# 付　表

## 表 1.1　調査参加者

(1/2)

(Steering Committee Members)

| | | |
|---|---|---|
| 1. | Mrs. Anchalee CHAVANICH | Deputy Governor, IEAT, Committee Chairwoman |
| 2. | Mr. Chavalit CHOKRATANACHAI | Chief Engineer, IEAT |
| 3. | Mr. Manu SATTAYATEVA (Alt.) | Director, NESDB |
| 4. | Mr. Sombat NIRANRAJ | Dept. of Town and Country Planning |
| 5. | Mr. Krisda PIAQMPONGSANT (Alt.) | Dept. of Technical and Economic Cooperation (DTEC) |
| 6. | Mr. Piyavute Na PADALUNG | Ministry of Industry |
| 7. | Mr. Solos NGAMWONGWAN | Board of Investment (BOI) |
| 8. | Mr. Sonthi VANNASAENG | Director, Environmental Impact Evaluation Division |
| 9. | Mr. Damrong KRUEPIBOONKUL | Office of Environmental Policy and Planning |
| 10. | Mr. Somkiat PRAJAMWONG | Engineer, RID |
| 11. | Mr. Chusak GAYWEE | Chief of South Planning, DOH |
| 12. | Mr. Viraj Ho - CHAROEN | Manager of Electric Administration Area 1 (South) |
| 13. | Mr. Vachira SUNTRACHAI | Assistant Manager, Electric Administration Area 1 (South), PEA |
| 14. | Mr. Deja SAKOLABHAP | Director, Regional Irrigation Office 10 (Kanchanaburi) |
| 15. | Mr. Dhana KLONGNARONG | Thai Industrial Estate Association |
| 16. | Mrs. Tasanee SUCHARITWONGSANONT | Director, Policy and Planning Division, IEAT |
| 17. | Mrs. Kasemsri HOMCHEAN | Director, Environmental and Safety Control Division, IEAT |

## 表 1.1　調査参加者

(2/2)

(Counterparts)

| | | | |
|---|---|---|---|
| 1. | Chief Counterpart | Ms. Pornpen VORASIHA | Policy and Planning Div., IEAT |
| 2. | Counterpart | Ms. Tipayarut HANSUEBSAI | Project Management Div., IEAT |
| 3. | Counterpart | Mr. Kriangsak LERTVUTHINUNT | Permission Div., IEAT |

(Study Team Members)

| | | |
|---|---|---|
| 1. | Mr. H. KOIZUMI | Team Leader / Industrial Estate Planner |
| 2. | Mr. I. ASAKURA | Sub-Leader / Land Use Planner / IE Management Planner |
| 3. | Mr. S. AOKI | Industrial Location Planner |
| 4. | Mr. N. IWASE | Iron and Steel Industry Expert |
| 5. | Mr. T. TANAKA | Demand Survey / Analysis Expert (Iron & Steel Industry) |
| 6. | Mr. N. FUJITA | Demand Survey / Analysis Expert (Export Promotion Industry) |
| 7. | Mr. S. YOSHIMURA | Regional / Urban Planner |
| 8. | Mr. K. OKUBO | Port / Transportation Planner |
| 9. | Mr. Y. OYAMA | Water Supply / Drainage Engineer |
| 10. | Mr. S. SATO | Environmental Conservation Planner |
| 11. | Mr. Charnpon POONPIPATUUN | Natural Environment Expert |
| 12. | Mr. K. DOBETA | Social Environment Expert |
| 13. | Mr. M. IZAWA | Power / Telecommunication Engineer |
| 14. | Mr. S. ISODA | Financial / Social Analysis Expert |

表2.1　タイの輸出10大品目

## EXPORT TOP 10 INDUSTRIES by Export Value

| | | Million Baht | | Share to Total (%) | |
|---|---|---|---|---|---|
| | | 1990 | 1994 | 1990 | 1994 |
| | Manufactured Products | 440,395 | 922,791 | 100.00 | 100.00 |
| 1000 | Textile Products | 84,472 | 133,469 | 19.18 | 14.46 |
| 1200 | Machinery & Mechanical Appliance | 45,431 | 118,020 | 10.32 | 12.79 |
| 1400 | Electrical Apparatus | 32,785 | 102,438 | 7.44 | 11.10 |
| 1600 | Electrical Appliance | 32,523 | 88,124 | 7.38 | 9.55 |
| 1300 | Precious Stones & Jewellery | 34,858 | 44,684 | 7.92 | 4.84 |
| 1500 | Footwear | 20,213 | 39,258 | 4.59 | 4.25 |
| 1900 | Plastic Products | 9,116 | 30,351 | 2.07 | 3.29 |
| 1700 | Base Metal Products | 11,859 | 24,718 | 2.69 | 2.68 |
| 3300 | Vehicle Parts & Accessories | 3,729 | 19,979 | 0.85 | 2.17 |
| 2000 | Canned Fish | 15,742 | 19,810 | 3.57 | 2.15 |
| | COMODITIES | | | | |
| *1010* | *Garments* | *65,798* | *100,580* | *14.94* | *10.90* |
| *1210* | *Computer & Parts* | *38,671* | *92,059* | *8.78* | *9.98* |
| *1410* | *Integrated Circuits & Parts* | *21,580* | *45,308* | *4.90* | *4.91* |
| *1211* | *Parts(Computer)* | *29,532* | *38,847* | *6.71* | *4.21* |
| *1640* | *Television* | *6,489* | *22,195* | *1.47* | *2.41* |

## EXPORT TOP 10 INDUSTRIES by GROWTH 1990-1994

| | | Million Baht | | Share to Total (%) | | |
|---|---|---|---|---|---|---|
| | | 1990 | 1994 | 1990 | 1994 | 94/90* |
| | Manufactured Products | 440,395 | 922,791 | 100.00 | 100.00 | 20.31 |
| 2600 | Cements | 47 | 2,831 | 0.01 | 0.31 | 178.59 |
| 3500 | Optical Appliance & Instruments | 1,565 | 11,054 | 0.36 | 1.20 | 63.02 |
| 3100 | Transformers, Generator, & Motors | 2,997 | 16,163 | 0.68 | 1.75 | 52.39 |
| 3300 | Vehicle Parts & Accessories | 3,729 | 19,979 | 0.85 | 2.17 | 52.14 |
| 1900 | Plastic Products | 9,116 | 30,351 | 2.07 | 3.29 | 35.08 |
| 1400 | Electrical Apparatus | 32,785 | 102,438 | 7.44 | 11.10 | 32.95 |
| 3900 | Sport Requisities | 2,583 | 7,508 | 0.59 | 0.81 | 30.57 |
| 3600 | Chemical Products | 2,146 | 5,827 | 0.49 | 0.63 | 28.37 |
| 1600 | Electrical Appliance | 32,523 | 88,124 | 7.38 | 9.55 | 28.3 |
| 3700 | Leather Products | 2,199 | 5,738 | 0.50 | 0.62 | 27.1 |
| | COMODITIES | | | | | |
| *3320* | *Motor Cycle Parts* | *659* | *6,353* | *0.15* | *0.69* | *76.21* |
| *1610* | *Air Conditioning* | *1,955* | *13,492* | *0.44* | *1.46* | *62.08* |
| *3310* | *Passenger Cars & Parts* | *1,506* | *9,961* | *0.34* | *1.08* | *60.37* |
| *1620* | *Refrigerators & Equipment* | *1,370* | *5,298* | *0.31* | *0.57* | *40.23* |
| *1130* | *Brassieres* | *821* | *3,121* | *0.19* | *0.34* | *39.63* |
| *1640* | *Television* | *6,489* | *22,195* | *1.47* | *2.41* | *35.99* |

*: Growth Rate:Current Price

Source: Monthly Bulletin, Sep. 1995, Bank of Thailand

## 表2.2 タイにおける工業団地（1/3）

| No. | Zone | Region | GIE/EPZ | Province | Name of I.E. | Developed Year | Developed Organization | Total Area As of 7/89 | Total area As of 6/95 | Area Already Occupied As of 6/95 | Available Land As of 6/95 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | C | GIE | Bangkok | Bangchan I.E. | 1972 | IEAT | 677 | 677 | 677 | 0 |
| 2 | 1 | C | GIE | Bangkok | Ladkrabang I.E. Phase I & II | 1983 | IEAT | 949 | 949 | 949 | 0 |
| 3 | 1 | C | GIE | Bangkok | Ladkrabang I.E. Phase III | 1989 | IEAT | 812 | 812 | 812 | 0 |
| 4 | 1 | C | GIE | Bangkok | Minburi I.E. Phase I & II | | IEAT | 57 | 570 | 570 | 0 |
| 5 | 1 | C | GIE | Bangkok | Gempolis | 1996 | IEAT | | 168 | 96 | 72 |
| 6 | 1 | C | GIE | Bangkok | Numkai Ladkrabang GIZ 1 | 1988 | Join or IEAT | | 300 | 300 | 0 |
| 7 | 1 | C | GIE | Bangkok | Numkai Ladkrabang GIZ 2 | 1990 | Join or IEAT | | 270 | 270 | 0 |
| 8 | 1 | C | GIE | Bangkok | Jongsatit I.P. | | Private | | 930 | 930 | 0 |
| 9 | 1 | C | GIE | Samut Prakarn | Bangpoo I.E. Phase I | 1977 | IEAT | 3,930 | 5,763 | 5,763 | 0 |
| 10 | 1 | C | GIE | Samut Prakarn | Bangpoo I.E. Phase II | 1994 | IEAT | | 2,000 | 200 | 1,800 |
| 11 | 1 | C | GIE | Samut Prakarn | Bangplee I.E. Phase I & II | 1984 | IEAT | 798 | 798 | 798 | 0 |
| 12 | 1 | C | GIE | Samut Prakarn | Bangplee I.E. Phase III | | IEAT | | 1,300 | 500 | 800 |
| 13 | 1 | C | GIE | Samut Prakarn | Theparak I.E. | 1988 | IEAT | 523 | 523 | 523 | 0 |
| 14 | 1 | C | GIE | Samut Prakarn | M Thai I.E. | | Private | 826 | 826 | 826 | 0 |
| 15 | 1 | C | GIE | Samut Sakorn | Samut Sakorn I.E. (GIZ) | 1992 | IEAT | | 640 | 630 | 10 |
| 16 | 1 | C | GIE | Samut Sakorn | Samut Sakorn I.E. (Dyeing,F&C) | | IEAT | | 1,401 | 1,220 | 181 |
| 17 | 1 | C | GIE | Samut Sakorn | Jongsatit I.P. | 1992 | Private | | 930 | 930 | 0 |
| 18 | 1 | C | GIE | PathumThani | Nava Nakorn I.Z. | 1972 | Private | 2,027 | 4,045 | 3,945 | 100 |
| 19 | 1 | C | GIE | PathumThani | Bangkadi I.P. | 1989 | Private | 954 | 1,174 | 1,174 | 0 |
| 20 | 1 | C | GIE | PathumThani | Mah Boonkrong I.E. | | IEAT | 1,410 | 1,410 | 1,410 | 0 |
| 21 | 1 | C | GIE | Nonthaburi | Bangkok Airport I.E. | 1990 | IEAT | | 680 | 680 | 0 |
| | | C | | Subtotal | 21 | | | 12,963 | 26,166 | 23,203 | 2,963 |
| 22 | 2 | E | GIE | Chachengsao | Well Grow I.E. Phase I | | IEAT | 948 | 948 | 948 | 0 |
| 23 | 2 | E | GIE | Chachengsao | Well Grow I.E. Phase II | | IEAT | | 1,744 | 1,744 | 0 |
| 24 | 2 | E | GIE | Chachengsao | Well Grow I.E. Phase III | 1991 | IEAT | | 1,723 | 1,323 | 400 |
| 25 | 2 | E | GIE | Chachengsao | Gateway City I.E. | 1992 | IEAT | | 4,441 | 2,645 | 1,796 |
| 26 | 2 | E | GIE | Chonbri | Chonburi (Bor-Win) I.E. GIZ | 1991 | IEAT | | 2,846 | 1,337 | 1,509 |
| 27 | 2 | E | EPZ | Chonbri | Chonburi (Bor-Win) I.E. EPZ | 1991 | IEAT | | 760 | 683 | 77 |
| 28 | 2 | E | GIE | Choonbri | Bangpakong I.E. Phase II | 1991 | IEAT | | 2,330 | 2,330 | 0 |
| 29 | 2 | E | GIE | Chonbri | Bangpakong I.E. Phase III | 1994 | IEAT | | 829 | 404 | 425 |
| 30 | 2 | E | GIE | Chonbri | Bangpakong I.E. Phase IV | | IEAT | | 1,000 | | 1,000 |
| 31 | 2 | E | GIE | Chonbri | Bangpakong I.E. Phase V | | IEAT | | 913 | | 913 |
| 32 | 2 | E | GIE | Chonbri | Sriracha I.P. | 1988 | Private | 1,202 | 1,202 | 1,202 | 0 |
| 33 | 3 | E | GIE | Choonbri | Laem Chabang I.E. (GIE) | 1990 | IEAT | | 2,200 | 2,200 | 0 |
| 34 | 3 | E | EPZ | Chonbri | Laem Chabang I.E. (EPZ) | 1990 | IEAT | | 1,100 | 900 | 200 |
| | | E | | Subtotal | 13 | | | 2,150 | 22,036 | 15,716 | 6,320 |
| 35 | 2 | C | GIE | Ayutthaya | Hi-Tech I.E. (GIZ) | 1992 | IEAT | | 1,000 | 905 | 95 |
| 36 | 2 | C | EPZ | Ayutthaya | Hi-Tech I.E. (EPZ) | 1992 | IEAT | | 500 | 460 | 40 |
| 37 | 2 | C | GIE | Ayutthaya | Bangpa-in I.E. (GIZ) | 1994 | IEAT | | 1,073 | 1,029 | 44 |
| 38 | 2 | C | EPZ | Ayutthaya | Bangpa-in I.E. (EPZ) | | IEAT | | 165 | 131 | 34 |
| 39 | 2 | C | GIE | Ayutthaya | Saharattananakorn I.E. | 1996 | IEAT | | 1,549 | 1,049 | 500 |
| 40 | 2 | C | GIE | Ayutthaya | Rojana I.P. (Phase I & II) | | Private | 820 | 1,788 | 1,388 | 400 |
| 41 | 2 | C | GIE | Ayutthaya | Ayutthaya I.P. | | Private | | 754 | 0 | 754 |
| 42 | 2 | C | GIE | Saraburi | Saraburi (Kaeng Khoi) I.E. | 1993 | IEAT | | 1,029 | 300 | 729 |
| 43 | 2 | C | GIE | Saraburi | Nong-Khae I.E. | 1993 | IEAT | | 1,337 | 624 | 713 |
| 44 | 2 | C | GIE | Saraburi | Siam Cement Ind. Land | 1993 | Private | | 3,577 | 700 | 2,877 |
| 45 | 2 | C | GIE | Saraburi | Kaeng Khoi Ind. Center (TPI) | 1997 | Private | | 1,800 | 0 | 1,800 |
| | | C | | | 11 | | | 820 | 14,572 | 6,586 | 7,986 |

