).
- j). Provincial Director-Agriculture (W.P.)
- k). Director-IRDP-Gampaha

Japanese Side

- a). Japanese Experts
- b). Representative of JICA

Project Operation Committee:

The fundamental process of activities of steering the project was carried out by the project operation committee which regularly met on monthly basis. The committee played a major role for the effective and smooth implementation of the project.

- a). Chair person - Director, Gampaha Integrated Rural Development  
Project.
- b), Vice Chair Person- Provincial Director, Dept. of Provincial  
Agriculture (W.P.)

- c). Secretary - Director, of Agricultural Technology Transfer Center-Morena
- d). Japanese Experts
- f). Deputy Provincial Director, Agriculture-Gampaha
- g). Asst.Commissioner-District Agrarian Services Department-Gampaha
- h). Regional Manager- Coconut Cultivation Board-Gampaha
- i). Research Officer- Cococnut Research Institute
- j). Asst.Director- District Agricultural Training Centre- Ambepussa.

**Counterpart Personal:**

The Counterpart Personal have been appointed for each section by the Department of Provincial Agriculture and IRDP-Gampaha District.

(See Annex-3/4)

**Administration of the Project:**

- A). Project Director-The Director of the Regional Development Division of the Ministry of Plan Implementation has been holding the overall responsibility for administration and implementation of the project.
- B). Chief Secretary of the Western Province has been holding the responsibility as project coordinator for coordinating and the implementation.
- C). The Provincial Director of the Department of the Agriculture (W.P.) has been holding the managerial and technical responsibilities as project manager.
- D). The Director-IRDP-Gampaha, has been assisting the administration and implementation functions as Deputy Project Director.
- E). Japanese Team Leader and the Coordinator has been providing the necessary recommendations and advice to implement activities.
- F). The Japanese Experts has been giving necessary technical guidance to counterparts.

(See Annex-5)



In addition to the counterparts, Divisional Agricultural Instructors have undertaken to conduct and follow-up the activities of the production groups. According to the subjects, the improvement of their knowledge and abilities to strengthen farmers' skills, have been made.

Provision of machinery and Equipment:

The Government of Japan provided following equipments which were necessary for the project implementation.

- A). Farming equipment and tools
- B). Laboratory equipment and tools
- C). Meterological Equipment
- D). Audio Video instruments
- E). Office Equipment
- F). Vehicles

Buildings:

The construction of all the following buildings has now completed.

- A). Office Complex
- B). Laboratory buildings
- C). Ware House
- D). Garage

**Training in Japan**

The government of Japan has given opportunities to 21 Sri Lankan Counterparts and Managerial Personnel connected with the project for short term technical training.

( See Annex-6 )

**Donation:**

Two meteorological units have been donated to Bombuwela and Makandura Research Centers by the project.

**Project Budget:**

The annual expenditure incurred by the Japan International Cooperation Agency and the Democratic Socialist Republic of Sri Lanka for the smooth and effective implementation of the project has been indicated briefly in the enclosed annexes.

(See Annex 7/8)

General Achievements:

I am now presenting the facts on this topic very briefly since the basic task of the subsequent three presentations is to discuss widely in detail as what we have achieved and experinces we had through this project.

- 1). Experiments on a large number of commercial crops which are suitable for cultivating in the coconut lands of the Gampaha District, and diverse types of soil, fertilizer, variety of shades and also the possibility of cultivating under each rate of propqrtion, have been made and introduced to the farming community.
- 2). 126 farmers in 11 Agricultural Instructural Division of the Gampaha District have been organized under 13 model production groups.
- 3). Various Commercial Agaricultural Systems by adopting self motivation strategies as well as, the ways and means of achieving maximum benefits uner the group system, when obtaining marketing facilities, inputs and technical know-how, and also in the process of cultivation in place of subsistance farming system, have been introduced to them.
- 4). It has been created a financial strength beyond Rs.1323000/= in particular for the 13 agricultural industrial bodies.
- 5). It has also been introduced the sales of their products directly to the market and the exporter by removing the Middlemen.

PROBLEM AND SHORTFALLS:

I also wish to submit several problem and shortfalls which we have faced in the process of achieving our objectives.

- 1). The price increase in inputs, as well as the price decrease in products pecially during the harvesting periods, and the market restrictives, under The present open economy system. The prominent challenges that the farmer has to face today.
- 2). This would be a greater impact on suppressing the positive attitudes of the farmers. The bad climatic conditions, experienced during the past few years, and thereby, the creation of the duration due to fungus diseases for various crops have serously demoralised the famers who faced such infortunate
- 3). I can clearly demonstrate the major factors which have predominantly obstructed as to achieve our desired objectives as we planned; They are the constant transferrs of Sri Lankan couterparts and the Japanese Experts. As an example, I can pointed that I an the 3rd Deputy Projjct Director for this project. The other factor is the non availability of even a single Japanese Expert, who was with us, at the commencement of the project.
- 4). The field agricultural instructor was the immediate operational coordinator who had constant touch with the model production groups which are the fundamental objective of this project, but one of the prominent reason that caused the decline in achievements was that this model production group has been one amongst all of his duties.

**Sustainability of the Activities:**

It has been planned to sustain the project activities after the month of June 1999 by the Provincial Agricultural Department of the Western Province.

The management process of the AEIP will be converted as agricultural extension improvement centre (AEIP) and will be connected with the District Agricultural Training Centre-Ambepussa.

The sustainability plan has already been submitted to the relevant authorities.

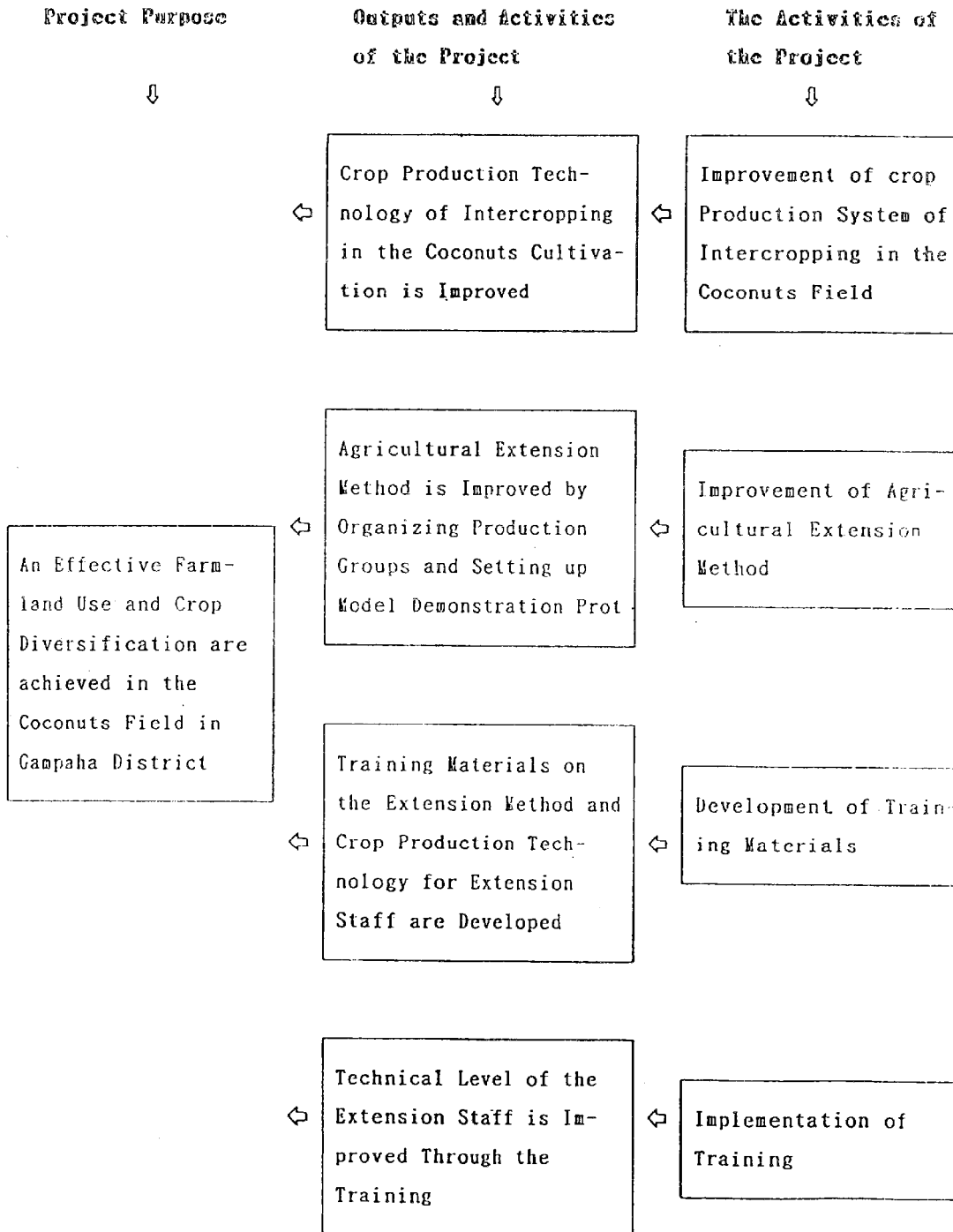
Funds and other facilities required for this will be provided by the Western Provincial Council.

