

4. Conclusions and Comments

1) Conclusions

This field's activities have progressed smoothly. Because the main activities are system support for the activities of divisions concerned, system development activities depend on requests.

Therefore, it is very important that the System Development Division should keep a good relationship with divisions concerned for implementation of activities.

2) Comments

The status of the leased telephone line is still unstable. On the other hand, RID has set up a committee which is comprised of members of the Operation & Maintenance Division, the System Development Division, the Hydrology Division and the Communication Division concerning trouble-shooting any kinds of communication problem.

It is desirable that this committee should make appropriate complaints to organizations concerned.

II-4. Irrigation and Drainage Facility Design

1. Preparation and diffusion of planning and design criteria, standards and manuals

1) Preparation of planning and design criteria, standards and manuals

Progress

(1) RID has organized working groups for every topic in order to prepare planning and design criteria etc..

(2) One topic, Feeder Roads and Operation & Maintenance Roads, has been dropped from the preparation work for unavoidable reasons. Reinforcement Details has replaced it as a new topic.

(3) Out of the 17 topics in the criteria etc. which have been the object of Phase II activity, two topics, Engineering Drafting and Drawing, and Reinforcement Details, have been authorized as RID standards. The first drafts of 13 topics have been completed and review work of these is ongoing.

(4) Concerning the two topics, Guidelines for Remote Sensing Engineering and Dam Maintenance Manuals, which have been adopted as Phase II activity, preparation work is ongoing.

(5) The following criteria etc. have been reviewed by the Japanese Supporting Committee.

- Safety of Existing Dams
- Pumping Works
- Topographical Survey (ongoing)
- Geological and Material Investigation (ongoing)
- Guidelines for Project Planning (ongoing)

Plan

(1) Concerning the criteria etc. of which the first drafts have been completed, review work will continue in order to authorize these as RID criteria etc..

(2) Concerning the two topics in (4) above, preparation of the first draft will continue.

2) Diffusion of planning and design criteria, standards and manuals

Progress

(1) Seminars related to the following criteria etc. have been held for the purposes of diffusion or review.

- Operation & Maintenance Manuals
- Geological and Material Investigation
- Irrigation Structures
- Engineering Drafting and Drawing
- Safety of Existing Dams
- Reinforced Details

(2) Thai-language textbooks for the following topics have been published.

- Geological and Material Investigation
- Engineering Drafting and Drawing
- Topographical investigation
- Safety of Existing Dams
- Reinforced Concrete Design
- Reinforced Details
- Hydrological Investigation (ongoing)

Plan

In order to diffuse or review the criteria etc., seminars will be held systematically.

2. Improvement of construction control and maintenance technology for main irrigation facilities

1) Improvement and diffusion of construction control

a) Systematization of construction control technology

Progress

The present condition and problems of construction control for dam embankments have been collected and analyzed.

Plan

A standard for construction control of dam embankments will be prepared through discussions by the working group.

b) Improvement and diffusion of construction control technology

Progress

Field permeability tests and field density tests by the RI (Radio Isotope) method have been introduced.

Plan

- (1) The above testing method will be diffused through training etc..
- (2) Especially simplified field permeability tests are considered to be effective for dam embankments

c) Case study on analysis of monitoring data of dams and related structures

Progress

The establishment of a data processing system using personal computer is ongoing.

Plan

The case study will be carried out in order to analyze and evaluate dam monitoring data using various data from the Mea Kuang Dam etc..

d) Case study on analysis of special foundation problems

Progress

(1) Special Soft Rock Foundations has been chosen as the subject of the case study.

(2) Preparation of the case study plan is ongoing.

Plan

The case study will be carried out in order to analyze characteristics and to improve the design method for Soft Rock Foundations.

2) Improvement of maintenance technology from the viewpoint of design work

a) Establishment of an inventory system for soil testing data

Progress

(1) The inventory system using personal computer has already been established.

(2) The system has been installed in the Soil Engineering Branch of the Research and Laboratory Division.

(3) Data storing work is ongoing.

Plan

Improvement of soil testing data management work will be conducted.

b) Establishment of an inventory system for important existing dams

Progress

(1) The inventory system using personal computer has already been established.

(2) The system has been installed at the Dam Safety Center of the Large-Scale Project Division.

(3) Data storing work is ongoing.

Plan

Dam data management work will be improved.

4. Conclusions and Comments

1) Conclusions

(1) Concerning the preparation of design criteria, standard and manuals, some parts of activities involving technical guides have been carried out, but specific technical guides have not been adopted as one of the objects of the activities.

(2) Concerning construction control, there are various kinds of construction work in RID and various methods of quality control.

However, this activity has studied only dam embankment work.

2) Comments

- (1) The necessary technical guides have already been prepared as part of the criteria etc..
- (2) The criteria etc. whose drafts have been completed, should be authorized by RID as soon as possible for practical use.
- (3) As publishing Thai-language criteria etc. is effective for their wide diffusion, it is recommended that Thai-language criteria etc. are published systematically.
- (4) Improvement of construction control will only be carried out for dam embankments because dam construction is important in RID.
- (5) Concerning the already established inventory systems for soil testing data and existing dams, data entry work should be completed as soon as possible in order to put these systems to practical use.

II-5. Training

1. Guidance and advice on technical training

Progress

- (1) Training activities in the Project are aimed at raising the technical level of middle grade engineers and diffusing the fruits of technical cooperation from the IEC Project to RID staff in order to increase the manpower available for water management.
- (2) The budget for the Intermediate Trainees Training Program is shared between RID and JICA.
- (3) We held 9 courses and one seminar in Fiscal Year (hereinafter referred to as "F.Y.") 1990, 12 courses in F.Y. 1991 and 8 courses and one seminar by the end of December 1992. We are planing to hold 12 more courses within F.Y. 1992.
- (4) The number of participants in the Interrmediate Trainees Training Program was 326 in F.Y. 1990, 531 in F.Y. 1991. We are expecting 600 persons in F.Y. 1992.

Plan

The total number of Intermediate Trainees Training Courses will be around 16 or so on a yearly basis.

2. Conclusion and Comments

1) Conclusions

- (1) Training courses began in the first year of the project. Financial assistance from JICA has been useful for grading up regional engineers in RID.
- (2) The number of participants has been increasing every year in spite of lessening financial support from JICA.

2) Comments

- (1) The Importance of Intermediate Trainees Training Courses has been recognized by RID, so thus training activity continually needs to both financial and technological support from JICA.

(2) It is desirable to allocate the training budget from JICA at the earliest part of the Japanese fiscal year.

III. CONCLUSIONS

1. The Team further appreciates the efforts made by RID which is guided and lead by the Board of Directors.
2. The Team is impressed with the fact that the equipment provided by JICA for the purpose of transfer of technology has been maintained in good condition and has been used well.
3. The implementation and progress of some activities is slightly behind the W/P. Therefore it is desirable to consider the following matters for the smooth implementation of the Project.
 - (1) Japanese long-term experts and Thai counterparts should make necessary arrangements of detailed activities for each year so that the remaining items can be carried out efficiently.
 - (2) In order to improve water management technology, it is necessary to work in close cooperation with the Operation & Maintenance Division, the Hydrology Division, the Topographical Survey Division and other divisions and offices concerned in RID.
 - (3) It is important to carry out the activities based on the comments of each field of Project Progress mentioned in this report.
4. The Water Management Information Network System has just been installed. So it is desirable that each division concerned should start appropriate operation and maintenance of the system as soon as possible.
5. It is hoped that RID's budgetary allocation for training will cover the decrease in the budget provided by JICA which is in accordance with JICA regulations.

