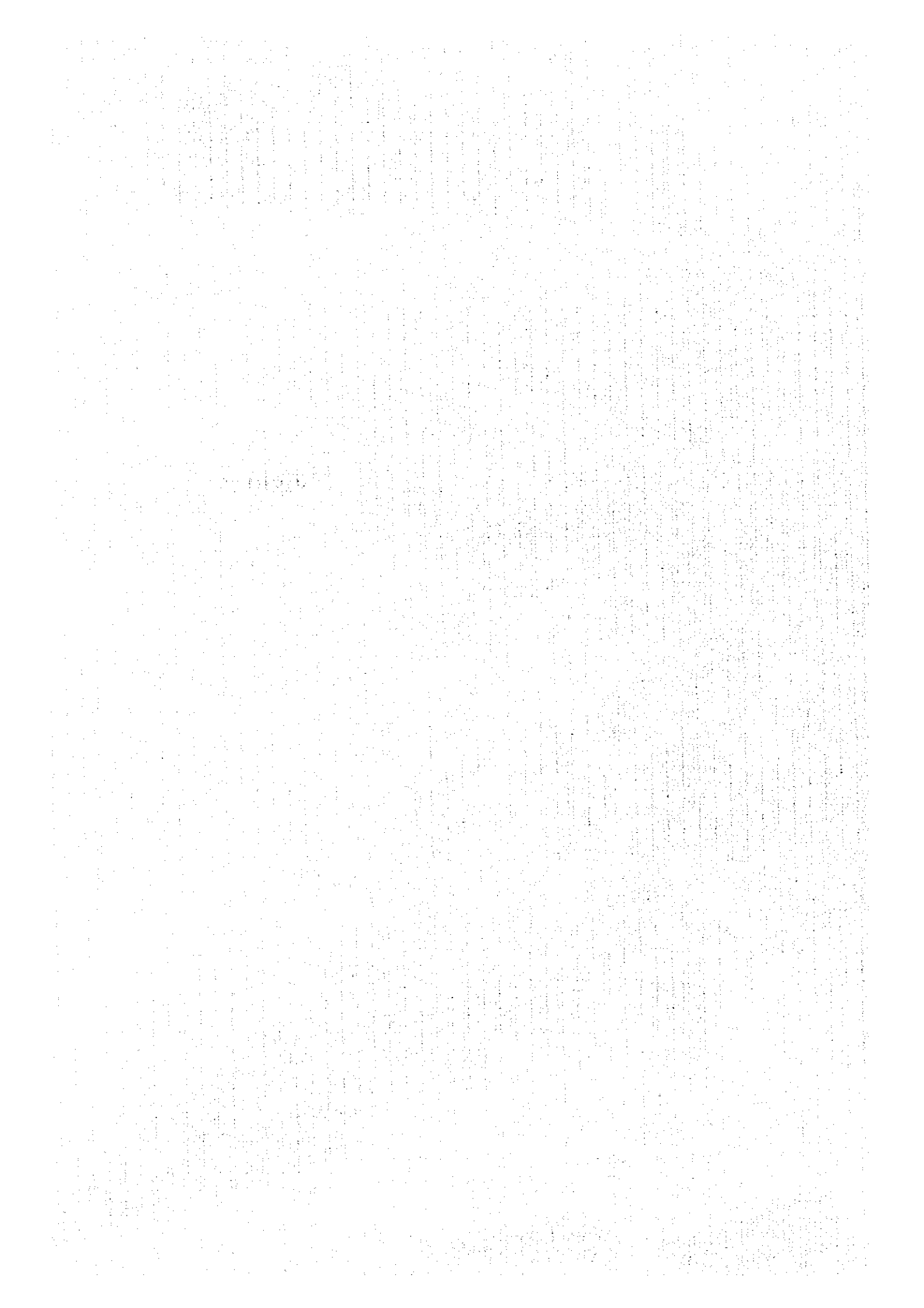
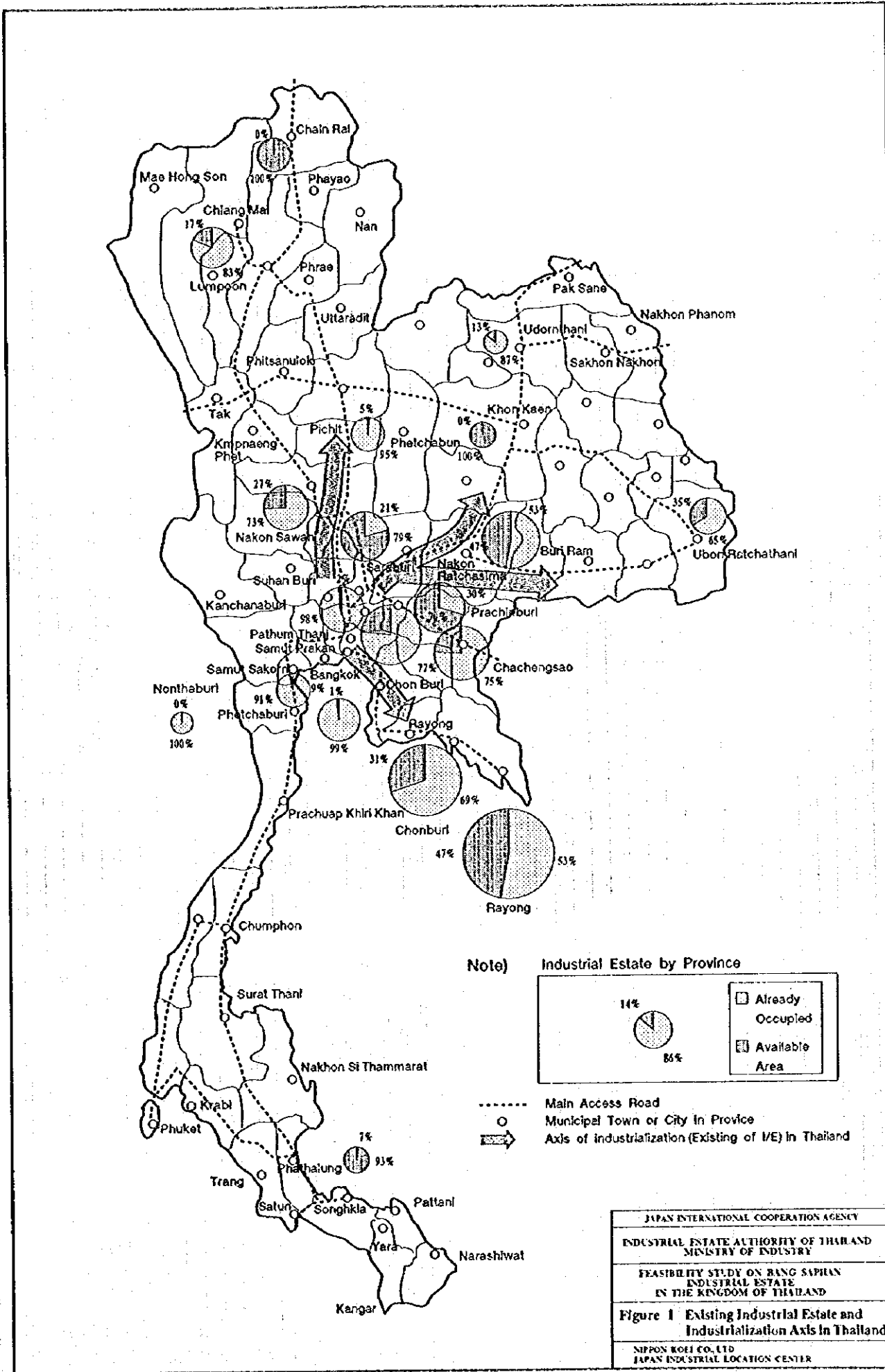
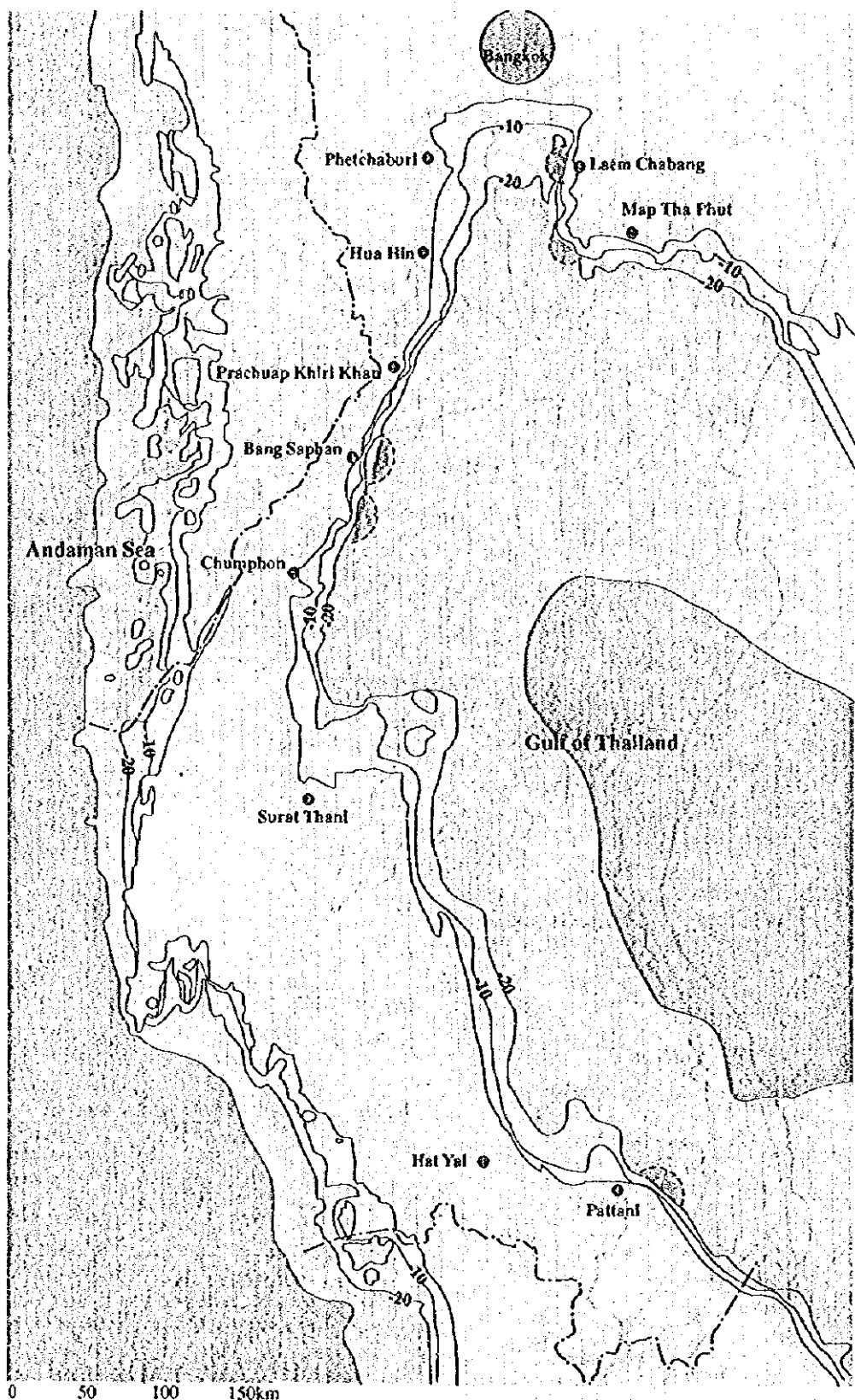