**Conclusion:**

Finally, I would like to introduce this project as a specific achievement we had, since it was possible for this project to create the positive attitudes in the minds of the farming community and also to convince them of the fact that farming is a profitable venture by eliminating their negative attitudes for a certain extent, to say that the farming would never bring them profits. I would also like to make a mention that we had all these achievements amidst a lot of difficulties, and disturbances which prevailed in the environment.

MAJOR ACTIVITIES AND OUT PUTS OF THE PROJECT

— The Master Plan of The Record of Discussions (R/D) —



(Annex- 2)

LIST OF THE JAPANESE LONG TERM EXPERT

<u>NAME</u>	<u>SUBJECT</u>	<u>PERIOD</u>
1. Mr.Osamu Thakahashi	Team Leader	02.07.94 to 13.07.97
2. Mr.Yasumasa Oizumi	Coordinator	11.07.94 to 28.02.97
3. Mr.Hiroshi Nishino	Vegetable	01.09.94 to 28.08.97
4. Mr.Teruhiko Nibe	Other crops	01.07.94 to 01.07.96
5. Mr.ItsuroTsuruki	Water Management	02.07.94 to 31.10.95
6. Mr.Thakahashi Hanebuchi	Extension	02.07.94 to 01.07.96
7. Dr.Yoshihiro Yasunobu	Team Leader	15.06.97 to 30.06.99
8. Ms.Emi Ota	Coordinator	01.02.97 to 30.06.94
9. Mr.Hiroshi Ono	Crops	21.06.96 to 30.06.99
10. Mr.Fumito Daimaru	Extension	21.06.96 to 30.06.99
11. Mr.Yuzo Ishikawa	Water Management	01.02.97 to 30.06.99
12. Mr.Sameyuki Okuda	Training & Teaching	16.01.98 to 30.06.99



(Annex-3)

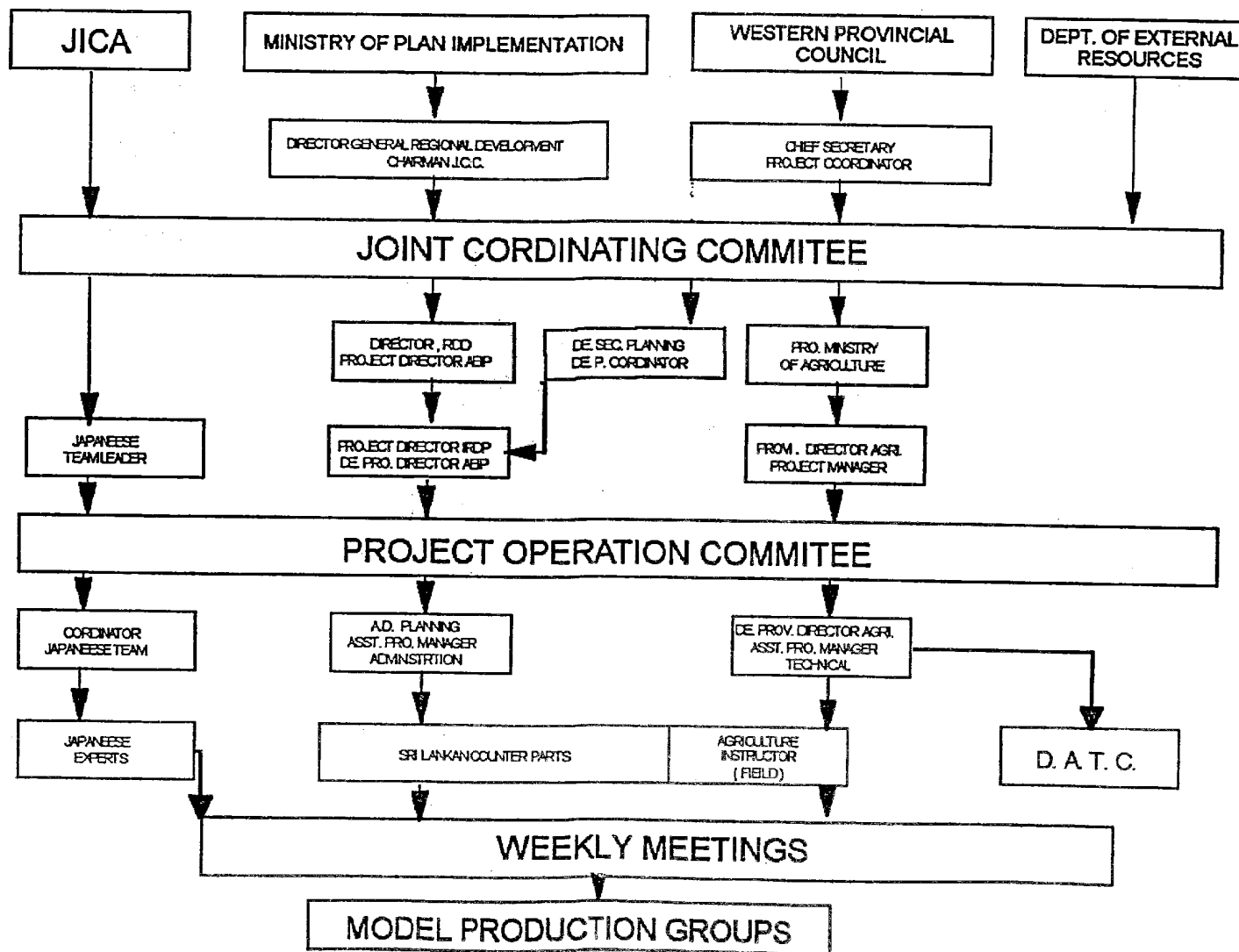
LIST OF THE COUNTERPARTS

POSITION IN A.E.I.P.	NAME	DESIGNATION	PERIOD
Project Director	1.Mr.S.Amarasekera	Regional Development Division Director	From 94 July to 98 April
	2.Mr.S.Rahubedda	---do--	From 98 April to date
Project Deputy Director	1.Mr.J.A.M.Karunaratna	IRDP-Director	From 94 July to 95 Jan:
	2.Mr.M.D.W.Ariyawansa	---do---	From 95 Jan: to 97 March
	3.Mr.W.L.Siriwardana	---do---	From 97 March to date.
Project Coordinator	1.Mr.S.H.Ferdinandez	Deputy Secretary (Planning)	From 94 July to 95 Jan:
	2.Mr.G.V.S.Perera	---do--- (W.P.)	From 95 Jan: to 98 June
	3.Mr.Nandana Jayasiri	---do--	From 98 June to date
Project Manager	1.Mr.N.A.Gunawardana	Provincial Director Agriculture-W.P.	From 94 July to 97 May
	2.Dr.T.Ranasinghe	---do---	From 97 May to date.
Asst.Project Manager (Administration)	1.Mr.B.A.C.Somawardana	Asst.Director (Planning)	From 94 July to date.
Asst.Project Manager (Technical)	1.Mr.L.M.Somawardana	Deputy Provincial Director Agriculture (W.P.)	From 94 July to date.

