

付属資料7. プロジェクト合同委員会資料
(18th, JANUARY, 1996)

AGENDA
THIRD LWCC JOINT COMMITTEE MEETING
THURSDAY 18 JANUARY 1996
DLD CONFERENCE ROOM , 1ST FLOOR

CHAIRMAN : Director General of DLD - Mr. Sompong Theerawong

PARTICIPANTS : Thai-Japanese members of LWCC Joint Committee and JICA Technical Guidance Team

TIME : 10.30 A.M.

Agenda_I Information given by Mr. Chairman

- 1) To open the meeting and welcome the JICA Technical Guidance Team
- 2) Brief explanation on function and composition of LWCC Joint Committee

Agenda_II

Introduction of participants:

- 1.1 LWCC Project Manager (Deputy Director General, Mr. Upatham Potisuwan) introduces DLD participants and representatives of other agencies
- 1.2 LWCC Team Leader introduces JICA Experts of LWCC Project
- 1.3 Leader of JICA Technical Guidance Team introduces team members

Agenda_III

Approval of the minutes of the 2nd LWCC Joint Committee meeting on June 16, 1995

Agenda_IV

Acknowledging the following issues :

- 1) Summary Report of JICA/DLD Input
- 2) Summary Report of LWCC Activities
- 3) Annual Work Plan of LWCC in 1996

Agenda_V

Others

MINUTES

SECOND JOINT COMMITTEE MEETING
LAND AND WATER CONSERVATION CENTER PROJECT
IN THE EAST OF THAILAND
(LWCC)

HELD ON FRIDAY 16th JUNE 1995, 10.00 A.M.
AT DEPARTMENT OF LAND DEVELOPMENT (DLD), BANGKOK

Participants

Thai Side

DLD Officials

- | | |
|---------------------------------------|--|
| 1. Mr. Boonyaruk Suebsiri | Director-General |
| 2. Mr. Upathan Potisuwan | Deputy Director General on Administration |
| 3. Mr. Sompong Theerawong | Deputy Director General on Operation |
| 4. Mr. Chairat Seniwongse Na Ayudhaya | Director of Engineering Division |
| 5. Mr. Manu Srikhajon | Acting Director of Soil and Water
Conservation Division |
| 6. Mr. Padege Kanchanakool | Director of Land Development Regional
Office 2 |
| 7. Mr. Piyaporn Saligupta | Training Office |
| 8. Miss Bhatra Chindanon | Planning Division |
| 9. Mr. Chumpol Lilittham | Planning Division |
| 10. Mr. Pongpiya Piyasirananda | Training Office |

Officials from Agencies Concerned

- | | |
|-------------------------------|------------------------|
| 1. Mr. Nipon Sirivat | Representative of DTEC |
| 2. Mr. Pairoj Somanus | Representative of DOA |
| 3. Mr. Rungsum Kong-ngoen | Representative of DOAE |
| 4. Mr. Sumit Saenkulsirisak | Representative of BOB |
| 5. Mr. Supat Nakarat | Representative of BOB |
| 6. Mrs. Pennee Chalongkitikul | Representative of BOB |

Colombo Plan Expert Attached to DLD

1. Mr. Kosho DAIGO - Agricultural Land Use Planning

Japanese Side

LWCC Experts

1. Mr. Yasuhiko MISHIMA - Team Leader
2. Mr. Akira MIYAZAKI - Planning & Design Criteria
3. Mr. Tsumunari SAGAWA - Construction & Monitoring
4. Mr. Hirochika INOUE - Cultivation & Soil
5. Mr. Yoshinori TAKAHASHI - Coordinator
6. Mr. Akio OTAKA - Coordinator

JICA Officers

1. Mr. Toshio ASANO - Deputy Resident Representative
2. Mr. Toshio OGAWA - Assistant Resident Representative

Absentees

1. Mr. Sima Morakul - Deputy Director General on Technical
2. Mr. Ard Somrang - Director of Planning Division

Observers

1. Mr. Songsak Wongbhumiwat - DLD
2. Mr. Sakda Sukviboon - DLD
3. Mrs. Waraporn Boonsorn - DLD
4. Miss Kreeyaporn Devahastin - DLD
5. Miss Prathueang Wanaeloh - DLD
6. Mrs. Matthana Mingwanich - DLD

Agenda 1 : Issues to be informed by Chairman of the meeting

1. The objective of the Annual Joint Committee Meeting is to sum up the progress of the LWCC project

Agenda 2 : Approval of the minutes of the 1st LWCC Joint Committee Meeting on March 17, 1994