## 表2.2 タイにおける工業団地（2/3）

| No. | Zone | Region | GIE/EPZ | Province | Name of I.E. | Developed Year | Developed Organization | Total Area As of 7/89 | area1 As of 6/95 | Total area As of 6/95 | area2 As of 6/95 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 46 | 3 | E | GIE | Rayong | Siam Eastern I.P. | 1995 | Private | | 957 | 381 | 576 |
| 47 | 3 | E | GIE | Rayong | Eastern I.E. (Map Ta Phut) | 1993 | IEAT | | 2,430 | 1,347 | 1,083 |
| 48 | 3 | E | GIE | Rayong | Eastern Seaboard I.E. | 1993 | IEAT | | 3,560 | 0 | 3,560 |
| 49 | 3 | E | GIE | Rayong | TPI Rayong Complex | 1997 | Private | | 3,200 | 1,000 | 2,200 |
| 50 | 3 | E | GIE | Rayong | Map Ta Phut I.E. | 1989 | IEAT | 6,000 | 6,000 | 6,000 | 0 |
| 51 | 3 | E | GIE | Rayong | Map Ta Phut I.E. (Expansion) | | IEAT | | 1,214 | 0 | 1,214 |
| 52 | 3 | E | GIE | Rayong | Padaeng I.E. | 1994 | IEAT | | 540 | 540 | 0 |
| 53 | 3 | E | GIE | Rayong | Rayong I.P. | 1993 | Private | | 1,400 | 900 | 500 |
| 54 | 3 | E | GIE | Prachinburi | 304 Ind. Park | 1994 | Private | | 2,500 | 600 | 1,900 |
| 55 | 3 | E | GIE | Prachinburi | Prachinburi I.P. | 1991 | Private | | 1,768 | 0 | 1,768 |
| 56 | 3 | E | GIE | Prachinburi | Prachin I.P. | | Private | | 1,410 | 630 | 780 |
| 57 | 3 | E | GIE | Prachinburi | Kabinburi I.P. | 1993 | Private | | 1,700 | 1,000 | 700 |
| | | E | | | 12 | | | 6,000 | 26,679 | 12,398 | 14,281 |
| 58 | 3 | NE | GIE | Nakorn Ratchasima | Northeastern I.P. (GIZ) | 1996 | Join or IEAT | | 5,572 | 3,072 | 2,500 |
| 59 | 3 | NE | EPZ | Nakorn Ratchasima | Northeastern I.P. (EPZ) | 1996 | Join or IEAT | | 1,000 | 0 | 1,000 |
| 60 | 3 | NE | GIE | Nakorn Ratchasima | Suranaree I.Z. | 1988 | Join or IEAT | 530 | 3,000 | 2,000 | 1,000 |
| 61 | 3 | NE | GIE | Ubon Ratchathani | Saha-Ubonnakorn GIZ 1 | | Join or IEAT | | 3,048 | 2,648 | 400 |
| 62 | 3 | NE | GIE | Ubon Ratchathani | Saha-Ubonnakorn GIZ 2 | | Join or IEAT | | 1,000 | 0 | 1,000 |
| 63 | 3 | NE | GIE | Ubon Ratchathani | Ubon Ratchathani I.E. | 1995 | IEAT | | | | |
| 64 | 3 | NE | GIE | Udornthani | Udornthani I.E. | 1995 | IEAT | | 785 | 685 | 100 |
| 65 | 3 | NE | GIE | Khon Kaen | Khon Kaen 1 | 1997 | Private | | 763 | 0 | 763 |
| 66 | 3 | NE | GIE | Khon Kaen | Khon Kaen 2 | 1997 | Private | | 1,161 | 0 | 1,161 |
| 67 | 3 | NE | GIE | Srisagate | Srisagate I.E. | | IEAT | | | | |
| 68 | 3 | NE | GIE | Nongkai | Nongkai I.E. | | IEAT | | | | |
| 69 | 3 | NE | GIE | Buri Ram | Buri Ram I.E. | | IEAT | | | | |
| | | NE | | | 12 | | | 530 | 16,329 | 8,405 | 7,924 |
| 70 | 3 | N | GIE | Lumpoon | Saha Group I.P. Lumpoon | | Private | | 550 | 50 | 500 |
| 71 | 3 | N | GIE | Lumpoon | Northern Region I.E.(GIZ) | 1985 | Join or IEAT | 1,750 | 1,780 | 1,780 | 0 |
| 72 | 3 | N | EPZ | Lumpoon | Northern Region I.E.(EPZ) | 1985 | Join or IEAT | | 766 | 675 | 91 |
| 73 | 3 | N | GIE | Lumpoon | Lumpoon I.P. | 1991 | Private | | 808 | 717 | 91 |
| 74 | 3 | N | GIE | Chian Rai | Chian Rai I.E. GIZ | 1995 | IEAT | | 1,000 | 0 | 1,000 |
| 75 | 3 | N | EPZ | Chian Rai | Chian Rai I.E. EPZ | 1995 | IEAT | | 675 | 0 | 675 |
| 76 | 3 | N | GIE | Pichit | Pichit I.E. 1+2 (GIZ) | 1996 | IEAT | | 650 | 60 | 590 |
| 77 | 3 | N | EPZ | Pichit | Pichit I.E. 1+2 (EPZ) | | IEAT | | 589 | 0 | 589 |
| 78 | 3 | N | GIE | Nakon Sawan | Nakon Sawan I.E. | | IEAT | | | | |
| 79 | 3 | N | GIE | Lampang | Lampang I.E. | | IEAT | | | | |
| 80 | 3 | N | GIE | Payao | Payao I.E. | | IEAT | | | | |
| 81 | 3 | N | GIE | Phrae | Phrae I.E. | | IEAT | | | | |
| 82 | 3 | N | GIE | Pissanulok | Pissanulok I.E. | | IEAT | | | | |
| | | N | | | 13 | | | 1,750 | 6,818 | 3,282 | 3,536 |
| 83 | 3 | W | GIE | Ratchaburi | Ratchaburi I.E. | | IEAT | | | | |
| 84 | 3 | W | GIE | Prachuap Khiri Khan | Prachuap Khiri Khan I.E. | | IEAT | | | | |
| 85 | 3 | W | GIE | Chumporn | Chumporn I.E. | | IEAT | | | | |
| | | W | | | 3 | | | | | | |

表2.2 タイにおける工業団地 (3/3)

| No. | Zone | Region | GIE/EPZ | Province | Name of I.E. | Developed Year | Developed Organization | Total Area As of 7/89 | area1 As of 6/95 | Total area As of 6/95 | area2 As of 6/95 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 86 | 3 | S | GIE | Songkhla | Songkhla I.E. (Chalung) GIZ | | IEAT | | 319 | 60 | 259 |
| 87 | 3 | S | EPZ | Songkhla | Songkhla I.E. (Chalung) GEZ | | IEAT | | 115 | 0 | 115 |
| 88 | 3 | S | GIE | Suratthani | Suratthani I.E. | | IEAT | | | | |
| 89 | 3 | S | GIE | Pattani | Pattani I.Z. | | Jion or IEAT | | | | |
| 90 | 3 | S | GIE | Nakhon Srithammarat | Nakhon Srithammarat I.E. | | IEAT | | | | |
| 91 | 3 | S | GIE | Krabi | Krabi I.E. | | IEAT | | | | |
| 92 | 3 | S | GIE | Satun | Satun I.E. | | IEAT | | | | |
| 93 | 3 | S | GIE | Yara | Yara I.E. | | IEAT | | | | |
| 94 | 3 | S | GIE | Narathivas | Narathivas I.E. | | IEAT | | | | |
| 95 | 3 | S | GIE | Songkhla | Southern Region I.E. (GIZ) | 1995 | IEAT | | 230 | 0 | 230 |
| 96 | 3 | S | EPZ | Songkhla | Southern Region I.E. (EPZ) | 1995 | IEAT | | 200 | 0 | 200 |
| | | | | | 11 | | | | 864 | 60 | 804 |
| | | | | | TOTAL | | | 48,426 | 226,064 | 139,240 | 86,824 |

Note) C:Central Region, E:Eastern Region, N:Northern Region,
NE: North Eastern Region, W:Western Region
S:Southern Region
GIE: General Industrial Estate, EPZ: Export Processing Zone

表4.1 バンサバン工業団地への導入期待業種 (1/3)

| | | | | |
|---|---|---|---|---|
| 食料品製造業グループ | | | | |
| ○ | | | | 肉製品製造業 |
| ○ | | | | 乳製品製造業 |
| ○ | | | | その他の畜産食料品製造業 |
| ○ | ◎ | | | 水産缶詰・瓶詰製造業 |
| ○ | | | | その他の水産食料品製造業 |
| ○ | | | △ | しょう油・食用アミノ酸製造業 |
| | ◎ | | | ぶどう糖・水あめ・異性化糖製造業 |
| | ◎ | | | 小麦粉製造業 |
| ○ | ◎ | | | 植物油脂製造業 |
| | ◎ | | | 食用油脂加工業 |
| ○ | | | | めん類製造業 |
| ○ | ◎ | | | 複合飼料製造業 |
| 繊維工業グループ（衣服、その他の繊維製品を除く） | | | | |
| | | ● | | 綿紡績業 |
| | | ● | | ねん糸製造業（かさ高加工糸製造業） |
| | | ● | | 絹・人絹織物業 |
| 石油・石炭製品製造業グループ、ゴム製品製造業グループ | | | | |
| ○ | | ● | | 窒素質・りん酸質肥料製造業 |
| ○ | | ● | | 無機顔料製造業 |
| ○ | ◎ | ● | | 圧縮ガス・液化ガス製造業 |
| ○ | ◎ | ● | △ | 石油化学系基礎製品製造業（一貫して生産される誘導品を除く） |
| ○ | ◎ | ● | △ | 脂肪族系中間物製造業（脂肪族系溶剤を含む） |
| ○ | ◎ | ● | | メタン誘導品製造業 |
| ○ | ◎ | ● | | 発酵工業 |
| | ◎ | ● | △ | 医薬品原薬製造業 |
| ○ | ◎ | ● | | 潤滑油製造業 |
| ○ | | ● | | グリース製造業 |
| | | ● | | 自動車タイヤ・チューブ製造業 |
| | | ● | | 工業用ゴム製品製造業 |
| | | ● | | ゴムホース製造業 |
| 木材・木製品製造業グループ、家具製品製造業グループ | | | | |
| ○ | | ● | | 床板製造業 |
| ○ | | ● | | 他に分類されない特殊製材業 |
| ○ | ◎ | ● | | パーティクル・ボード製造業 |
| | | ● | △ | 木製家具製造業（漆塗りを除く） |

○ 資源型業種

◎ 港湾指向型業種

● 政策誘導型業種

△ 需要調査から選定された業種

表4.1 バンサバン工業団地への導入期待業種 (2/3)

| | | | | |
|---|---|---|---|---|
| パルプ・紙・紙加工品製造業グループ | | | | |
| ○ | ◎ | ● | | 洋紙製造業 |
| ○ | ◎ | ● | | 板紙製造業 |
| ○ | | ● | | 段ボール製造業 |
| ○ | | ● | | 事務用紙製品製造業 |

| | | | | |
|---|---|---|---|---|
| 鉄鋼加工グループ（第二次） | | | | |
| ○ | ◎ | | △ | 鋼管製造業 |
| ○ | | | | 磨棒鋼製造業 |
| ○ | ◎ | | △ | 伸線業 |
| ○ | | | | めっき鋼管製造業 |
| ○ | | | | めっき鉄鋼線製造業 |
| ○ | ◎ | | △ | 鉄鉄鋳物製造業（鋳鉄管、可鍛鋳鉄を除く） |
| ○ | | | △ | 可鍛鋳鉄製造業 |

| | | | | |
|---|---|---|---|---|
| 鉄鋼加工グループ(第二次)（続き） | | | | |
| ○ | ◎ | | △ | 鋳鉄製造業 |
| ○ | | | △ | 鍛工品製造業 |
| ○ | ◎ | | △ | 鉄鋼シャースリット業 |
| ○ | | | △ | 鉄スクラップ加工処理業 |
| ○ | | | △ | 鋳鉄管製造業 |
| ○ | ◎ | | △ | 建設用金属製品製造業 |
| ○ | | | | 建築用金属製品製造業（建築用金物を除く） |
| ○ | ◎ | | △ | 製缶板金業 |

| | | | | |
|---|---|---|---|---|
| 窯業土石製品製造業グループ | | | | |
| ○ | ◎ | | | 板ガラス加工業 |
| ○ | ◎ | | | ガラス容器製造業 |
| ○ | | | | 耐火レンガ製造業 |
| ○ | ◎ | | | その他の耐火物製造業 |
| ○ | ◎ | | | 炭素質電極製造業 |