IV. ANNEX

THE MEMBERS OF THE TEAM

<u>Assignment</u>	<u>Name</u>	<u>Present Position</u>
Leader & Irrigation and Drainage Facility Design	Mr. Katsuro SHIODA	Director, South Kinki Land Improvement Research and Management Office, Kinki Regional Agricultural Administration Bureau, Ministry of Agriculture, Forestry and Fisheries
Irrigation and Drainage Information Systems	Mr. Shingo KATO	Chief, System Engineering Division, Land Improvement Engineering Service Center, Tokai Regional Agricultural Administration Bureau, Ministry of Agriculture, Forestry and Fisheries
Water Management & Hydrological Analysis	Mr. Hideaki YAMAMOTO	Chief, Management and Operation Division, Saitama Canal Stage II Construction Office, Water Resources Development Public Corporation
Cooperation Design & Coordination	Mr. Tatsuji ONIMARU	Staff, Agricultural Technical Cooperation Division, Agricultural Development Cooperation Department, Japan International Cooperation Agency (JICA)

SCHEDULE OF THE TEAM

<u>Order of the date</u>	<u>Date</u>	<u>Time</u>	<u>Activities</u>
1st day	Jan. 28 (Thu.)		Arrive in Bangkok (JL717, three persons)
2nd day	Jan. 29 (Fri.)	9:00-12:00	Meeting with Japanese experts of IEC (Room 408)
		13:30-14:30	Courtesy call on IEC Directors
		14:30-16:30	Meeting with Japanese experts of IEC (Room 408)
3rd day	Jan. 30 (Sat.)		Meeting with Japanese experts of IEC
4th day	Jan. 31 (Sun.)		Mr. SHIODA, head of the team, arrive in Bangkok (JL717) and join the team.
			Internal team meeting
5th day	Feb. 1 (Mon.)	9:30-10:00	Courtesy call on RID's Director General
		10:30-11:30	Meeting with IEC Directors (report on team activities and exchange of opinions) (Room 300)
		14:00-15:00	Courtesy call to JICA Office
6th day	Feb. 2 (Tue.)		Meeting with Counterparts
		9:00-12:00	Water Management Division (Room 408)
		13:00-16:00	System Division (Room 306)
		13:00-16:00	Hydrological Division (Director's Room)
7th day	Feb. 3 (Wed.)		Meeting with Counterparts
		10:00-11:30	Engineering Development Division (Room 408)
		10:00-11:00	Training Division (Room 306)
		13:00-16:30	Preparation for the Field Survey Trip
8th day	Feb. 4 (Thu.)		Field Survey Trip
		9:00-	Leave IEC
			Field Survey of the Chai Nat-Pasak Canal
		14:00-15:00	Visit to Regional Office 8 in Lop Buri
	16:00-16:30	Field Survey of the Chai Nat Diversion Dam	
			Stay at Chai Nat

<u>Order of the date</u>	<u>Date</u>	<u>Time</u>	<u>Activities</u>
9th day	Feb. 5 (Fri.)		Field Survey Trip
		9:00-10:30	Visit to Regional Office 7, Hydrology Office in Chai Nat
		11:30-12:30	Visit to Samchuck Project Office and inspection of experimental field
		14:30-15:30	Field Survey of Telemetry Station at Bang-sai
		17:30	Return to Bangkok
10th day	Feb. 6 (Sat.)		Preparation for the Team report
11th day	Feb. 7 (Sun.)		Preparation for the Team report
12th day	Feb. 8 (Mon.)		Meeting with Japanese experts of IEC
13th day	Feb. 9 (Tue.)	10:00-12:00	Joint Committee Meeting
		15:00-16:30	Report to JICA Office, Embassy of Japan
		18:30-20:30	Friendship party by the Team
14th day	Feb. 10 (Wed.)		Leave Bangkok (TG640)

THE MINUTES
OF THE IRRIGATION ENGINEERING CENTER PROJECT (PHASE II)
AT THE SECOND JOINT COMMITTEE MEETING

1. Both the Thai and the Japanese sides agreed that the cooperation of the Irrigation Engineering Center Project Phase II (herein after referred to as the "IEC Project Phase II") has been carried out well without any serious problems so far, according to the Work Plan based on the Record of Discussion.
2. The Japanese Technical Guidance Team for the IEC Project Phase II (herein after referred to as "The Team") pointed out that implementation and progress in the water management and hydrological fields are slight behind schedule. Both sides should promote their activities so as to accomplish the remaining items. Also the team recommends that close cooperation with the O & M Division, the Hydrology Division, the Topographical Survey Division and other divisions and officials concerned is necessary to enhance further progress in these fields.
3. The Thai side proposed a request for new technical cooperation concerning international irrigation training programs. The leader of the team said that the request from the Thai side is outside the responsibility of the Team, but he said he would convey this request to the Japanese authorities concerned.

Bangkok, February 10th, 1993.



Noriharu USUKI
Team Leader of Japanese
Experts in Irrigation
Engineering Center Phase II



Chamroon Chindasanguan
Director of Irrigation
Engineering Center

MINUTES OF THE SECOND JOINT COMMITTEE MEETING
HELD ON THURSDAY 9th FEBRUARY 1993
IN ROOM 300, IRRIGATION ENGINEERING CENTER

The minutes of the Second Joint Committee Meeting between the Thai and Japanese sides have been completed. We have pleasure enclosing them herewith for your consideration.

Participants

Thai side

RID Officials

- | | | |
|--------------------|---------------|--|
| 1. Mr. Chamroon | Chindasanguan | Deputy Director General for Engineering of RID |
| 2. Mr. Roongrueng | Chulajata | Deputy Director General for O & M |
| 3. Mr. Nit | Kesjumpol | Chief Mechanical Engineer |
| 4. Mr. Prasert | Milintangul | Director of Hydrological Div. |
| 5. Mr. Sompote | Sukhumpanich | Director of System Development Div. |
| 6. Mr. Skulwattana | Chantharobol | Director of O & M Div. |
| 7. Mr. Ruangrit | Ammawat | Director of Engineering Development Div. |
| 8. Mr. Suthi | Songvoravit | Director of General Management Div. |
| 9. Mr. Vichai | Srivarapongse | Director of Programs and Budget Div. |
| 10. Mr. Shaiyonta | Maneekul | Representing the Deputy Director General for Construction of RID |

Thai Officials from authorities concerned

- | | | |
|--------------------|-------------|--|
| 11. Mrs. Kanokwan | Pringruksa | Representative from DTEC |
| 12. Mrs. Benchawan | Srangnitra | Representative from Civil Service Commission |
| 13. Mrs. Viyada | Dheeranoot | Representative from Bureau of the Budget |
| 14. Mr. Prasit | Anontavirun | -do- |