1. The minutes was approved without any correction or comment.

Agenda 3 : Progress of LWCC activities

1. Progress on Planning, Design and Construction reported by Chairman of the Working Group, Director of Engineering Division
2. Progress on Cultivation and Soil and Trial Farm reported by Mr. Manu Srikhajon, Acting Director of Soil and Water Conservation Division
3. Progress on Monitoring reported by Chairman of the Working Group, Director of Land Development Regional Office II
4. Progress on Training reported by Chairman of the Working Group, Mr. Pongpiya Piyasirananda
5. Progress on LWCC Pilot Area Implementation reported by Chairman of the Working Group, Director of Land Development Regional Office II (Progress Reports of the above-mentioned 5 activities were attached to the agenda distributed to all attendants)
6. Budgetary Plan of LWCC in 1995 by Project Manager
 - 6.1 Project Manager took over the position in October 1994 and has faced many problems especially cooperation among different agencies concerned. He comes up with the solution to revise LWCC working groups and hold monthly meeting among all working groups.
 - 6.2 Budgetary plan of LWCC in 1995
Bureau of Budget (BOB) allocated a total of 19.1 million Baht to LWCC project in the fiscal year 1995. Within this amount, 70% is aimed for LWCC implementation, 8% is for maintenance of mechanicals and 12% is for research and monitoring.

6.3 Despite enough budget provided by BOB for LWCC activities in 1995, DLD has a little bit short of labour.

6.4 Senior staff of BOB had recently visited LWCC project site, they have been satisfied with the outcome of LWCC and will continue to support budget for the year 1996.

6.5 Annual work plan of LWCC (1994/1995) by Project Manager

6.5.1 Annual work plan of LWCC prepared by Chairmen of each working group comprises 4 parts:

- 1) Preparation of technical criteria for land and water conservation
- 2) Management of land and water conservation works
- 3) Preparation of a manual on cultivation and soil management for land and water conservation
- 4) Training on land and water conservation

(Details of the annual work plan were distributed to all attendants)

6.5.2 Annual work plan in 1995 is almost the same as that in 1994 because the plan started in 1994 and has carried on in 1995

6.6 Summary report of JICA input by JICA Team Leader

JICA input in the 1994 Japanese fiscal year is as follows:

6.6.1 Five long-term experts

6.6.2 Four short-term experts

6.6.3 Acceptance of 4 counterpart personnel to Japan

6.6.4 Provision of equipment and machinery with an approximate total amount of 9.5 million Baht

6.6.5 Bearing a part of local cost for

- 1) LWCC Technical Training Course—about 95.7 thousand Baht
- 2) JICA Model Infrastructure Improvement Project -
5,337,000 Baht

Agenda 4 : Others

4.1 Representative of DTEC

(Mr. Nipon Sirivat)

4.1.1 DTEC has just been informed that DLD's request for the extension of 3 JICA long term experts under LWCC was already approved by the Government of Japan. They are :

- Mr. Yasuhiko MISHIMA : June 10, 1995 - June 9, 1996
- Mr. Hirochika INOUE : June 10, 1995 - June 9, 1996
- Mr. Akira MIYAZAKI : June 10, 1995 - April 30, 1996

4.1.2 DTEC has been waiting for the approval of the Government of Japan for the training programme scheduled to be held in Japan in 1995 for 5 DLD officials.

4.1.3 DTEC has provided counterpart funds for LWCC in 1995, with an approximate of 900,000 Baht, as a support for drivers and secretaries of long term experts, etc.

4.2 LWCC long term expert in Trial Farm Management

(Mr. Akira MIYAZAKI)

Mr. MIYAZAKI reported that the experiment activities under Trial Farm Management have started since last May. Efforts have been made to collect good data. Mr. MIYAZAKI requested for assistance and participation of people concerned in Trial Farm Management.

4.3 Representative of Soil and Water Conservation Division, DLD

(Mr. Manu Srikhajon)

Mr. Manu convinced the meeting that in coming year, the Division can give more collaboration in research activities.

