

CHAPTER 7. PROJECT EVALUATION

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The Bang Nara Irrigation and Drainage Project will contribute to the development of the local economy by water resource and agricultural development through the construction of tidal regulators, irrigation and drainage facilities, on farm facilities, and acidic water control facilities for the purpose of freshening the Bang Nara river water.

The construction of two tidal regulators is the main objective of the Project under Japanese grant-aid. The Project would contribute to increased agricultural production including paddy, vegetables, fruits, rubber and inland fisheries. In addition to the structures under grant-aid, the construction of irrigation and drainage facilities and on-farm facilities by the Government of the Kingdom of Thailand, could gain the agricultural benefits. Whereas, in addition to the following benefits, stabilization of the people's livelihood in the project area is more advantageous by improving the social economic difference for neighboring Malaysia.

(1) Project Benefits

Project benefits are measured by the incremental net production value resulting from the Project implementation. The incremental net production value as expressed in economic terms is the difference in the annual gross production value net of production cost between the with-project and without-project conditions. Benefit categories considered are net agricultural income from paddy, rubber, and other upland and fruit tree crop as well as from freshwater fisheries in the Bang Nara reservoir.

1) Increasing Paddy Production

The incremental net production benefit is summarized as in Table 7-1. The production of paddy is 10,200 tons and 32,300 tons would be expected after completion of the project.

TABLE 7-1 ECONOMIC PROJECT BENEFIT

Description	Planted Area (ha)	Yield (t/ha)	Price (฿/ton)	G.P.V. (฿/ha)	Production cost (฿/ha)	N.P.V. (฿/ha)	N.P.V. (000฿)
1. Without Project							
Paddy, Local, Indigenous	5,767	1.3	4,317	5,612	3,941	1,671	9,637
Paddy, Local, Improved	1,605	1.7	4,317	7,339	4,604	2,735	4,390
Rubber	6,250	0.71	25,891	18,383	11,464	6,919	43,244
						(Total)	57,271
2. With Project							
Paddy, Local, Improved	3,370	2.8	4,317	12,088	5,662	6,426	21,656
Paddy, HYV, RD13	4,810	3.4	4,585	15,589	6,274	9,315	44,805
Paddy, HYV, RD7	1,600	3.7	4,585	16,965	6,796	10,169	16,270
Paddy, Local, Improved (no irrigation)	354	1.7	4,317	7,339	4,604	2,735	968
Rubber (Drainage Improved)	6,250	0.96	25,891	24,855	15,301	9,554	59,713
Sweet Corn	620	3.0	2,447	7,341	4,704	2,637	1,635
Mungbean	620	1.2	7,744	9,293	5,336	3,957	2,453
Groundnut	620	1.8	7,835	14,103	9,031	5,072	3,145
Vegetables/*	620	-	-	-	-	-	37,375
(Tomato)	(310)	(15.0)	(8,012)	(120,180)	(24,317)	(95,863)	(29,718)
(Chili)	(310)	(12.0)	(4,228)	(50,736)	(26,037)	(24,699)	(7,657)
Longkong	60	4.0	46,000	184,000	29,429	154,571	9,274
Forage	200	40.0	195	7,800	2,522	5,278	1,056
Aquaculture	1,390	0.15	18,000	2,700	988	1,712	2,380
						(Total)	200,730
3. Incremental Benefit							143,459

/* --- including others such as white cabbage, Chinese cabbage, green cabbage, Chinese kale, stringbean, cucumber, long eggplant, and so on, for which tomato and chili have been selected as representatives for the Project evaluation.

2) Development of Benefit Accrual

The gestation period between the completion of on-farm work and full benefit accrual for each group is estimated at three years for rubber, and at five years for paddy, upland crops, fruits and fisheries.

Table 7-2. Incremental Benefit

(Target of Production = 100)

Description	(Year)	1	2	3	4	5
Paddy , Upland Crops Fruit, Fisheries		50	80	90	95	100
Rubber		80	90	100	-	-

3) Economic Internal Rate of Return (EIRR)

On the basis of the Feasibility Study, the economic internal rate of return was calculated at 8.4 percent for the Stage I and 10.3 percent for the Project including the construction cost of the tidal regulators. However, in the case of the completion of the tidal regulators by Japanese Grant Aid, economic internal rate of return would be 20.2 percent in total because of early effectiveness of the project.

4) Miscellaneous

The other indirect benefit would be expected as follows;

a) Development of Agriculture Related Industry and Employment

The incremental agricultural production is anticipated to contribute to the development of agriculture related industry and the expansion of employment opportunities in post-harvest treatment, processing, and distribution sectors.

b) Enhancement of Cooperation among Project Farmers

Efficient use of irrigation water is a prerequisite for success of the Project. Thus, it is quite important that the water user's group be established and managed accordingly. Its organization activities would strengthen the cooperative spirit among the Project farmers and help improve their technical and management skill as well.

c) Reduction of Regional Disparity

Improvement in the living standard among the Project farmers would help reduce the regional disparity especially among the Southern Region and with the neighboring Malaysia. This would significantly contribute to the maintenance of national security in the sensitive border area. Increased farm income would also leave the farmers more surplus to be invested for education of their children, which would help improve the communication and thus accelerate the assimilation of the Thai Muslim.