○ 資源型業種
◎ 港湾指向型業種
● 政策誘導型業種
△ 需要調査から選定された業種

表4.1 バンサバン工業団地への導入期待業種 (3/3)

| | | | | 一般機械器具製造業グループ、加工業グループ |
|---|---|---|---|---|
| ○ | ◎ | ● | | ボイラー製造業 |
| ○ | ◎ | ● | | 蒸気機関・タービン・水力タービン製造業（船舶用を除く） |
| ○ | | ● | △ | ポンプ・同装置製造業 |
| ○ | ◎ | ● | | 空気圧縮機・ガス圧縮機・送風機製造業 |
| ○ | ◎ | ● | | 荷役運搬設備製造業 |
| ○ | | ● | | 油圧・空圧機器製造業 |
| ○ | ◎ | ● | | 化学機械・同装置製造業 |
| ○ | ◎ | ● | △ | その他の一般産業用機械・装置製造業 |
| | | ● | | 事務用機械器具製造業 |
| | | ● | | その他の事務用・サービス用・民生用機械器具製造業 |
| ○ | | ● | | 冷凍機・温湿調整装置製造業 |
| ○ | | ● | | 発電器・電動機・その他の回転電気機械製造業 |
| ○ | | ● | | 変圧器類製造業（電子機器用を除く） |
| | | ● | △ | 民生用電気機械器具製造業 |
| | | ● | | 無線通信機械器具製造業 |
| | | ● | | 蓄電器製造業 |
| | | ● | | 自動車車体・附随車製造業 |
| | | ● | △ | 自動車部分品・附随品製造業 |

| | | | | 船舶製造・修理業グループ |
|---|---|---|---|---|
| ○ | ◎ | | | 鋼船製造・修理業 |
| ○ | ◎ | | | 船体ブロック製造業 |

○ 資源型業種
◎ 港湾指向型業種
● 政策誘導型業種
△ 需要調査から選定された業種

## 表5.1 パンサパン地域工業開発フレーム

| Year | | | Area (ha) | Direct Employee | Water Demand /I (m3/day) | Water Demand /I (MCM) | Electric Demand (MW) | Cargo Demand (1,000 ton/year) | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 1995 | | Iron/Steel Group | 35 | 560 | 5,000 | 1.83 | | 1,935 | Volume of Water Reservoir:1.45MCM |
| | | General Industry | 0 | 0 | 0 | 0.00 | | | |
| | | Total | 35 | 560 | 5,000 | 1.83 | 94.00 | 1,935 | |
| 2001 | | Iron/Steel Group | 100 | 2,400 | 32,000 | 11.68 | | 5,500 | |
| | | General Industry | 50 | 2,400 | 2,600 | 0.95 | | 1,500 | |
| | | Subtotal | 150 | 4,800 | 34,600 | 12.63 | | 7,010 | |
| | | Port | | 1,600 | 500 | 0.18 | | | |
| | | Total | 150 | 6,400 | 35,100 | 12.81 | 400.00 | 7,010 | |
| 2006 | Scenario 1 | Iron/Steel Group | 145 | 4,700 | 98,700 | 36.03 | | 6,900 | |
| | | General Industry | 210 | 6,000 | 23,700 | 8.65 | | 3,500 | |
| | | Subtotal | 355 | 10,700 | 122,400 | 44.68 | | 10,400 | |
| | | Power Plant | 105 | 200 | 1,800 | 0.66 | | 4,400 | Ash disposal site of 170 ha is exclusive. |
| | | Port | | 1,600 | 500 | 0.18 | | | |
| | | Total | 460 | 12,500 | 124,700 | 45.52 | 1,830.00 | 14,800 | |
| | Scenario 2 | Iron/Steel Group | 145 | 4,700 | 98,700 | 36.03 | | 6,900 | |
| | | General Industry | 300 | 9,500 | 43,100 | 15.73 | | 8,850 | |
| | | Subtotal | 445 | 14,200 | 141,800 | 51.76 | | 15,750 | |
| | | Power Plant | 105 | 200 | 1,800 | 0.66 | | 4,400 | Ash disposal site of 170 ha is exclusive. |
| | | Port | | 1,600 | 500 | 0.18 | | | |
| | | Total | 550 | 16,000 | 144,100 0 | 52.60 | 1,860.00 | 20,150 | |
| 2011 | Scenario 1 | Iron/Steel Group | 260 | 4,700 | 98,700 | 36.03 | | 15,900 | |
| | | General Industry | 360 | 11,900 | 61,100 | 22.30 | | 9,730 | |
| | | Subtotal | 620 | 16,600 | 159,800 | 58.33 | | 25,630 | |
| | | Power Plant | 105 | 200 | 1,800 | 0.66 | | 4,400 | Ash disposal site of 170 ha is exclusive. |
| | | Port | | 2,300 | 500 | 0.18 | | | |
| | | Total | 725 | 19,100 | 162,100 0 | 59.17 | 1,890.00 | 30,030 | |
| | Scenario 2 | Iron/Steel Group | 260 | 4,700 | 98,700 | 36.03 | | 15,900 | |
| | | General Industry | 550 | 20,400 | 96,900 | 35.37 | | 10,710 | |
| | | Subtotal | 810 | 25,100 | 195,600 | 71.39 | | 26,610 | |
| | | Power Plant | 105 | 200 | 1,800 | 0.66 | | 4,400 | Ash disposal site of 170 ha is exclusive. |
| | | Port | | 3,000 | 500 | 0.18 | | | |
| | | Total | 915 | 28,300 | 197,900 0 | 72.23 | 1,950.00 | 31,010 | |

Note: Domestic and irrigation use are exclusive.

表5.2　バンサパン工業都市の土地利用計画

| | | (ha) | | | | (rai) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Scenario-1 | | Scenario-2 | | Scenario-1 | | Scenario-2 | |
| | | 2001 | 2011 | 2001 | 2011 | 2001 | 2011 | 2001 | 2011 |
| 1 | General Industrial Estate | 52 | 360 | 52 | 550 | 325 | 2,250 | 325 | 3,438 |
| 2 | Iron/Steel Industry | 102 | 260 | 102 | 260 | 638 | 1,625 | 638 | 1,625 |
| 3 | New Residential Area | 40 | 350 | 40 | 690 | 250 | 2,188 | 250 | 4,313 |
| 4 | Business/Commercial Area | 0 | 60 | 0 | 80 | 0 | 375 | 0 | 500 |
| 5 | Recreation/Tourism Area | 50 | 220 | 50 | 220 | 313 | 1,375 | 313 | 1,375 |
| 6 | Social Facility Area | 0 | 80 | 0 | 80 | 0 | 500 | 0 | 500 |
| 7 | Park/Recreation Area | 120 | 120 | 120 | 120 | 750 | 750 | 750 | 750 |
| 8 | Institution /Education Area | 0 | 120 | 0 | 120 | 0 | 750 | 0 | 750 |
| 9 | Port | 100 | 250 | 100 | 250 | 625 | 1,563 | 625 | 1,563 |
| 10 | Power Plant (IPP) /1 | 0 | 105 | 0 | 105 | 0 | 656 | 0 | 656 |
| | Total | 464 | 1,925 | 464 | 2,475 | 2,900 | 12,031 | 2,900 | 15,469 |

Note: /1 Ash disposal site of 170 ha is exclusive.

## 表8.1 インフラ整備／管理主体

| | F/S | F/S | Construction | Maintenance /Operation | Remarks |
|---|---|---|---|---|---|
| 1 Water Supply System | | | | | |
| 1) Reservoir(Tha Sae) | RID | RID | RID | RID | |
| 2) Reservoir(Bang Saphan River) | RID | RID | RID | RID | |
| 3) Pipeline(Tha Sae~Bang Saphan) | IEAT/PWA | IEAT/PWA | IEAT/WW | IEAT/WW | |
| 4) Pipeline(Bang Saphan Reservoir ~ Bang Saphan) | IEAT/PWA | IEAT/PWA | IEAT/WW | IEAT/WW | |
| 5) Purification Plant | - | IE Co. | IE Co. | IE Co. | |
| 6) Distribution Facility | - | IE Co. | IE Co. | IE Co. | |
| 2 Port | | | | | |
| 1) Jetty for Ore/Coal | PP Co. | PP Co. | PP Co. | PP Co. | |
| 2) General Cargo Berth | PP Co. | PP Co. | PP Co. | PP Co. | Governmental assistance is recommendable for the construction. |
| 3) Back Support Area (Container Deposit, General Cargo Warehouse, etc.) | PP Co. | PP Co. | PP Co. | PP Co. | |
| 3 Road | | | | | |
| 1) Access Road to IE (R4 ~ IE) | DOH | DOH | DOH | DOH | |
| 2) Access Road to Port (IE~Port) | DOH | DOH | DOH | DOH | |
| 3) Road inside IE | IE Co. | IE Co. | IE Co. | IE Co. | |
| 4) Community Road in Bang Saphan Town (R. 3169) | - | DOH (1996) | DOH (1997~1998) | DOH | will be improved by 1998 |
| 5) Community Road in Bang Saphan Town (Provincial Road) | - | PKK Province | PKK Province | PKK Province | |
| 4 Electric Supply | | | | | |
| 1) IPP | Private | Private | Private | Private | |
| 2) 500 kV transmission line | EGAT | EGAT | EGAT | EGAT | |
| 3) Expansion of Bang Saphan SS | EGAT | EGAT | EGAT | EGAT | |
| 4) Development of New SS | EGAT | EGAT | EGAT | EGAT | |
| 5) 115 kV TL (BS SS ~ IE) | PEA | PEA | PEA | PEA | |
| 6) 115 kV TL (New SS ~ IE) | PEA | PEA | PEA | PEA | |
| 7) SS in IE | PEA | PEA | PEA | PEA | |
| 8) Distribution line in IE | IE Co. | IE Co. | IE Co. | IE Co. | |
| 5 Telecommunication | | | | | |
| 1) Switching station in IE | TOT | TOT | TOT | TOT | |
| 2) Optical cable from SS of IE to Bang Saphan SS | TOT | TOT | TOT | TOT | |
| 3) Distribution line in IE | IE Co. | IE Co. | IE Co. | IE Co. | |
| 6 Solid Waste Disposal | | | | | |
| 1) Hazardous Waste Disposal | MOI/Private | MOI/Private | MOI/Private | Private | |
| 2) Incinerator for General Waste | IE Co. | IE Co. | IE Co. | IE Co. | |

RID : Royal Irrigation Department
PWA : Provincial Waterworks Authority
WW : Western Water Resources Development and Management Co., Ltd.
IE Co. : Industrial Estate Company (Assumption)
DOH : Department of Highway
PKK : Prachuap Khiri Khan
PPCo. : Prachuap Port Company
EGAT : Electricity Generating Authority of Thailand
PEA : Provincial Electricity Authority
MOI : Ministry of Industry
TOT : Telephone Organization of Thailand

## 表10.1 経済／財務分析

### 1. 経済分析（EIRR）：プロジェクトの経済的内部収益率

| インプット（経済費用） | 資金源 | アウトプット（経済便益） |
|---|---|---|
| 1. I/E事業コスト、I/E運営コスト<br>2. 外部関連インフラコスト<br>（電気、給水、道路等）<br>3. I/Eへの進出企業の投資コスト | 開発事業体<br>国家開発予算<br>(一部, 開発事業体)<br>進出企業 | 1. 工業団地内<br>進出企業の付加価値額 |

### 2. 財務分析

a) 開発事業の財務分析　（ROI）：プロジェクト自体の収益性
（工業団地事業コスト全てを自己資金で実施する場合）

| インプット（財務費用） | 資金源 | アウトプット（事業収益） |
|---|---|---|
| 1. I/E事業コスト*1<br>2. I/E運営コスト | 開発事業体*2 | 1. ロット販売収益 |

*1　土地代及び工業団地内の開発コスト
*2　開発事業体の自己資金（借入金なし）

b) 事業出資者の財務分析　（ROE）：自己資本の収益性
(Internal rate of return on equity : ROE)
（工業団地事業コストは、自己資本(Equity)と借入金(Debt)とでまかなわれ、自己資本に対する収益率を算出する）

| インプット（財務費用） | 資金源 | アウトプット（ﾈｯﾄｷｬｯｼｭﾌﾛｰ） |
|---|---|---|
| 1. I/E事業ｺｽﾄ（一部ｲﾝﾌﾗ）<br>自己資本<br>借入金<br>2. I/E運営コスト | 開発事業体への出資者<br>銀行等<br>開発事業体 | ネットキャッシュフロー<br>（税引後利益＋減価償却費）<br>（ロット販売収益からI/E運営費、借入金、元本返済等、控除後のｷｬｯｼｭﾌﾛｰを対象） |

表10.2　経済分析結果

| | Capital investment per employee | External infrastructure cost | EIRR |
|---|---|---|---|
| Base Case | 1.6 million baht/employee | 11,575 million baht | 51.2% |
| Sensitivity Analysis | | | |
| | 4.0 million baht/employee | 11,575 million baht | 36.0% |
| | 4.0 million baht/employee | 3,270 million baht | 41.9% |
| | 1.6 million baht/employee | 3,270 million baht | 67.5% |