4.4 Team Leader of JICA Experts

(Mr. Yasuhiko MISHIMA)

4.4.1 Mr. MISHIMA made a request for DLD full-time counterparts, for example, in the field of GIS

4.4.2 Mr. MISHIMA introduced Mr. Akio OTAKA, a newly-assigned Coordinator of LWCC Project.

4.5 LWCC Project Manager

(Mr. Upatham Potisuwan)

- 4.5.1 Under Trial Farm Management, all plots have not completely been opened due to budget constraint for labour. But this year, the situation will be improving. He has asked Land Development Regional Office II to give full support to Trial Farm activities.
- 4.5.2 Research staff under Soil and Water Conservation Division have already been dispatched to work for Trial Farm Management. These staff have been obliged to do their routine researches and also work for LWCC. At least 1-2 DLD staff are quite full-time counterparts, i.e., Mr. Somsak Thongwivat has worked for GIS and Mr. Sakda Sukviboon has spent most of the time for Trial Farm. Both have been asked to conduct their own research works in Rayong where they can work on LWCC Trial Farm as well.
- 4.5.3 According to the reorganization of DLD, it is supposed to rearrange the job of Technical Section under LDRO II in order to work side by side with LWCC.
- 4.5.4 He thanked JICA for taking good care of LWCC, DLD will also take good care of it.

4.6 Deputy Resident Representative of JICA Thailand Office

(Mr. Toshio ASANO)

- 4.6.1 He appreciated DLD effort in implementing LWCC project and asked DLD to allocate full-time counterparts. He emphasized that the spirit of technical cooperation is transfer of technology.

4.7 Director-General of Department of Land Development (DLD)

(Mr. Boonyaruk Suebsiri)

- 4.7.1 DLD has been waiting for approval from Civil Service Commission for the reorganization of DLD.

- 4.7.2 As a result of DLD reorganization, a number of staff from DLD Headquarters will be transferred to Land Development Regional Offices (LDRO). Number of sections in LDRO will be increased from the existing 4 to 7 sections. This implies that some more counterparts from LDRO II will be assigned to work for the project.
- 4.7.3 There will be good incentives for technical staff under Technical Section and Soil Survey Section in LDROs as well as technical staff in Soil Survey Division and Soil and Water Conservation Division in DLD HQ. With the accumulation of research works and the requirement to transfer research works, technical people at level 3 can be automatically promoted to level 8. Technical staff will be more alert, active in order to get promotion.
- 4.7.4 Director-General of Department of Land Development thanked all agencies concerned for their continued support to LWCC.

The meeting ended at 11:30 am.

1.Input of JICA

1.1.Development Study Project

The Study on Agricultural Land Conservation for Integrated Rural Development in the East was carried out from September 24,1987 to July 12,1988.

1.2.Grant Aid Project

In order to implement the 16 pilot areas project,the agricultural machinery and equipment under JICA Grant Aid Project was provided in May 1991.The total amount is 320 million yen(64 million baht).

1.3.Project Type Technical Cooperation Project

1.3.1.Long term Expert

On the basis of the R/D,Japanese long term experts have been dispatched to the LMCC Project totaled seven (7).

1.3.2.Short term Expert

The Project received even(11)so far short term experts.

1.3.3.Acceptance of counterpart personnel

JICA accepted so far thirteen (13) counterparts as the trainees in Japan.

1.3.4.Provision of Machinery and Equipment

To implement the Project smoothly,the machinery and equipment has been provided such as one minibus,four pickup trucks,two minibuses,computers,investigation equipment and so on.The total amount is 20 million baht(about 80 million yen)up to the 1994 Japanese fiscal year.It is expected to be about 12.7 million baht(about 5million yen) in the 1995 Japanese fiscal year.

1.3.5. Bearing a part of local cost

JICA bore 1.238 million baht (about 5 million yen) up to the 1994 Japanese fiscal year. It is expected to be about 0.8 million baht (about 3.2 million yen) in the 1995 Japanese fiscal year.

1.3.6. The Model Infrastructure Improvement Works

JICA constructed the experimental plots in Rayong site for the purpose of:

- (1) To formulate the equation for water erosion prediction from various sites of farm land in the eastern Thailand.
- (2) To analyze factors relating to water erosion of farm land in the eastern Thailand.
- (3) To evaluate mechanical and vegetative control from bare land and managed land.

Construction work was from April 18 to August 10, 1994 and the construction cost of this works were 5,337,000 baht finally.

2. Input of DLD

2.1. Provision of Receiving JICA Grant Aid Project

2.1.1. Construction of Workshop

Ground floor	45x18	810m ²
Mezzanine		219m ²
Construction cost		4.9 million baht

2.1.2. Construction of Garage

Temporary garage	18x18	324 m ²
Construction cost		approx. 400,000 baht
Garage	36x18	648m ²
Construction cost		1.4 million baht

2.2. Counterpart personnel

2.2.1. To fulfill the project's goal, the DLD instruction No. 1003/2536 signed on Dec. 20, 1993 has been canceled and the DLD counterparts for LWCC experts are appointed by the DLD instruction No. 949/1994 on November 23, 1994. Thirty two (32) staff are being assigned as counterparts of the LWCC Project.