Figures

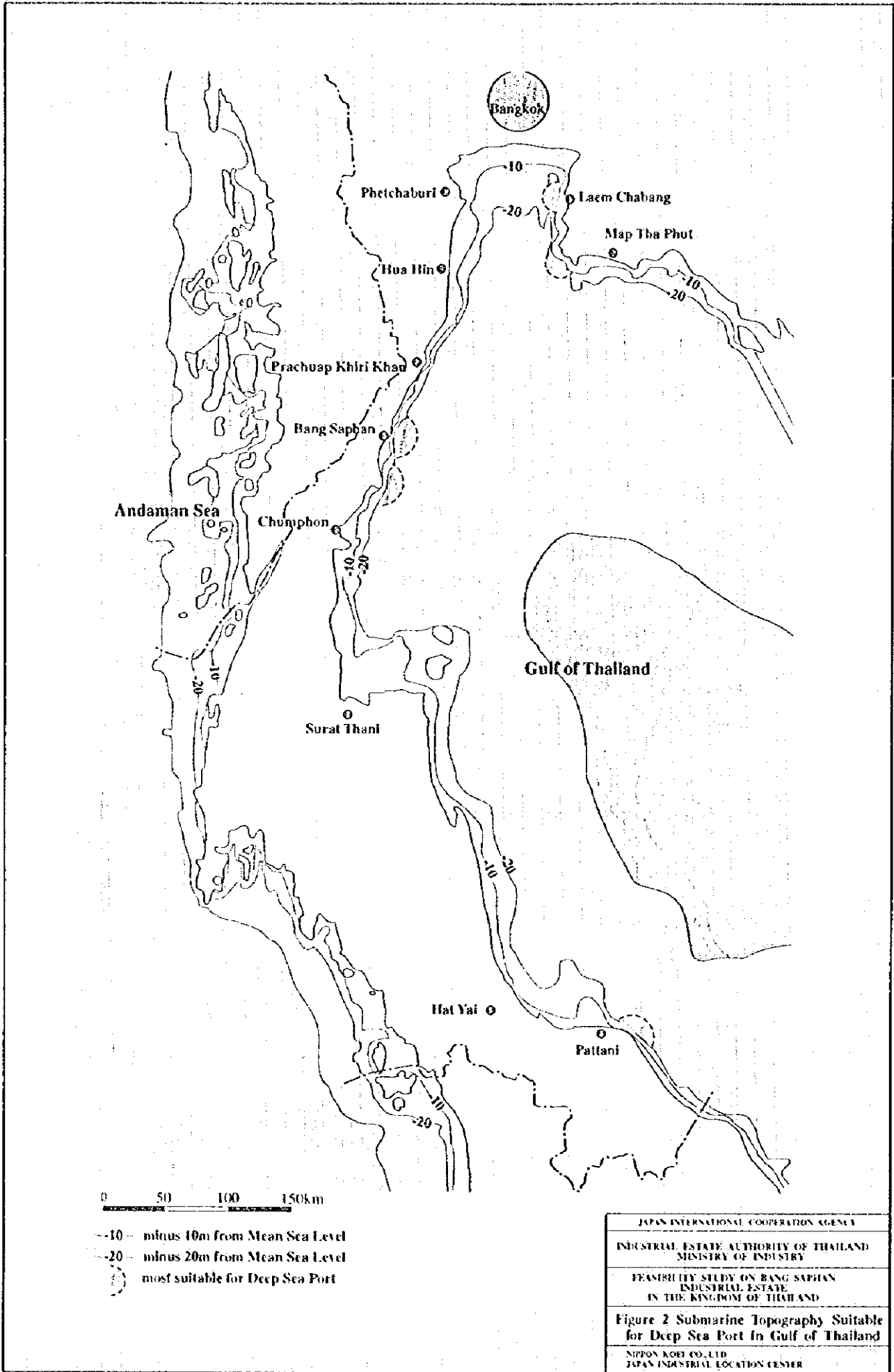






-10- minus 10m from Mean Sea Level
 -20- minus 20m from Mean Sea Level
B most suitable for Deep Sea Port

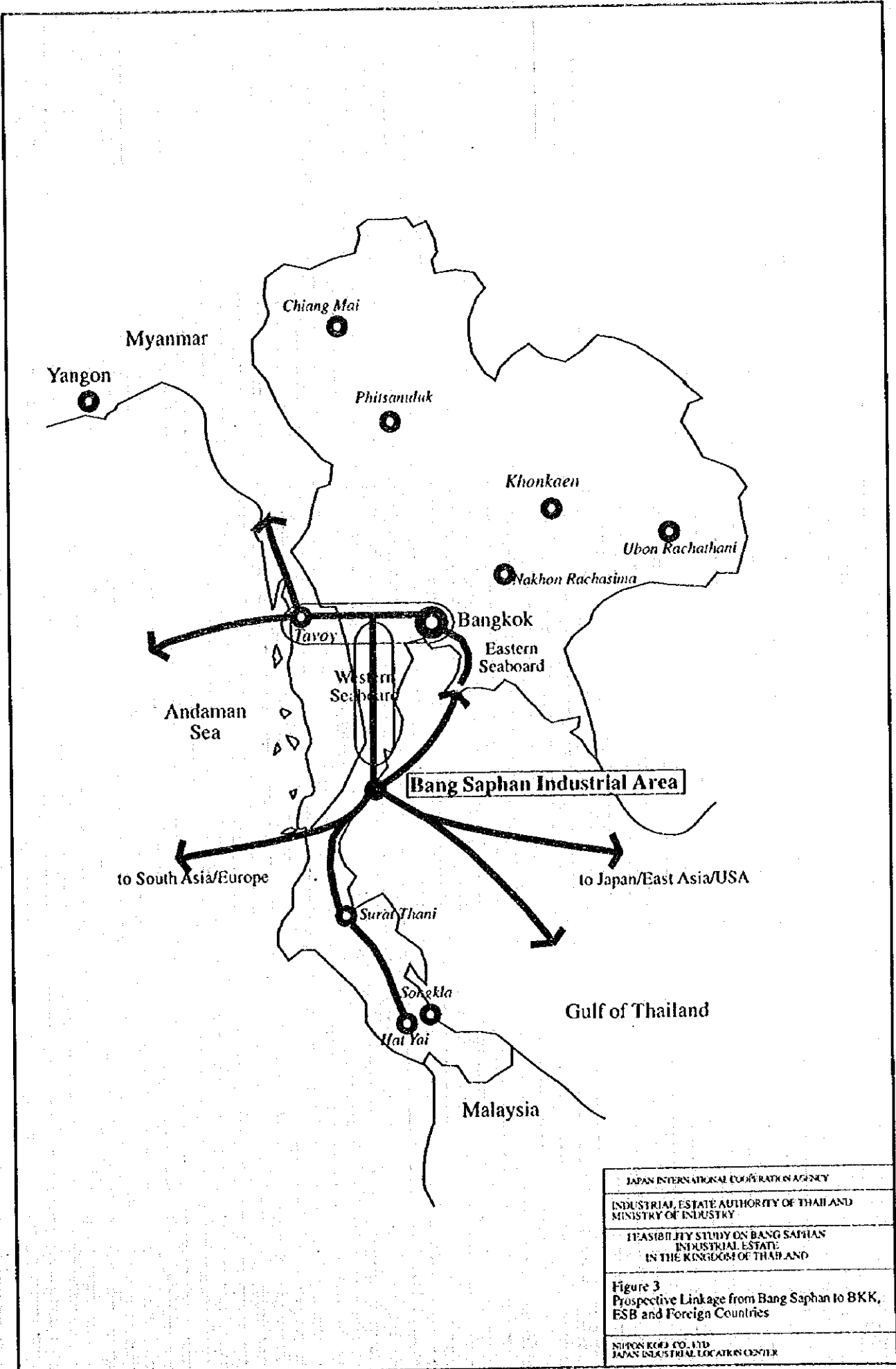
JAPAN INTERNATIONAL COOPERATION AGENCY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON BANG SAPPAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND
Figure 2 Submarine Topography Suitable for Deep Sea Port in Gulf of Thailand
NIFFON KOKI CO., LTD JAPAN INDUSTRIAL LOCATION CENTER



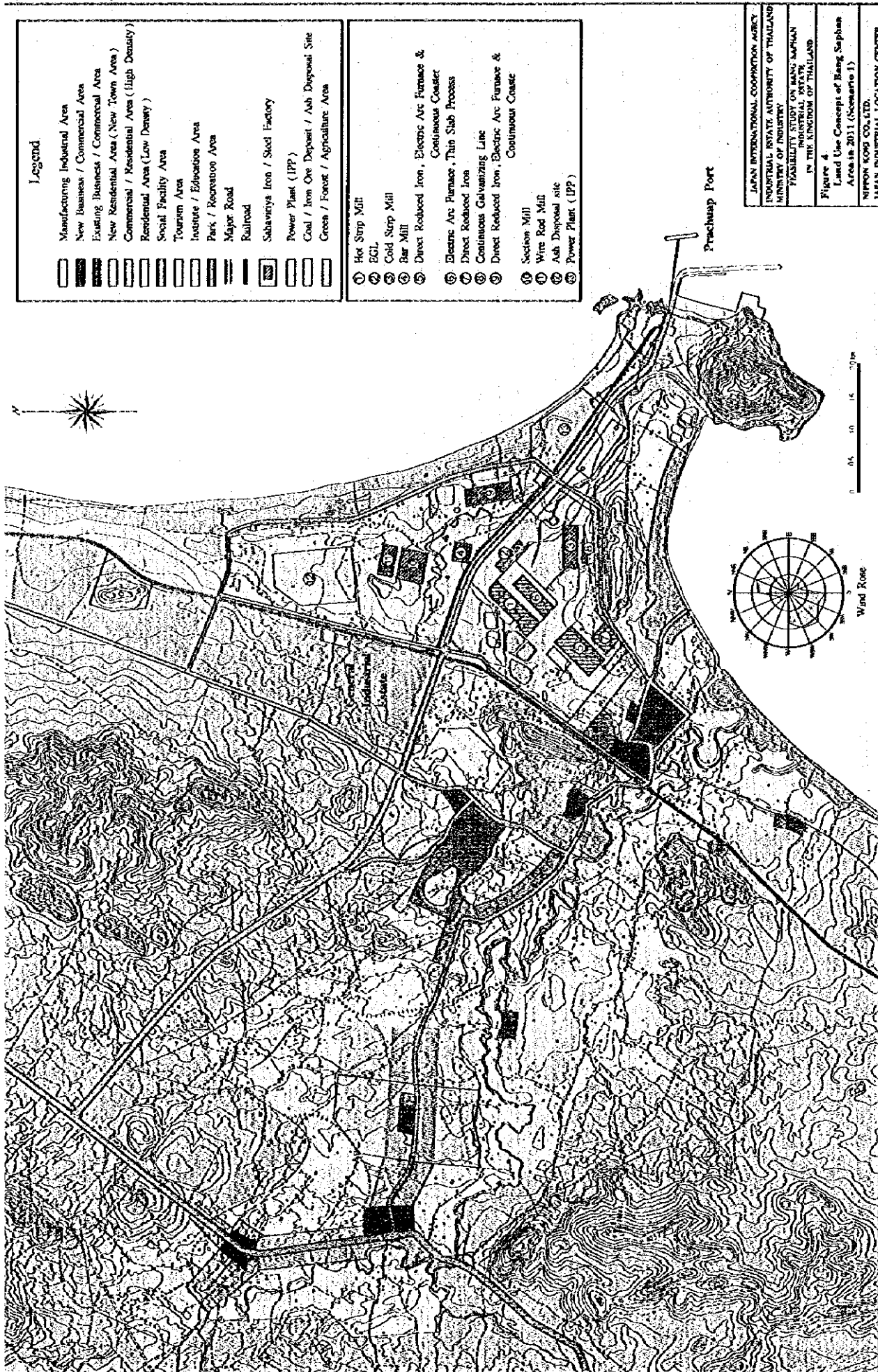
0 50 100 150km

- 10-- minus 10m from Mean Sea Level
- 20-- minus 20m from Mean Sea Level
- () most suitable for Deep Sea Port