(2) Propriety of the Project

After completion of the tidal regulators construction works, the water operation will be initiated as the freshening reservoir. The water utilization in this Bang Nara reservoir will be evaluated as the

result of operation and maintenance services could be well done or not in future. Therefore, the following three points are evaluated for the Bang Nara reservoir operation.

1) Technical appropriateness

RID has carried out the operation and maintenance services as well as planning and implementation for the irrigation and drainage project many years ago, their experience, covering more than 300 projects, reservoir capacity of about 29,500 MCM and 3.5 mil. ha in the Kingdom of Thailand divided into 12 numbers of regional offices. As for this project O&M services under Regional Irrigation Office-12, five projects covered 0.21 mil. ha and 28.4 MCM are still operating. Therefore, the operation and maintenance services for this project would be technically sound.

2) Financial background

RID has great deal of experience in O&M services as well as in financial arrangement in view of their long experience in many irrigation and drainage projects. At present, the Kingdom of Thailand does not charge the water cost except for the National Energy Administration's pump irrigation scheme. Assuming that the Government would levy some water charge on the farmers in future, the annual O&M cost will be 10.52 mil. Baht based on the 1986 constant prices and project service area of 16,750 ha (F/S report refers), which corresponds to 630 Baht/ha/year. The total cost for tidal regulators only is estimated at 3.6 mil. Baht/year, which corresponds to 210 Baht/ha/year; consequently, it is very low as compared with the farmer's annual income.

3) Operational suitability

The water operation, maintenance and control to the Bang Nara reservoir will be carried out to maintain the water quality control of freshening reservoir under the dry and rainy seasons. With the purpose of operation, several systems have been equipped, inclusive of operation, monitoring, data-transmission/communication, computation/recording and equipment of generator for emergency. However, the maintenance services are certainly required to give full function.

A radio communication system is installed between the main office and sites. Ordering spare parts in ordinary as well as emergency times can be fulfilled without difficulty.

CHAPTER 8. CONCLUSION AND RECOMMENDATION

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8-1 Conclusion

The Bang Nara Basin has a potential water resource development by available rainfall depth of about 2,500mm annually. However, the regional economy and community development makes a difference between this basin and others in the Kingdom of Thailand, for reason of counterplanning delayed to agricultural modernization and low yield rainfed paddy, flood damage and/or drought.

Whereas, implementation programme for the Bang Nara irrigation and drainage project plays an important role, which is explained in "Project Evaluation" as increasing farm income from the direct economic benefit of extending agricultural production and improvement of their living standard, education opportunities, promotion of agricultural extension services under the indirect effects of the project as well as improvement of welfare.

In particular, the basic design study on tidal regulators accomplished as the main facility in the project is formulated to new water resource development of the tidal river for freshening reservoir located along the coastal plain. After construction of the tidal structures, the reservoir operation will be controlled through gate opening or closing for preventing saline water intrusion and to maintain the runoff river water into the reservoir and/or Gulf of Thai. The irrigation water will be supplied under the environment water quality control through PH and EC values measured in the Bang Nara reservoir. Likewise, the freshening reservoir planning will be conducted to extend the water utilitaiton for domestic, inland fisheries and extending a view of areal development in future, therefore, the grant-aid programme offered by the Government of Japan would surely be justifiable.

8-2 Recommendation

Water operation, management and control in the Bang Nara reservoir will be given full play in cooperation with the O/M services of the irrigation and drainage facilities in the project area, therefore, the implementation programme for irrigation and drainage facilities in the project area approved by the Cabinet of the Kingdom of Thailand in April 1987 would be expected in accordance with the time schedule.

Together with the operation and maintenance of the Bang Nara Irrigation and Drainage Project, the operation and maintenance of the tidal regulators is also of vital importance. Therefore, it is expected that operation and maintenance work will be conducted in accordance with the O & M Manual including the operation standards which will be prepared after the completion of the construction. In particular, fine sand sedimentation phenomenon after flood season at front or back side of the regulators might occur; hence, dredging works should be carried out in order to maintain good operation of the regulators.

APPENDICES

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APPENDIX I MEMBER OF STUDY TEAM

1-1. Basic Design Team

<u>Position</u>	<u>Name</u>	<u>Firm</u>
Team Leader	Nagashi SASAI	Design Division Construction Department Agricultural Structure Improvement Bureau, MAFF
Grant-Aid Planner	Yukiya SAIKA	Grant-Aid Division Economic Cooperation Bureau, Ministry of Foreign Affairs
Coordinator	Ryuji MATSUNAGA	First Basic Design Study Division Grant-Aid Planning & Survey Department Japan International Cooperation Agency (JICA)
Planning Engr.	Fujio MATSUMOTO	Sanyu Consultants Inc.
Design Engr. (A)	Hiroshi KONDO	Sanyu Consultants Inc.
Design Engr. (B)	Sumitada OKAMOTO	Japan Engineering Consultants Co., Ltd.
Cost Estim- ation Engr.	Jiro KAWAI	Sanyu Consultants Inc.