2.2.2. Implementing Organization

The DLD has organized LWCC Operation Sub-Committee and five working groups such as LWCC Pilot Area Implementation Working Group; Planning, Design and Construction Working Group; Cultivation, Soil and Trial Farm Management Working Group; Monitoring Working Group; and Training Working Group.

2.3. Provision of Land and Building

2.3.1. Land and Water Conservation Center Building

3rd Floor of World Bank Building has been provided for LWCC.
Floor space 12.1x9.1 110.1m²
Renovation cost approx. 677,000 baht

2.3.2. LWCC Branch Office

Location Land Development Regional Office 2 (LDR02)
Floor space (7x6)+(6.99x3) 62.97m²
Renovation cost approx. 321,000 baht

2.3.3. Land for Construction of Trial Farm

Area 1.5 ha
Location ; Land managed by Rayong Station
Self-Help Land Settlement Rayong, Mab Kha Sub-district, Kai district, Rayong Province 21180 Thailand

2.4. Local Budget

Local budget has been provided by the DLD from 1992 as follows.

FY	LWCC	Others	Total (million baht)
1992	6.5	2.2	8.7
1993	11.3	8.7	20.0
1994	17.3	-	17.3
1995	19.1	-	19.1
Total	54.2	10.9	65.1

3. Pilot Projects

The target areas of 16 pilot projects for LWCC are as follows.

Chonburi Province	3 sites
Chachoengsao Province	3 sites
Rayong Province	3 sites
Chanthaburi Province	3 sites
Sa Kaeo Province	2 sites
Prachinburi Province	1 site
Trad Province	1 site

Following four pilot projects have been completed.

CS-No.3	832 rai (133 ha)	FY 1992 & 1993	5.4 million baht
CT-No.2	1,588 rai (254 ha)	FY 1993	4.9 million baht
RY-No.1	1,190 rai (190 ha)	FY 1993	5.9 million baht
CN-No.10	1,800 rai (288 ha)	FY 1994	4.7 million baht
CN-No.11	1,100 rai (176 ha)	FY 1995	4.2 million baht
CS-No.9	3,680 rai (588 ha)	FY 1995	5.3 million baht
Total	10,190 rai (1,629 ha)		30.4 million baht

SUMMARY REPORT OF LWCC ACTIVITIES

Jan.1996

A. Planning ,Design Criteria and Construction Working Group

1. Planning and Design Criteria

(1) Data collection

Concerning data collection the Working Group has collected the data list attached and we think these collections are sufficient for the present. However, the Working Group will try to get information on updated technology for this field.

Thus, the Working Group will continue to collect data concerning land and water conservation in LWCC and will open them to all the people concerned, namely "The LWCC Library".

(2) Examination of the existing planning and design work

The Working Group examined the existing work of planning and design for the LWCC projects and made a plan to improve the work.

So far the Working Group collected the data mentioned above to work out suitable technical criteria and manuals for projects which would be implemented near future.

(3) Output of the LWCC activities on planning and design

The Working Group has prepared the technical manuals or instructions as given in the attached list. We are now preparing the Design Manual. Using the data collected by the Working Group and our experiences in the field work, the Working Group has discussed contents and types of measures and design methods which we should apply to the projects in order to make our design manual appropriate for the projects.

(4) GIS utilization for the LWCC

The Working Group examined the existing computer system and utilization of the system in DLD with Mr. Nagasawa, a short-term expert on this field, and consequently, the Working Group determined a series of programs to develop a method of preparing soil erosion hazard maps with six short-term experts including Mr. Nagasawa. The programs are namely making strategy, developing databases of land use, soil, rainfall, and topography, developing the USLE application for soil loss prediction, and calibration and evaluation of the application. So far JICA has sent three of them following the program based on a mutual agreement between JICA and DLD through the discussion with the JICA Consultation Team dispatched in March, 1994. The Working Group introduced methods of developing databases of land use, soil, and rainfall factors in the USLE method using a model area in Rayong.

2. Construction

(1) Cost estimation

The Working Group examined existing cost estimation methods. As a result of it, the Project has used the existing cost estimation methods based on Budget Bureau's methods.

Information on existing cost estimation methods is still being collected, thus the activity will be continued to compile draft manuals on cost estimation methods.

(2) Construction management

The Working Group has finished to collect and examine of existing construction and supervision methods. The Working Group has prepared following draft manuals based on the results of examination and Japanese standardized construction control methods.