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FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND
Figure 2 Submarine Topography Suitable for Deep Sea Port in Gulf of Thailand
NIPPON KOEI CO., LTD. JAPAN INDUSTRIAL LOCATION CENTER



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FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND
Figure 3 Prospective Linkage from Bang Saphan to BKK, ESB and Foreign Countries
NIPPON KOGYO CO., LTD. JAPAN INDUSTRIAL LOCATION CENTER

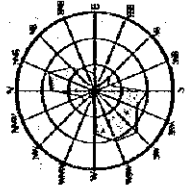


Legend

- Manufacturing Industrial Area
- New Business / Commercial Area
- Existing Business / Commercial Area
- New Residential Area (New Town Area)
- Commercial / Residential Area (High Density)
- Residential Area (Low Density)
- Social Facility Area
- Tourism Area
- Institute / Education Area
- Park / Recreation Area
- Major Road
- Railroad
- Sabavriya Iron / Steel Factory
- Power Plant (IPP)
- Coal / Iron Ore Deposit / Ash Disposal Site
- Green / Forest / Agriculture Area

- ① Hot Strip Mill
- ② ECL
- ③ Cold Strip Mill
- ④ Bar Mill
- ⑤ Direct Reduced Iron, Electric Arc Furnace & Continuous Cast
- ⑥ Electric Arc Furnace, Thin Slab Process
- ⑦ Direct Reduced Iron
- ⑧ Continuous Galvanizing Line
- ⑨ Direct Reduced Iron, Electric Arc Furnace & Continuous Cast
- ⑩ Section Mill
- ⑪ Wire Rod Mill
- ⑫ Ash Disposal site
- ⑬ Power Plant (IPP)

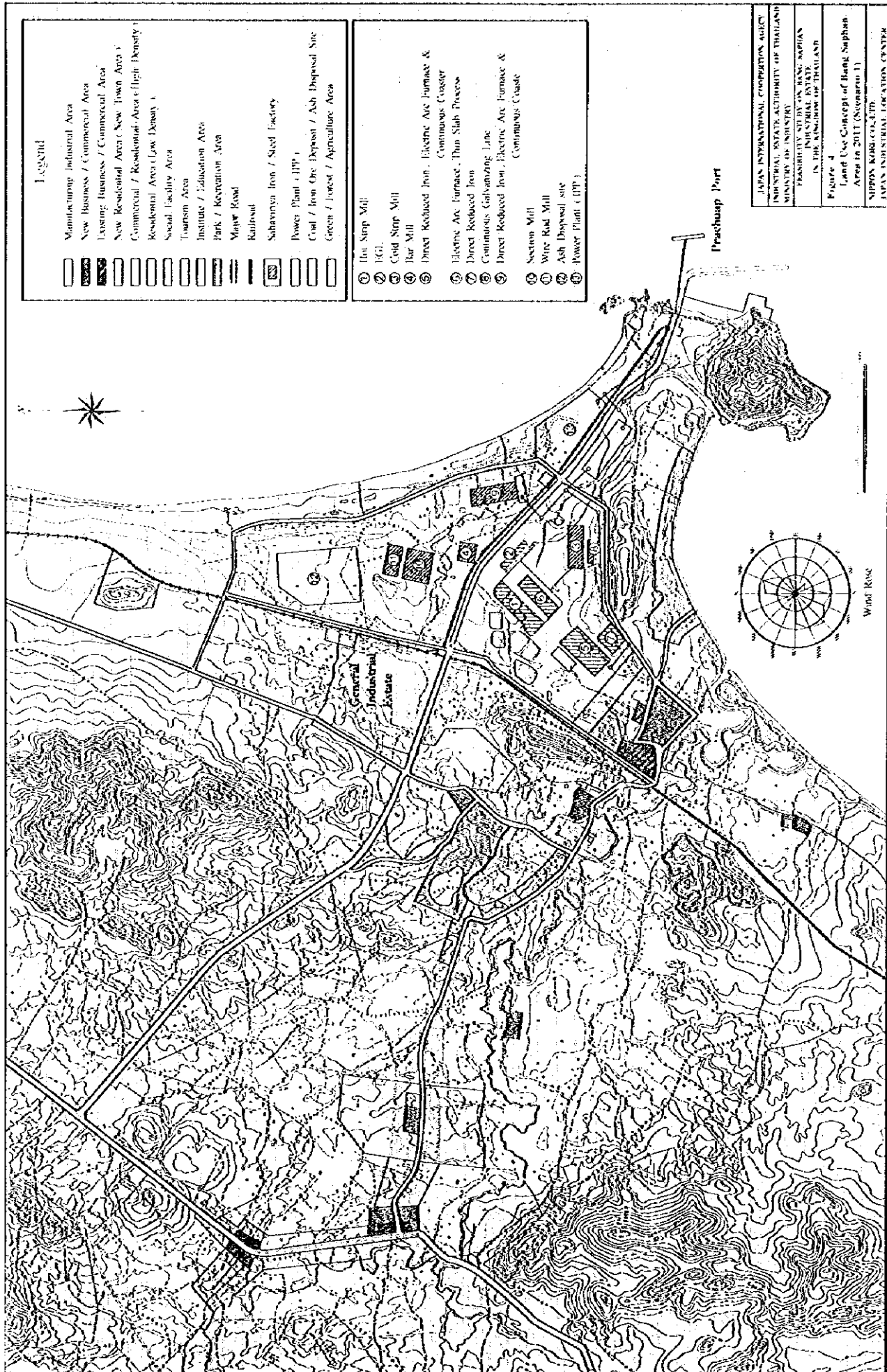
JAPAN INTERNATIONAL COOPERATION AGENCY
 INDUSTRIAL STATE AUTHORITY OF THAILAND
 MINISTRY OF INDUSTRY
 VIABILITY STUDY ON BANG SAHIAN
 INDUSTRIAL STATE
 IN THE KINGDOM OF THAILAND
 Figure 4
 Land Use Concept of Bang Saopian
 Area in 2011 (Scenario 1)
 NIPPON KOGYO CO., LTD.
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Wind Rose



Prechasp Port



Legend

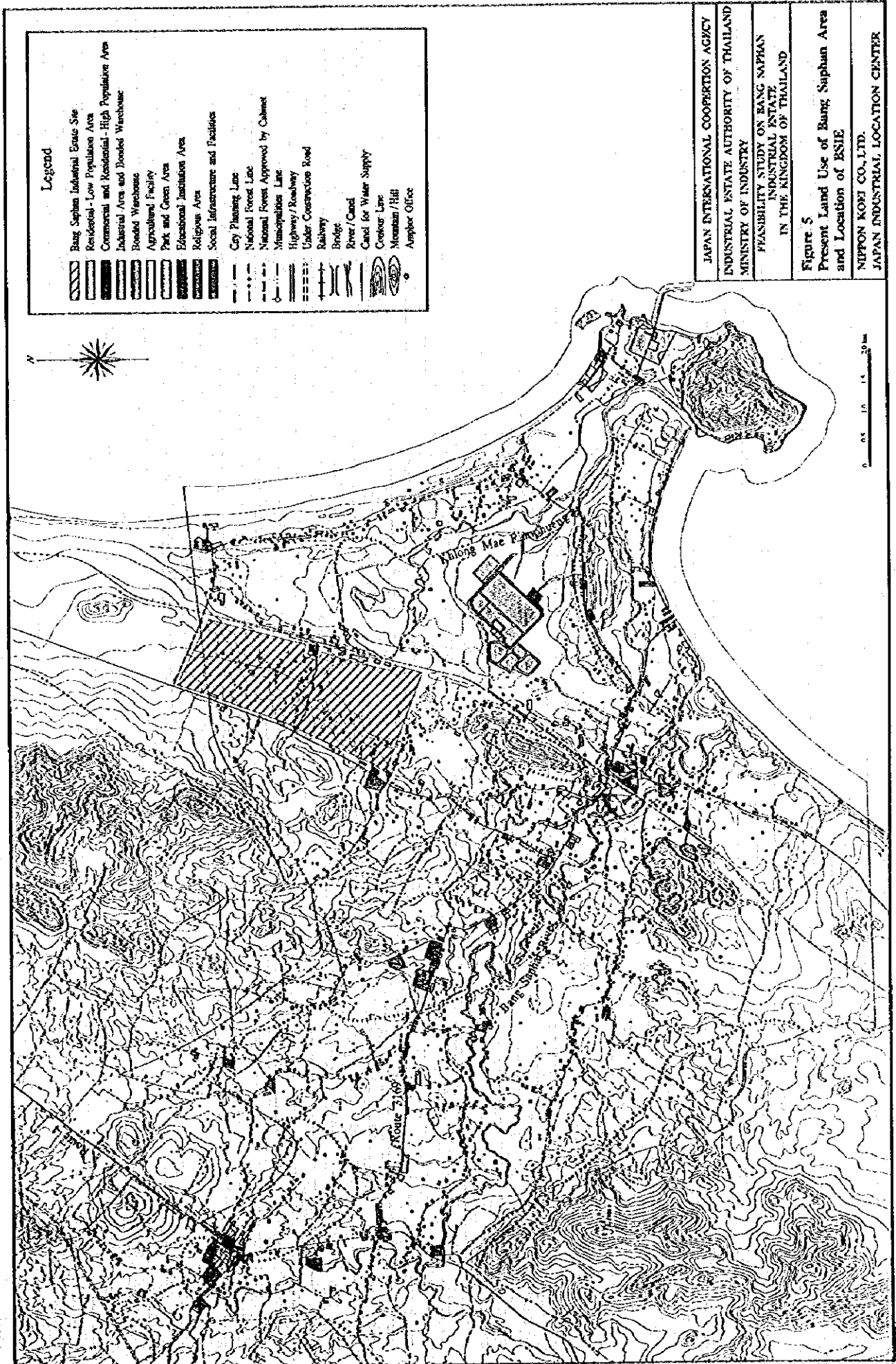
- Manufacturing Industrial Area
- New Business / Commercial Area
- Existing Business / Commercial Area
- New Residential Area (New Town Area)
- Commercial / Residential Area (High Density)
- Residential Area (Low Density)
- Social Facility Area
- Tourism Area
- Institute / Education Area
- Park / Recreation Area
- Major Road
- Railroad
- Submarine Iron / Steel Factory
- Power Plant (IPP)
- Coal / Iron Ore Deposit / Ash Disposal Site
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- ① Hot Strip Mill
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- ③ Cold Strip Mill
- ④ Bar Mill
- ⑤ Direct Reduced Iron, Electric Arc Furnace & Continuous Cast
- ⑥ Electric Arc Furnace, Thin Slab Process
- ⑦ Direct Reduced Iron
- ⑧ Continuous Galvanizing Line
- ⑨ Direct Reduced Iron, Electric Arc Furnace & Continuous Cast
- ⑩ Section Mill
- ⑪ Wire Rod Mill
- ⑫ Ash Disposal site
- ⑬ Power Plant (IPP)

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 PREPARED BY DR. BANG SAPHAN
 PUBLIC RELATIONS CENTER
 IN BANGKOK, THAILAND

Figure 4
 Land Use Concept of Bang Saphan
 Area in 2011 (Scenario 1)