(Annex-4)

Position in AEIP	Name	Designation	Period
Counterpart (Extension)	Mr.S.A.Prenathilaka	Agricultural Instructor	94 July to date.
--do--	Mr.K.U.M.Champika	Dev.Assistant	94 July to date.
--do--	Mr.A.P.Mangalika	---do--	94 July to 96 May
--do--	Mr.H.A.S.P.Pieris	Asst.Director(Agari.)	96 October to date.
Counterpart (Crop)	Mr.K.W.S.Wickramathilaka	Agricultural Instructor	94 July to date.
--do--	Mr.R.J.K.N.Kularathna	Development Assistant	94 July to 96 March
--do--	Mr.S.Jayakody	Agricultural Instructor	94 July to date
--do--	Mr.B.K.K.Jayanewan	---do---	94 July to date
--do--	Mr.R.K.K.Rathnayake	---do---	96 Dec. to date
--do--	Mrs.Ranjanie Perera	---do---	96 Dec.to date.
Counterpart (Water Management)	Mr.W.M.Thilakarathna	---do---	94 July to date
--do--	Mr.B.A.R.K.R.Bamunuarachchi	Development Assistant	94 July to 97 May.

## ORGANIZATION CHART OF THE A. E. I. P.



C O N T E R P A R T S      T R A I N I N G    I N    J A P A N

NAME	PERIOD	TRAINING SUBJECT
1. Mr.J.A.M.Karunaratna	05-01-94 to 25.01.94	General Agriculture
2. Mr.H.S.Ferdinandez	05.01.94 to 25.01.94	---do---
3. Mr.N.A.Gunawardana	05-01-94 to 25.01.94	---do---
4. Mr.L.M.Somawardana	25-05-95 to 06.08.95	Agricultural Extension
5. Mr.W.M.Thilakarathna	24-07-95 to 17.11.95	Water Management
6. Mr.K.W.S.Wickramathilaka	28-08-95 to 17.11.95	Vegetable Cultivation
7. Mr.S.Jayakody	04-10-95 to 21.12.95	Other Crop Cultivation
8. Mr.S.A.Premathilaka	24-09-96 to 31.10.96	Agricultural Extension
9. Mr.R.M.C.Siriwardana	24-09-96 to 31-10-96	---do---
10.Mrs.W.P.B.Kumarihamy	24-09-96 to 31.10.96	---do---
11.Mr.G.V.S.Perera	14-03-96 to 04.11.96	General Agriculture
12.Mr.M.Bodipaksa	17-09-97 to 22.10.97	Agricultural Extension
13.Mrs.B.Wijayasekera	17-09-97 to 22.10.97	---do---
14.Mrs.N.Amarasekera	17-09-97 to 22.10.97	---do---
15.Mr.B.A.C.Somawardana	17-09-97 to 22.10.97	---do---
16.Mr.D.A.D.Jayawardana	04-11-97 to 26.11.97	General Agriculture
17.Mr.H.S.A.P.Pieris	17-03-97 to 17.04.97	---do---
18.Miss.K.U.M.Champika	25-08-98 to 09-12.98	Agricultural Management
19.Mrs.R.M.W.K.Rathnayake	25-08-98 to 09.12.98	Analysis & Fruitscultivation
20.Mrs.Ranjane Perera	08-09-98 to 09.12.98	crop Cultivation
21.Mr.W.L.Siriwardana	04-11-98 to 29.11.98	General Agriculture
22.Dr.T.T.Ranasinghe	-Nominated.-	

## 1. Expenditure (Japan Side)

### 1) General Local Cost (Rs.)

1994	2,303,257.51
1995	2,607,339.27
1996	4,080,269.67
1997	2,600,000
1998	2,090,000

### 2) Extension & Enlightenment Cost

1995	1,159,475
1996	909,031.09
1997	1,450,000
1998	1,515,000

### 3) Technical Exchange

1998	925,929
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## 2. Model Infrastructure

Rs.15,200,000

for Office and Training Building, Work Shop.

(Annex- 8)

AGRICULTURAL EXTENSION IMPROVEMENT PROJECT EXPENSES

	1994	1995	1996	1997	1998
Planting Materials Fertilizer	-	8200.00	57271.00	32055.00	25043.50
Electricity	-	30101.50	68324.00	65000.00	30946.19
Allowances	-	13902.01	182441.71	185600.00	230925.75
Fuel, maintainance and Insurance Fee	-	101283.00	233227.09	246798.46	415931.28
Custom duties and clearing charges	-		18622103.10	2741787.11	-
Renovations of the DATC.	-	298635.00	700000.00	993950.00	1345601.11
		452121.51	19863366.90	4265190.57	2048505.83

Total Amount:- Rs.26629184.81

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Improvement of crop production system of inter-cropping in coconut trees

Activities	Items	Achievements	Results
(1) Improvement of cultivation technique	(1-1) Study farmer's cultivation practices	Interview with farmers in the site proposed (95' Yala)  Measurement of pH and soil three phases in selected groups (94'/95' Maha)	Results of interview; 1)Fruits, spices and yam are the main inter crops, 2)Pineapple and betel are cultivated widely, 3)Crops except above mentioned are cultivated on small scale, 4)Some farmers near by chicken farm use chicken manure or cow dung, and 5) Complement irrigation is necessary.  Results of measurement; 1)Solid phase is big and liquid phase is small, and 2)pH value shows around 5.0.
	(1-2) Selected trial subjects	Soil improvement ; 1)Measurement of soil three phases (94'/95' Maha) 2)Improvement of soil acidity (94'/95' Maha) 3)Physical improvement using coir dust (94'/95' Maha) 4)Performance trial of okra (95'/96' Maha) 5)Performance trial of chillies (95'/96' Maha) 6)Performance trial of eggplant (95'/96' Maha)  Nursery technique of vegetables; 1)Dis-infection of bed soil by double covered polytene (96' Yala) 2)Artificial bed soil (94'/95' Maha)	Results of soil improvement; 1)c/p mastered how to measure pH value. 2)c/p mastered how to calculate the amount of dolomite. 3)Solid and air phases were decreased and liquid phase was increased. Soil was improved physically. 4)Yield was increased due to adjustment of soil acidity. 5)Yield was increased due to improvement of physical property of the soil. 6)Due to soil-borne disease, it was not clear whether yield was increased or not.  Results of vegetables nursery technique; 1)More than 45 C in bed soil was recorded, so effect of dis-infection was expected. 2)Coir dust was used instead of organic matter. Physical property of the soil was improved, but water holding ability was poor.

<p>(1) Improvement of cultivation technique</p>	<p>(1-2) Selected trial subjects</p>	<p>3)bottomless polytene pot (94'/95' Maha) 4)Mulching materials (98'/99' Maha)  Cocoyam cultivation; 1)Nursery technique (96'/97' Maha) 2)Cultivation technique in the field (99' Yala) 3)Guide book (97' Yala)  Soil-borne disease of cocoyam 1)Isolation of pathogen (98'/99' Maha) 2)pathogenicity against other crops (99' Yala) 3)Control by Ridomil (98'/99' Maha) 4)Control test of Ridomil in the field (98'/99' Maha)  Inspection of farmers' technique 1)Distinguishing male and female of papaya at the seed stage (98' Yala) 2)Banana sucker propagation by cutting growing point (98' Yala) 3)Accelerating yam formation by damaging roots, stem or leaf on cocoyam cultivation (96' Yala)</p>	<p>3)Chillies in bottomless pot was avoiding some diseases. 4)Mulching by rice husk or rice husk charcoal showed better germination than rice straw or without mulching.  Results of cocoyam cultivation; 1)Heavier seed yam and just harvested seed yam showed better growth. 2)Due to soil-borne disease, proper planting density and planting depth was not judged clearly. 3)Information about cocoyam was collected from production area and research institution.  Results of cocoyam's soil-borne disease; 1)<i>Pythium</i> spp. and <i>Corticium</i> spp. were isolated, and <i>Pythium</i> spp. was judged as major pathogen. 2) It was clear that isolated <i>Pythium</i> spp. did not show pathogenicity against ginger and <i>Dioscoreaceae</i> crops. 3)Ridomil application showed the effect of control disease. 4)Seedling treatment and soil application was expected to control disease.  Results of farmers' technique; 1)It was difficult to distinguish male and female at the seed stage. 2)Number of sucker per corm varied widely. 3)It was not clear that yam formation was accelerated.</p>
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(1) Improvement of cultivation technique	(1-2) Selected trial subjects	Fertilizer application; 1)Position of application (97' Yala)  Field management; 1)Net bagging for protecting fruit fly (95'/96' Maha)	Results of fertilizer application; 1)Application between plant and plant, application between row and row showed good growth in chillies, okra and eggplant.  Results of field management; 1)Control of fruit fly was effective.
(2) Introduction trials of suitable crops and varieties	(2-1) Study and select suitable crops and varieties	Survey market in Gampaha district and collection of information from related authority (94'/95' Maha)	Results of survey; 1)Okra, chillies, maize, eggplant and <i>Cucurbitaceae</i> crops as vegetables, 2)Banana, pineapple and passion fruit as fruit crops, 3)Cocoyam, <i>Dioscoreaceae</i> crops and ginger as yam crops, and 4)Anthrism as cutting flower
	(2-2) Tests in trial plot	Performance test in deferent shading (35%, 51%, 58% and open as control) 1)Chillies (97' Yala - ) 2)Okra (97' Yala - ) 3)Eggplant (97' Yala - )  4)Ginger (98' Yala - )  5)Cocoyam (98' Yala - ) 6)Maize (97'/98' Maha - )  7) <i>Cucurbitaceae</i> crops (97' Yala - )	Results of performance test in deferent shading;  1)Yield was decreased by 20% - 40% in shading condition. 2)Yield was decreased by 20% - 40% in shading condition. 3)Yield was decreased by 50% - 60% in shading condition and eggplant was damaged by stem borer. 4)Yield in each treatment did not show clear deference, but characteristic showed as shade crops. 5)Yield in shading condition showed higher than other treatment. 6)Yield in each treatment did not show clear deference, but high yield was expected in open field. 7)They had big damage of insects.