Japanese side

Guidance Team

- | | | |
|----------------|----------|-----------------------------------|
| 1. Mr. Katsuro | SHIODA | Team Leader |
| 2. Mr. Shingo | KATOH | Member of Technical Guidance Team |
| 3. Mr. Hideaki | YAMAMOTO | Member of Technical Guidance Team |
| 4. Mr. Tatsuji | ONIMARU | Coordinator |

Japanese Experts of IEC

- | | | |
|------------------|---------------|--------------------------------|
| 5. Mr. Noriharu | USUKI | Team Leader |
| 6. Mr. Akio | SAITO | Coordinator |
| 7. Mr. Yoshitaka | KAMIGATAGUCHI | System Development Expert |
| 8. Mr. Seiki | MOMOSE | Engineering Development Expert |
| 9. Mr. Hiroshi | ERIGUCHI | Water Management Expert |
| 10. Mr. Masahisa | YAGIHASHI | Hydrological Analysis Expert |

Japanese Officials from authorities concerned

- | | | |
|------------------|-----------|--|
| 11. Mr. Hiromi | KUROKI | First Secretary, Embassy of Japan |
| 12. Mr. Tomikazu | INAGAKI | Deputy Resident Representative of DTEC |
| 13. Mr. Hiroshi | NISHIMURA | Deputy Resident Representative of MOAC |

Japanese Experts

- | | | |
|------------------|----------|------------------------------|
| 14. Mr. Kazuo | KIMURA | Colombo Plan Expert PPD, RID |
| 15. Mr. Mitsuo | SAYAMA | Colombo Plan Expert GTD, RID |
| 16. Mr. Yukihiro | NAGASAWA | Colombo Plan Expert O&M, RID |

Absentee

- | | | |
|---------------|-------|--|
| 1. Mr. Toshio | ASANO | Deputy Resident Representative of JICA |
|---------------|-------|--|

Observers

1. Miss Ornakranee Suthiprasert
2. Miss Oranuch Danchutham

The meeting started at 10.00 a.m. and the Chairman followed the agenda.

Agenda 1 Opening address by the Chairman

The Chairman, Mr. Chamroon Chindasanguan, Deputy Director General for Engineering of RID, gave an opening address to welcome all participants. He thanked the Japanese side for their contribution to the project. He also expressed his appreciation for the kind cooperation of the Thai authorities concerned.

Agenda 2 Introduction of the participants

- 2.1 Thai participants introduce themselves
- 2.2 Japanese participants introduce themselves

Agenda 3 Work progress report

- 3.1 Report by the Director of the General Management Division

Mr. Suthi, Director of the General Management Division summarized the activities of his division. He said that they had been able to achieve their objectives fairly well and had encountered no serious problems over the past three years. He insisted that the importance of their activity is to establish and foster mutual cooperation. He said they had experienced no budgetary problems but some of IEC's equipment cannot be used because of a lack of spare parts for maintenance in Thailand. He added that, because of the recent rapid progress in the computer world, some of IEC's personal computers are already out of date. Also, the IEC library isn't large enough for all the books, texts and documents we would like but again, he said, this is not such a serious problem.

3.2 Report by the Director of the Water Management Division

Mr. Skulwattana, Director of the Water Management Division briefly described progress and plan of activities. The activities and annual work plan of the division are shown in the meeting report.

3.3 Report by the Director of the Hydrological Research and Application Division

Mr. Prasert, Director of the Hydrological Research and Application Division summarized the activities of the work plan as shown in the meeting report.

3.4 Report by the Director of the System Development Division

Mr. Sompote, Director of the System Development Division summarized the activities of the work plan and suggested that most of the activities should be undertaken through cooperation with water management activities and any division concerned.

3.5 Report by the Director of the Engineering Development Division

Mr. Roungrit, Director of the Engineering Development Division summarized the work plan and main activities which can be divided into

1. Preparation and diffusion of Guidelines, Design Criteria, Standards and Manuals
2. Improvement of Construction and Maintenance Technology for Irrigation Facilities

The details can be found in the meeting report.

3.6 Report by Team Leader of the Japanese Experts in IEC

Mr. N. USUKI, Team Leader of the Japanese Experts summarized the past three years' activities and said that the water management activity is very important in solving the water shortage problem. The Japanese side need more information concerning, for example, flow analysis and estimation of

water demand. He also recommended the establishment of a working group for carrying out the cooperation program.

3.7 Report by the Team Leader of Guidance Team

Mr. K. SHIODA, Team Leader of the Technical Guidance Team gave an address. Then Mr. T. ONIMARU, Coordinator of the Technical Guidance Team reported the conclusions and recommendations of the Team which are shown in the report of The Japanese Technical Guidance Team for The Irrigation Engineering Center Project Phase II.

Agenda 4 General Comments

The Chairman : He asked the representative of the Civil Service Commission, Mrs. Benchawan, to consider official employment of IEC.

Civil Service Center : Mrs. Benchawan agreed that it is worthwhile to considering this.

DTEC : Mr. T. INAGAKI asked what the main topics of IEC training courses are and how RID and IEC allocate budgets for these.

IEC : Mr. Suthi said that the training budget was provided by both the Government of Thailand (RID) and JICA. The allocation from JICA was used only for training planned by divisions whose work relates to IEC's activities.

MOAC : Mr. H. NISHIMURA said that the Water Management Division had requested three (3) long-term experts. He said if the goal of cooperation is too great for one expert within the scheduled period then We should consider practical and attainable goals instead.

IEC : Mr. Skulwattana said that we have three major cooperation items, so three long-term experts are needed.

IEC : Mr. Suthi said that water shortage is not a localized problem but a

national one which is why we emphasize the importance of great efforts in the water management field. The water shortage is a serious problem so the Thai side needs JICA's continual cooperation in the water management field.

PPD : Mr. K. KIMURA asked about the possibility of cooperation with IEC for PPD training programs.

IEC : Mr. Suthi suggested that Mr. KIMURA inform him of PPD's plan because IEC is willing to consider it.

The Chairman : He proposed technical cooperation in the form of an "International Training Center Project in Southeast Asia"

Team Leader of Guidance Team : the Guidance Team said they would convey the Thai side's request to the Japanese authorities concerned.

The meeting ended at 12.00 a.m.