1-2. Explanation Team of Draft Report

<u>Position</u>	<u>Name</u>	<u>Firm</u>
Team Leader	Yukiya SAIKA	Ministry of Foreign Affairs
Planning Coordinator	Ryuji MATSUNAGA	Japan International Cooperation Agency (JICA)
Planning Engr.	Fujio MATSUMOTO	Sanyu Consultants Inc.

APPENDIX 2. ITINERARY OF THE FIELD SURVEY

2-1. Basic Design Study

Date	Work
Apr. 21 (Tue)	Arriving at Bangkok
22 (Wed)	Courtesy call and discussion of schedule with Embassy of Japan, JICA BKK Office, DTEC and RID
23 (Thu)	Explanation of Inception Report to RID Courtesy call to Parmanent Secretary of MOAC
24 (Fri)	Moving to Narachiwat, courtesy call to Director of RID Regional Office 12 at Hat Yai
25 (Sat)	Inspection of LTR Site and To Daeng Swamp and visiting Mu No Project Offie
26 (Sun)	Inspection of UTR site and Yakang River and meeting with RID. Mr. SAKAI, Mr. SAIKA, Mr. Matsunaga and Matsumoto (First Party) left for Hat Yai. Mr. KONDO, Mr. OKAMOTO and Mr. KAWAI (Second Party) continued to inspect and direct the core boring points at LTR.
27 (Mon)	First Party left to Bangkok Second Party directed the core boring points at UTR and surveyed the concrete materials
28 (Tue)	First Party discussed the draft minutes with RID, Second Party, data collection at Mu No Project Office.
29 (Wed)	First Party, Signming of the minutes of discussion, Second Party, hydraulic survey, surpervision of boring works.
30 (Thu)	First Party, explanation on signed minutes to Embassy of Japan and JICA BKK Office, Second Party, data collection at PEA and inspection of rain gauge station.

Date	Work
Mar 1 (Fri)	Mr. Sakai, Mr. Saika and Mr. Matsunaga left for Japan, Mr. Matsumoto, arrangement of appointment and, Second Party, data collection at Mu No Project Office.
2 (Sat)	Mr. Matsumoto arrived at Narachiwat, Second Party, data collection of cost estimation
3 (Sun)	Site sruvey of UTR and LTR and data collection of concrete materials
4 (Mon)	Data collection at PEA and Changwat Irrigation Office, left for Bkk.
5 (Tue)	Team meeting
6 (Wed)	Discussion and data collection of organization of the Project Office at RID.
7 (Thu)	Discussion and data collection of Tel-communication and office building
8 (Fri)	Mr. Matsumoto, Data collection Mr. Okamoto, Survey concrete pile Mr. Kondo & Mr. Kawai, left for Narathiwat and supervise boring works at UTR
9 (Sat)	Mr. Matsumoto & Mr. Okamoto, Data arrangement Mr. Kondo & Mr. Kawai, Inspection of PC pile and PC beam
10 (Sun)	Mr. Matsumoto & Mr. Okamoto, study of Basic Design Mr. Kondo & Mr. Kawai, Inspection of Yala quarry
11 (Mon)	Mr. Matsumoto & Mr. Okamoto, study of Basic Design Mr. Kondo & Mr. Kawai, supervision of boring works at UTR
12 (Tue)	Conference about the Project with RID
13 (Wed)	Final meeting with RID, Report on the survey result to Embassy of Japan and JICA BKK Office.
14 (Thu)	Leaving for Japan

2-2. Explanation of Draft Final Report

Date	Work
June 22 (Mon)	Arriving at Bangkok
23 (Tue)	Explanation of Draft Final Report to Embassy of Japan and JICA BKK Office
24 (Wed)	Explanation of Draft Final Report to RID
25 (Thu)	Explanation of Draft Final Report to Director General of RID and DTEC
26 (Fri)	Meeting with RID
27 (Sat)	Survey of Construction works
28 (Sun)	Data arrangement (New drawing of topography at UTR)
29 (Mon)	Final meeting with RID
30 (Tue)	Signing of the minutes of discussion at RID. Explanation of Draft Final Report and result to Permanent Secretary, MOAC and DTEC
July 1 (Wed)	Report on the result to Embassy of Japan and JICA BKK Office
2 (Thu)	Leaving for Japan

APPENDIX 3. OFFICIALS CONTACTED BY THE TEAM

3-1. Basic Design Team

Ministry of Agriculture and Cooperations (MOAC)

Mr. Chulanop Snityongs Na Ayudhaya

--- Permant Secretary of MOAC

Department of Technical and Economic Cooperation (DTEC)

Mr. Pracha Chaowasilp --- Deputy Director-General

Mr. Thawal Polpuech --- Derector of External Cooperation
Division, office 2

Mr. Pailin Pairoh --- Programme Officer, Japan sub-Division

Royal Irrigation Department (RID)

a) Bangkok head office

Mr. Suha Thanomsingha --- Director General

Mr. Chari Tulayanond --- Deputy Director General for
Construction

Mr. Youth Kingkate --- Chief Engineer for Special Affairs

Mr. Boonyok Vadhanaphuti --- Director of Project Planning Div.