(3) Improvement of cropping system of economic(cash) crops	(3-1) Study market situation, socio-economic related with farmer's cropping system	<p>Survey of fluctuation in the prices of agricultural production; 1)Understanding weekly fluctuation in the prices (95'/96' Maha)</p> <p>Survey of market or pola Interview with related institution (95'/96' Maha)</p> <p>Trial of sweet corn (95'/96' Maha)</p>	<p>Results of survey; Price varied widely according to season, and price became high in Jun and July.</p> <p>Statistic data were collected.</p> <p>Price of sweet corn in Kolpitiya market became high, but demand was low.</p>
	(3-2) Tests in trial plot	<p>Inter-cropping (banana and pineapple) (97' Yala)</p> <p>Potting nursery of chillies (96' Yala)</p>	<p>There was no clear deference in shading condition.</p> <p>Healthy seedlings were promising, therefore stable production was expected even shading condition.</p>
(5) Demonstration of crop production system in verification farm	(5-1) Verification and demonstration of suitable crops	<p>Verification and demonstration of crops;</p> <p>1)pineapple (96' Yala - ) 2)Ginger (96' Yala - ) 3)Banana (97'/98' Maha - ) 4)<i>Lioscoreaceae</i> crops (97' Yala - ) 5)Turmeric (96' Yala - )  6)Maize (97'/98' Maha - )</p>	<p>Production costs of pineapple, ginger and banana were estimated .</p> <p>Verification and demonstration were carried out according to departmental recommendation. It was clear that this recommendation should be revised for our Gampaha area.</p>

(5) Demonstration of crop production system in verification farm	(5-2) Verification and demonstration of improved cultivation technique and water management technique	Installation of irrigation system (97'/98' Maha - ) Use of two-wheel tractor (95' Yala - )	Regular irrigation was available. Working efficiency was improved.
	(5-3) Verification and demonstration of suitable crop rotation and suitable land use method	Crop rotation with chillies, okra and <i>Leguminosae</i> crops (96' Yala - )	Yield of each plant varied widely, therefore stable production was not expected.

1-4-1 Study and review of farmers water management practices for selection of trial subjects.

Gampaha district come under wet zone, and it gets 2000-2500 mm rainfall annually. Therefore farmers do rainfed farming.

Although it gets two monsoonal rainfalls, water is insufficient for farming specially during the drought periods. Due to the sufficient rainfall farmers do not have irrigation facilities. Therefore farmers do hand watering.

Rainfall data was collected from Gampaha botanical garden, Pasyala horticultural station and seed farm, Ambepussa and analyzed.

Established a meteorological equipment and started observe the weather condition from January, 1998. Sending observation data to meteorological department and exchange data for the practical use. This area only could get rain fall data earlier. Two sets of meteorological equipments have installed at Makadura and Bobuwala agricultural research stations and guided them operation and maintenance of equipments.

Studied the water resource condition and water supply system in AEIP, Ambepussa and laid down the pipe line from Maha oya to trial farm. Guided DATC pump operators to record working hours of the pump and maintenance. As a result reduce the troubles and accidents.

Investigated the soil condition data using laboratory equipments. Soil moisture, three phase condition and hardness condition also measured.

Case study has done in Agriculture research centers in view of collecting data on pot irrigation and drip irrigation. There fore we can started the drip irrigation trial in the trial field.

To understand the actual and seasonal changes of the water resources condition, surveys have done. Bath type wells could keep sufficient water condition even dry periods.

Farmers conditions, weather conditions and condition of water resources condition were considered in planing the watering methods. To transfer water from water resource to farmer field used pipe or hose to reduce water loss and keep water in over head tank as storage and easy supply to the plants.

1-4-2

Water supply equipment were handed over to the farmers groups by AEIP early stage to avoid hazards that happen during the dry periods. Later these things were estimated by government and sold to farmers. That was help to improve the group fund. This activity expand the utilization of the water resources and the importance of water for agriculture.

As a next steps increased the number of pumps using their group fund. For the farmers guided the operation and maintenance of the pumps. Jinasena and DATC staff combined in this activity.

Experiment of perforated pipe irrigation has done with okra and chilies. Provided straw and polythen cover mulch to keep soil moisture, reduce erosion and avoid weeds. pF meter also included in measuring moisture.

#### **Verification Field**

Established over head water tank and direct delivery pipe line for crops in the verification land. This guide to farmers about simple irrigation facility.

#### **Farmers Groups**

Introduced water delivery pipes (canves blue) and garden hose with shower points. Installed over head tank, barals suited to the farmers conditions.

As a result farmers could control watering for crops. Farmers have changed or going to change the cultivation pattern.

Guided to prevent soil erosion and keeping moisture. Advice to maintain farmland doing terracing. Spread of straw as a mulch to keep moisture and avoid weeds come up. But continuation of some activites needed.

Built a pump house to set up a pump to cater AEIP and DATC.