附属資料3. 供与機材リスト

Provision of Equipment in F/Y 1992
Water Management Division

No.	Company Name	Equipment	Quantity	Amount	Usage Place	Order Data	Date of Delivery	Remark
1	P.K.J. Co., Ltd.	Automatic Water Level Recorder 4		420,000				
2	Datamat Limited	- NEC PowerMate 366/331 Microcomputer system - 3MB Memory Upgrade for NEC PowerMate 286 PLUS	2 sets 6 sets	447,000 243,000				
		- 120MB Hard Disk Replacement for PowerMate 286 PLUS - Cut sheet feeder for NEC P6300 Printer	6 sets 6 sets	88,660 36,600				
		Total		815,280				
3	Hollywood Inter national	- Automatic Level Nikon AP7 with accessories - Aluminium Staff 4m/4section	1 set 1 set	29,000 24,000				
		Total		29,275.20 (Discount + VAT 7%)				
4	Dhien & Son's Co., Ltd.	Planimeter TMAYA MODEL FLANIX 7 Grand Total		140,000 4,555.2				

Provision of Equipment in F/Y 1992
Hydrological Analysis Division

Nov. 9, 1992

No.	Company Name	Equipment	Quantity	Amount	Usage Place	Order Date	Date of Delivery	Remark
1	Seat Co., Ltd.	Aluminum Boat "Starcraft"	1 EA	186,915.89				
		Model SF16 with outboard						
		Engine "Mercury" model 40hp						
		and accessories						
		(specification attach)						
		trailer for aluminum boat	1 EA	28,037.39				
		Total		230,000				[Total price + VAT 7 %] (214,953.28 + 15,046.72)
2	P.K.J. Co., Ltd.	"SEBA" Universal Current meter F1	1 set	250,000				
		"THIES" No. 5.4010.00.000	1 set	60,000				
		Precipitation Recorder Acc. to Hellmann						VAT 21,700
		Total		531,700				
3	Electroanalysis and Consult	PHICK Microprocessor pH Meter	1 set	25,000				

No.	Company Name	Equipment	Quantity	Amount	Usage Place	Order Date	Date of Delivery	Remark
		MTW Microprocessor Conductivity Meter	1 set	60,000				
		MTW Microprocessor Oxygen Meter Model OXI96-B/set	1 set	45,000				
		Hach Portable Turbidity Meter Model 2100 P	1 set	60,000				
		Total		190,000				
4	Datanat Limited	NEC Powermate 386/33i Microcomputer System	2 set	417,000				
		2MB Memory Upgrade for NEC Powermate 286 Plus	1 set	28,000				
		Total		445,000				
		Grand Total		635,000				

Provision of Equipment in F/Y 1992
System Development Division

No.	Company Name	Equipment	Quantity	Amount	Usage Place	Order Date	Date of Delivery	Remark
1	Bangkok Data Center Co., Ltd.	RA 92-NA 1.5 GB disk drive	1	564,076				
		BC 26V-12 12FT cable	1	16,850				
		BC 26V-25 25FT cable	1	26,746				
		DE 200-AC etherworks turbo	6	56,466				
		BC 16N-30 cable	6	6,342				
		QL-OTLA9-AA pathworks/DOS single LIC	6	34,212				
		P4P 11-FZ DEC PC 320 P80 HB	1	115,901				
		GB-IESRA-SR HS-DOS/WIN	1	5,644				
		BN 24R-2E power card	1	417				
		GA-VERAA-H5 distributed name service	1	23,477				
		6603 RGB Calcomp color master plus (image printer)	1	508,800				
		Total		1,358,931				

Provision of Equipment in F/Y 1992
Engineering Division

No.	Company Name	Equipment	Quantity	Amount	Usage Place	Order Date	Date of Delivery	Remark
1	Systems Organization Company Limited	Computer 80486-33 - 80486-33 CPU, clock speed 156 MHz - BWLT-IN 80387 MATH Co-processor and HEITEK 4167 - 8Kb internal cache memory 32-BIT EISA Architecture - 128 KB, cache memory (Expan 256 KB) - 4MB RAM on board (Expan 64KB) - 1x1.2 MB, FDD 5.25" - 1x1.44 MB, FDD 3.5" - 200 MB hard disk (Commer 16 MSEC) - Controller AT BUS - VGA Graphics card I-SENG ET-4000	1 set	101,000				

No.	Company Name	Quantity	Amount	Usage Place	Order Date	Date of Delivery	Remark
		(RAM 1 MB)					
		- Hard Lock MEQA-V					
		- AGER 330 Super VGA					
		Monitor 14"					
		- 2 Serial/1 parallel					
		Port					
		- Two enhanced					
		Keyboard 101 keys					
		- Power supply 200					
		Watts/mini power					
		- Computer table	1 set				
		- Mouse (Ball)	1 set				
		- Anti Virus-1100	1 set				
		- Diskette HD 5.25"	1 box				
		- Monitor filter	1 set				
		Digitizer CALCOMP (A1)	1 set	128,000			
		Model 33360 SER					
		(24" x 36" size)					
		- Digitizing surface,					
		Manual					
		- Interface KIT with					
		software driver					

No.	Company Name	Equipment	Amount	Usage Place	Order Date	Date of Delivery	Remark
		- 220 V/50 Hz Power supply (P2)					
		- I/O cable					
		- 16-button, in-line cursor-corded					
		Printer EPSON Model LQ-1060+ (Color)	1 set 26,500				
		Total	272,315				{Total price + VAT 7 % {(254,500+17,815)
	Systems Organization Co., Ltd.	Dam Data Processing I	1 set 100,495.30				
		Dam Data Processing II	1 set 171,028.35				
		Dam Data Processing III	1 set 166,607				
		Total	468,800				{Price+VAT 7%}
2	Complex Technology Co., Ltd.	G.P.I.B. Interfaces PCL-848B IEEE-448 interface card with IEC 1625 D-25 connector	1 set 34,000				

No.	Company Name	Equipment	Quantity	Amount	Usage Place	Order Date	Date of Delivery	Remark
		- 2H IEEE-488 to IEC-						
		625 cable						
		- Firmware driver for						
		basic & Qbasic						
		- C & Pascal driver on						
		diskette, user's manual						
3	Tavon Computer Co., Ltd.	Personal Computer	1 set	65,000				
		(TAVON 486 SX - 20)						
4	The Value Systems Co., Ltd.	Laser Printer	1 set	37,000				
		(HP Laser Jet IIP PAUS						
		- HP TONER (92275 A)	1 set	2,455				
		- PACIFIC RAH 2HB	1 set	8,200				
		Total		50,991				
5	National Research Council	Land sat NMS data						
		- 40 inch color print						
		at 1:250,000 scale	4	32,000				
		- 9 Tracks, 1600 bpi.						
		computer compatible tape	4	100,000				

No.	Company Name	Equipment	Quantity	Amount	Usage Place	Order Date	Date of Delivery	Remark
		Land sat. TV data						
		- 40 inch color print						
		Geocoded Subscans at						
		1:50,000 scale	3	37,500				
		- 9 Tracks, 1600 bpi.						
		Geocoded, computer,						
		compatible tape	3	120,000				
		Total		289,500				
6	Research Equipment	Automatic Volume	1 set	105,000				
		Change measuring apps-						
		atus WF 17044 with						
		transducer and mounting						
		bracket WF17015, 17051						
7	Systems Organization Co., Ltd.	Training Program		473,000				
		Grand Total		1,758,606				