Mr. Shoombhol Chaveesuk --- Director of Design Division

Mr. Suton Muanrak --- Director of Earth-Moving Equipment
Division

Mr. Sinserm Ketudat --- Director of Communication Division

Mr. Sanan Sirion --- Senior Engineer of Design Division

Mr. Pramote Maiklad --- Senior Engineer of Office of Royal
Project

Mr. Witchitr Werakirpanich --- Senior Engineer of Large Project
Construction Division

Mr. Va-san Boonkird --- Chief of Engineering Service Branch
of Operation and Maintenance Div.

Mr. Kate Kanluang --- Chief Technical Section of Operation
and Maintenance Diviosion

Mr. Yong Yuth Yonpiam ---- Chief of Dredging Branch of
Mechanical Division
Mr. Amput Sampunnanda ---- Chief of Communication Division
Dr. Siripong Hungspreug ---- Engineer of Project Planning
Division
Mr. Siripong Sholsiripunlert ---- Engineer of Project Planning
Division
Mr. Prayote Chombhubutr ---- Engineer of Engineering Branch of
Earth Moving Division
Mr. Suthep Somcharoen ---- Architect of Design Division
Mrs. Siriluck Payakhanan ---- Architect of Design Division

b) Irrigation Regional Office 12

Mr. Samrerng Siriphibal ---- Regional Director
Mr. Chanchai ---- Senior Engineer
Mr. Suphorn Rugcharoen ---- Senior Engineer

c) Project Office

Mr. Precha Narakirpanich ---- project Manager
Mr. Piti Siamhan ---- Engineer
Mr. Wanchai Kolponso ---- Surveyor

d) Narathiwat Irrigation Office

Mr. Samart Chokanaphitak ---- Director

3-2. Explanation Team of Draft Report

Discussion on Draft Final Report
Bang Nara Irrigation and Drainage Project
June 26, 1987

Thai Members

1. Mr. Charuck Nonthathum Director, Large Scale Project
Construction Division
for Deputy Director General for
Construction
2. Mr. Sanan Sirion Chief, Southern Region Irrigation
System Design Branch
Design Division
3. Mr. Va-son Boonkird Chief, Engineering Branch
Operation and Maintenance Division
4. Mr. Wichitr Werakitpanich Chief, Engineering Branch
Large Scale Project Construction
Division
5. Mr. Siripong Hungspreug Engineer 6
Project Planning Division
6. Mr. Suphorn Rugcharoen Chief, Engineering Branch
Regional Irrigation Office XII
7. Mr. Osot Charnvej Chief, Cropping Patterns Section
Operation and Maintenance Division
8. Mr. Kate Kanluang Chief, Technical Section
Operation and Maintenance Division
9. Mr. Siripong Shonsiripanlert Engineer 5
Project Planning Division
10. Mrs. Maneerat Makduangkaeo Chief, Foreign Affairs Branch
Foreign Financed Projects
Administration Division
11. Miss Mathana Udombunditkul Foreign Affairs Officer 3
Foreign Financed Projects
Administration Division

APPENDIX-4. MINUTES OF DISCUSSIONS

4-1. Basic Design Study

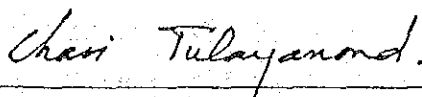
MINUTES OF DISCUSSIONS
ON
THE BANG NARA IRRIGATION AND DRAINAGE PROJECT
IN
THE KINGDOM OF THAILAND

In response to the request made by the Government of the Kingdom of Thailand for a grant-aid on the implementation of Bang Nara Irrigation and Drainage Project (hereinafter called "the Project"), the Government of Japan decided to conduct a basic design study on the Project and entrusted the study to the Japan International Cooperation Agency (hereinafter called "JICA"). JICA sent to Thailand a Study Team led by Mr. Nagashi SAKAI to carry out the study from 21st April to 14th May 1987.

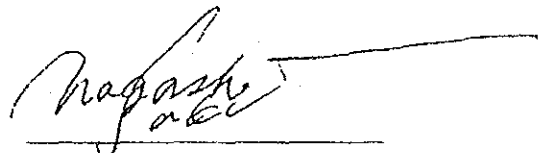
The Team had a series of discussions on the Project with the officials concerned of the Government of Thailand, headed by Mr. Chari Tulayanond, Royal Irrigation Department, Ministry of Agriculture and Cooperatives.

As a result of the study, both parties agreed to recommend to their respective Governments that major points of understanding reached between them, attached herewith, should be examined towards the realization of the Project.

April 29, 1987



Chari Tulayanond
Deputy Director General,
RID



Nagashi Sakai
Team Leader,
JICA

1. Objectives

The objectives of the Project are to develop the available irrigation water and to increase agricultural crop production in line with the water resources development plan and to build a tidal regulators each at Narathiwat and Tak Bai along the Bang Nara River, which will function as desalination in the reservoir water by preventing intrusion of saline water and also alleviate annual inundation during heavy rains to a possible extent.