SUPPIN KASRI, CONSULTANT
 JAPAN INDUSTRIAL LOCATION CENTER



Legend























- Bang Saphan Industrial Estate Site
- Residential - Low Population Area
- Residential - High Population Area
- Commercial and Residential - High Population Area
- Industrial Area and Bonded Warehouse
- Bonded Warehouse
- Agricultural Facility
- Park and Green Area
- Educational, Institutions Area
- Religious Area
- Social Infrastructure and Facilities
- City Planning Line
- National Forest Line
- National Forest Approved by Cabinet
- Municipalities Line
- Highway/Roadway
- Under Construction Road
- Railway
- Bridge
- River/Canal
- Canal for Water Supply
- Contour Line
- Mountain/Hill
- Amphoe Office

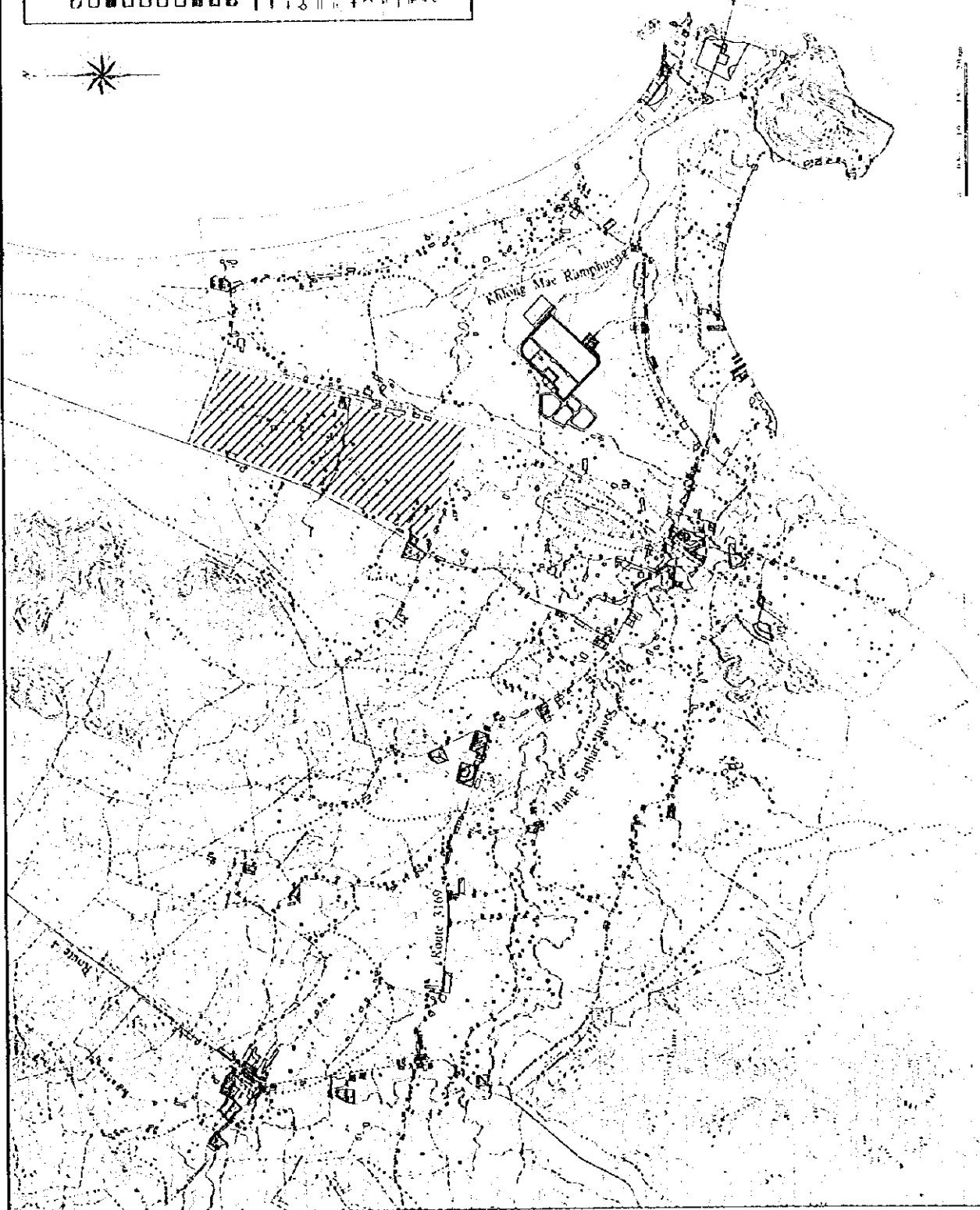
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 INDUSTRIAL ESTATE
 IN THE KINGDOM OF THAILAND

Figure 5
 Present Land Use of Bang Saphan Area
 and Location of ESIE

NIIPPON KOEI CO., LTD.
 JAPAN INDUSTRIAL LOCATION CENTER

LEGEND

-  Bang Saphan Industrial Estate Site
-  Residential - Low Population Area
-  Commercial and Residential - High Population Area
-  Industrial Area and Bonded Warehouse
-  Bonded Warehouse
-  Agricultural Facility
-  Park and Green Area
-  Educational Institution Area
-  Religious Area
-  Social Infrastructure and Facilities
-  City Planning Line
-  National Forest Line
-  National Forest Approved by Cabinet
-  Municipalities Line
-  Highway/Roadway
-  Under Construction Road
-  Railway
-  Bridge
-  Canal for Water Supply
-  Contour Line
-  Mountain/Hill
-  Amphithe Office



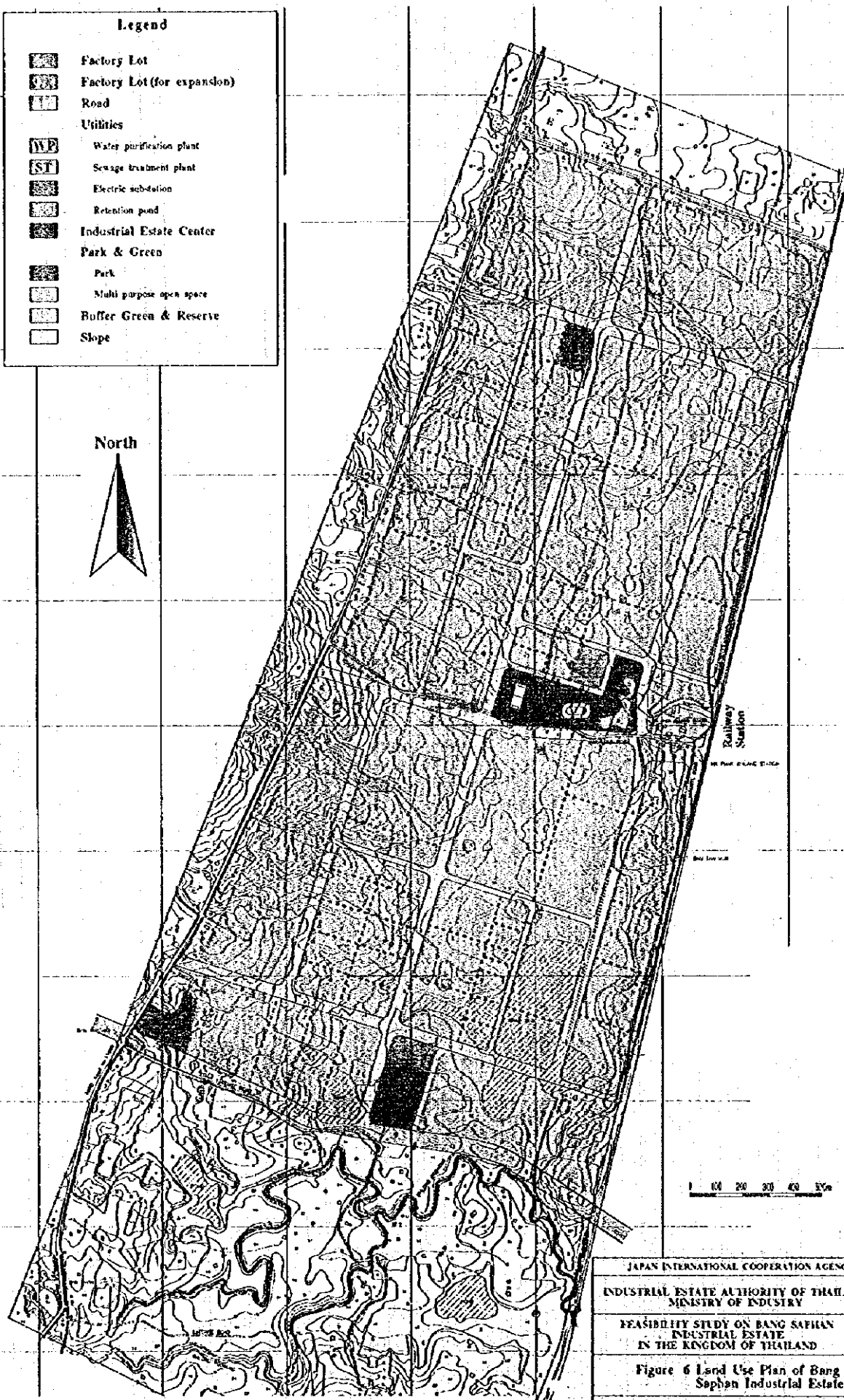
0 0.5 1.0 1.5 2.0 km

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 MINISTRY OF INDUSTRY
 FEASIBILITY STUDY ON BANG SAPHAN
 INDUSTRIAL ESTATE
 IN THE KINGDOM OF THAILAND

Figure 5
 Present Land Use of Bang Saphan Area
 and Location of BSIE
 NIPPON KOEI CO., LTD.
 JAPAN INDUSTRIAL LOCATION CENTER