Provision of Equipmetn in F/Y 1992

General Division

No.	Company Name	Equipment	Quantity	Amount	Usage Place	Order Date	Date of Delivery	Remark
1	Digital Sytem Co., Ltd.	Surface-Mount Microphone	14 sets	126,000				
		"SURE" Model SH-91						
		POP-UP box for Connector	14 sets	18,900				
		Table Microphone "National"	14 sets	54,740				
		WM-380N with top stand Model						
		WM-172						
		Automatic Mixer Model for						
		"JBL" Model 7510D	3 pack	99,000				
		Double cassette Repeck	3 sets	39,000				
		Model W-505R						
		Monitor Panel	1 set	12,000				
		Cabinet Rack 19"	1 set	12,000				
		Accessories	-L.S.	30,000				
		Installation	-L.S.	50,000				
		Total		472,594.80				
2	Surinthorn Bros.	Panasonic Video Movie	1 set	62,091.89				
	Co., Ltd.	Camera Super-VHS Model NV-H6000E						

No.	Company Name	Equipment	Quantity	Amount	Usage Place	Order Date	Date of Delivery	Remark
		- Panasonic Television set	1 set	106,162.50				
		complete						
		- 1x Panasonic IX-33V1X33"						
		(84cm.) colour TV with stereo						
		and telstext reception capability						
		- 1x Panasonic NV-F55AM						
		HI-FI Video cassette recorder						
		- 1x AV table with casters						
		- Kodak Ektapro Model 9000	3 set	132,409.29				
		slide projector						
		- 3 kodak ektapro projection						
		lens 75-120mm. F/3.5						
		- 3 kodak ektapro cable						
		remote						
		- 3 kodak ektapro 12/7						
		pin module						
		- 3 kodak ektapro 12/7						
		adapter cable						
		- Kroy Model Duratype 24DSE	1 set	37,145.04				
		(tape supplies individually						
		package)						
		Total		337,862.72				

No.	Company Name	Equipment	Quantity	Amount	Usage Place	Order Date	Date of Delivery	Remark
3	Thai Xerographic System Co., Ltd.	"XEROX" Copy machine Model V.500 without option	1 set	225,000				
4	L.S.B. LTD., PART.	"MESS" Holder SE 7200 - registration device for 35 mm. slide 30 copy and contact printing with accessory	1 set	4,000				
		"MESS" Glower SE 7650 - for exiting "Glow" effects	1 set	4,600				
		use with Holder SE 7200 with accessory						
		Total		8,600				
		Grand Total		1,044,017.52				

Provision of Equipment in F/Y 1992
Model Infla

No.	Company Name	Equipment	Quantity	Amount	Usage Place	Order Date	Date of Delivery	Remark
1	Bangkok Data Center	DV-31 HTA-89 Micro VAX	1	479,606				
	Co., Ltd.	3100 model 80 8MB MEM.						
		2 User open VHS. DECHET						
		E/H, RDB/VHS LIC						
		HS 44L-BA Two 4MB Memory	1	69,174				
		RZ 24L-EJ 245 MB Disk drive	3	93,066				
		TZ 30-EK cartridge tape drive	1	62,044				
		VT 382-TB Thai Text term	2	96,514				
		GA-0019A-HS VHS/Thai UPD	1	250,384				
		TK50						
		QL-XULA9-BF open VHS/V I/A	1	169,653				
		16 user LIC						
		QL-D09AP-AA DNET/VAX	1	72,177				
		EN-FULLIC						
		QL-VERAP-AA VAX Cluster SW	1	44,437				
		LIC						
		QL-VD2A9-JC VAX RDB/VHSCH	1	288,928				
		20 LIC						

No.	Company Name	Equipment	Quantity	Amount	Usage Place	Order Date	Date of Delivery	Remark
		QA-VD2AA-H5 VAX RDB/VHS	1	30,706				
		MED + DOC. KIT						
		QL-015A9-JC VAXC CH:20	1	58,039				
		QA-015AA-H5 VAX CIED+DOC		29,827				
				1,744,535				
		BUE2B-HE 500H cable	1	134,190				
		BNE3H-10 10H IEEE802 PVC	5	20,215				
		STR CBL						
		BNE 3H-05 5H TRANS cable	5	15,965				
		PVC						
		H4005 802.3/ETHERNET	10	87,890				
		TRICUR						
		12-24664-02 ToolKit-	1	1,235				
		ETHERNET TAP						
		DSRV-AA DS 700 Terminal	1	94,893				
		service						
		QA-XA5AA-H5 DEC SVR 700/	1	74,300.				
		VHS TR 50						
		BC22D-50 50FT. cable ASVHC	5	12,215				
		HULL NODEK						
		BC22E-25 25FT.cable ASVHC	7	17,101				
		15 Hire SHID						

No.	Company Name	Equipment	Quantity	Amount	Usage Place	Order Date	Date of Delivery	Remark
		DESPR-EF Single port thinwire repeater	1	32,824				
		H9544-1K Shelf ASSY, H9640 Series, paint	1	4,930				
		BH05A-2E power cord	1	367				
		BC 16E-10 10 FT. cable	10	3,300				
		H8575-A ADAPTER	10	10,670				
		BC 16H-15 R058 Thinwire cable FVG	2	1,798				
		12-19816-01 COAXIAL cable terminator	2	1,572				
		DE 200-AC DEC ETGER works turbo	5	87,825				
		QL-OTLA9-AA Path works DOS LIC	5	158,910				
				760,000				
		PV 61A-AJ VAX Station 4000 Model 60 Thinwire/Thickwire ETHERNET		619,863				
		BH 19P-1K Power cord LK 401-AA Keyboard	1	475				
			1	5,479				

No.	Company Name	Equipment	Quantity	Amount	Usage Place	Order Date	Date of Delivery	Remark
		RZ 23L-EH 121 MB, 3.5"	1	25,364				
		FACT. INST						
		SZ 12X-HB 95HB T230 TAPE/	1	97,229				
		RZ 57-UK ICB Drive	1	109,911				
		MS 44L-BA 8HB PAPERH	1	84,547				
		PCF11-F2 DECPC 320P 2HB	1	118,834				
		MEH., 80MB HDD						
		QB-MESAA-SA Microsoft	1	8,496				
		MS-DOS D/S						
		BN 26J-1K Power Cord	1	548				
		QL-810A9-JB VAX GKS LIC	1	49,993				
		QA-810AA-H5 VAX GKS V4.1	1	38,896				
		HED + DOC KIT						
		QA-XA11AA-H5 VHS DEC	1	15,897				
		WINDOR MOTIF						
		QL-YHAA-30 DEC Soft PC	1	23,070				
		for VHS						
		QA-YHAA-H5 DEC Soft PC	1	6,173				
		for VHS HED + DOC						
		QA-130 AA-H5 VAX DSH V6.0	1					
		HED + DOC KIT		45,336				
				1,289,000				