2. The Project Area

The Project area is located in Changwat Narathiwat of the lower southern region of Thailand being adjacent to the Thailand-Malaysia border. At present, Bang Nara River System consisted of Yakang river and Bang Nara main rivers, which lies in the center of the area covered with about 1,400 km² river basin in total. (Location Map is attached as Annex-I).

3. Contents of the Project

In the plan of Bang Nara Irrigation and Drainage Project, the irrigation development would be mainly to make supplemental irrigation for the main-season paddy and full irrigation for the off-season field crops and vegetable in existing rainfed paddy field. The paddy field would be converted into the irrigated one by pumping water from the proposed Bang Nara reservoir made with two tidal regulators and also from Yakang river.

Meanwhile, a part from the effect of flood mitigation over the low-lying land, appropriate drainage improvement scheme with drainage canals would be provided for some areas covering western part of the Project area.

The following works are therefore required in order to develop the irrigation water and prevent saline water-intrusion and others:-

- (a) Construction of tidal regulators with gates
- (b) Construction of closure dams
- (c) Operation and maintenance roads
- (d) Operation and control equipment
- (e) Office including the O/M room and generator house.

JICA will study and determine the effects and propriety of the above plan.

4. Executing Agency

The Royal Irrigation Department (RID) which is the implementing agency of the Government of Thailand, is responsible for the administration and execution of the Project.

5. Understanding of Japan's Grant-Aid System

The Kingdom of Thailand side understood Japan's Grant-Aid system which has been explained by the Team, including the use of Japanese consulting firm and Japanese general contractor for the construction.

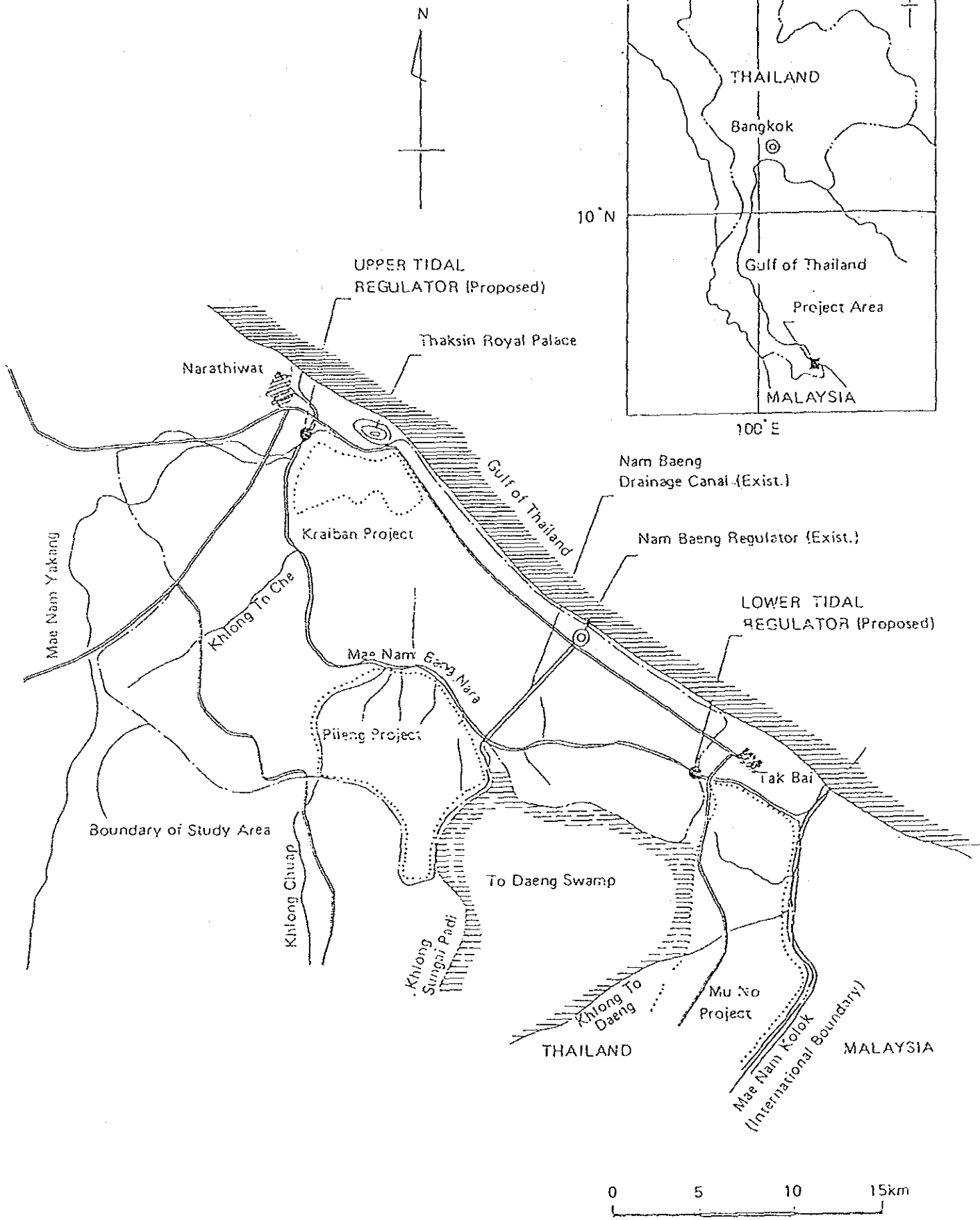
6. Undertaking of the Government of Japan