**ACTIVITY RESULT IN  
AGRICULTURE EXTENSION IMPROVEMENT PROJECT  
GAMPAHA  
SRI LANKA**

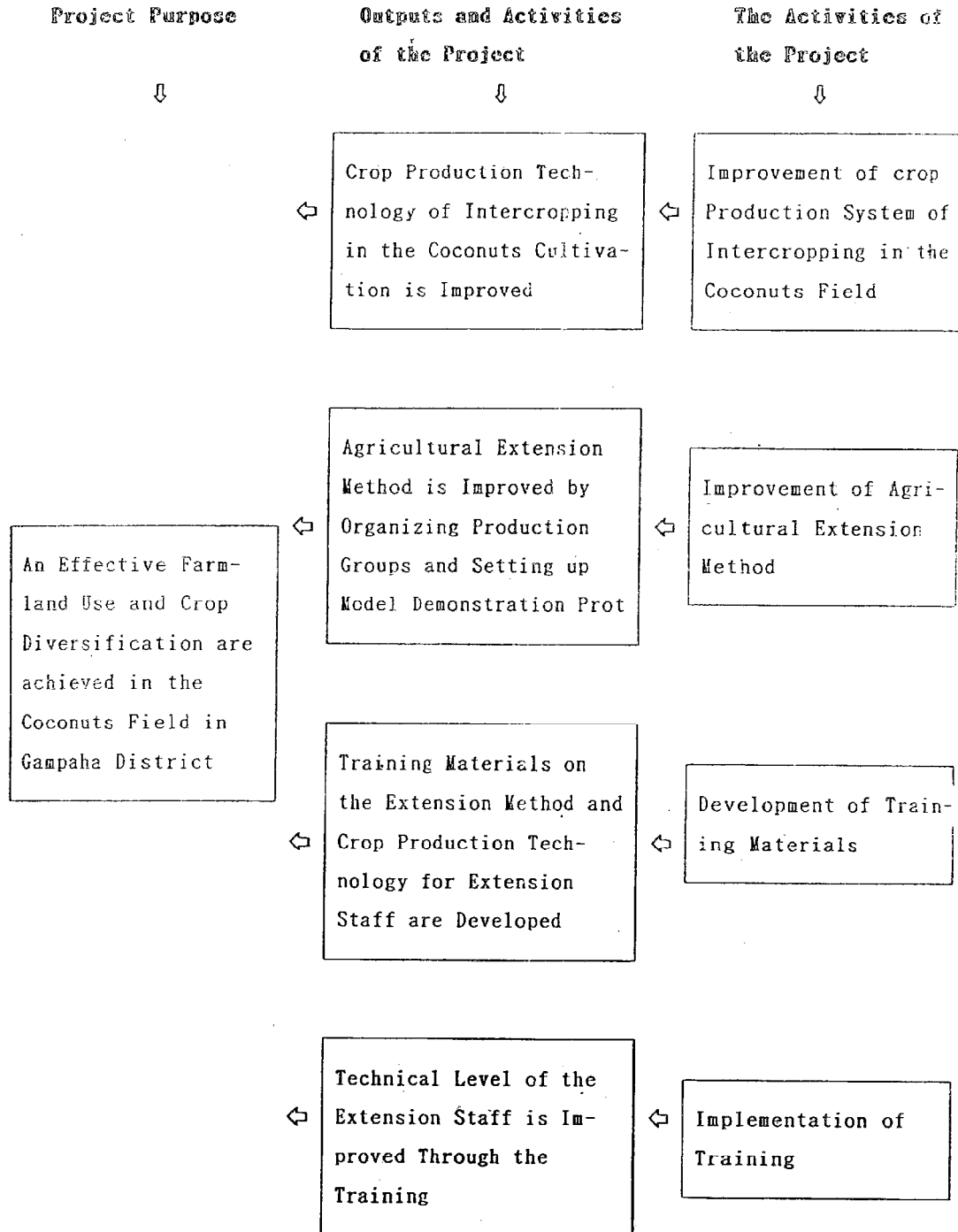
**EXTENSION SECTION  
22/04/1999**

## **Contents**

1. Major components of AEIP
2. Criteria to select model groups
3. Spot map of model groups
4. Function chart of AEIP
5. Result of cultivation in production groups since 1995/96 Maha to 1998/99 Maha
6. Revolving fund method for the fosterization of self motivated production group.
7. Condition of group fund in the production group
8. Total input to the production group-Production materials
9. Total input to the production group-Machinery and equipment
10. Cocurriculum for AEIP training.
11. Activity result of training
12. Activity result of training materials
13. Farmers survey ( General evaluation )

# Major Component of the AEIP

— The Master Plan of The Record of Discussions (R/D) —





## Criteria for Selecting Model Groups in AEIP

### 1. Extension group

#### 1) Basic data collection

Name, Age, Sex, Family construction, Type of farming, Labor employment, Land holding, Area of coconut land, Utilization of coconut land, Present cultivation condition, Machinery & equipment holding, Live stock, Training experience and etc.

2) Farmers and VO's interest for group activity.

3) Condition of group leader.

### 2. Crop cultivation group

1) Coconut shading condition by visual, Age of coconut tree & productivity

2) Soil fertility, soil sampling from each farmer's field.

3) Farmer's intension to introduce kind of crops.

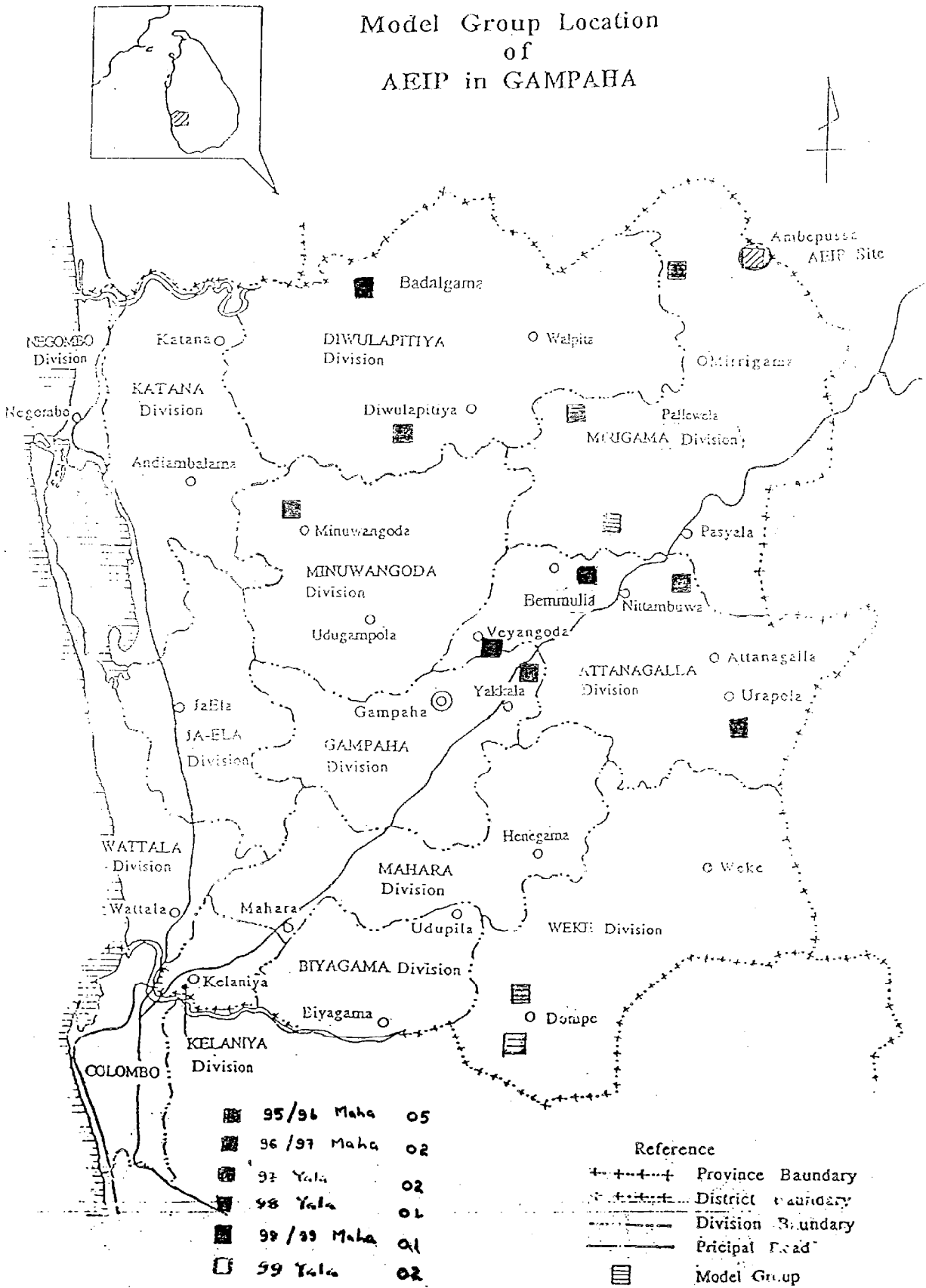
### 3. Water management group

1) Topography.