No.	Company Name	Equipment	Quantity	Amount	Usage Place	Order Date	Date of Delivery	Remark
		PC 74B-AA DEC PC 425 S&FP	4	185,816				
		PC 74H-AA 4MB MEM	4	45,216				
		QB-HESAA-SA IIS-DOS C/S	4	26,143				
		PC-7XL-CB 101 PS/2 KEYBOARD,	4	7,432				
		THAI						
		PC 7XR-AA 3.5", 1.44 MB FDD	4	11,644				
		PC 7XR-BA 5.5", 1.2 MB FDD	4	14,244				
		PC 7XS-AA PS/22-Button	4	3,964				
		PC 7XV-CA Monitor VGA	4	74,328				
		PC 7XC-AA Power Cord	4	744				
				369,531				
		Total		4,163,086				
2	* B.A.P.A S.D.H Co., Ltd.	Theodolite						
		Sokkia Station Theodolite	1 set					
		Complete with BDC 16	2 sets					
		EDC11 Battery Charging	1 set					
		Adaptor						
		CDC11E Charger						
		CD7 PFH TRIFOD						
		EDC14 DC/DC Converter+EDC5	1 set					

No.	Company Name	Equipment	Quantity	Amount	Usage Place	Order Date	Date of Delivery	Remark
		Thermometer and Barometer						
		(Sunshade, lenscap, Pumpbob)						
		Vinyl Cover, Tool KIT,						
		Operator's Manual and						
		Carrying case						
		SDR5 Data Record	1 set					
		APS34 (Three PRISMS W/Tilting 1 set						
		Target and single PRISMS						
		APS11 and two tripod) in container						
		ADS11P (Single PRISMS	5 sets					
		W/Tilting Range Pole						
		Circular Level)						
		AP62 One Meter Range Pole	10 sets					
				807,229.50				[Total price +
								[VAT 7%]
								[(754,420 + 52,809.50)
		Level Instrument						
		Sokkia First Order Levelling	3 sets					
		(Model PL1)						
		Sokkia Invar Staff 2 PCS	3 sets					
		with 2 ground plate		1,155,600				[Total price +
								[VAT 7%]
		Total		11,962,829.50				

No.	Company Name	Equipment	Quantity	Amount	Usage Place	Order Date	Date of Delivery	Remark
3	Bangkok Data Center	- ECP 4100 Electro Homs	1	845,300				
		- Analog test sets HAT S9645	2	194,830				
		- 1200 - 9600BPS DatalinkV32	5	185,000				
		- 8PPM	1	71,237				
		- EPSON Printer	4	27,352				
		- Database data entry	1	80,000				
		- Pen Plotter	1	83,460				
		- Motor driven 5ft.x7ft.	1	163,307				
		- Sony cassette player	1	160,081				
		- 150W. + 150W., 40kms power	1	49,866				
		Amplifier						
		- One pair 100W - 300W.	1	28,495				
		Sony Speaker						
		- 1 KVA Densel	6	353,100				
		- 100 MB HDD for PC	4	63,772				
		Total		2,479,996				[Discount]

(Year 1991 - No. 1)

General Management Division

Year	No.	Equipment Name	Price	Quantity	Places of usage	Con. of Usage	Con. of Main.	Note
1991	1	Fuji Xerox Copier Machine Model 5038	\$ 460,000	2		A	A	
	2	PRO SIXTEEN Multi-Image Programming System -115/220 volts AC 220 watts AC. 20Watts; -Automatic Frequency Sensing 50/60 HZ. -SMPTE time code read/generate 25 fps or 30 fps -Signal strength indicators -Mate-trac signal verification indicator -Built-in NiCad batteries automatically recharge, protecting data stored in the PRO SIXTEEN memory -Durable all metal construction -1/4" phone jacks for secure signal connections	133,000	1	REC (Samsen)	B	A	
	3	WESS Brand VR Hand Punch for 35 mm.film	7,600	1		A	A	
	4	ELMO Brand Model HP-A380 Zoom - Lens : 170-380 mm. Powered Zoom Lens - Lamp : 36V.400 W. Halogen Lamp - Brightness Control : Provided - Automatic Lamp Change : Provided Head Rotation : 360 Degrees	47,310	1		A	A	
	5	PAUL Wire Stitching Machine Model. 747	72,000	1		B	A	
	6	Surface-Mount Microphone "SHURE" SM-91	90,000	10		B	A	
	7	Audio Master 1200 "SHURE"	76,000	2		B	A	
	8	Pre-Amplifier "SHURE"	49,400	8		B	A	

Year	No.	Equipment Name	Price	Quantity	Places of usage	Con. of Usage	Con. of Main.	Note
1991	9	Speaker "JBL" Control 5	26,380	2	IBC (Samsen)	B	A	
	10	Speaker Stand Wall Type	6,000	2	-	B	A	
	11	Microphone Box Pop-up	10,800	8	-	B	A	
	12	Accessories and installation	23,000	1	-	B	A	
		TOTAL #	1,001,490					

Remark : Con. of Usage = The condition of usage
 Con. of Main. = The condition of maintenance

System Development Division

(Year 1991 - No. 2)

Year	No.	Equipment Name	Price	Quantity	Places of usage	Con. of Usage	Con. of Main.	Note
1991	1	1.5 GB Disk Drive RA92-CD	\$ 986,841	1	1 EC (Samsen Room 302)	A	A	
		SDI Cable (12Ft.) BC26V-12	18,450	1				
		SDI Cable (25Ft.) BC26V-25	30,751	1			A	
2		Thai Text Term. VT382-TB	591,070	10				
		25Ft. (7.6M) Cable BC22D-25	11,035	5				
		50Ft. (15M) Cable BC 22D-50	13,750	5				
		Table C-201	56,210	10				
		Chair A-7	24,220	10			A	
3		Thinwire Enet SNGERT RPTR DESPR-AB	51,372	1				
		PLENUM Transceiver Cable BNE3M-10	7,880	1				
		1GBIT DEPCA TURBO/AT EISA CTRL DE200-AB	27,733	1				
		MS8 Thinwire Cable PVC MC1C M-30	1,215	1				
		PCSA L1C. for PC QL-OTLAS-AA	7,780	1				
		Pathworks VMS TK50 QA-A93AA-H5	32,495	1				
		Pathworks for PC RX33 QA-OTLAA-H7	40,942	1			A	
4		Disk controller #DB50-A	410,418	1			A	
5		1.5 GB Disk Drive RA92-HA	560,594	1			A	
		12 Ft. Cable BC26V-12	18,450	1				
		25 Ft. Cable BC26V-25	30,751	1				
		Etherworks MC DE210-AA	11,771	1				
		Etherworks TURBO DE 200-AB	23,496	2				
		Etherworks LC DE100-AA	11,748	1				
		Cable BC16M-30	4,548	4				
		Pathworks/DOS Single Lic.	23,260	4				
		Installation Kit H8242	20,740	1				
		10 Ft. Cable W/ADPT.	3,500	10				
		300 M Thinwire Cable	17,000	1				
		BNC Plug	3,600	20				
		TOTAL \$	3,049,357					

Remark : Con. of Usage = The condition of usage
 Con. of Main. = The condition of maintenance

Hydrological Analysis Division

(Year 1991 - No. 3)