The Study Team will convey to the Government of Japan the request of the Government of Thailand that the former will take necessary measures to cooperate in implementing the tidal regulator and other items listed in Annex II within the scope of Japanese economic cooperation programme in grant-aid form.

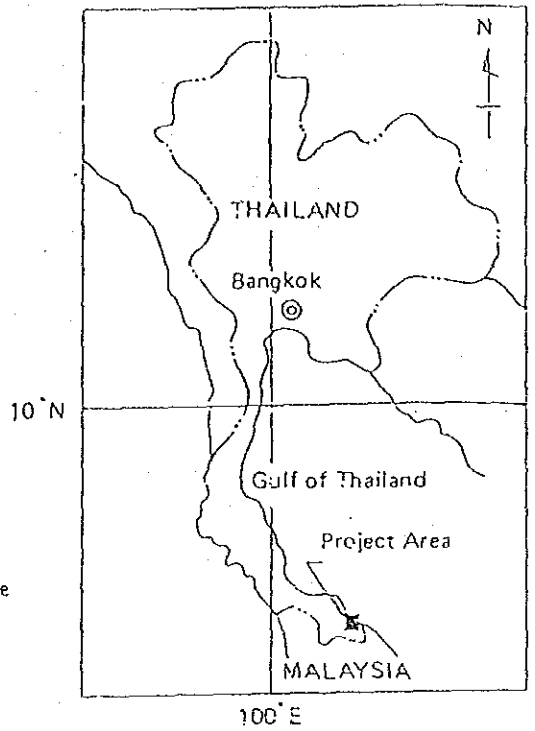
7. Undertaking of the Government of Thailand

The Government of the Kingdom of Thailand will take the necessary measures listed in Annex III on condition that grant-aid would be extended to the Project.

GENERAL MAP



KEY MAP



ANNEX-II. UNDERTAKINGS OF THE GOVERNMENT OF JAPAN

1. Construction of tidal regulators with gates.
2. Construction of closure dams.
3. Operation and maintenance roads, as shown in the attached paper.
4. Operation and control equipment.
5. Office including the O/M Room and generator house.
6. Technical transfer and staff training for O/M works in Thailand.

ANNEX-III. UNDERTAKINGS OF THE GOVERNMENT OF THAILAND

1. To construct pump stations, irrigation and drainage canals, acidic water control facilities and supplemental facilities and to provide pumps necessary for the execution of the Project.
2. To secure land for tidal regulators construction and related other facilities.
3. To construct the maintenance road as shown in the attached paper.
4. To erect the power supply line between the existing line and proposed electric post to be built near the power distribution and generator house in the O/M office complex as well as for concrete materials plant yards.
5. To provide the water supply source for the domestic use and construction works in taking into consideration the construction period and O/M services.
6. To ensure unloading and customs clearance at the port of disembarkation in Bangkok.
7. To accord Japanese nationals whose services may be required in connection with the supply of products and the services under the verified contract and such facilities as may be necessary for their entry into Thailand and stay therein for the performance of their work.

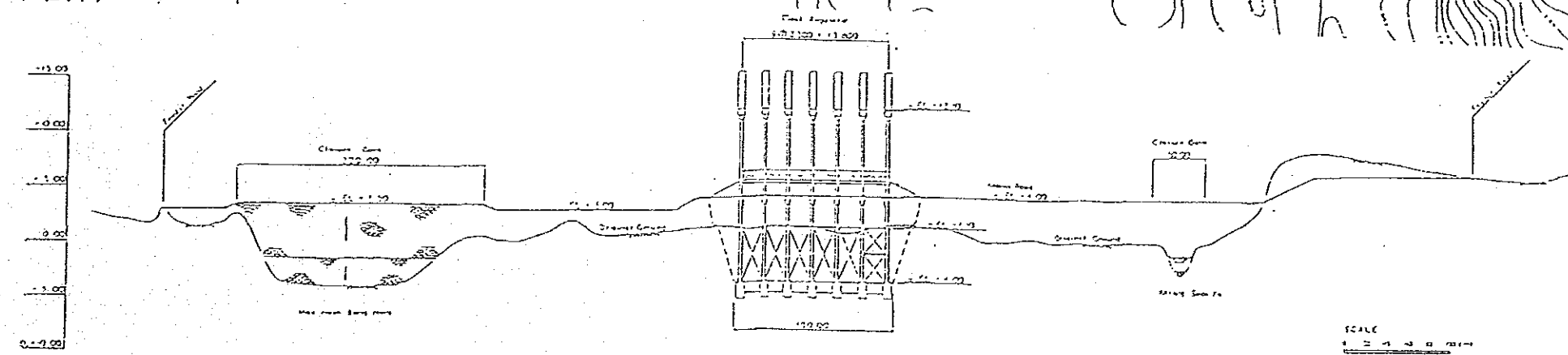
ANNEX IV. ATTENDANTS' LIST

Bang Nara Project (April 28, 1987)