## 表10.3　財務分析結果

**Case 1 (Base Case)**

| | | Sale's price | ROI | ROE |
|---|---|---|---|---|
| Land price | 10 US$/m2 | 44 | 10.5% | 6.6% |
| | (400,000 baht/rai) | 49 | 13.1% | 14.3% |
| | | 50 | 13.6% | 16.4% |

## 表10.4　財務感度分析結果

| | | Sale's price | ROI | ROE |
|---|---|---|---|---|
| Land price | 15 US$/m2 | 53 | 10.9% | 9.1% |
| | (600,000 baht/rai) | 55 | 11.8% | 13.9% |
| | | 56 | 12.2% | 16.9% |

| | | Sale's price | ROI | ROE |
|---|---|---|---|---|
| Land price | 5 US$/m2 | 36 | 10.5% | - |
| | (200,000 baht/rai) | 43 | 14.9% | 14.5% |
| | | 44 | 15.5% | 16.2% |

| | | Sale's price | ROI | ROE |
|---|---|---|---|---|
| Land price | 10 US$/m2 | 46 | 10.6% | - |
| | (400,000 baht/rai) | 50 | 12.6% | 13.8% |
| VAT imposition | | 51 | 13.1% | 16.1% |

| | | Sale's price | ROI | ROE |
|---|---|---|---|---|
| Land price | 10 US$/m2 | 42 | 10.9% | - |
| | (400,000 baht/rai) | 47 | 13.8% | 15.1% |
| Construction cost : 10% decrease | | 48 | 14.3% | 17.2% |

| Combination case | | Sale's price | ROI | ROE |
|---|---|---|---|---|
| Land price | 5 US$/m2 | 33 | 10.5% | - |
| | (200,000 baht/rai) | 38 | 13.8% | 10.9% |
| Construction cost : 10% decrease | | 41 | 15.9% | 15.1% |
| | | 42 | 16.6% | 16.7% |

表10.5 アジア諸国でのロット販売価格

(in US$/m²)

| | Malaysia (Kuala Lumpur) | Indonesia (Jakarta) | Thailand (Bangkok) |
|---|---|---|---|
| Average Price | 85-128 | 60-66 | 82.5 |

(As at 1995.9)

Land Price (GIZ) in Thailand

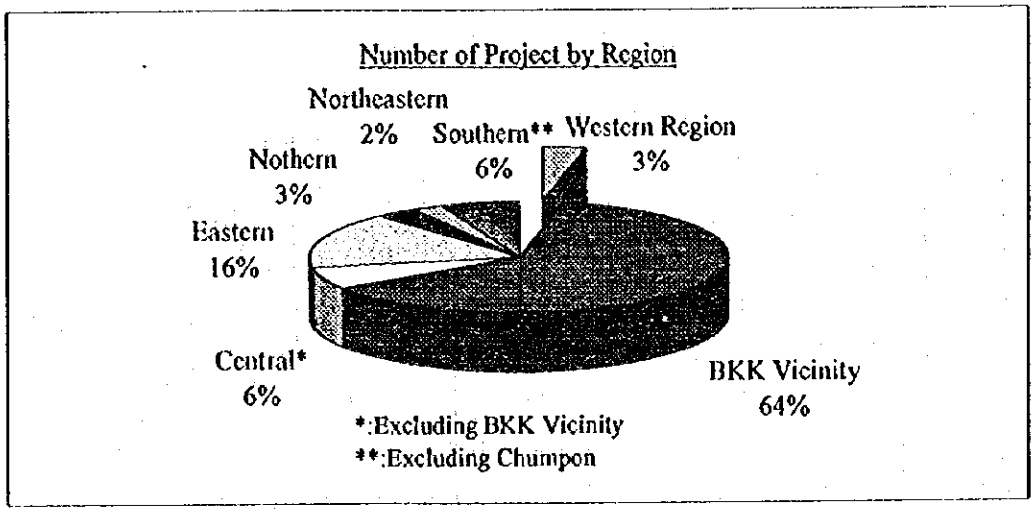
| | Bangpoo 2 | Wellgrow | Bang pakong 2 | Bang pakong 3 |
|---|---|---|---|---|
| Km from BKK | 34km/East | 36km/East | 57km/East | 57km/East |
| million Baht/ | 3.3 | 3.3 | 2.7-2.9 | 2.9 |
| US$/m² | 82.5 | 82.5 | 67.5-72.5 | 72.5 |

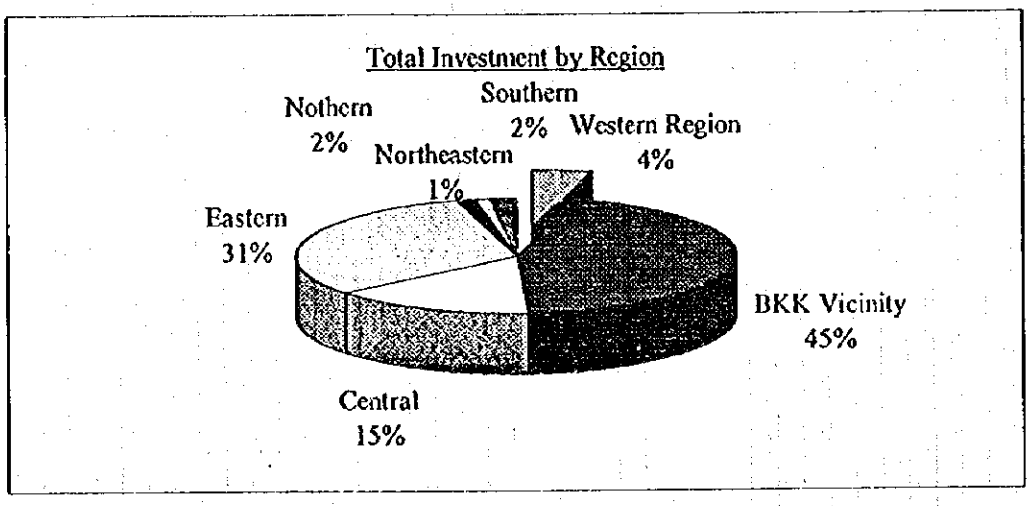
| | Ban-Wa(Hitech) | Easter | Saraburi | Nong Kae |
|---|---|---|---|---|
| Km from BKK | 60km/North | 190km/south-eastrn | 120km/North | 93km/North |
| million Baht/ | 2.6 | 3.6 | 1.7 | 2.2 |
| US$/m² | 65 | 90 | 42.5 | 55 |

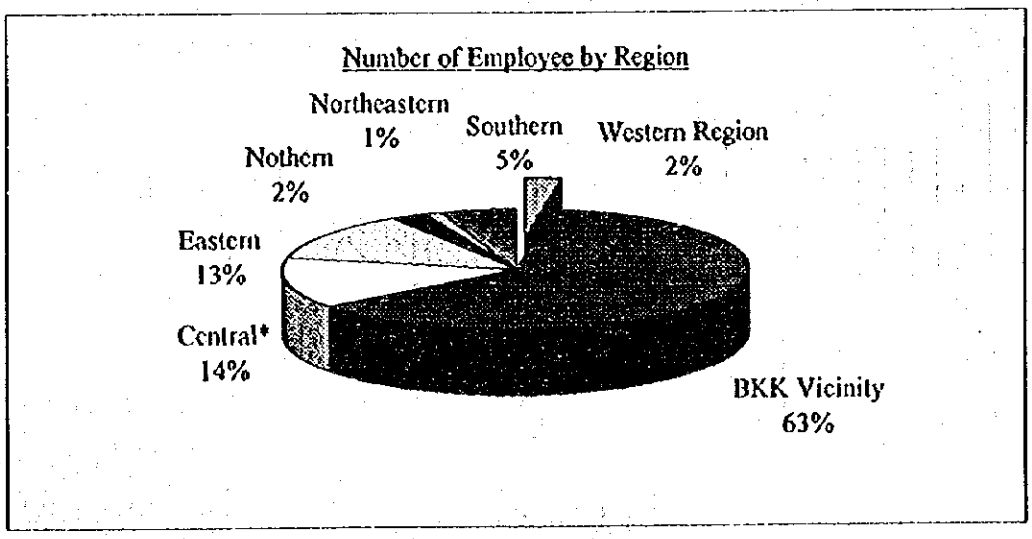
| | Gateway City | Samutsakhon | Saharattananakorn | Southern (Chalung) |
|---|---|---|---|---|
| Km from BKK | 82km/East | 50km/West | 82km/North | 30km/South of Songkhia |
| million Baht/ | 3.2 | 3.2 | 1.5 | 990.000 |
| US$/m² | 55 | 80 | 37.5 | 24.7 |