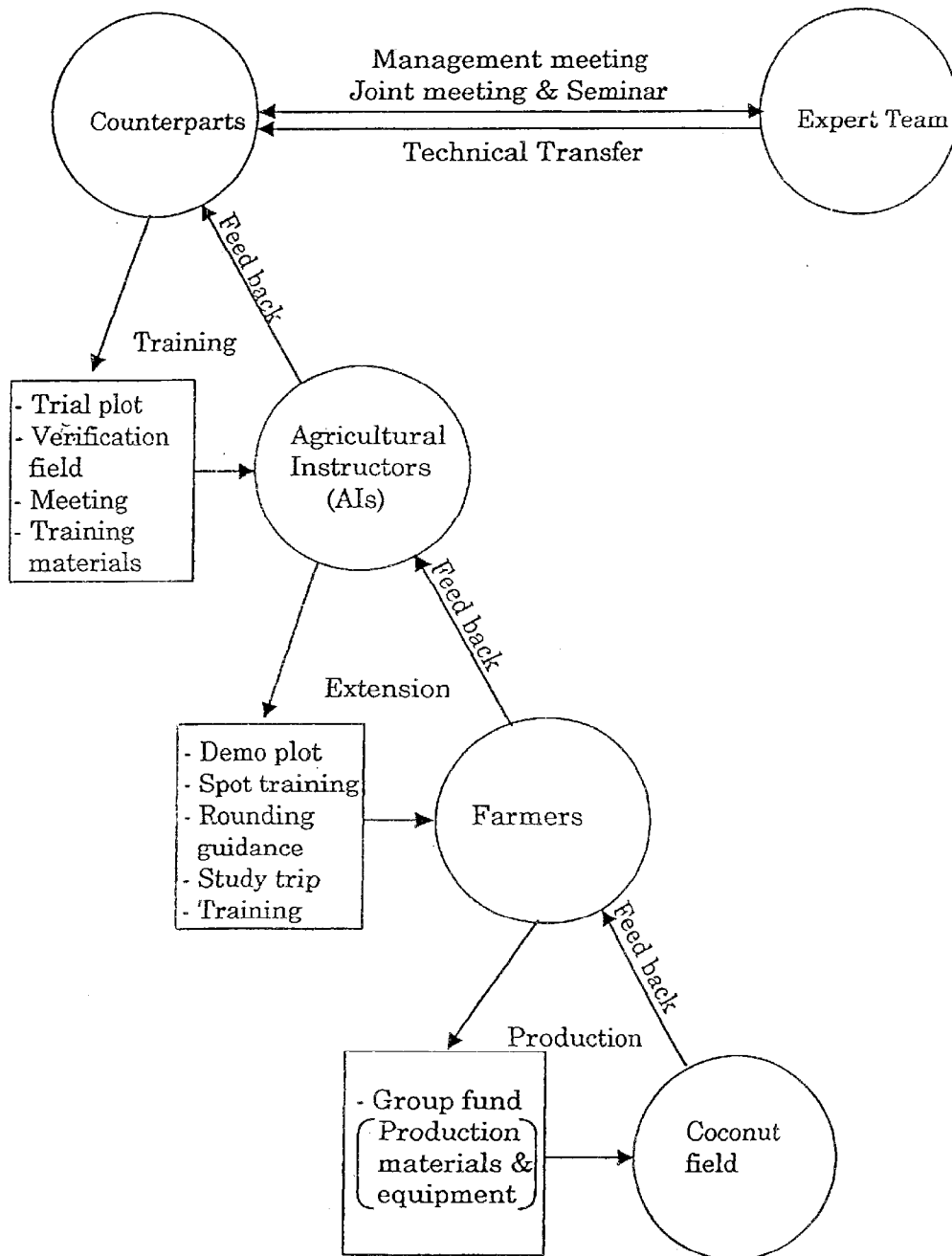
2) Water resources, irrigation & drainage condition.

3) Under ground water level at present & dry season.

# Model Group Location of AEIP in GAMPAHA



Function chart of  
Agricultural Extension Improvement  
Project in Gampaha  
(AEIP)



Draft

## Results of cultivation in production group since 1995/96 Maha to 1998/99 Maha

Unit : Acre

Crop season	Crops	Mirigama	Nittanbuwa	Minuwangoda	A. Bogamuwa	Maradagaha	Badalgama	Bennimula	Pallawala	Dompe	Urapola	Magalegoda	Total
		Farm:Area	Farm:Area	Farm:Area	Farm:Area	Farm:Area	Farm:Area	Farm:Area	Farm:Area	Farm:Area	Farm:Area	Farm:Area	Farm:Area
95/96 Maha	Banana	1 1.88	11 1.51	1 0.17	2 2.29	7 0.71							22 6.56
96 Yala		1 1.88	1 0.11	4 0.67	1 0.42	2 0.21							9 3.29
97 Yala		1 0.63	1 0.63	2 1.25	1 0.63			4 1.61					9 4.75
97/98 Maha		8 5.33		1 0.21	4 2.17	4 4.17	2 3.75	12 8.53	1 0.83				32 22.90
98 Yala		4 2.69	1 0.21	8 2.44	4 1.98	1 0.83	2 2.71	1 0.17		1 0.63	6 8.21		26 19.97
98/99 Maha		2 1.35	1 0.17	3 0.52	1 1.25	2 0.63	3 1.35	2 0.27	6 3.16		3 4.08	2 1.25	25 14.01
	total	17 13.76	15 2.63	19 5.26	13 8.74	16 6.55	7 7.81	19 10.58	7 3.99	1 0.63	9 12.27	2 1.25	125 73.47
95/96 Maha	Pineapple		1 0.50	1 0.50									2 1.00
97 Yala			1 1.00										1 1.00
97/98 Maha		1 0.50	2 1.75	1 1.50			1 0.50		1 1.00	1 0.50			7 5.75
98 Yala		1 4.00	1 1.50	1 1.50							1 4.00		4 11.00
98/99 Maha		2 3.75	1 2.00				1 1.00			12 4.00	2 6.00	4 10.00	20 26.75
	total	4 8.25	6 6.75	3 3.50			2 1.50	6 6.00	1 1.00	13 4.50	3 10.00	4 10.00	36 45.50
95/96 Maha	Papaya			1 0.20									1 0.20
96 Yala			1 0.33										1 0.33
97 Yala			2 0.92		3 0.75				2 1.67	3 2.08			10 5.42
97/98 Maha				1 0.25	3 0.40			1 0.17		5 0.42			10 1.24
98 Yala					2 0.58								2 0.58
98/99 Maha									1 0.33		1 1.00		2 1.33
	total		3 3.00	2 2.00	8 8.00			1 1.00	3 3.00	8 8.00	1 1.00		26 26.00
97/98 Maha	Passion fruit		2 1.50						1 1.00				3 2.50
95/96 Maha	Chillie	8 1.62											8 1.62
96 Yala		6 0.87	1 0.01	2 0.33	9 2.68	16 0.07							34 3.96
96/97 Maha			2 0.37	2 0.38	3 0.41	1 0.25		2 0.51					10 1.91
97 Yala					3 0.62	2 0.50		1 0.50					6 1.62
97/98 Maha				1 0.50				1 0.25		3 1.00			5 1.75
98 Yala									1 0.12				1 0.12
98/99 Maha				1 0.12						1 0.12			2 0.24
	total	14 2.49	3 0.38	6 1.33	15 3.71	19 0.82	1 0.25	3 1.00	1 0.12	4 1.12			66 11.22

Plant number in one acre

	Banana	Beter leaf	Coconut	Eggplant	Papaya	Pineapple	Passion fruit	Pepper
Open field	420	60,000	3,000	7,400	450	8,000	400	1,000
Under coconut	240	40,000	2,000	5,200	300	4,000	250	680