- Technical Specifications
- Construction Control Standards
- Inspection Technique Standards
- Quality Control Manual

B. Cultivation, Soil and Trial Farm Management Working Group

1. Cultivation and Soil

LWCC collected the data on cultivation and soil conservation from the below organizations:

1. DLD
2. JIRCAS (Japan International Research Center for Agricultural Sciences)
3. ADRC (Agricultural Development Research Center in Northeast Thailand)
4. CIAT (Center International de Agricultural Tropical)
5. Field Crop Research Center (DOA, Rayong)
6. Horticulture Research Center (DOA, Chantaburi)
7. Para Rubber Research Center (DOA, Chachoengsao)
8. Others : IBSRAM and AIT

JICA also dispatched Dr. Kazumi Maeda, an expert on covercrop cultivation gave suggestions and recommendations to LWCC staffs.

LWCC selected the appropriate cultivation methods for land and water conservation to set up the following experiments.

1. Cover crop experiment

LWCC conducted the experiment to study on the effect of intercropping for soil erosion control. LWCC already harvested the first test and going on the data analysis processing to make report. LWCC conducted continuously the second year study on August 1995.

2. Keeping soil moisture test

LWCC conducted the preliminary experiment to study the agronomic cassava for soil erosion control in 1993. LWCC published and released the reports to concerned people.

Besides LWCC also modified the keeping soil moisture test to conducted the soil management system experiment for prevention soil erosion. LWCC harvested the first year study and under the data analysis processing to make report of the first study and conducted the second year study on November 1995.

2. Trial Farm Management

a. Planning and design

JICA dispatched Dr. Tamotsu FURUYA to give basic ideas of experimental plan for Trial Farm. JICA also dispatched the study team: Mr. Tsuneo MATSUTOMI and Mr. Hirofumi HAYASHI, to make a detailed design study for facilities and measurement.

The planning work of trial farm were divided in five items as follows:

1. Survey on the existing erosion conditions and soil loss
2. Determination of the target on reduction of soil loss
3. Consideration on the combination of agricultural and mechanical measures to reach the target
4. Cost estimation of the project
5. Benefit estimation and project evaluation

The investigation contributed mainly to the work no.3. The main contents of plan were formed and set up of 17 erosion plots and constructed the field laboratory. The erosion plots have been established to analyse and clarify the mechanism of soil loss used the USLE as a basic soil loss equation.

The plots were divided into five large groups for the experimental purposes, which are standard plots with 9% and 5% slope, traditional farming plots, agricultural measure plots, and mechanical measure plots. (see attached layout and arrangement of erosion plots)

b. Collection data

LWCC prepared the Measurement Data Manual : An Outline of Procedures for Trial Farm to measured the data as belows:

1. Bed load
2. Suspended load
3. Rainfall
4. Run-off water
5. Vegetation cover
6. Soil properties

*LWCC started the tests to collect the data in may 12, 1995 and could operate only 11 plots due to the limitation of budget. However, LWCC is going to certainly execute the rests in 1996.

c. Analysis

LWCC invited Dr. Azuma TAKAGI, a JICA short-term expert; Nov. 14 to Dec. 2, 1995 to consider the soil erosion analysis method.

LWCC also invited Dr. Mitsuo FUKADA, a JICA short-term expert; Sept. 27 to Oct. 10, 1995 to consider the analysis method for soil erosion study.

C. Monitoring Working Group

LWCC listed monitoring items which are considered applicable to the pilot project.

LWCC is carefully selecting monitoring items which will be actually applied, developing more detailed method for each item, and preparing an action plan for applying those methods to the selected pilot projects.

D. Training Working Group

1. Formulation of training plan and curriculum

LWCC has formulated the training plan and the curriculum in cooperation with Mr. Masafumi NONAKA, short-term expert on training plan (assignment period, Feb. 19-Mar. 6, 1994). The training working group prepared the curriculum of the LWCC Technical Training Course in the 1994 Japanese fiscal year in accordance with the whole training plan.

2. Preparation of teaching materials

Teaching materials have been prepared through LWCC activities so far for 3rd LWCC Technical Training Course.

3. Implementation of training course

LWCC plans to carry out the 3rd LWCC Technical Training Course at Grand Jomtien Palace Hotel from Feb. 12 to 17, 1996.

LWCC will invite additional participants from other region as the observers.