Year	No.	Equipment Name	Price	Quantity	Places of usage	Con. of Usage	Con. of Main.	Note
1991	1	KNICK Microprocessor pH Meter Model Portaness 751-SET	23,400	1				
	2	HTH Microprocessor Conductivity Meter Model LF 196 with Conductivity Cell Model TetraCon 96-1.5	58,500	1	Sediment Section	B	A	
	3	HTH Microprocessor Oxygen Meter Model OXI 96-B/SET(Electrod Cable length1.5m)	40,400	1				
	4	DR. LANGE Turbidity Meter with Turbidity Probe Model HT 1	57,500	1				
	5	Aluminum Boat STARHART Model "Seafarer 15" with Outboard Engine Mercury 40 HP. and Accessories (Specification Attach)	190,800	1	Hyd. Office Chonburi	A	A	
	6	Trailer for Aluminum Boat	26,500	1				
	7	NEC Powermate SX/20 Microcomputer System	453,439	2	Hyd. Office Phathalung	A	A	
	8	Memory Expansion for NEC Powermate 286 Plus	55,000	2	- ditto - Kanchanabyri			
		TOTAL #	906,530					

Remark : Con. of Usage = The condition of usage
 Con. of Main. = The condition of maintenance

Water Management Division

(Year 1991 - No. 4)

Year	No.	Equipment Name	Price	Quantity	Places of usage	Con. of Usage	Con. of Main.	Note
1991	1	Universal Current Meter FI, SEDA	200,000	1	IEC (Samsen Room 201)	B		
	2	SEDA Mini Current Meter HI	562,000	4				
	3	SEDA Horizontal Water level Recorder XI	84,000	1				
	4	Evaporation Pan with Stilling-Well/Hook Gage	32,800	4				
	5	Rain Gage	14,000	4		A		
	6	Radio transceiver VHF/FM base station	60,000	1	Sam Chuk Project Office			
	7	RF power 60 watts	90,000	2		A		
	8	Radio transceiver VHF/FM portable RF power 10 watts	103,600	7				
	9	RF power output 5 watts	89,500	1		A		
	10	Radio Antenna Tower	29,000	1	Sam Chuk Project Office			
	11	Automatic Level "NIKON" model AP-7 with standard accessories (with Tripod CHF)	4,000	1				
	12	Aluminum Staff 4m/4 section "MYZOC"	39,600	4	IEC (Samsen Room 201)	B		
	13	ELE Dial-type Gauge Tensiometer for insertion into the ground 600 mm long, Height 1 kg, Cat.No. 21514-020	117,000	2				
	14	WTH Microcomputer Conductivity Meter Model LP196 with Conductivity Cell Model TetraCon 96-1.5	80,800	2		A		
	15	WTH Microprocessor Oxygen Meter OXI 96-B/SET (cable length 1.5 m)	243,215	1	IEC (Samsen Room 201)			
		System						
		TOTAL	1,746,215					

Remark : Con. of Usage = The condition of usage
 Con. of Main. = The condition of maintenance

Engineering Development Division

(Year 1991 - No. 5)

Year	No.	Equipment Name	Price	Quantity	Places of usage	Con. of Usage	Con. of Main.	Note
1991	1	Leading Edge D3/25	280,000	1	Special Engineering Sec.	A		
	2	Hard disk	90,000	1	Construction control			
	3	UPS 5 kVA "Powergard"	500,000	2	Technology Sec.	B	A	
	4	5902AE PlotMaster	205,000	1	Criteria Diffusion Sec.			
	5	Software for "DAM Safety Program"	400,000	1	Special Engineering Sec.	B		
	6	Automatic volume change measuring apparatus	90,000	1	Construction control			
	7	Dial type displacement transducer	120,000	6	Technology Sec.	A		
	8	Reference Hooks	177,048.9	03				Not procure
		TOTAL \$	1,868,048.9					

Remark : Con. of Usage = The condition of usage
 Con. of Main. = The condition of maintenance

Water Management Division

Year	No.	Equipment Name	Price	Quantity	Places of usage	Con. of Usage	Con. of Main.	Note
1990	1	Personal Computer (NEC) Powermate 286 Plus with 42MB Hard Disk Drive and Multisync 3D	880,260	6 sets	Engineering Branch (RID, Samsen) Water Management Branch (RID, Samsen) Irrigated Branch (RID, Samsen)			
	1-1	APC-H2010 (16 bit, 1MD RAM)		6	Regional Office 7			
	1-2	APC-H4120 (Keyboard)		6	Regional Office 8			
	1-3	EXT-H4900 (Printer Cable)		6	Sam Chuk Project Office			
	1-4	JC-1404HME (Display)		6				
	1-5	APC-H5520F (Math Co-Processor)		6				
	1-6	APC-H4210 (Floppy Disk Drive)		6				
	1-7	P6300 (Printer)		6				
	1-8	Accessory		6				
		Table for Computer (C-201)		6				
		Table for Printer (C-100)		6				
		Chair (A-7)		6				
	2	Stabilizer (BENSEI, MUD 1065)	330,000	6	Engineering Branch (RID, Samsen) Water Management Branch (RID, Samsen) Irrigated Branch (RID, Samsen)			
					Regional Office 7			
					Regional Office 8			
					Sam Chuk Project Office			
	3	X-Y Plotter (ROLAND, DXY 1300)	250,400	4	Engineering Branch (RID, Samsen) Water Management Branch (RID, Samsen) Irrigated Branch (RID, Samsen)			
					Regional Office 7			

Remark : Con. of Usage = The condition of usage
Con. of Main. = The condition of maintenance

(Year 1990 - No. 2)

Year	No.	Equipment Name	Price	Quantity	Places of usage	Con. of Usage	Con. of Main.	Note
1990	4	Horizontal Water Level Recorder (SEBA-XI)	84,000	1	Sam Chuk Project	A		
	5	Current Meter (SEBA-N1)	403,860	3	Water Management Branch (RID, Samsen) Sam Chuk Project Regional Office 7	B	A	IEC keep (Not install)
	6	MODEM (DATALINK 2400)	74,000	4	Regional Office 7 Regional Office 8 RID Samsen (2)	A		IEC keep
		TOTAL #	2,022,520					

Remark : Con. of Usage = The condition of usage
Con. of Main. = The condition of maintenance

Hydrology Division

(Year 1990 - No. 3)

Year	No.	Equipment Name	Price	Quantity	Places of usage	Con. of Usage	Con. of Main.	Note
1990	1	Personal Computer (NEC) Power Mate 288 Plus with 42MB Hard Disk and Multisync 30	A 204,050	1 set				
	1-1	APC-H2010 (16 bit, 1MB RAM)		1	Sediment Section	A	A	
	1-2	APC-H4120 (Keyboard)		1				
	1-3	EXT-H4000 (Printer Cable)		1				
	1-4	JC-1404UNE (Display)		1				
	1-5	APC-HF520F (Math Co-processor)		1				
	1-6	P6300 (Printer)		1				
	1-7	Stabilizer (DENSEI, HUP10G5)		1				
	1-8	Accessory Table for Computer Table for Printer Chair		1 1 1				
	2	Table for plotter and digitizer Personal Computer (NEC) Power Mate 288 Plus with 42MB Hard Disk Drive and ADI Monitor	232,500	2 sets				
	2-1	APC-H2010K (16 bit, 1MB RAM)		2	1 Hyd. Office - Chalmat 2 Hyd. Office - Phitsunloke	A	A	
	2-2	APC-H4120 (Keyboard)		2				
	2-3	EXT-H4900 (Printer Cable)		2				
	2-4	ADI Monitor 14"		2				
	2-5	P6300 (Printer)		2				
	2-6	Stabilizer (Silicon)		2				
	2-7	Accessory Table for Computer (C-201) Table for Printer (C-100) Chair (A-7)		2 2 2				