Crops 1999/4/12

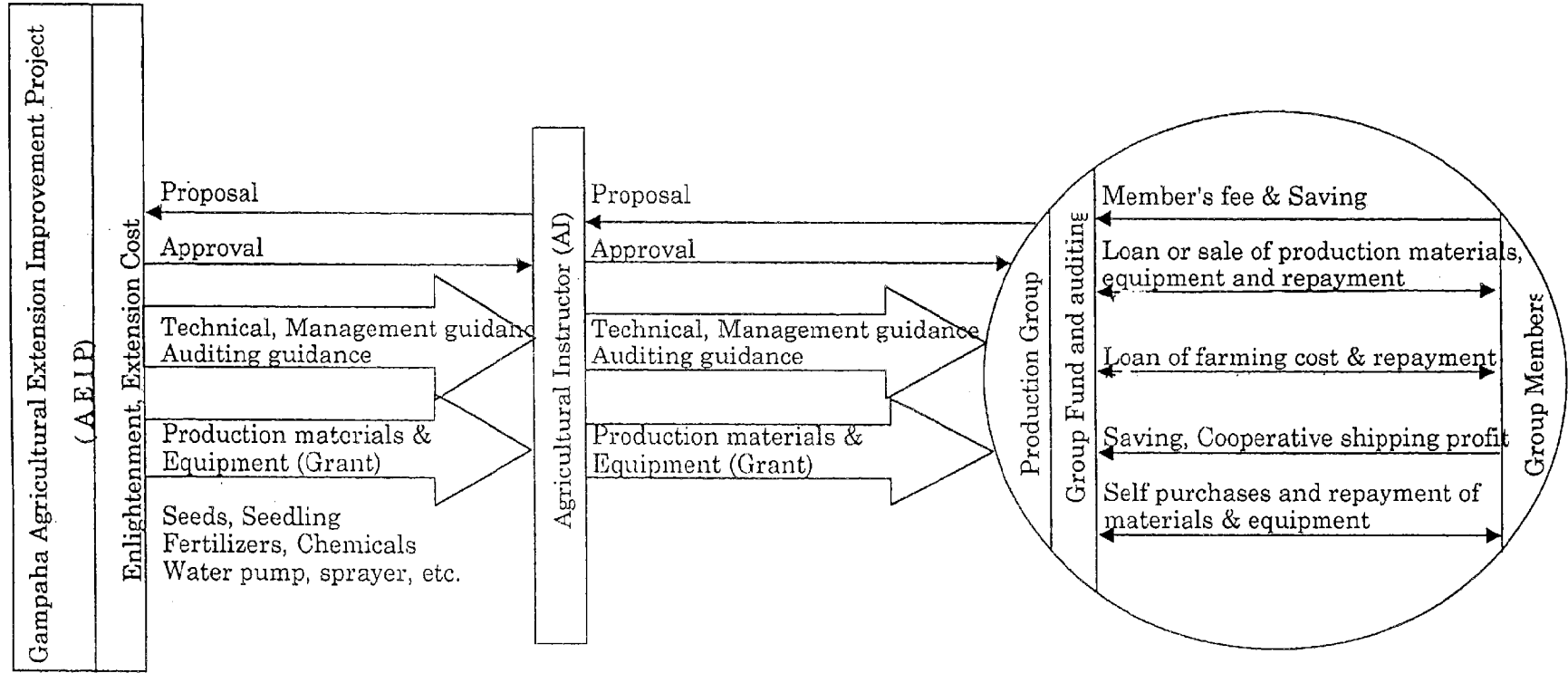
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Crop season	Crops	Mirigama	Nittanbuwa	Minuwangoda	A. Bogamuwa	Maradagaha	Badalgama	Bennmulla	Pallawela	Dompe	Urapola	Magalegoda	Total
		Farm:Area	Farm:Area	Farm:Area	Farm:Area	Farm:Area	Farm:Area	Farm:Area	Farm:Area	Farm:Area	Farm:Area	Farm:Area	Farm:Area
95/96 Maha	Okra			1 0.05	1 0.25	1 0.01							3 0.31
96 Yala		1 0.25		1 0.12	1 0.35	1 0.01		3 0.62					7 1.35
96/97 Maha		1 0.25		2 0.26			1 0.5	3 0.65					7 1.66
97 Yala				1 0.50		1 0.50							2 1.00
97/98 Maha					3 0.33				1 0.25	1 0.25			5 0.83
98 Yala		1 0.25					1 1.25						2 1.50
98/99 Maha				1 0.12	1 0.12								2 0.24
	total	3 0.75		6 1.05	6 1.05	3 0.52	2 1.75	6 1.27	1 0.25	1 0.25			28 6.89
95/96 Maha	Eggplant		1 0.01		1 0.01								2 0.02
96 Yala		6 0.39	1 0.12	3 0.04	12 0.33	7 0.05							29 0.93
97 Yala										3 2.00			3 2.00
97/98 Maha					1 0.25								1 0.25
98 Yala										1 0.50			1 0.50
98/99 Maha										2 0.50			2 0.50
	total	6 0.39	2 0.13	3 0.04	14 0.59	7 0.05				6 3.00			38 4.20
96/97 Maha	Bitter gourd	3 1.25			1 0.25								4 1.50
96/97 Maha	Snake gourd				3 0.38								3 0.38
96 Yala	Gourd(other)	1 0.12		1 0.08		1 0.56							3 0.76
97/98 Maha										1 0.50			1 0.50
98 Yala										4 1.75			4 1.75
98/99 Maha										1 0.50			1 0.50
	total	1 0.12		1 0.08		1 0.56				6 2.75			9 3.51
96/97 Maha	Knolkhol				1 0.06								1 0.06
95/96 Maha	Beans (Bushita)				1 0.16	1 0.12							2 0.28
98 Yala							1 0.50						1 0.50
	total				1 0.16	1 0.12	1 0.50						3 0.78
96/97 Maha	Long bean	1 0.25		1 0.25		1 0.25							3 0.75
96 Yala	Cocoyam	5 0.45	11 0.86	5 0.23	9 1.43	19 2.38							49 5.35
97 Yala		6 3.05	8 0.86	12 7.01	11 3.28	9 4.00	8 4.21	8 4.10	9 1.82	12 3.63			83 31.96
98 Yala		2 0.75		7 3.61	6 1.68	2 0.18		1 0.38	9 2.48	2 2.00	2 0.75		31 11.83
	total	13 4.25	19 1.72	24 10.85	26 6.39	30 6.56	8 4.21	9 4.48	18 4.30	14 5.63	2 0.75		163 49.14

Draft

Crop season	Crops	Mirigama		Nittanbuwa		Minuwangoda		A. Bogamuwa		Maradagaha		Badalgama		Bennmulla		Pallawela		Dompe		Urapola		Magalegoda		Total	
		Farm	Area	Farm	Area	Farm	Area	Farm	Area	Farm	Area	Farm	Area	Farm	Area	Farm	Area	Farm	Area	Farm	Area	Farm	Area	Farm	Area
97 Yala	Ginger	2	1.00	2	0.75					2	0.75	1	0.12	1	0.25	4	2.00	1	0.25					13	5.12
98 Yala		5	1.75	1	0.50	1	0.50	3	1.25	3	1.25	2	1.00	5	2.75	8	3.75	5	2.62					33	15.37
	total	7	2.75	3	1.25	1	0.50	3	1.25	5	2.00	3	1.12	6	3.00	12	5.75	6	2.87					46	20.49
96/97 Maha	S. potato					1	0.03																1	0.03	
97 Yala		1	0.25			1	0.25	1	0.25														3	0.75	
97/98 Maha								1	0.25	1	0.50			1	0.50								3	1.25	
98 Yala										2	0.50												2	0.50	
	total	1	0.25			2	0.28	2	0.50	3	1.00			1	0.50								9	2.53	
96/97 Maha	Tomato							1	0.06														1	0.06	
98/99 Maha	Luffa	1	0.25															1	0.50				2	0.75	
97 Yala	Cassava	4	1.75					1	1.00	1	0.50					3	3.00						9	6.25	
98 Yala						1	1.00																1	1.00	
	total	4	1.75			1	1.00	1	1.00	1	0.50					3	3.00						10	7.25	
97 Yala	Betel leaf																	7	0.28				7	0.28	
97/98 Maha						1	0.01					1	0.04					1	0.01				3	0.06	
98/99 Maha		1	0.03			3	0.03											2	0.08				6	0.14	
	total	1	0.03			4	0.04					1	0.04					10	0.37				16	0.48	
98/99 Maha	Pepper	1	1.00			2	0.29					1	0.50										4	1.79	
	<i>The grand total area</i>		37.54		17.36		26.47		32.14		18.93		17.68		21.33		22.91		29.62		24.02		11.25	258.25	

## Revolving Fund Method for the Fosterization of Self Motivated Production Group



Condition of group fund in the production group  
(As of the end of March 1999)

Group	Item	Crop year	Members	Cash in hand (Rs)	Bank deposit (Rs)	Loan to the farmer (Rs)		Total fund
						Pump	Production materials	
Nittanbuwa		95/96Maha	9	0	71,074.05	15,259.83	0	86,333.88
A.Bogamuwa		95/96Maha	11	200.00	95,618.62	7,338.00	0	103,156.62
Mirigama		95/96Maha	12	0	53,291.85	7,744.92	42,547.33	103,584.43
Minuwangoda		95/96Maha	12	2,483.00	47,183.86	31,572.65	35,370.60	117,111.91
Maradagahamula		95/96Maha	12	4,773.40	59,176.82	4,556.21	1,158.00	69,664.43
Bemmulla		96/97Maha	16	496.67	66,153.63	11,446.63	63,379.55	141,476.48
Badalgama		96/97Maha	12	3,013.55	40,615.51	17,843.96	ポンプに含む	61,473.02
Pallewela		97Yala	9	615.69	70,000.00	10,965.29	8,347.50	89,928.48
Dompe		97Yala	12	0	34,228.05	144,300.00	ポンプに含む	178,528.05
Urapola		98Yala	8	0	28,500.00	0	58,333.61	86,833.61
Magalegoda		98/99Maha	6	0	0	0	145,000.00	145,000.00
Pasyala		99Yala	8	0	0	0	96,835.00	96,835.00
Dompe(woman)		99Yala	8	0	0	0	43,200.00	43,200.00
Total		13 group	126	11,582.31	565,844.19	251,027.49	494,671.92	1,323,125.91



Total input to the production group (Extention enlightment cost—Production material))

(Unit:Rs)

Crop season Group	95/96	96	96/97	97	97/98	98	98/99	99	Total
	Maha	Yala	Maha	Yala	Maha	Yala	Maha	Yala	
Minuwangoda	50,000	20,600	21,400	17,500	15,000	21,750	0	0	146,250
Maradagahamula	49,558	23,500	22,750	14,500	25,800	6,000	0	0	142,108
Mirigama	50,000	20,600	20,550	15,680	23,700	18,625	0	0	149,155
A/Bogamuwa	49,560	40,700	20,550	17,500	19,200	12,000	0	0	159,510
Nittanbuwa	27,499	20,600	20,900	15,000	18,500	0	0	0	102,499
Bemmulla			37,875	15,192	40,404	0	0	0	93,471
Badalgama			48,750	9,627	14,820	9,000	0	0	82,197
Dompe				49,500	15,000	0	72,000	0	136,500
Pallewela				37,050	20,500	3,000	0	0	60,550
Urapola						12,000	51,000	0	63,000
Magalegoda							145,000	0	145,000
Pasyala								96,835	96,835
Dompe(Woman)								43,200	43,200
Total	226,617	126,000	192,775	191,549	192,924	82,375	268,000	140,035	1,420,275

Note (1) The figure of shading portion since 97/98Maha season have been supplied in kinds and paid back to the group fund.