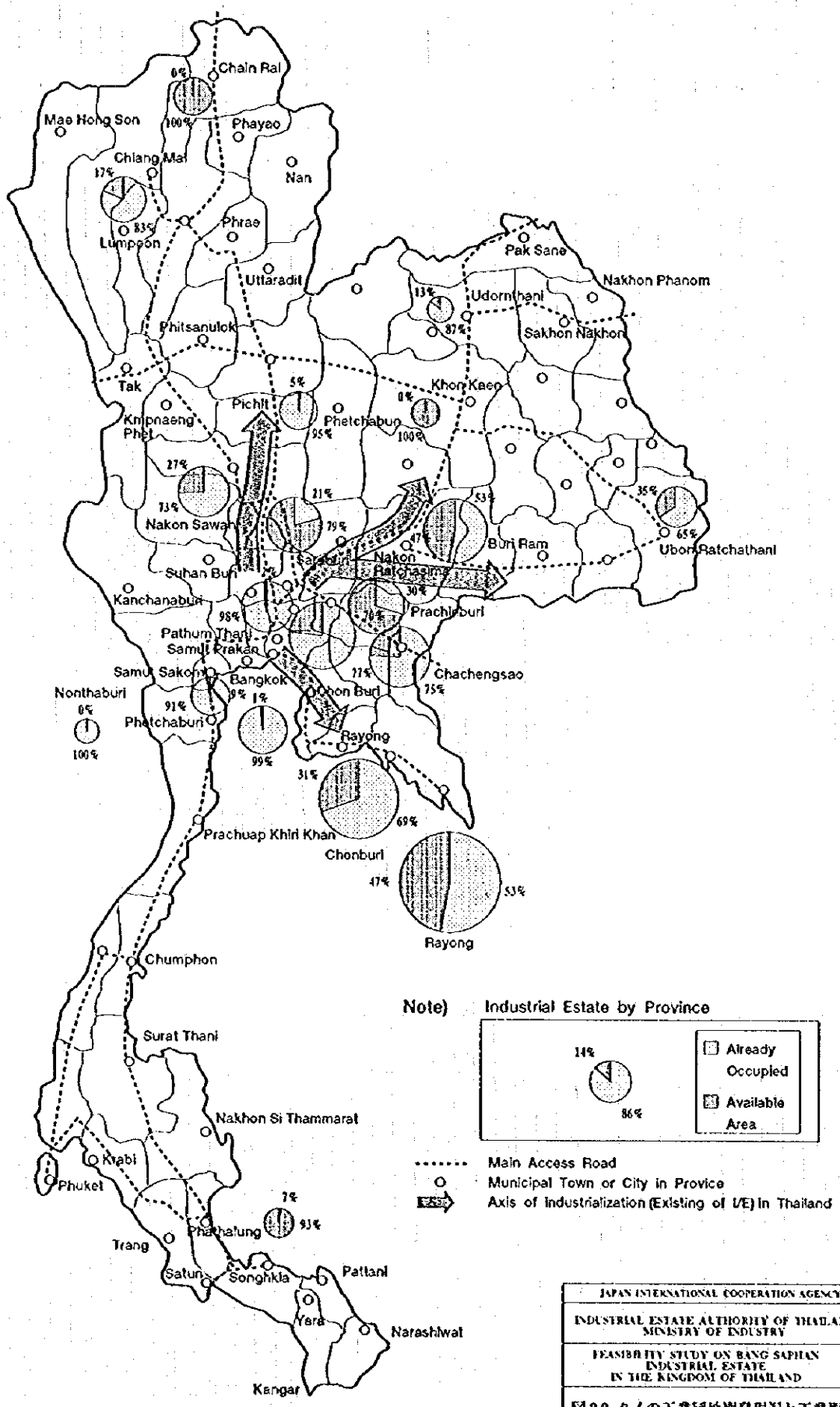
# 付　　図

図 2.1　タイにおける地域別外国投資実績（1994 年）





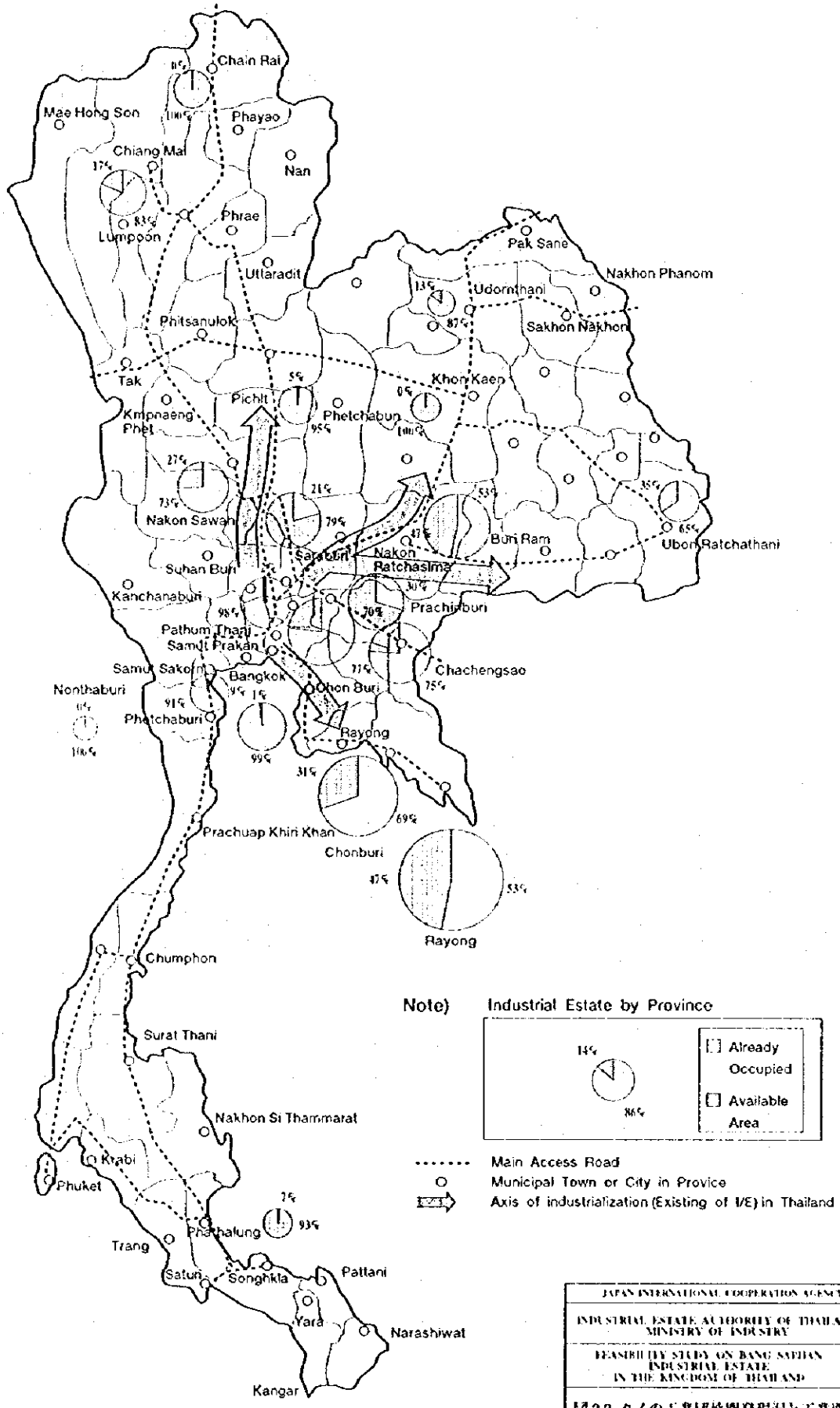

JAPAN INTERNATIONAL COOPERATION AGENCY

INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY

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

図2.2 タイの工業団地開発現況と工業開発軸

NIPPON KOEI CO., LTD
JAPAN INDUSTRIAL LOCATION CENTER



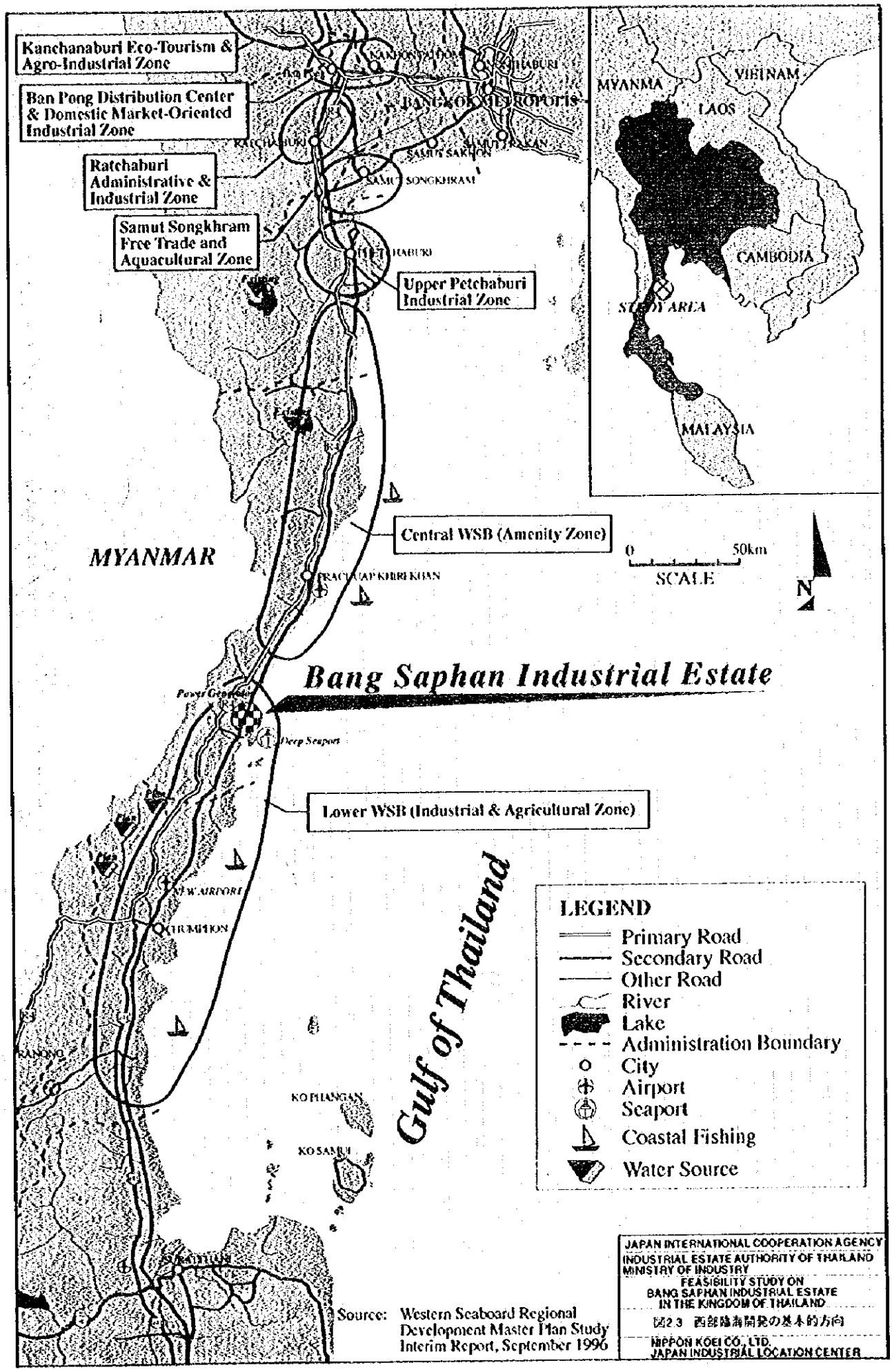

JAPAN INTERNATIONAL COOPERATION AGENCY

INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY

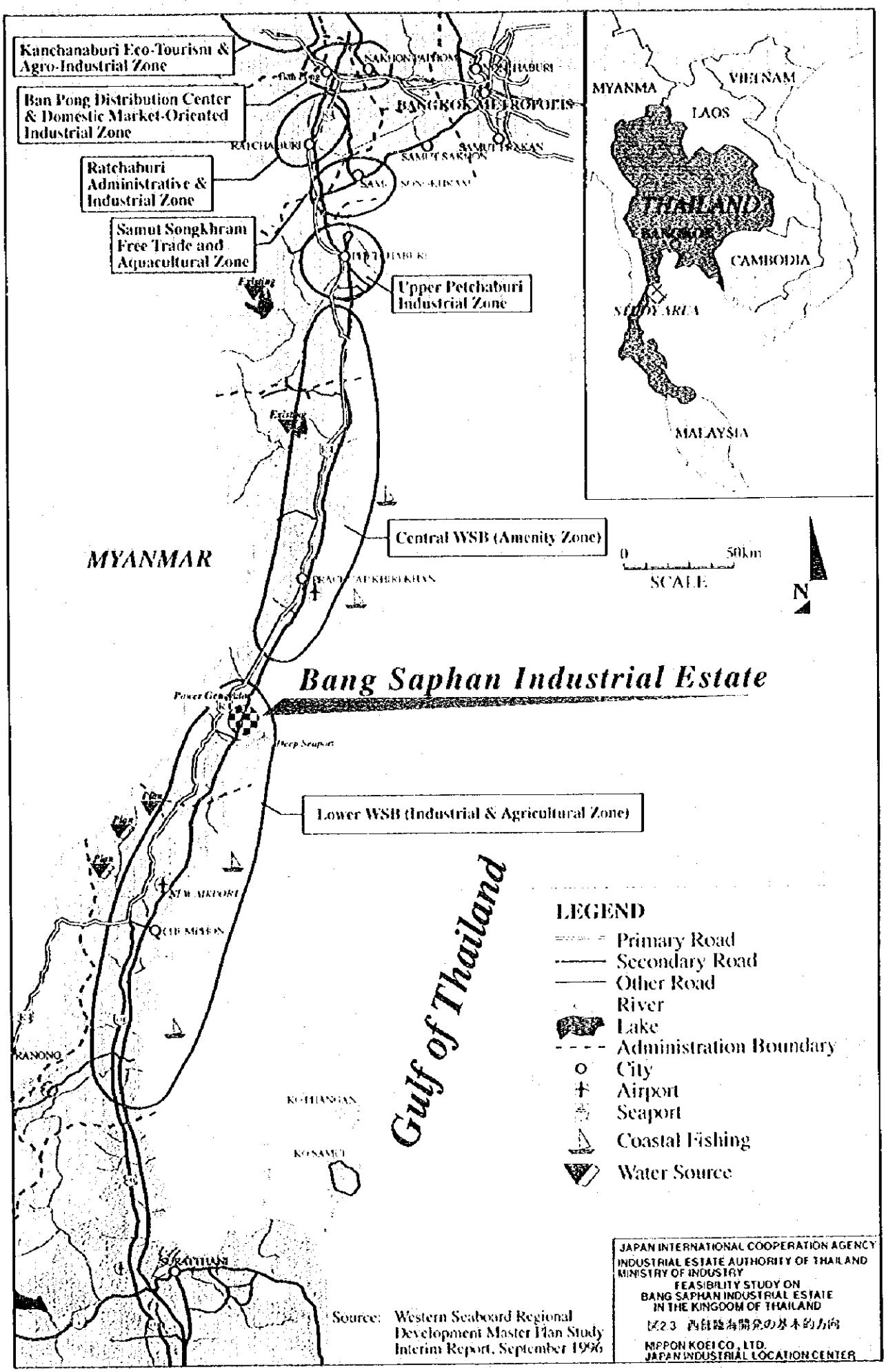
FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND

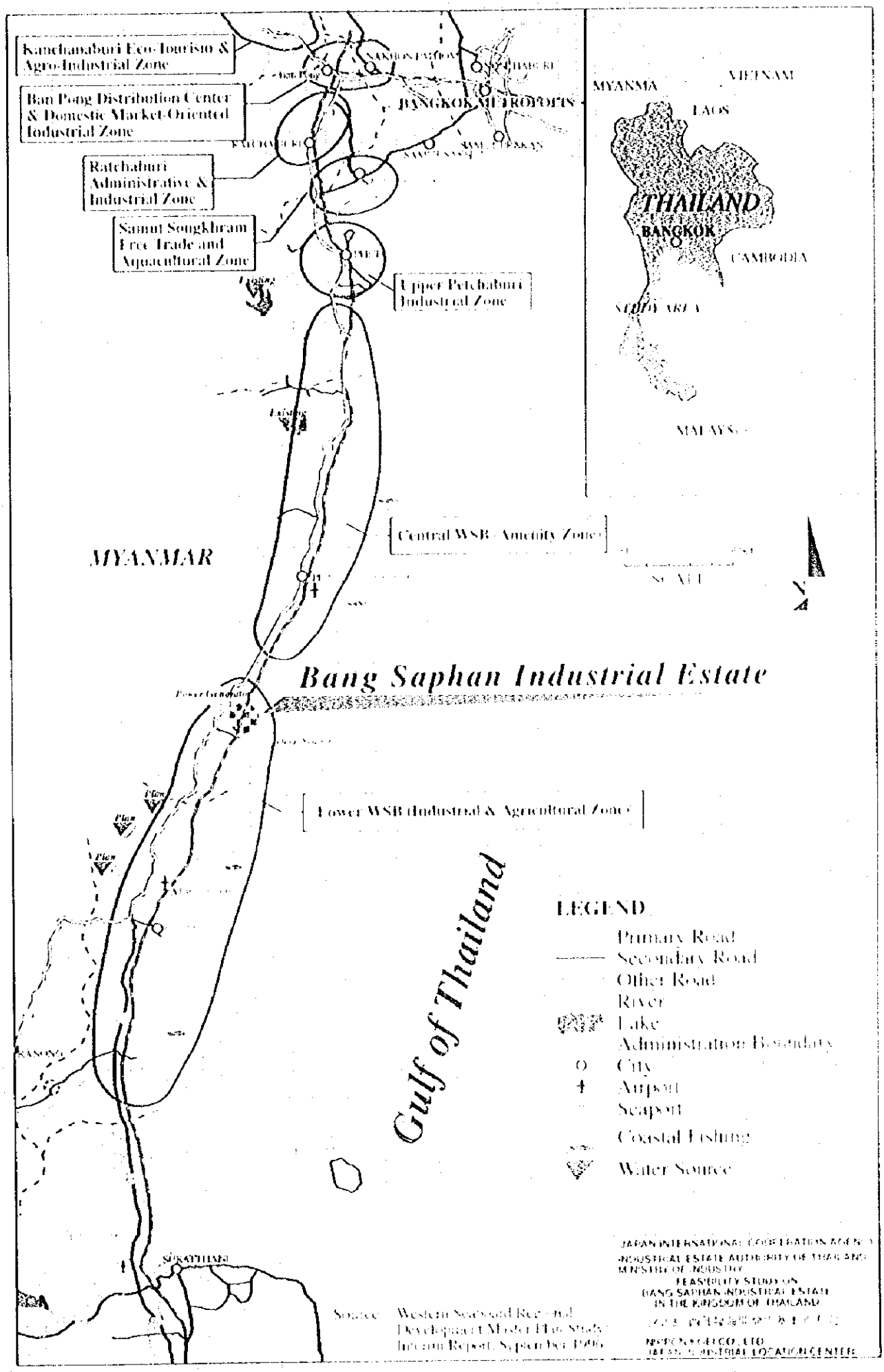
図22 タイの工業団地開発現況と工業開発軸

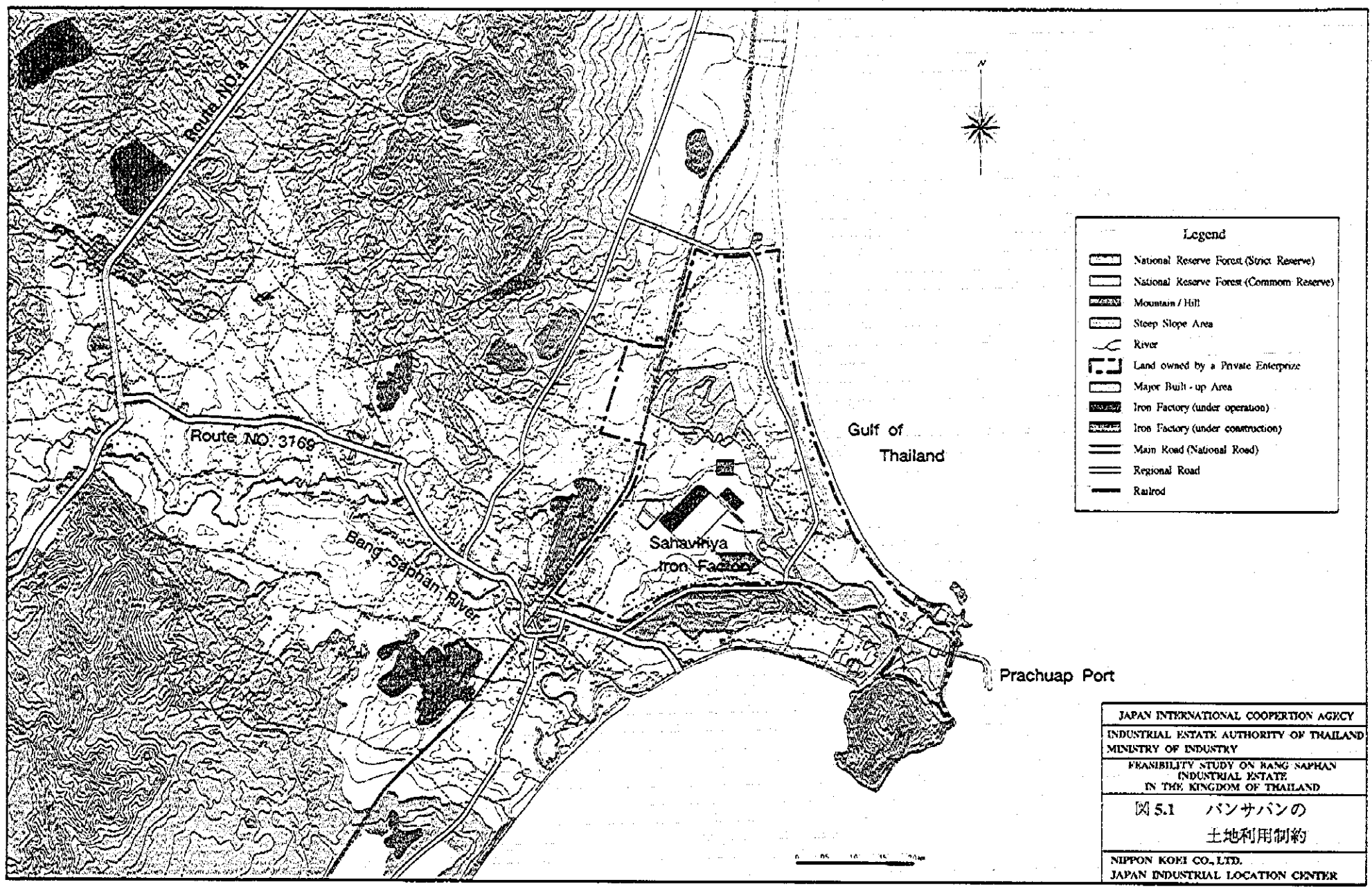
NIPPON KOEI CO., LTD.
JAPAN INDUSTRIAL LOCATION CENTER




Source: Western Seaboard Regional Development Master Plan Study Interim Report, September 1996


Kanchanaburi Eco-Tourism & Agro-Industrial Zone
Ban Pong Distribution Center & Domestic Market-Oriented Industrial Zone
Ratchaburi Administrative & Industrial Zone
Samut Songkhram Free Trade and Aquacultural Zone
Upper Petchaburi Industrial Zone
Central WSB (Amenity Zone)
Lower WSB (Industrial & Agricultural Zone)
MYANMAR
Bang Saphan Industrial Estate
Gulf of Thailand
BANGKOK METROPOLIS
RATCHABURI
SAMUT SAKHON
SAMUT PRAKAN
PETCHABURI
PRACHUAP KHIRI KHAN
CHUMPHON
KANONG
KOHSAMUI
SURATTHANI
MYANMA
VIETNAM
LAOS
THAILAND
BANGKOK
CAMBODIA
STUDY AREA
MALAYSIA
0
50km
SCALE
N
LEGEND
Primary Road
Secondary Road
Other Road
River
Lake
Administration Boundary
City
Airport
Seaport
Coastal Fishing
Water Source
Source: Western Seaboard Regional Development Master Plan Study Interim Report, September 1996
JAPAN INTERNATIONAL COOPERATION AGENCY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND
図2.3 西部臨海開発の基本的方向
NIPPON KOEI CO., LTD.
JAPAN INDUSTRIAL LOCATION CENTER

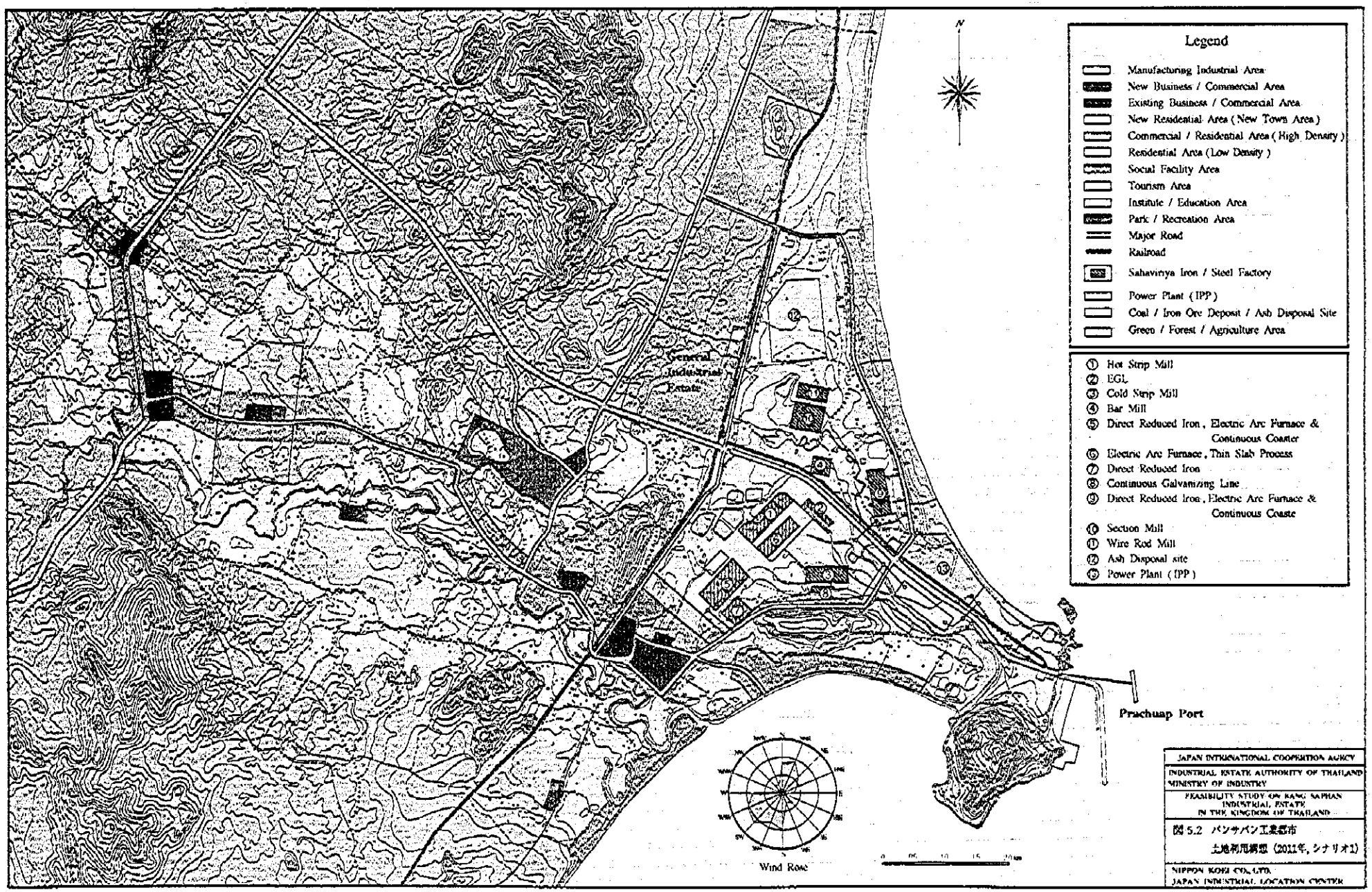

Kanchanaburi Eco-Tourism & Agro-Industrial Zone
Ban Pong Distribution Center & Domestic Market-Oriented Industrial Zone
Ratchaburi Administrative & Industrial Zone
Samut Songkhram Free Trade and Aquacultural Zone
Upper Petchaburi Industrial Zone
Central WSB (Amenity Zone)
Lower WSB (Industrial & Agricultural Zone)
MYANMAR
Bang Saphan Industrial Estate
Gulf of Thailand
BANGKOK METROPOLIS
MYANMA
VIETNAM
LAOS
THAILAND
BANGKOK
CAMBODIA
MALAYSIA
LEGEND
Primary Road
Secondary Road
Other Road
River
Lake
Administration Boundary
City
Airport
Seaport
Coastal Fishing
Water Source
Source: Western Seaboard Regional Development Master Plan Study Interim Report, September 1996
JAPAN INTERNATIONAL COOPERATION AGENCY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND
NIPPON KOEI CO., LTD.
INDUSTRIAL LOCATION CENTER