D. LWCC Pilot Area Implementation Working Group

FEASIBILITY STUDY (F/S)

by

Soil survey # Land use planning section

I. Activity

1. Contour # Land holding map (1:2000)
2. Soil map (1:2000)
3. Economic survey

II. Result (13 Sites)

- | | |
|-----------------------|----------------------|
| 1. CS - NO.3 | CHACHOENSAO |
| 2. <u>CS - NO.9</u> | |
| 3. CN - NO.4 | |
| 4. CN - NO.10 | CHONBURI |
| 5. <u>CN - NO.11</u> | |
| 6. PC - NO.1 | |
| 7. PC - NO.2 | PRACHINBURI # SAKAEO |
| 8. <u>PC - NO.3</u> | |
| 9. RY - NO.1 | RAYONG |
| 10. <u>RY - NO.10</u> | |
| 11. CT - NO.2 | CHANTHABURI |
| 12. <u>CT - NO.6</u> | |
| 13. TD - NO.1 | TRAT |

III. Work plan 1996 (3 Sites)

14. CS - NO.10
15. CT - NO.5
16. TD - NO.2

PLANNING # DESIGN

BY

RO2, ENG. DI # Prof. SAWAI

I. Activity

1) Conservation plan

- Diversion
- Hillside ditch
- Narrow base terrace
- Waterway
- Sediment trap
- Check dam
- Vetiver strip

RO2

2) Infra structure

- Farm road
- Farm pond

ENGINEERING. DI # Prof. SAWAI

II. Result (7 sites)

1. CS - NO.3
2. CT - NO.2
3. CN - NO.10
4. CN - NO.11
5. RY - NO.1
6. CS - NO.9
7. CN - NO.4

Engineering Division

Prof. SAWAI

III. Work plan 1996 (8 sites)

1. PC - NO.1
2. RY - NO.10
3. CT - NO.6
4. TD - NO.1

Complete in JANUARY 1996

5. PC - NO.2

6. PC - NO.3

} Complete in MARCH 1996

IV. Work plan 1997 (3 sites)

1. CS - NO.10

2. CT - NO.5

3. TD - NO.2

} Engineering Division

CONSTRUCTION

BY

L.D. STATION

I. Result of construction. 6 sites (1992 - 1995)

1. CS - NO.3

2. CS - NO.9

3. CT - NO.2

4. CN - NO.10

5. CN - NO.11

6. RY - NO.1

* Farm road

Annual Work Plan of LWCC (1995/1996)

Annual Work Plan of LMCC

(1/13)

Items	Contents of Activities	1995			1996			1997							
		Oc	No	De	Ja	Fe	Mc	Ap	My	Jn	Jl	Au	Se		
I. Preparation of technical criteria for land and water conservation 1-1 Data collection and improvement an analyzing system for land and water conservation	1-1-1 Collection and examination of existing planning and design criteria a) Planning criteria b) Design criteria (completed) 1-1-2 Examination of existing planning methods and consideration of improvement (completed) 1-1-3 Examination of existing design methods and consideration of improvement (completed) 1-1-4 Collection and introduction of other criteria and technical manuals a) From other organizations in Thailand b) From other countries														

Annual Work Plan of LMCC

(2/13)

Items	Contents of Activities	1995			1996			1997					
		Oc	No	De	Ja	Fe	Mc	Ap	Mj	Jn	Jl	Au	Se
	1-1-5 Collection and examination of existing computer systems a) GIS/Geographic Information System (completed)												
	1-1-6 Improvement of the systems and establishment of utilization methods a) GIS(database) soil and rainfall topography												
	1-1-7 Trial farm a) facility improvement b) data collection c) data arrangement												

Annual Work Plan of LMCC

(3/13)

I t e m s	Contents of Activities	1995			1996			1997					
		Oc	No	De	Ja	Fe	Mc	Ap	My	Jn	Jl	Au	Se
1-2 Implementation of adaptability trial for introduced basic criteria concerning planning and design for land and water conservation in selected pilot areas													
	1-2-1 Implementation and evaluation of adaptability trial of planning criteria												
	1-2-2 Implementation and evaluation of adaptability trial of design criteria												
	1-2-3 Monitoring of pilot areas												

Annual Work Plan of LMCC

(4/13)

I t e m s	Contents of Activities	1995			1996			1997					
		Oc	No	De	Ja	Fe	Mc	Ap	My	Jn	Jl	Au	Se
1-3 Preparation of basic criteria for planning and design of land and water conservation.	1-3-1 Compilation of existing planning and design criteria and technical manuals a) Examination and consideration of problems in the existing planning and design criteria and technical manuals b) Consideration of other introduction of other criteria and technical manuals (completed) 1-3-2 Preparation of basic criteria for planning and design of land and water conservation in the East of Thailand												

Annual Work Plan of LWCC

(5/13)