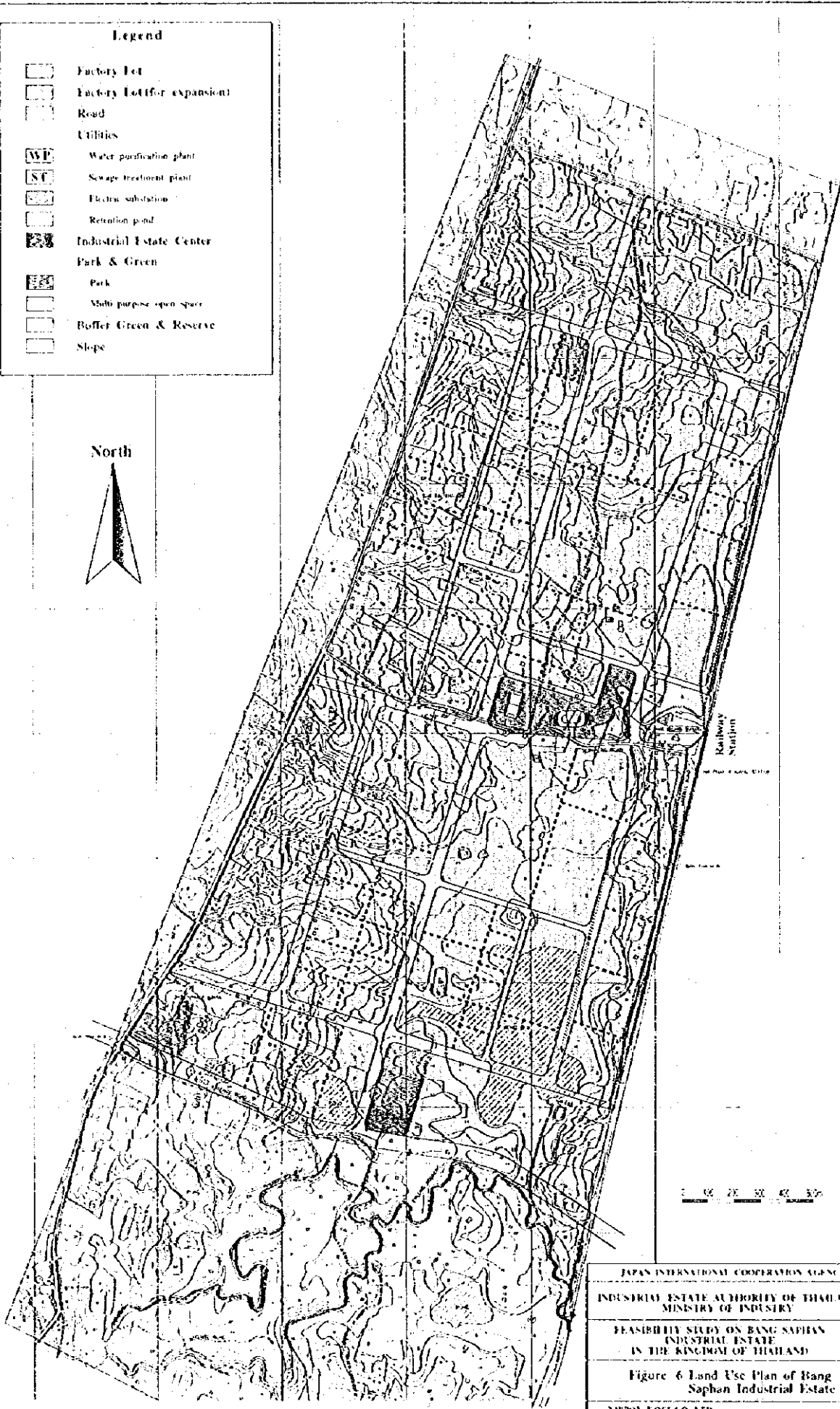
Legend	
	Factory Lot
	Factory Lot (for expansion)
	Road
Utilities	
	Water purification plant
	Sewage treatment plant
	Electric sub-station
	Retention pond
Industrial Estate Center	
Park & Green	
	Park
	Multi purpose open space
	Buffer Green & Reserve
	Slope

North



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 IN THE KINGDOM OF THAILAND
 Figure 6 Land Use Plan of Bang
 Saphan Industrial Estate
 NIPPON KOEI CO., LTD
 JAPAN INDUSTRIAL LOCATION CENTER

Legend	
	Factory Lot
	Factory Lot (for expansion)
	Road
Utilities	
	Water purification plant
	Sewage treatment plant
	Electric substation
	Retention pond
	Industrial Estate Center
Park & Green	
	Park
	Multi purpose open space
	Buffer Green & Reserve
	Slope

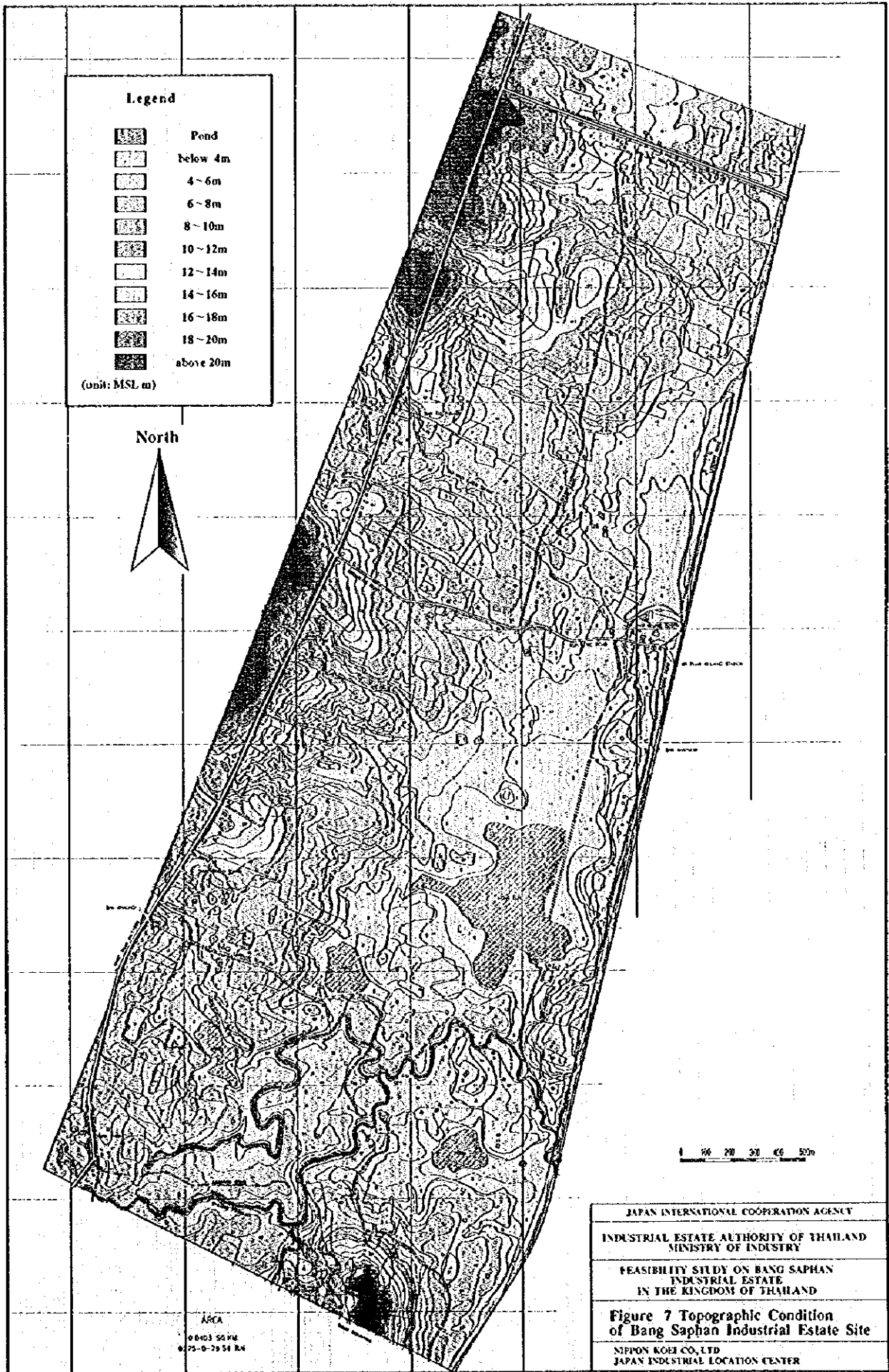


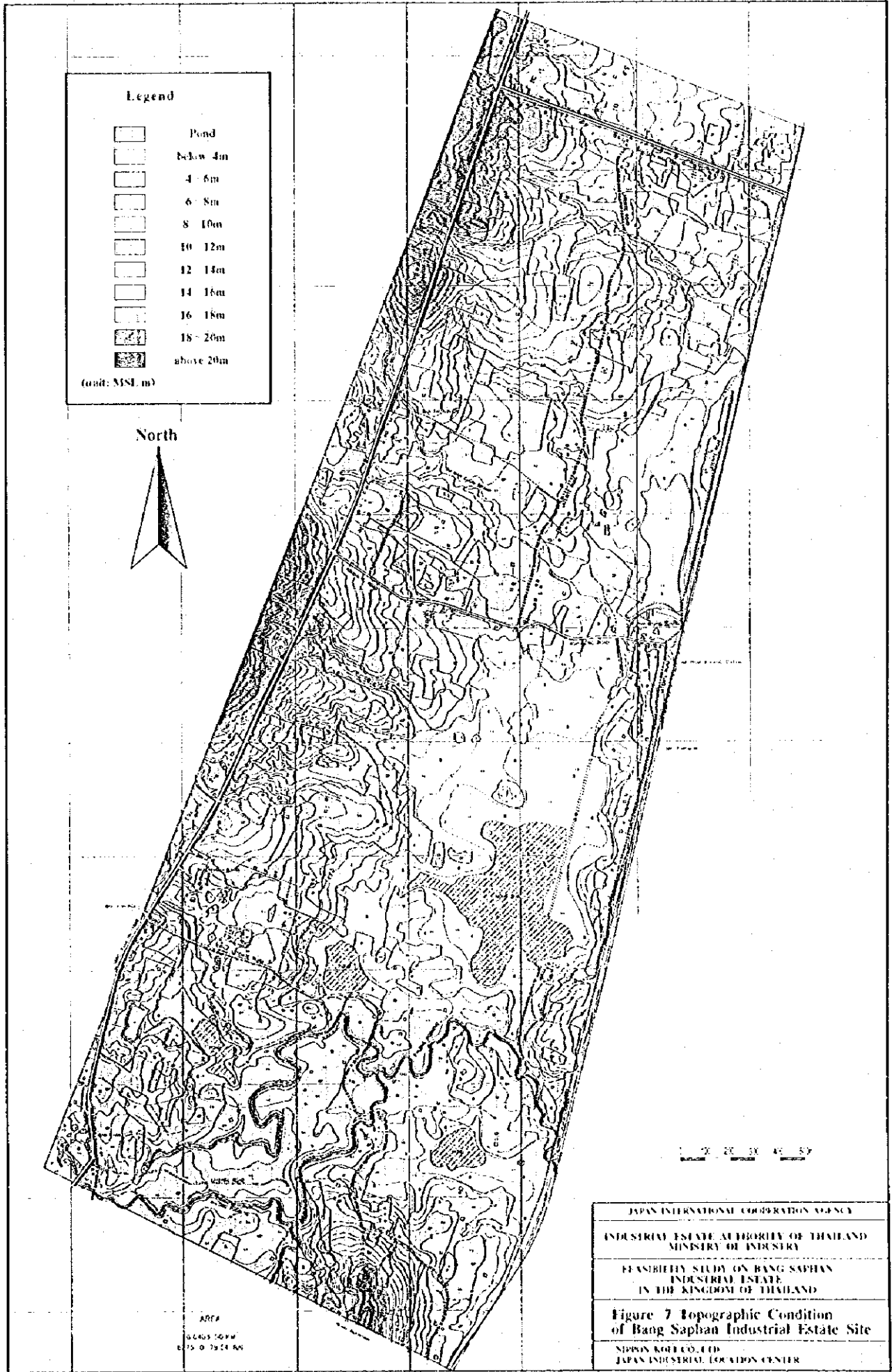
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 MINISTRY OF INDUSTRY

FEASIBILITY STUDY ON BANG SAPHAN
 INDUSTRIAL ESTATE
 IN THE KINGDOM OF THAILAND

Figure 6 Land Use Plan of Bang
 Saphan Industrial Estate

NIHON KOEI CO., LTD.
 JAPAN INDUSTRIAL LOCATION CENTER





Legend

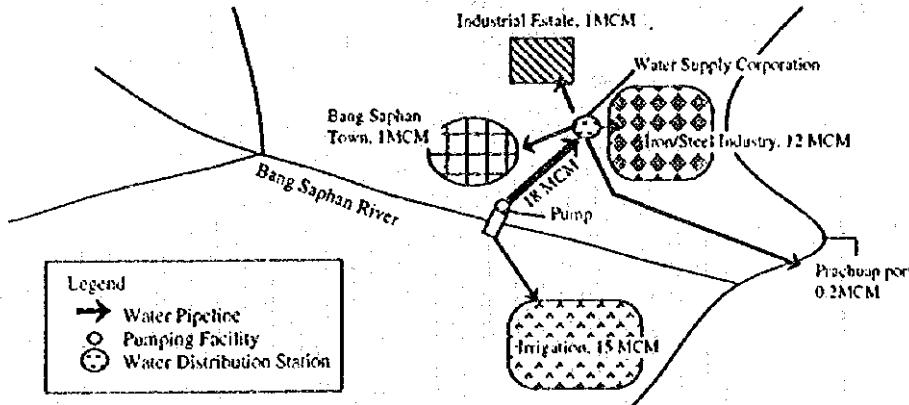
	Pond
	Below 4m
	4-6m
	6-8m
	8-10m
	10-12m
	12-14m
	14-16m
	16-18m
	18-20m
	above 20m