Remark : Con. of Usage = The condition of usage
Con. of Main. = The condition of maintenance

(Year 1990 - No. 4)

Year	No.	Equipment Name	Price	Quantity	Places of usage	Con. of Usage	Con. of Main.	Note
1990	3	Reglizer (CALCOMP, Model 23240)	71,300	1	Water Level Section, MID	A	A	
	4	HP Plotter (HEWLETT-PACKARD, Model 7475A)	55,000	1		B	A	
	5	Aluminum Boat						
	5-1	Seafarer 18' Floor (Center Length 16' 2.5") with Outboard Engine JOHP	381,600	2	① Chao Phraya River - Chaiwat	A	A	
	5-2	Trailer for Aluminum Boat	53,000	2	② The Chih River - Khanchanaburi	A	A	
	6	PH Meter (KNICK, Fortmeas, 751-net)	46,800	2				
	7	Conductivity Meter (NTH, LF-186)	117,000	2		B	A	
	8	Oxygen Meter (NTH, SG-B/SET)	80,600	2				
	9	Turbidity Meter (DR> LARGE, HTI)	115,000	2				
	10	Precipitation Recorder (TIMES 54010.0)	52,500	2	Hyd. Office - Chonburi	A	A	
	11	Horizontal Water Level Recorder (SEBA-XI)	168,000	1	Hyd. Office - Chaiwat	A	A	
	12	Universal Current Meter (SEBA-II)	194,250	1	The Chih River - Khanchanaburi	A	A	
		TOTAL #	1,771,800					

Remark : Con. of Usage = The condition of usage
 Con. of Main. = The condition of maintenance

System Development Division

Year	No.	Equipment Name	Price	Quantity	Places of usage	Con. of Usage	Con. of Main.	Note
1990	1	VAX-Software (DRC)						
	1-1	CDD/Plus Update kit	\$ 30,471.83	1	IYC (Samsen) Room 302	A	A	
		QA-897AA-IH	96,779.86	1				
		QA-987AN-UJ						
	1-2	DTR Update kit (for VAX-11)						
		QA-898AA-IH	36,366.38	1				
		QL-898AN-UJ	349,763.67	1				
	1-3	Rdb/VMS Update kit (for Relational Database)						
		QA-VD2AA-IH	39,097.19	1				
	1-4	COBOL Version Up						
		QA-099AA-IH	30,471.83	1				
		QL-099AJ-UJ	449,525.79	1				
	1-5	FHS Update kit						
		QA-VD7AA-IH	22,612.43	1				
		QL-VD7AJ-UJ	158,355.97	1				
	1-6	ALL-IN-1 Update kit						
		QA-AAAAA-IH	122,020.54	1				
	1-7	DECALC Software						
		QA-310AA-IH	20,647.58	1				
	1-8	GHS Software (for Graphic software)						
		QA-810AA-IH	28,873.31	1				
		QL-810AQ-AA	21,560.77	1				
	1-9	LISP/VMS						
		QA-917AA-IH	26,342.32	1				
	2	VAX-Hardware (for Micro VAX II)			IYC (Samsen) Room 402			
	2-1	MS 830-CA	218,947	1				
		TOTAL \$	1,851,838.50					

REMARK : Con. of Usage = The condition of usage
 Con. of Main. = The condition of maintenance

(Year 1990 - No. 6)

General Management Division

Year	No.	Equipment Name	Price	Quantity	Places of usage	Con. of Usage	Con. of Main.	Note
1990	1	Earth Leakage Breaker (MITSUBISHI)						
	1-1	100A (TYPE NV100-SS 4P)	9,900	1	IPC (Samsen)			
	1-2	75A (")	9,900	1				
	1-3	50A (")	9,900	1				
	1-4	150A (TYPE NV225-SB 4P)	13,200	1		A	A	
	1-5	175A (")	13,200	1				
	1-6	225A (")	13,200	1				
	2	Slide Projector						
	2-1	KODAK CAROUSEL S-AV2050	36,500	1		A	B	
	2-2	VARIO-RETINAR 85-210 MM.LENS	22,350	1		A	A	
	2-3	KODAK S-AV PROGRAMMABLE DISSOLVE CONTROL	35,100	1		A	A	
	3	Overhead Projector						
		ELMO NP-5500 ZOOM	42,512.50	1		A	A	
		TOTAL P	285,357.50					

Remark : Con. of Usage = The condition of usage
 Con. of Main. = The condition of maintenance

Engineering Development Division

(Year 1990 - No. 7)

Year	No.	Equipment Name	Price	Quantity	Places of usage	Con. of Usage	Con. of Main.	Note
1990	1	Personal Computer (ACMA 386-25)	\$ 187,000	1	Construction Control Technology Sec.			
	1-1	ACMA, INTEL 808386-25			(RID, Pakret)			
	1-2	Monitor (ACMA, CH335)		1				
	1-3	Keyboard (ACMA)		1				
	1-4	Printer (EPSON, LQ1050)		1				
	1-5	Plotter (ROLAND, GXY1300)		1				
	1-6	Mouse (ACMA)		1				
	1-7	Math Co-Processor (ACMA, 80387-25)		1				
	2	Micro Disk Recorder	162,000	1	Construction Control Technology Sec.			
		(Tokyo Sekki RW-351)			(RID, Pakret)			
	3	Automatic Volume Change	88,000	1				
		(Wykeham Ferrance/WF 17040)						A
	4	Calibrating Device for LSCT	18,500	1				
		(Wykeham Ferrance/WF 17055)						
	5	Leading Edge Laptop (DC-8212)	90,000	1	Special Engineering Sec. (RID, Samsen)			
	6	Dragon Software	40,000	1	Criteria Diffusion Sec. (RID, Samsen)			
	7	Personal Computer (TOSHIBA, T3100 SX)	371,800	2	Criteria Diffusion Sec. 1 set			
	8	Additional Battery pack	10,800	2	Special Engineering Sec. 1 set			
	8	Printer EPSON LX-800 with original EPSON Ribbon	20,000	2	Special Engineering Sec. 1 set			
	10	Laser Printer (SHARP, JX 9500)	56,000	1	Criteria Diffusion Sec.			
	11	Plotter ROLAND DXY-1300	54,400	1				
	12	Power Gard Stabilizer, IRVA	7,800	1	Special Engineering Sec.			
	13	Color Monitor (Display) with VGA Card	20,000	1	Construction Control Sec.			
	14	HEC 1, HEC 2, HEC 6, HECHRC, HLEPP, STATS AND HEC-5	40,000	1	Criteria Diffusion Sec.			
	15	Maruto Dial Type Transducer RE-D20H	111,000	6	Construction Control Sec.			
		TOTAL \$	1,276,500					

Remark : Con. of Usage = The condition of usage
Con. of Main. = The condition of maintenance

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