I t e m s	Contents of Activities	1995			1996			1997					
		Oc	No	De	Ja	Fe	Mc	Ap	Hy	Jn	Jl	Au	Se
2. Management of land and water conservation works													
2-1 Introduction of standardized cost estimation, construction and supervision methods for land and water conservation works													
	2-1-1 Examination of existing cost estimation methods and consideration of improvement												
	2-1-2 Examination of existing construction and supervision methods and consideration of improvement (completed)												
	2-1-3. Introduction and application of other methods for cost estimation, construction and supervision												
	2-1-4 Trial farm (completed)												

Annual Work Plan of LWCC

(6/13)

Items	Contents of Activities	1995												1996												1997											
		Oc	No	De	Ja	Fe	Mc	Ap	My	Jn	Jl	Au	Se	Oc	No	De	Ja	Fe	Mc	Ap	My	Jn	Jl	Au	Se												
2-2 Monitoring of construction works and overall evaluation methods of land and water conservation works																																					
	2-2-1 Collection and examination of existing monitoring and evaluation methods of land and water conservation works of DLD (completed)																																				
	2-2-2 Arrangement of the result of monitoring and evaluation of construction work in selected pilot areas																																				
	2-2-3 Arrangement of the result of monitoring and evaluation of effects of construction works in selected pilot areas																																				
	2-2-4 Arrangement of the result of monitoring and evaluation of farming and economy for land and water conservation works																																				

Annual Work Plan of LMCC

(7/13)

I t e m s	Contents of Activities	1985	1986	1987
		Oc:No:De Ja:Fe:Mc:Ap:My:Jn:Jl:Au:Se	Oc:No:De Ja:Fe:Mc:Ap:My:Jn:Jl:Au:Se	Oc:No:De Ja:Fe:Mc:Ap:My:Jn:Jl:Au:Se
2-3 Implementation of adaptability trial for the introduced standardized methods in the selected pilot areas				
	2-3-1 Implementation of adaptability trial for the introduced standardized cost estimation methods			
	2-3-2 Implementation of adaptability trial for the introduced standardized construction and supervision methods			
	2-3-3 Monitoring of pilot areas			

Annual Work Plan of LMCC

(8/13)

I t e m s	Contents of Activities	1995												1996												1997											
		Oc	No	De	Ja	Fe	Mc	Ap	My	Jun	Jl	Au	Se	Oc	No	De	Ja	Fe	Mc	Ap	My	Jun	Jl	Au	Se												
2-4 Preparation of standardized cost estimation, construction and supervision, monitoring and evaluation methods for land and water conservation works																																					
	2-4-1 Compilation of existing cost estimation, construction and supervision methods																																				
	2-4-2 ¹ Preparation of standardized cost estimation																																				
	2-4-2 ² Preparation of standardized construction and supervision methods																																				
	2-4-3 Preparation of standardized monitoring and evaluation methods																																				

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Items	Contents of Activities	1995												1996												1997											
		Oc	No	De	Ja	Fe	Mc	Ap	My	Jn	Jl	Au	Se	Oc	No	De	Ja	Fe	Mc	Ap	My	Jn	Jl	Au	Se	Oc	No	De	Ja	Fe	Mc	Ap	My	Jn	Jl	Au	Se
3. Preparation of a manual on cultivation and soil management for land and water conservation	3-1 Selection of cultivation methods effective for land and water conservation	-----												-----												-----											
		-----												-----												-----											
3-1-1 Collection and examination of existing data of cultivation and soil conservation of DLD	3-1-2 Collection and examination of existing data of cultivation and soil conservation of others	-----												-----												-----											
		-----												-----												-----											
3-1-3 Experimental field a) Cover crop experiment (including cropping system) (Rayong Station) b) Soil management methods experiment (Rayong Station)		-----												-----												-----											
		-----												-----												-----											

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Items	Contents of Activities	1995	1996	1997
		Oc;No;De;Ja;Fe;Mc;Ap;My;Jn;Jl;Au;Se	Au;Se;Oc;No;De;Ja;Fe;Mc;Ap;My;Jn;Jl;Au;Se	
3-2 Implementation of adaptability trial for selected cultivation methods in the selected pilot areas	3-2-1 Implementation of demonstration farms for adaptability trial in the selected pilot areas a) Cover crop experiment b) Keeping soil moisture test			
3-3 Preparation of an appropriate manual on cultivation and soil management	3-2-2 Monitoring of pilot areas			
	3-3-1 Compilation of existing guidelines for cultivation and soil management			
	3-3-2 Preparation of an appropriate manual on cultivation and soil management in the East of Thailand a) Cover crop b) Soil management methods			