(unit: MSL, m)



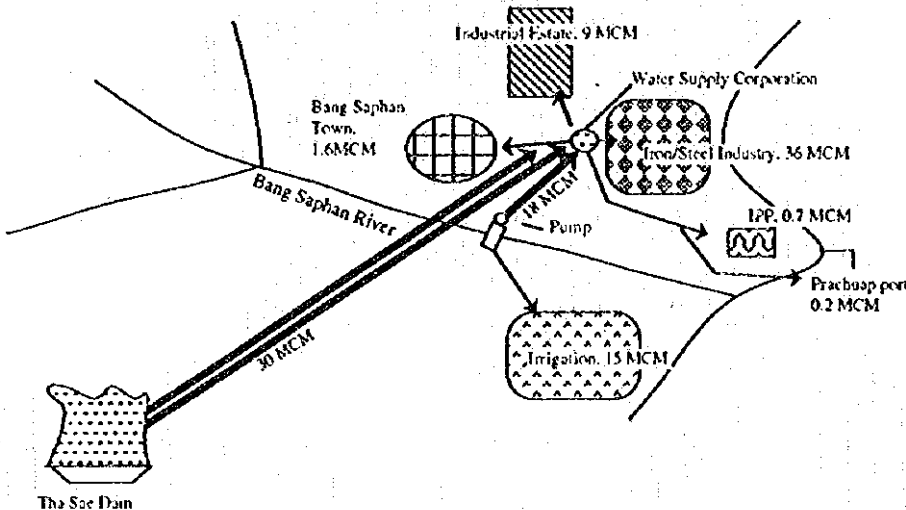
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 FEASIBILITY STUDY ON BANG SAPHAN
 INDUSTRIAL ESTATE
 IN THE KINGDOM OF THAILAND
**Figure 7 Topographic Condition
 of Bang Saphan Industrial Estate Site**
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AREA
 00403 509W
 075 0 7924 N

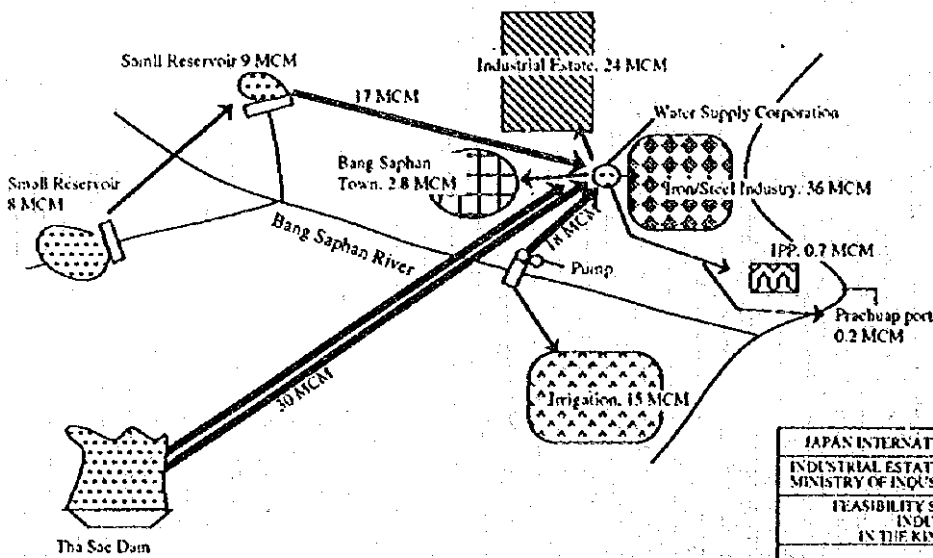


in 2001
 From Bang Saphan River : 33 MCM
 Pump 18 MCM
 Irrigation 15 MCM
 Demand : 30 MCM
 Iron industry : 12 MCM
 IE : 1 MCM
 Domestic use : 1 MCM
 Irrigation : 15 MCM
 Others : 0.2 MCM
 Total : 30 MCM

Legend
 → Water Pipeline
 ☉ Pumping Facility
 ☺ Water Distribution Station

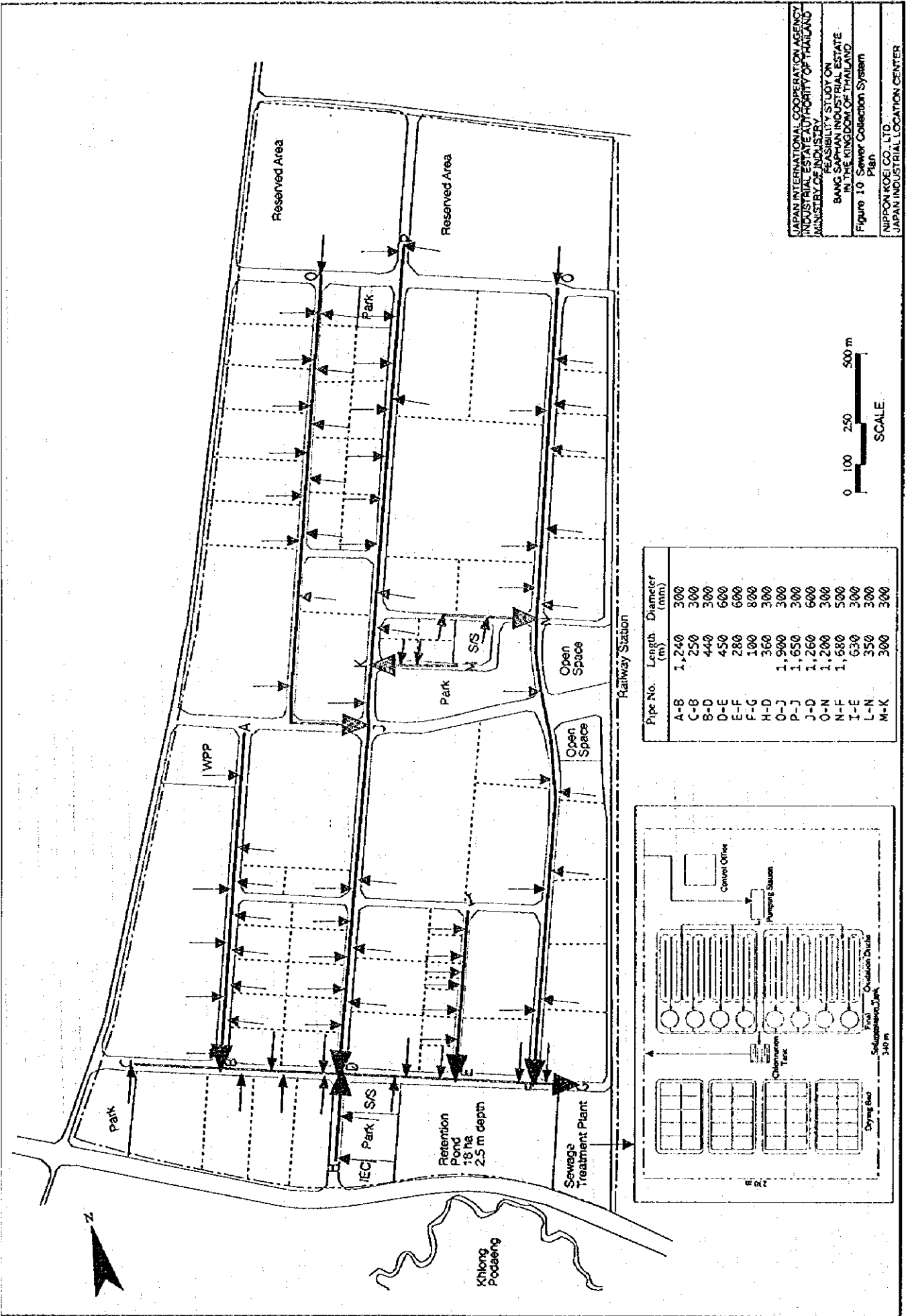


in 2006
 From Bang Saphan River : 33 MCM
 Pump 18 MCM
 Irrigation 15 MCM
 From Tha Sae Dam : 30 MCM
 Total : 63 MCM
 Demand : 63 MCM
 Iron industry : 36 MCM
 IE : 9 MCM
 Domestic use : 2 MCM
 Irrigation : 15 MCM
 Others : 1 MCM
 Total : 63 MCM

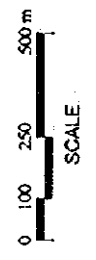


in 2011
 From Bang Saphan River : 50 MCM
 Pump 18 MCM
 Dam 17 MCM
 Irrigation 15 MCM
 From Tha Sae Dam : 30 MCM
 Total : 80 MCM
 Demand : 77 MCM
 Iron Industry : 36 MCM
 IE : 22 MCM
 Domestic use : 3 MCM
 Irrigation : 15 MCM
 Others : 1 MCM
 Total : 77 MCM

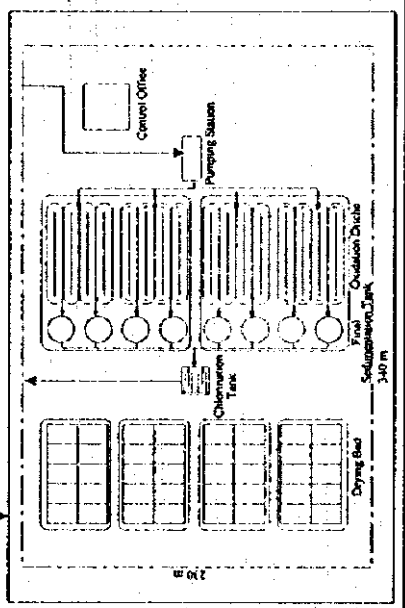
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 FEASIBILITY STUDY ON BANG SAPHAN
 INDUSTRIAL ESTATE
 IN THE KINGDOM OF THAILAND
 Figure 8 Plan of Water Supply System in Bang
 Saphan (External Facility)
 SUPPLY SIDE CONSULTANTS
 JAPAN INTERNATIONAL COOPERATION CENTER