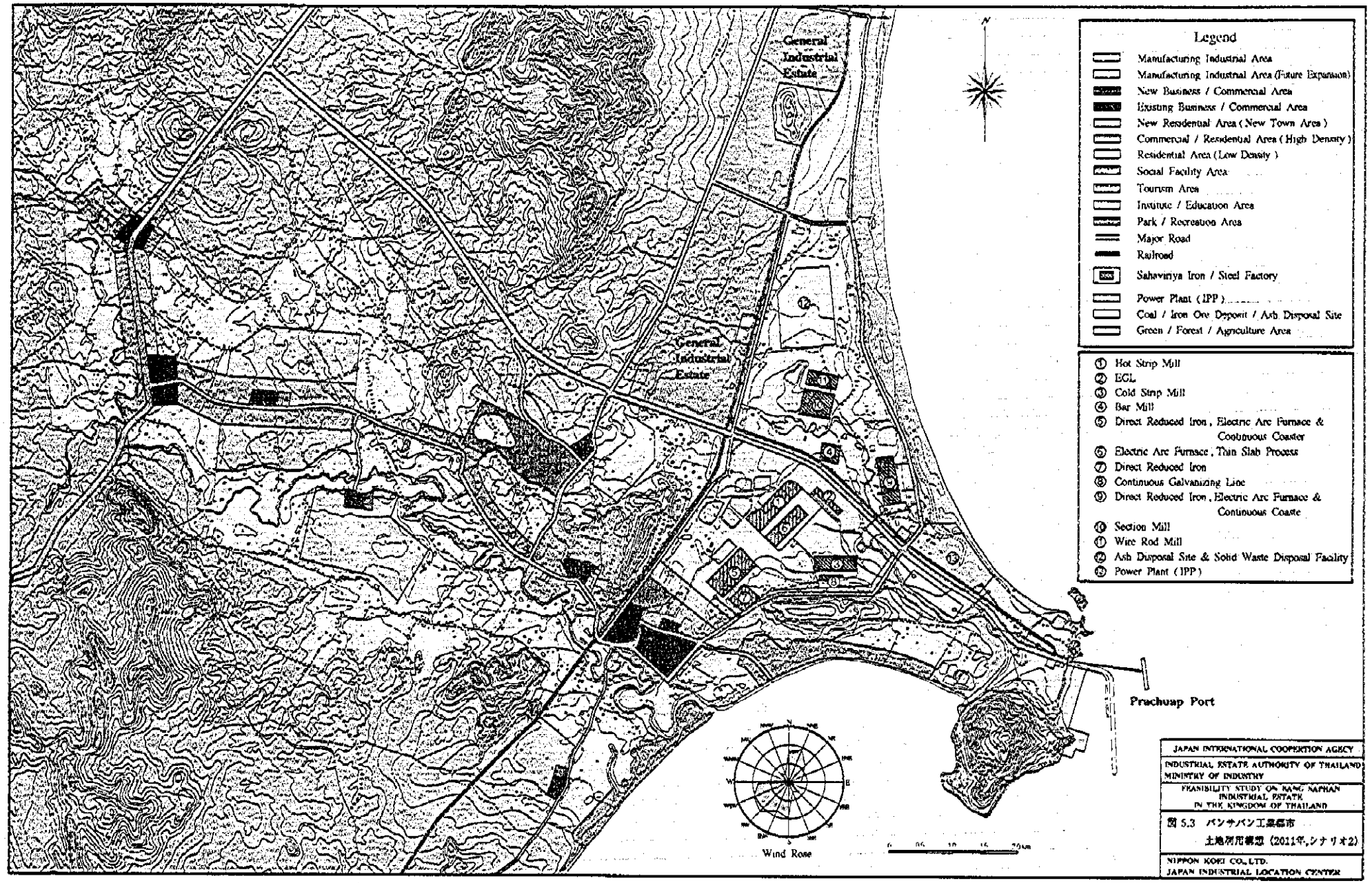


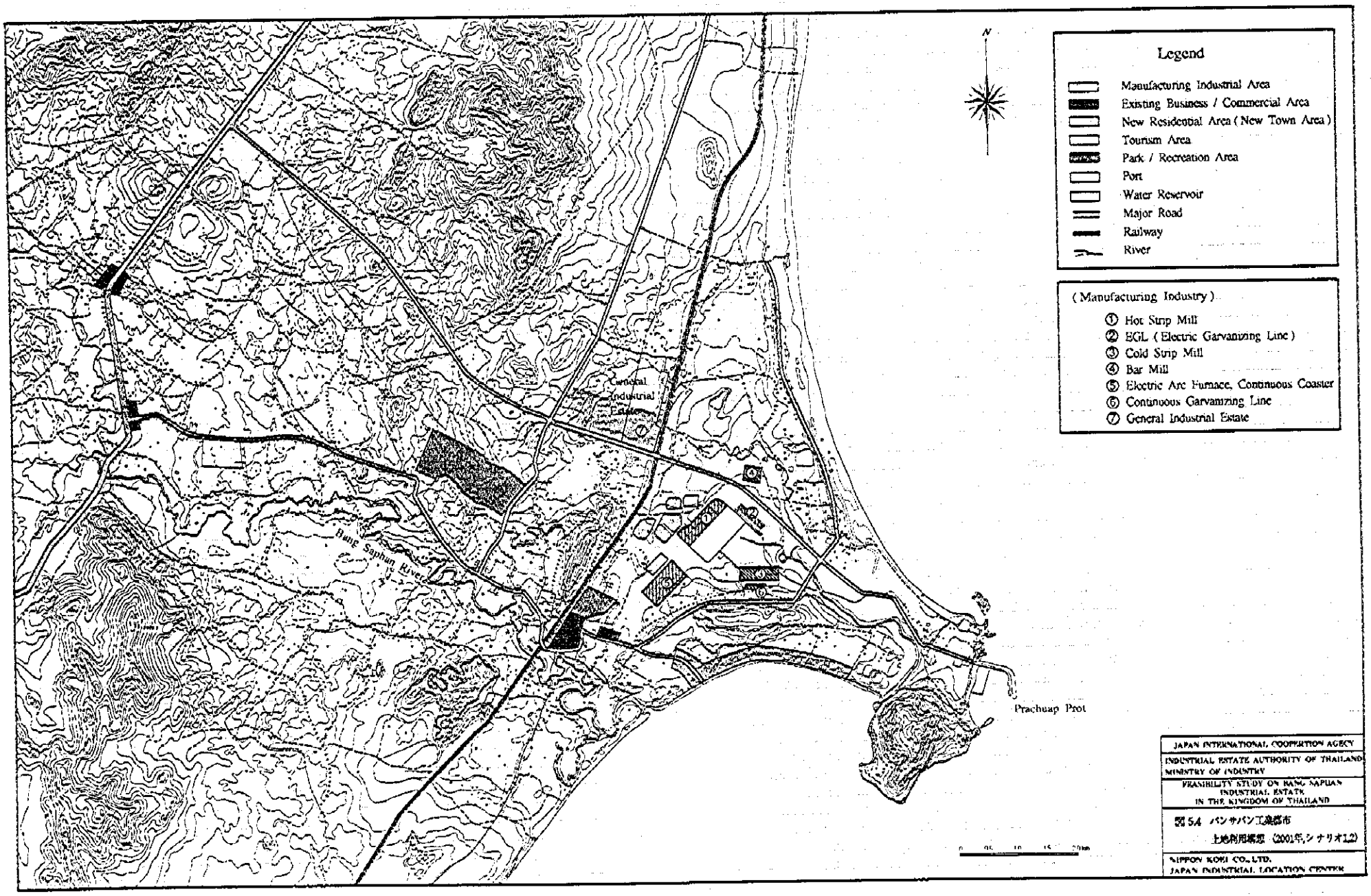

JAPAN INTERNATIONAL COOPERTION AGECY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND

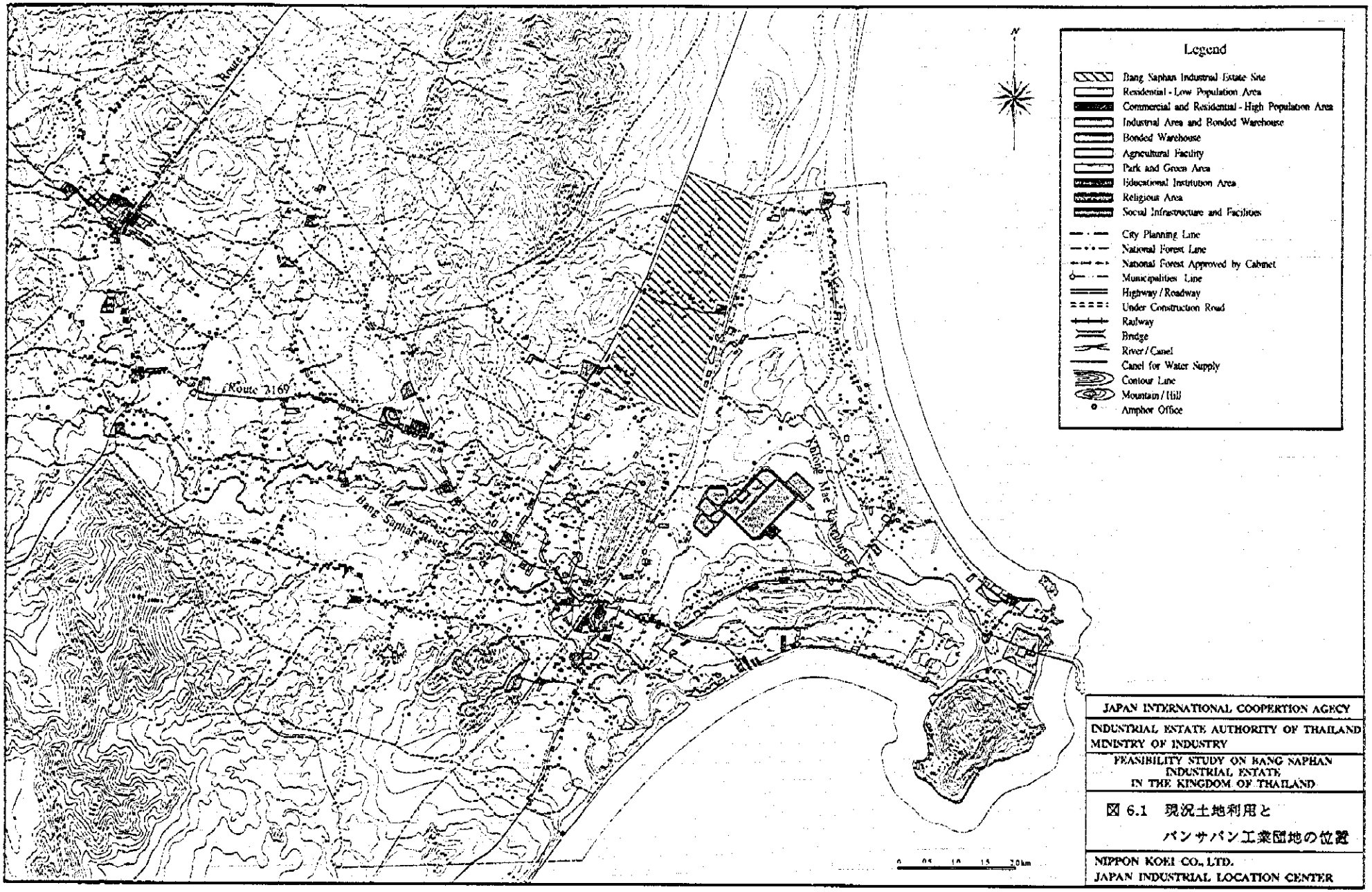
図 5.1　バンサパンの土地利用制約

NIPPON KOEI 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
Sahavirya Iron / Steel Factory
Power Plant (IPP)
Coal / Iron Ore Deposit / Ash Disposal Site
Green / Forest / Agriculture Area
① Hot Strip Mill
② EGL
③ Cold Strip Mill
④ Bar Mill
⑤ Direct Reduced Iron, Electric Arc Furnace & Continuous Coaster
⑥ Electric Arc Furnace, Thin Slab Process
⑦ Direct Reduced Iron
⑧ Continuous Galvanizing Line
⑨ Direct Reduced Iron, Electric Arc Furnace & Continuous Coaste
⑩ Section Mill
⑪ Wire Rod Mill
⑫ Ash Disposal site
⑬ Power Plant (IPP)
N
General Industrial Estate
Prachuap Port
Wind Rose
JAPAN INTERNATIONAL COOPERATION AGENCY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON KANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND
図 5.2 パンサパン工業都市
土地利用構想 (2011年, シナリオ1)
NIPPON KOEI CO., LTD.
JAPAN INDUSTRIAL LOCATION CENTER


General Industrial Estate
General Industrial Estate
Prachuap Port
Wind Rose
Legend
Manufacturing Industrial Area
Manufacturing Industrial Area (Future Expansion)
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
Sahaviriya Iron / Steel Factory
Power Plant (IPP)
Coal / Iron Ore Deposit / Ash Disposal Site
Green / Forest / Agriculture Area
① Hot Strip Mill
② EGL
③ Cold Strip Mill
④ Bar Mill
⑤ Direct Reduced Iron, Electric Arc Furnace & Continuous Coaster
⑥ Electric Arc Furnace, Thin Slab Process
⑦ Direct Reduced Iron
⑧ Continuous Galvanizing Line
⑨ Direct Reduced Iron, Electric Arc Furnace & Continuous Coaster
⑩ Section Mill
⑪ Wire Rod Mill
⑫ Ash Disposal Site & Solid Waste Disposal Facility
⑬ Power Plant (IPP)
JAPAN INTERNATIONAL COOPERTION AGECY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON BANG NAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND
図 5.3 バンサパン工業都市
土地利用構想 (2011年,シナリオ2)
NIPPON KOEI CO., LTD.
JAPAN INDUSTRIAL LOCATION CENTER


N
Legend
Manufacturing Industrial Area
Existing Business / Commercial Area
New Residential Area (New Town Area)
Tourism Area
Park / Recreation Area
Port
Water Reservoir
Major Road
Railway
River
(Manufacturing Industry)
① Hot Strip Mill
② EGL (Electric Garvanizing Line)
③ Cold Strip Mill
④ Bar Mill
⑤ Electric Arc Furnace, Continuous Coaster
⑥ Continuous Garvanizing Line
⑦ General Industrial Estate
General Industrial Estate
Bang Saphan River
Prachuap Prot
JAPAN INTERNATIONAL COOPERATION AGECY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND
図5.4 バンサパン工業都市
土地利用構想 (2001年,シナリオ1,2)
NIPPON KOEI CO., LTD.
JAPAN INDUSTRIAL LOCATION CENTER