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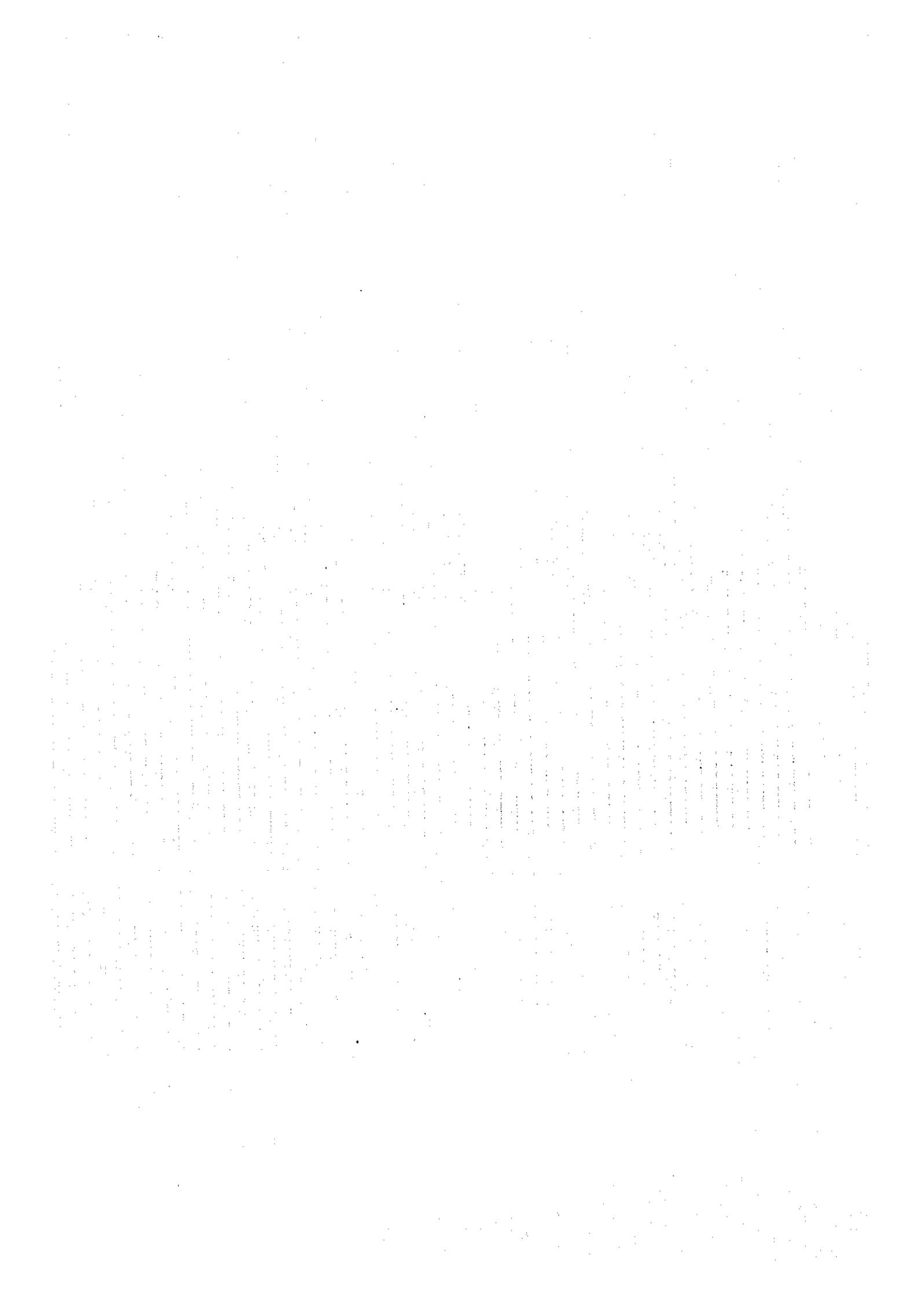
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Items	Contents of Activities	1995		1996		1997	
		Oc:No:De	Ja:Fe:Mc:Ap:Wy:Jn:Jl:Au:Se:Oc:No:De	Ja:Fe:Mc:Ap:Wy:Jn:Jl:Au:Se:Oc:No:De	Ja:Fe:Mc:Ap:Wy:Jn:Jl:Au:Se		
4-3 Implementation of training courses	4-3-1 Training to DLD's officials						
	4-3-2 Evaluation of training effect and modification of teaching materials						

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Items	Contents of Activities	1995			1996			1997					
		Oc	No	De	Ja	Fe	Mc	Ap	My	Jn	Jl	Aug	Se
5. Pilot area													
5-1 Pilot area selection	(16 sites completed)												
5-2 Planning and design for construction	7 sites (6 sites completed)												
5-3 Construction	4 sites (6 sites completed)												





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