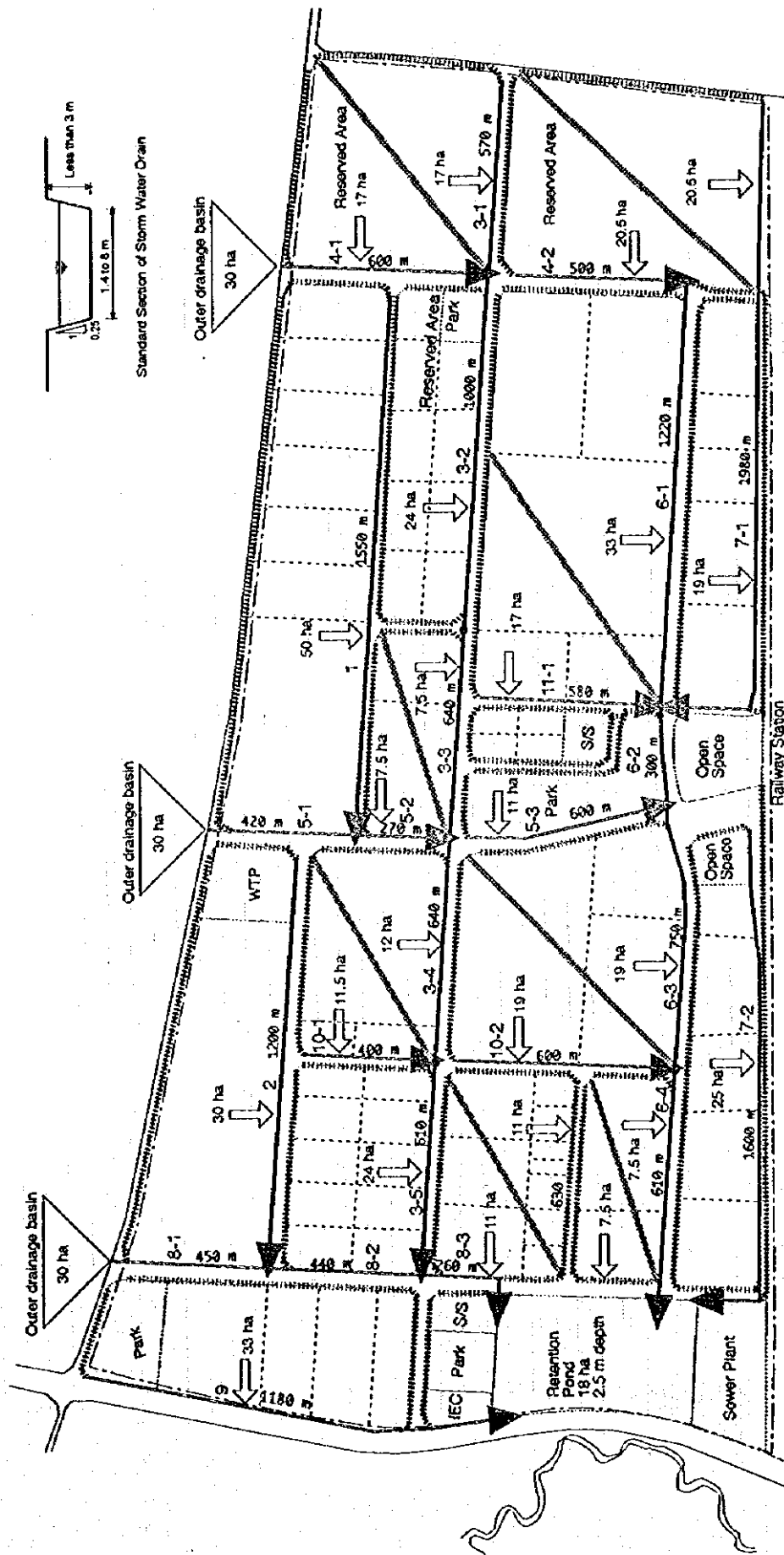


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 BANGKOK INDUSTRIAL ESTATE
 IN JONGKONGSUK INDUSTRIAL ZONE
 Figure 10 Sewer Collection System
 Plan
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Pipe No.	Length (m)	Diameter (mm)
A-B	1,240	300
C-B	250	300
B-D	440	300
D-E	450	600
E-F	280	600
F-G	100	800
H-D	360	300
O-J	1,900	300
P-J	1,650	300
J-D	1,260	600
O-N	1,200	300
N-F	1,680	500
I-E	630	300
L-N	350	300
M-K	300	300





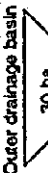
Standard Section of Storm Water Drain



Outer drainage basin
30 ha



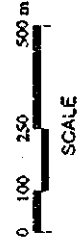
Outer drainage basin
30 ha



Outer drainage basin
30 ha

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FEASIBILITY STUDY ON
BANG SAPHAN INDUSTRIAL ESTATE
IN THE KINGDOM OF THAILAND
Figure 11 Drainage System Plan

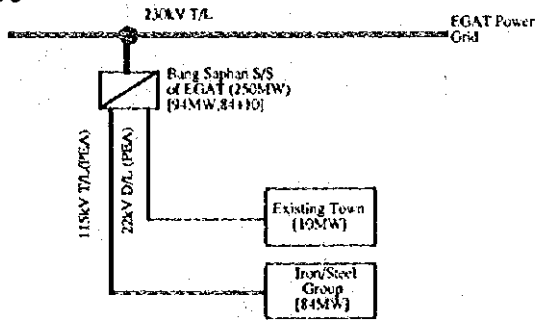
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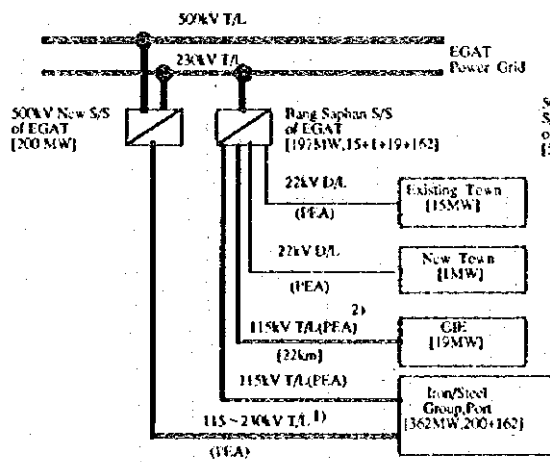
SCALE

- LEGEND
- Road Side Ditch
 - Storm Water Drainage Canal and Flow Direction
 - Direction of Inland Rain Water
 - Boundary of Drainage Area

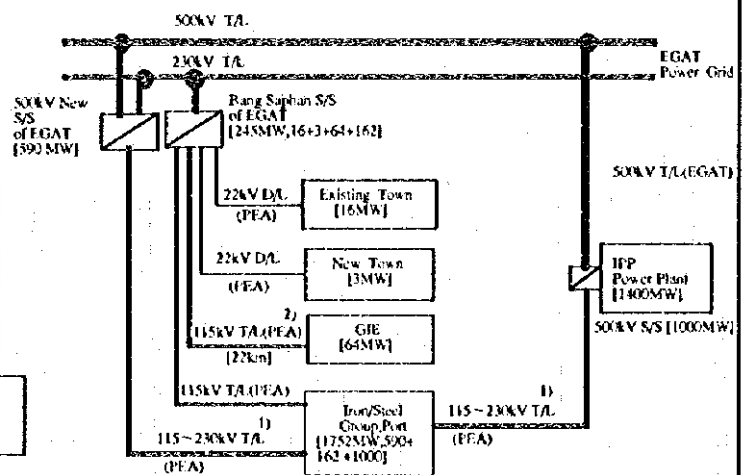
in 1995



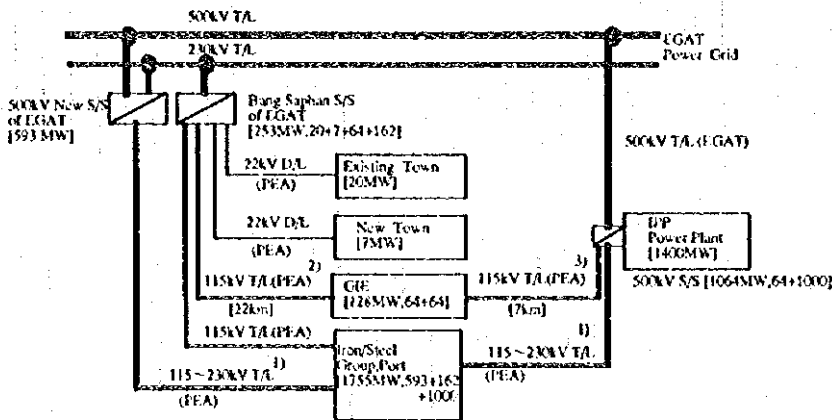
End of 2001



in 2006



in 2011



Remarks 1) : Transmission voltage will depend on electricity demand of each consumer.

2) : To be constructed by the end of 2000.

3) : To be constructed by the end of 2007.

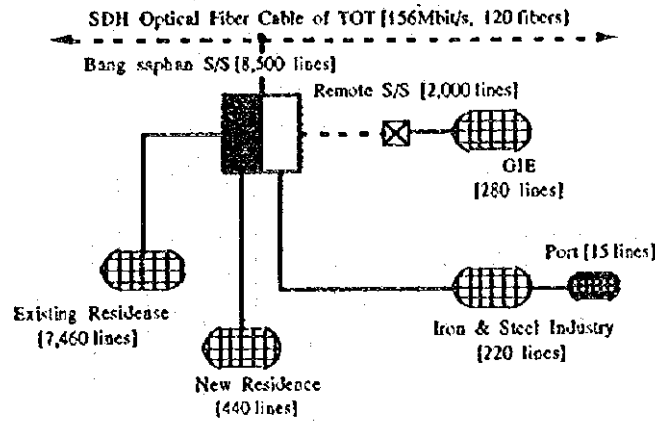
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MINISTRY OF INDUSTRY

FEASIBILITY STUDY ON BANG SAPHAN
INDUSTRIAL ESTATE
IN THE KINGDOM OF THAILAND

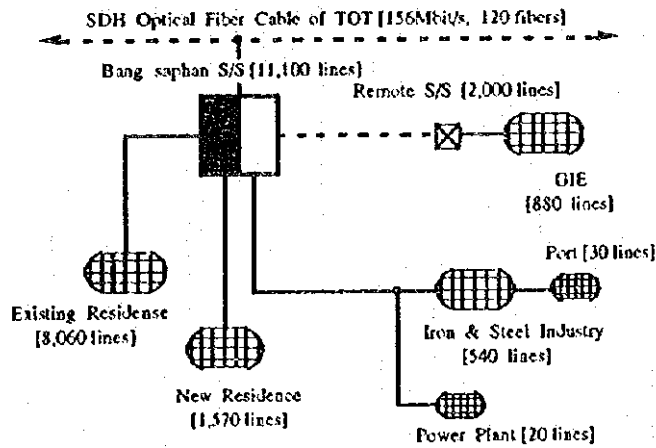
Figure 12 Schematic Diagram
of Power Supply System in
1995, 2001, 2006 & 2011

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JAPAN INDUSTRIAL LOCATION CENTER