Total input to the production group (Extension enlightenment cost—Machinery & Equipments)

(Unit:Rs)

Item Group	Group established	Pump (Kerosin)	Pump (Motor)	Hose & Parts	Hand sprayer	Balance	One wheel cart	Water tank	Signboard	Others, Sprinkler	Total
Minuwangoda	95/96Maha	23,900	7,500	34,147	4,690	2,900	3,000	4,800	2,000	2,150	85,087
Maradaghamula	95/96Maha	23,900	0	10,950	4,690	2,900	3,000	4,800	2,000	0	52,240
Mirigama	95/96Maha	23,900	8,525	17,565	4,690	2,900	3,000	4,800	2,000	2,150	69,530
A.Bogamuwa	95/96Maha	23,900	17,050	11,640	4,690	2,900	4,250	4,800	2,000	0	71,230
Nittanbuwa	95/96Maha	23,900	8,525	14,620	4,690	1,800	4,250	4,800	2,000	1,950	66,535
Bemmulla	96/97Maha	51,440	25,525	19,409	4,690	2,900	3,000	4,800	0	0	111,764
Badalgama	96/97Maha	0	8,525	4,865	4,690	2,900	0	0	0	650	21,630
Dompe	97Yala	0	61,675	11,100	4,690	2,900	0	1,700	0	275	82,340
Pallewela	97Yala	25,720	17,050	13,327	4,690	2,900	0	5,250	0	200	69,137
Urapola	98Yala	0	0	0	4,690	2,900	0	0	0	0	7,590
Total		196,660	154,375	137,623	46,900	27,900	20,500	35,750	10,000	7,375	637,083

Note: (1) The Equipment of shading portion were disposed to the group members and paid back to the group fund.

Core Curriculum  
for AEIP Training  
in Initial Stage

— List of AEIP Training —

Conducte	Training name(Temporary)	Participants	Purpose or core subjects	Target
1. AEIP	① Group rounding training	AI, VO, GL, DF	- Study general situation on other group activity	1 day / every 2 month
	② Special subjects training	AI	- High level with seasonable farming technique - Practical extension method	1 day / every month 1 day/every month (inc. AI meeting)
	③ Study trip	VO, GL, DF AI, VO, GL, DF, GM	- General seasonable farming technique - Group management knowledge - Study special advanced farming situation	1 day / every season 1 day / every season
2. AI	① Field rounding training	VO, GL, DF, GM	- Exchange practical farming technique in the members	1 day / every month
	② Spot training	VO, GL, DF, GM	- Seasonable farming technique	1 day/every season
	③ Intergroup training	VO, GL, DF, GM	- Exchange practical knowledge	
3. DDAO	① General AIs training	All AI in Gampaha District	- Publicity of actual condition on group activity	1 day / every season
	② Special AIs training	AI on similar activity	- Promote similar AI activity for extend group activity	1 day / every 3 month
4. IRDP	① General extension staffs training	All EAO, LDI, CDO, DO DS in Gampaha D.S.	- Publicity of actual condition on model group activity	1 day/every year

## Draft

### Training at Project site

Date	Contents	Participants
June, '95	Seminar on present marketing practice of Gampaha farmer and future prospects by Mr. Tani (Short term expert)	A.I
June, '95	Seminar on the socio-economic condition on the model groups and development of "Sanchi" in Gampaha by Mr. Tokuda ( " )	A.I
June '95	Seminar on training system at AEIP by Mr. Tezuka ( " )	A.I
Mar. '96	Seminar on training plan making by Mr. Haga (short term expert)	A.I
April '96	Vegetable cultivation, other crops cultivation and water management	A.I
May '96	Vegetable cultivation, other crops cultivation and water management	A.I
July '96	Vegetable cultivation, other crops cultivation and water management	A.I
Aug. '96	Vegetable cultivation, other crops cultivation and water management	A.I
Sept. '96	Vegetable cultivation, other crops cultivation and water management	A.I
Oct. '96	Vegetable cultivation, other crops cultivation and water management	A.I
Nov. '96	Practice of pH measurement	A.I
Nov. '96	Cocoyam cultivation and Camera control method	A.I
Jan. '97	Practice of Compost making	A.I
Feb. '97	farmer's day	A.I & farmer
Feb. '97	Cocoyam cultivation and plant protection on vegetable	A.I
Mar. '97	Ginger and yard long bean cultivation and nursery bed soil making	A.I
Apr. '97	Mixed crop of chili and cocoyam, sweet potato seedling production and corn cultivation	A.I
May '97	Compost making, passion fruit cultivation, chili seedling production	A.I
June '97	Practice of Compost making, fertilizer application methods	A.I
July '97	Audio Visual handling methods (short term expert seminar)	A.I
Aug. '97	Pineapple sucker control, vegetable seeds seed production	A.I
Sep. '97	Role of group leader, fund book keeping, and nursery management	A.I & farmer
Oct. '97	Visiting project site from Kurunegala Agricultural Instructor	A.I
Oct. '97	Banana cultivation and its extension.	A.I
Nov. '97	Passion fruit and betel leaf cultivation and its extension.	A.I
Dec. '97	Banana cultivation and its extension.	A.I & farmer
Jan. '98	Ginger and <i>Dioscoreaceae</i> crops cultivation and its extension.	A.I
Feb. '98	Chili cultivation and its extension.	A.I & farmer
Feb. '98	Cocoyam cultivation.	A.I
Mar. '98	Water pump control and maintenance.	Pump holder
June. '98	Work shop on guideline making for the fostering of production group	A.I
July. '98	Agricultural products market, its capitals and subsidies.	A.I & farmer
July. '98	Work shop on guideline making for the fostering of production group	A.I
Aug. '98	Work shop on guideline making for the fostering of production group	A.I
Sep. '98	Seminar on cocoyam disease protection by Dr. Yoneyama (short term expert)	A.I
Nov. '98	Group fund book keeping method.	A.I
Nov. '98	Seminar on farm management by Mr. Takao(short term expert)	C/P, A.I.
Jan. '99	Group fund book keeping method.	A.I
Mar. '99	Group fund book keeping method.	A.I & farmer

1999/4/21

Table 2 Farmers survey (General evaluation)

Question	Q1.How was it good to join production group?(生産集団に参加してどうでしたか?)					Q2.How much increased your farm income by introducing of up-land crops?(畑作物の導入であなたの農家収入は増えましたか?)					Q3.How was the yield of your main crop in last season?(前作期のあなたの主作物の収量はいかがでしたか?)				
	Bad	Not good	Average	Good	Very good	Poor	A little	Average	Much	Very much	Very poor	Poor	Average	Good	Very good
Group															
Minuwangoda				2	10		1	8	1	2			7	3	2
Nittanbuwa			1	2	3		2	3	4				4	3	2
Mirigama			1	7	3			4	7				3	4	4
Maradagahamula			1	4	4	1	1	3	4				6	1	2
A.Bogamuwa			1	6	5		1	3	8		2		6	0	2
Badalgama				1	9		2	3	4	1			5	2	5
Bemmuila			1	3	5			3	6		1	0	6	0	2
Palewella				3	12			4	7	5			2	3	10
Dompe				5	7			1	7	4			3	1	8
Total			5	34	60	1	7	32	48	12			42	17	37
Ratio(%)			5.1	34.3	60.6	1.0	7.1	32.3	48.5	12.0	1.0	2.0	42.3	17.1	37.3