<u>Name</u>	<u>Division</u>
<u>RID</u>	
Mr. Chari Tulayanond	Deputy Director General
Mr. Charuck Nonthathum	Director, Large Scale Construction Division
Mr. Shoombhol Chaveesuk	Director, Design Division
Mr. Samrerng Siriphibal	Director Regional Irr. Office XII
Mr. Thada Saisanguan	Director of Topographical Survey Division
Mr. Prayut Chuensamran	Director of Mechanical Engineer Division
Mr. Sanan Sirion	Design Division
Mr. Suphorn Rugcharoen	Senior Engineer
Mr. Wichitr Werakitpanich	Large Project Construction Division
Mr. Siripong Hungspreug	Project Planning Division
Mr. Amput Sumbunnanondha	Communication Division
Mr. Va-son Boonkird	O&M Division
<u>Study Team and JICA in Thailand</u>	
Mr. Nagashi Sakai	Team Leader
Mr. Yukiya Saika	Grant-Aid Planner
Mr. Ryuji Matsunaga	Coordinator
Mr. Fujio Matsumoto	Planning Engineer
Mr. Hiroshi Kondo	Design Engineer (A)
Mr. Sumitada Okamoto	Design Engineer (B)
Mr. Jiro Kawai	Cost Estimating Engineer
Mr. Toshiharu Kai	JICA Thailand Office
Mr. Narumi Yamada	RID (JICA Expert)