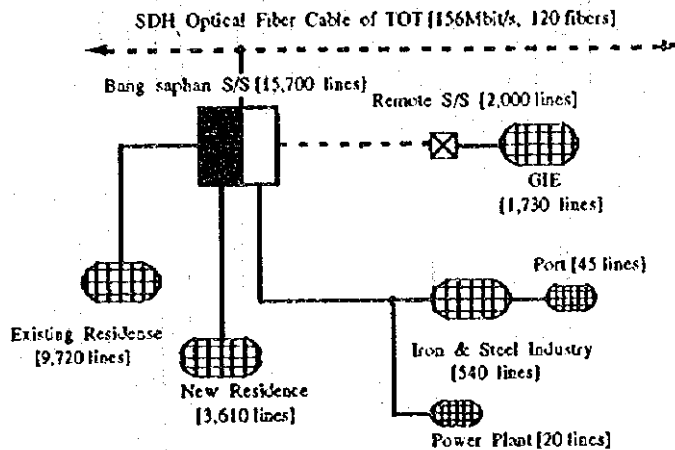
in 2001



in 2006



in 2011



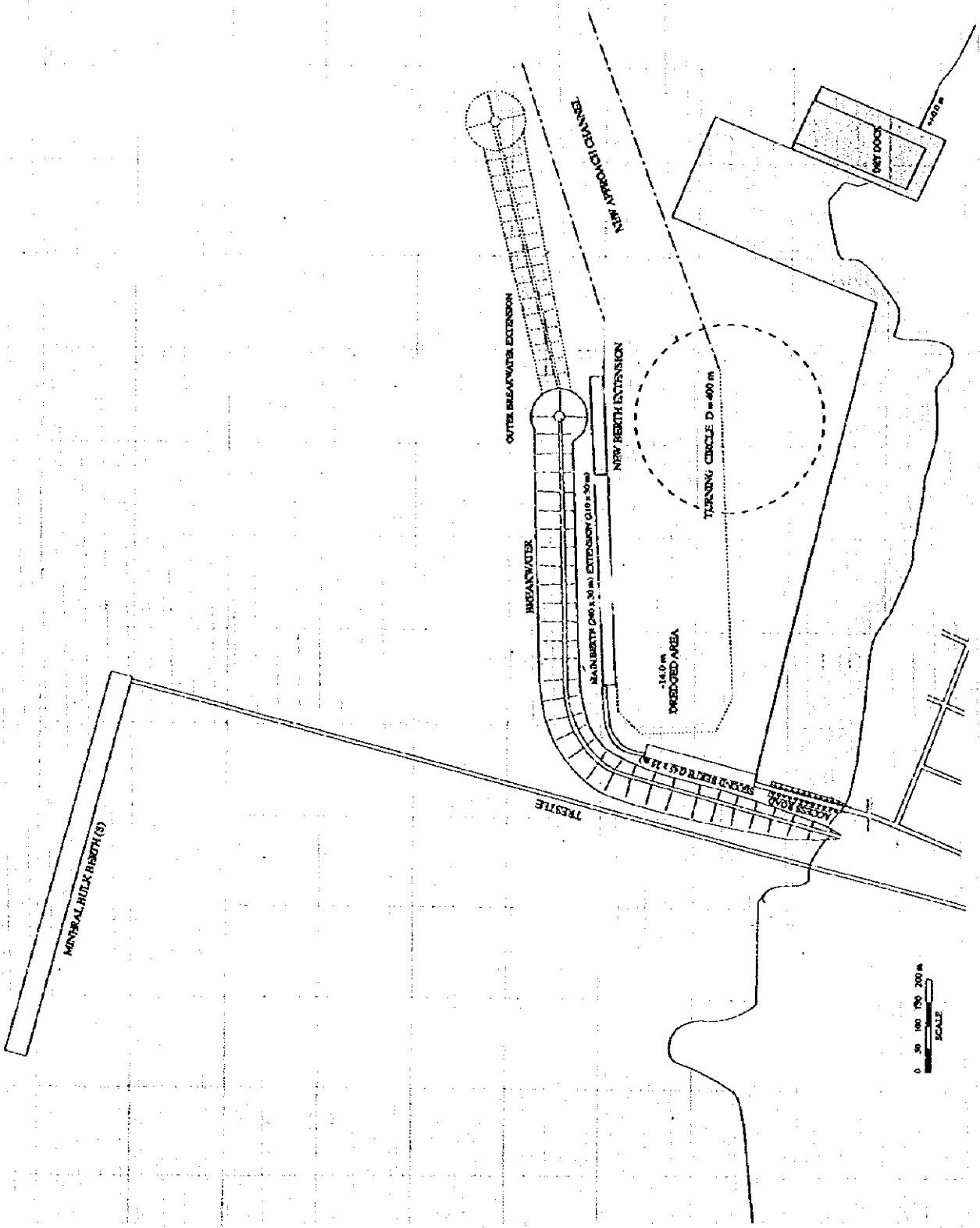
Legend

- Switching station to be expanded
- Remote Switching station to be constructed
- Distribution line to be constructed and/or to be expanded
- - - Optical fiber cable
- ⊞ Distribution grid line to be constructed and/or to be expanded

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FEASIBILITY STUDY ON BANU SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND
Figure 13 Schematic Diagram of Telecommunication System in 2001, 2006 and 2011
NIPPON KOFI CO. LTD JAPAN INDUSTRIAL LOCATION CENTER

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 INDUSTRIAL ESTATE
 IN THE KINGDOM OF THAILAND

Figure 14
 Prachuap Port Development Plan
 SIMON KOBH CO., LTD.
 JAPAN INDUSTRIAL LOCATION CENTER



		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
Industrial Estate	Phase 1		DD	Land Grading	Other													
	Phase 2			DD	Land Grading	Other												
	Phase 3						DD	Land Grading	Other									
External Infrastructure	1) Water Supply Facility		DD	Construction														
	(1) Pipeline & pump for Phase 1 (Bang Saphan area)		DD	Construction														
	(2) The Sea dam pipeline		IS/HA	DD	Construction													
	(3) Reservoir & pipeline (Bang Saphan area)					IS/HA	DD	Construction										
	2) Road									DD	Construction							
	(1) Access Road		DD/DD	Construction/phase 1						DD	Construction/phase 2							
	(2) Interchange									DD	Construction							
	(3) Community roads			R. 3169	Other community road	Other community road												
	3) Port																	
	(1) Phase 1 general cargo berth		DD/EIA	Construction														
	(2) Phase 2 general cargo berth expansion									DD/EIA	Construction							
	(3) Bulk berth																	
	4) Electric Supply Facility																	
	(1) 115kV TL (Bang Saphan SS-IE)		DD	Construction														
	(2) 115kV TL from SS in IPP to IE									DD/EIA	Construction							
	(3) 5.0kV TL & new SS near Bang Saphan SS		DD	Construction														
(4) IPP with 5.0kV SS				DD/EIA	Construction													
(5) 230kV TL from new SS to Iron Complex				DD	Construction													
(6) 230kV TL from SS in IPP to Iron Complex					DD/EIA	Construction												
5) Telecommunication Facility																		
(1) Expansion of Exchange			DD	Construction														
(2) Optical fiber cable			DD	Construction														

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FEASIBILITY STUDY ON BANG SAPHAN
INDUSTRIAL ESTATE
IN THE KINGDOM OF THAILAND
Figure 15
Development Schedule
NIPPON KOGI CO., LTD.
JAPAN INDUSTRIAL LOCATION CENTER

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for transparency and accountability, particularly in the context of public administration and financial management. The text highlights that records should be kept in a clear, organized, and accessible manner, ensuring that all relevant information is captured and preserved for future reference.

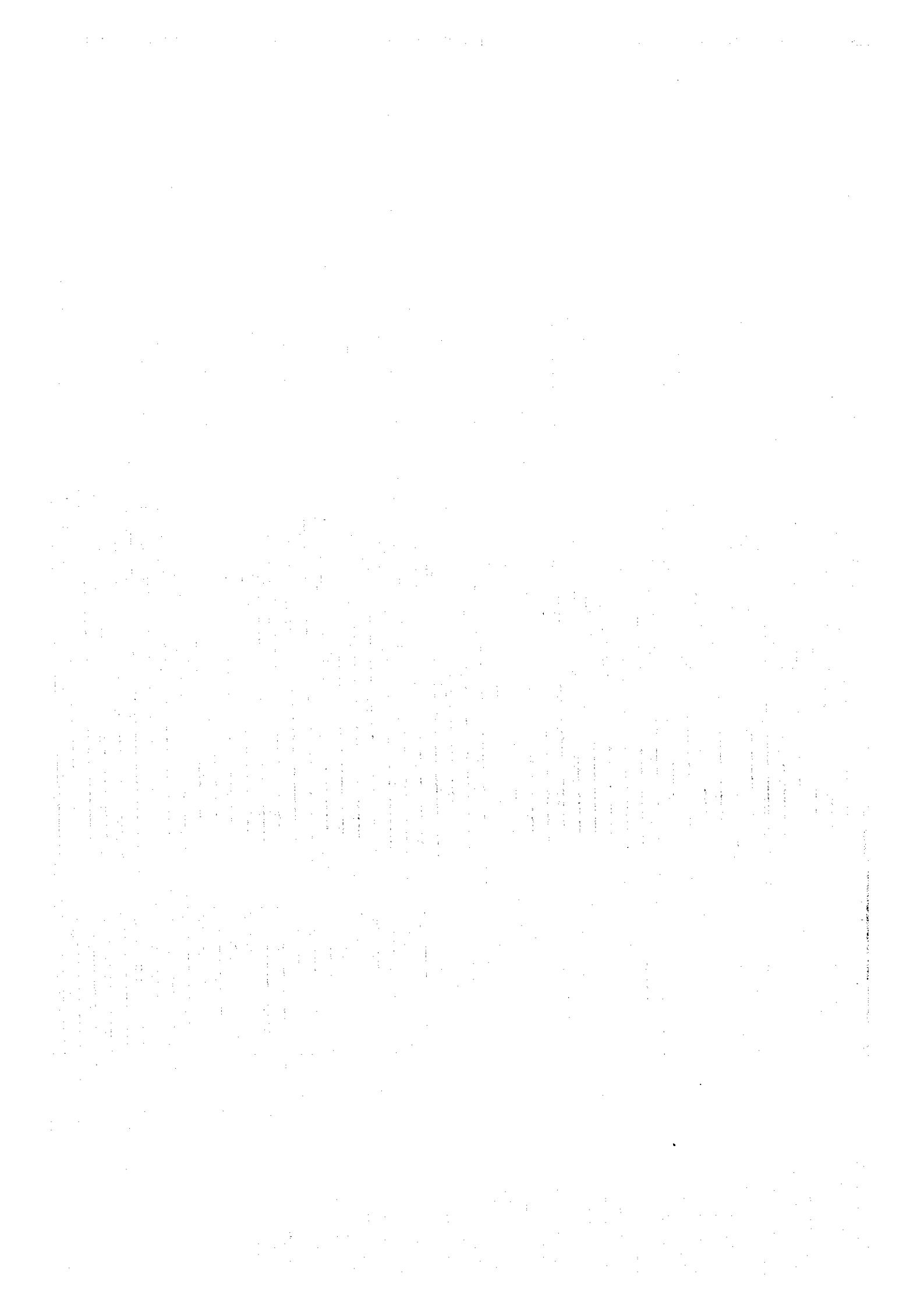
2. The second part of the document addresses the challenges associated with data management and information security. It notes that as the volume of data increases, the risk of data loss, corruption, and unauthorized access also increases. Therefore, it is crucial to implement robust security measures, including encryption, access controls, and regular backups, to protect sensitive information and ensure its integrity and availability.

3. The third part of the document focuses on the role of technology in improving operational efficiency and decision-making. It discusses how digital tools and platforms can streamline processes, reduce errors, and provide real-time insights into various aspects of an organization's performance. The text suggests that investing in modern technology is not just a cost but a strategic investment that can lead to significant long-term benefits.

4. The fourth part of the document explores the importance of human resources and training in the digital age. It argues that while technology is a powerful enabler, it is the skills and knowledge of the workforce that truly drive innovation and success. Therefore, organizations should prioritize continuous learning and development, offering training opportunities that equip employees with the necessary digital literacy and technical skills to thrive in a rapidly changing environment.

5. The fifth part of the document discusses the need for strong leadership and governance to ensure that digital transformation efforts are aligned with the organization's overall mission and vision. It emphasizes that leaders should foster a culture of innovation, encourage collaboration, and provide clear guidance and support to their teams. Additionally, it stresses the importance of establishing clear policies and standards to govern the use of digital technologies and ensure compliance with relevant regulations and ethical considerations.

6. The sixth part of the document concludes by summarizing the key takeaways and providing a call to action. It reiterates that success in the digital era requires a holistic approach that integrates technology, data, and human capital. The text encourages organizations to embrace change, stay agile, and continuously seek ways to improve their operations and services. It ends with a strong statement of commitment to excellence and a vision of a bright future through digital innovation.



[The page contains extremely faint and illegible text, likely bleed-through from the reverse side of the document. The text is too light to transcribe accurately.]

JICA