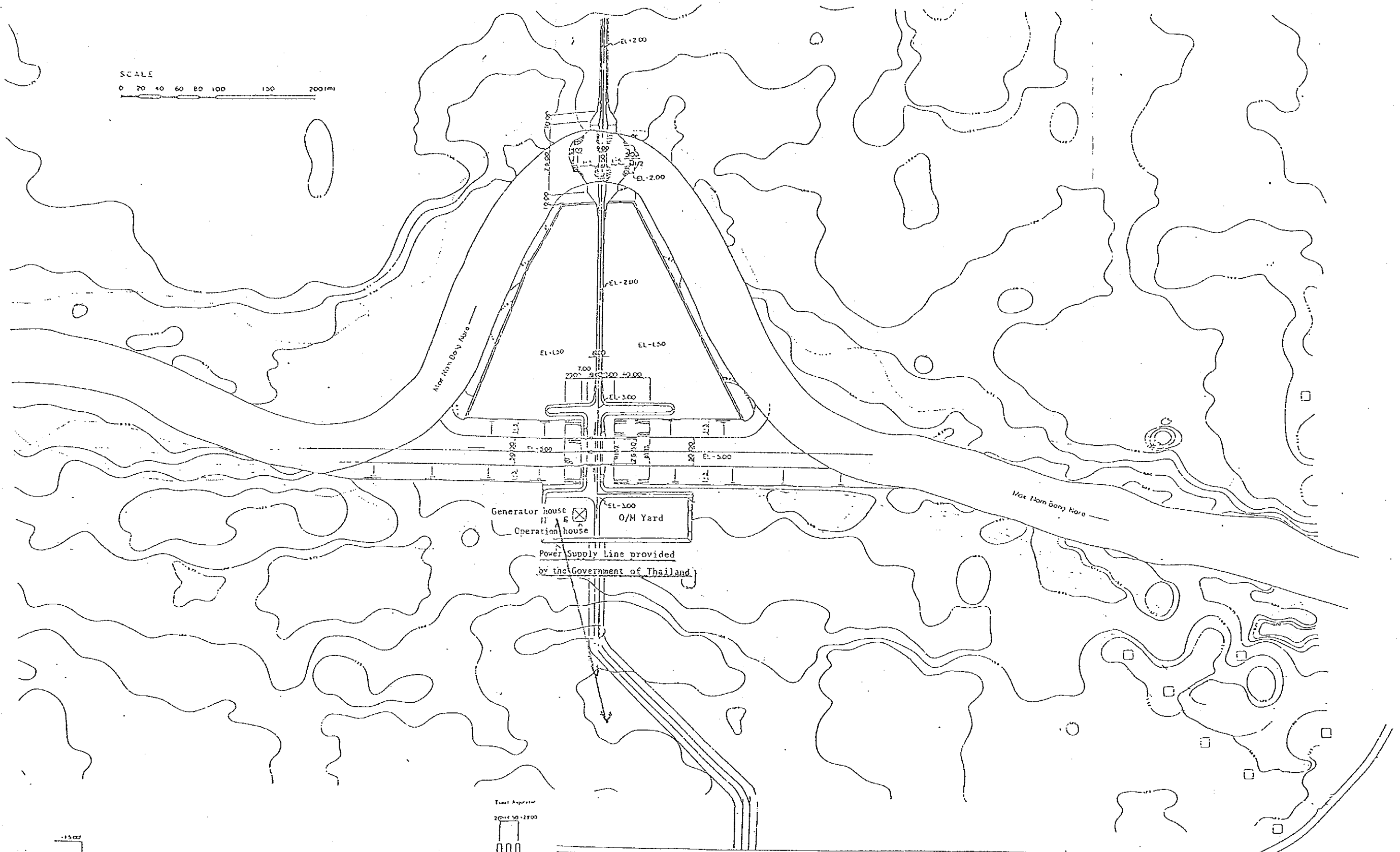


SCALE
0 20 40 60 80 100 150 200m

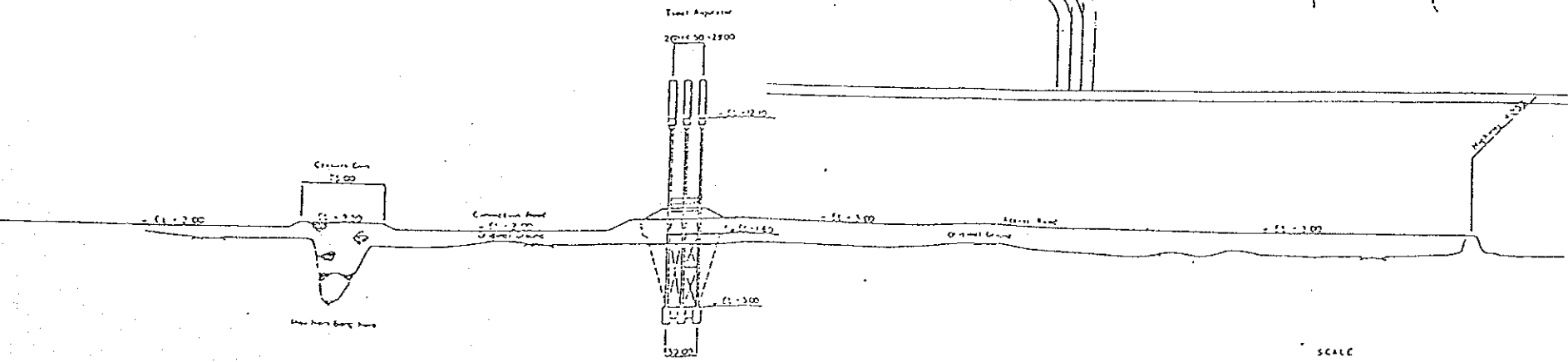
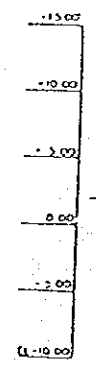


SCALE
1 2 3 4 5 6 7 8 9 10m

SCALE
0 20 40 60 80 100 150 200(m)



Generator house
Operation house
O/M Yard
Power Supply Line provided
by the Government of Thailand



SCALE
0 20 40 60 80 100

4-2. Explanation of Draft Report


MINUTES OF DISCUSSION
ON
THE BANG NARA IRRIGATION AND DRAINAGE PROJECT
IN
THE KINGDOM OF THAILAND

In response to the request made by the Government of the Kingdom of Thailand for a grant-aid on the implementation of the Bang Nara Irrigation and Drainage Project (hereinafter called "the Project"), the Government of Japan has sent, through the Japan International Cooperation Agency (JICA) led by Mr. Yukiya Saika, a Basic Design Study Team to the Kingdom of Thailand, from 22 June 1987 to 2 July 1987, to present and explain the draft Final Report of the basic design study of the Project.

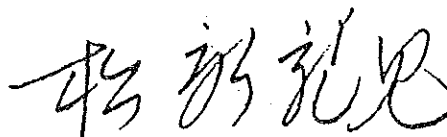
The Team had a series of discussion on the Project with the officials concerned of the Government of Thailand, headed by Mr. Charuck Nonthathum, Royal Irrigation Department (RID), Ministry of Agriculture and Cooperatives.

As a result of the study, both parties agreed to recommend to their respective Governments that major points of understanding reached between them, attached herewith, should be examined towards the realization of the Project.

30 June, 1987



CHARUCK NONTHATHUM
Director
Large Scale Project
Construction Division
Royal Irrigation Department



RYUJI MATSUNAGA
Planning Coordinator
Japan International
Cooperation Agency

- (1) Both parties agreed to reconfirm the Minutes of Discussion which was mutually signed on April 29, 1987.
- (2) The party of Kingdom of Thailand has agreed in principle to the basic design proposed in the Draft Final Report and appropriate alterations agreed by both parties in the course of discussion will be in the Final Report.
- (3) The party of Kingdom of Thailand has accepted Japan's grant-aid system and the arrangement to be taken by the party of Kingdom of Thailand for realization of the project.
- (4) The Final Report (10 copies in English) will be submitted to the Kingdom of Thailand before mid-August, 1987.

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@. Warthathum

JICA