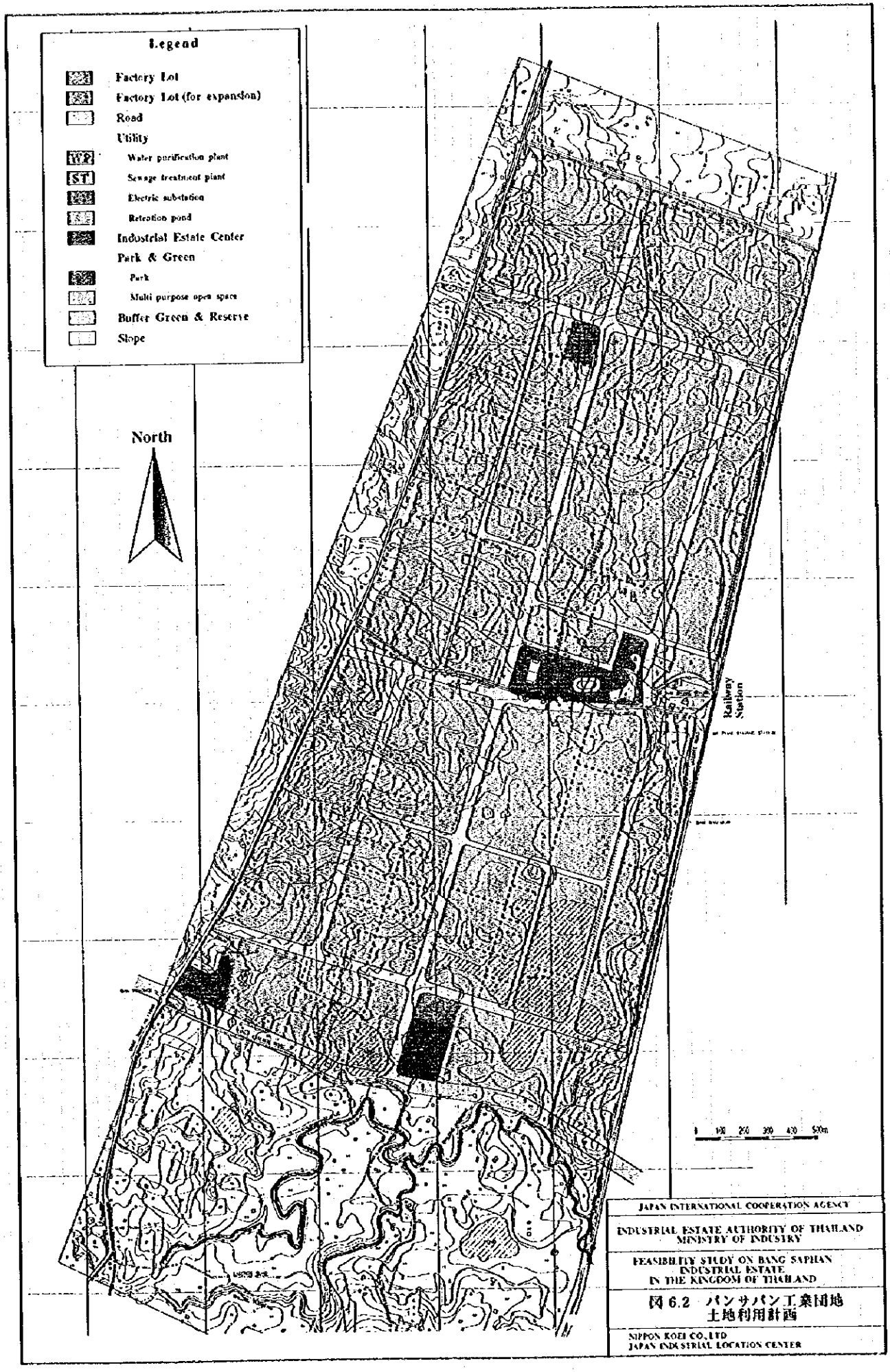

JAPAN INTERNATIONAL COOPERTION AGECY

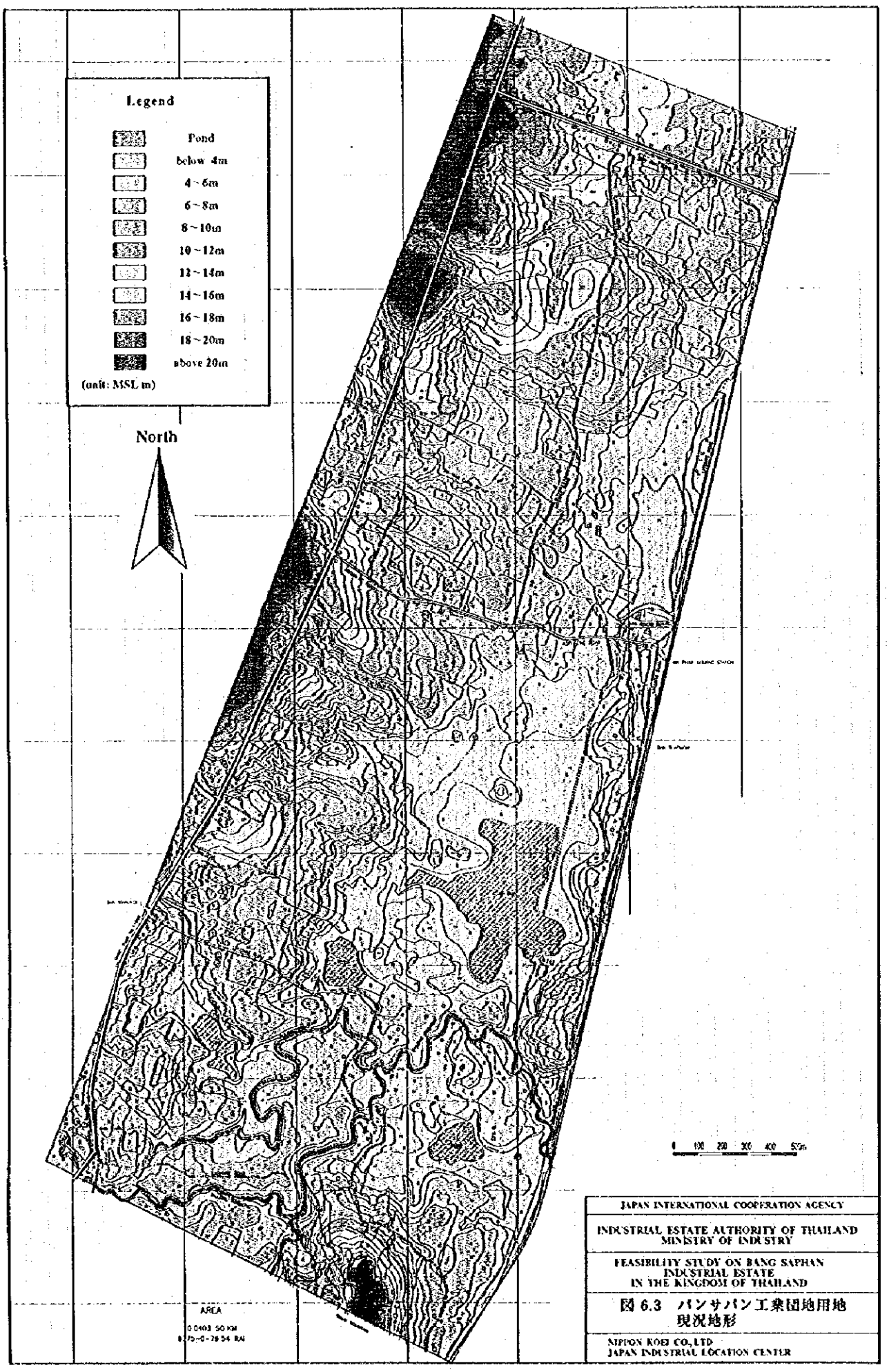
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY

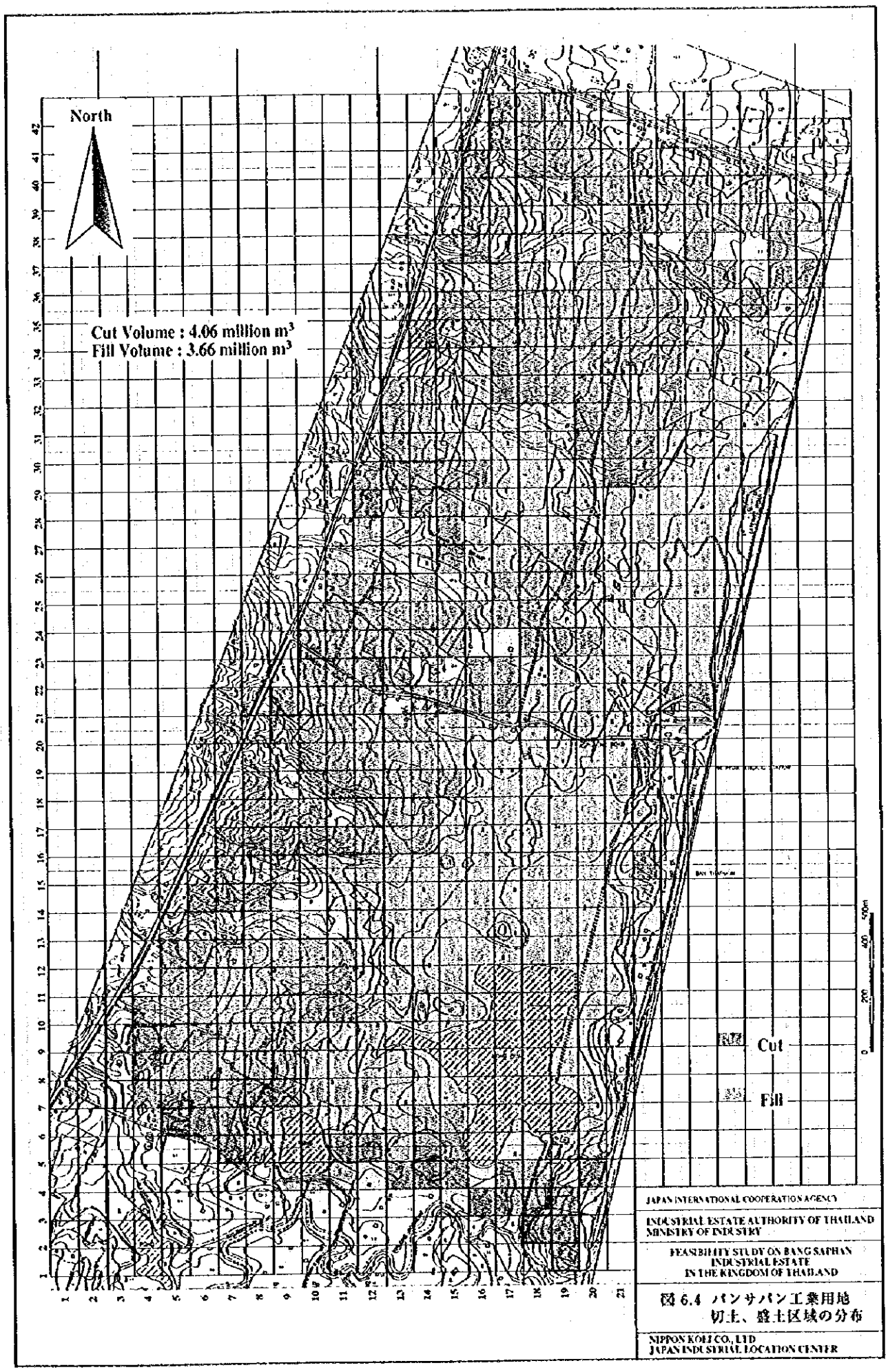
FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND

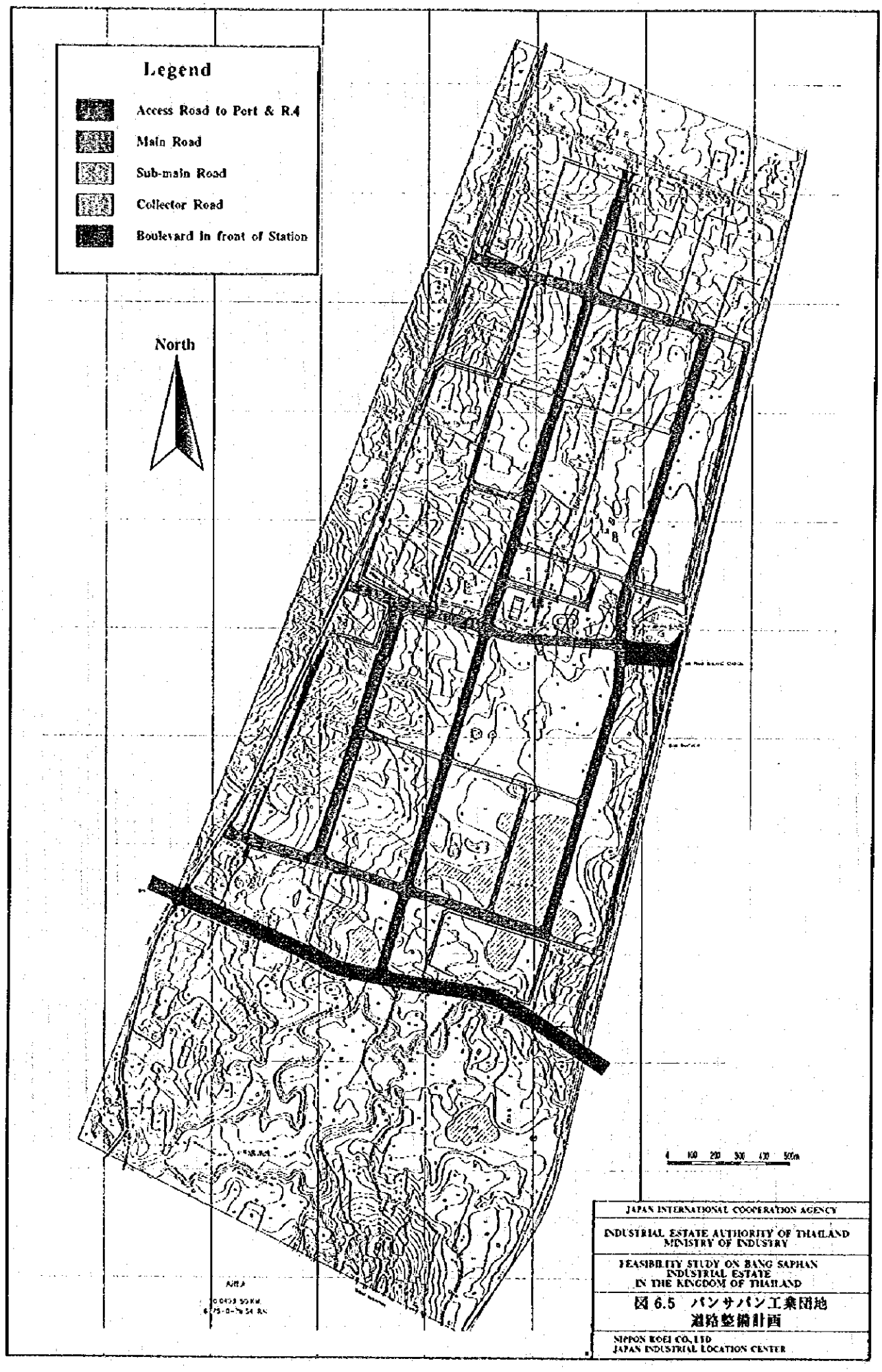
図 6.1 現況土地利用と
バンサパン工業団地の位置

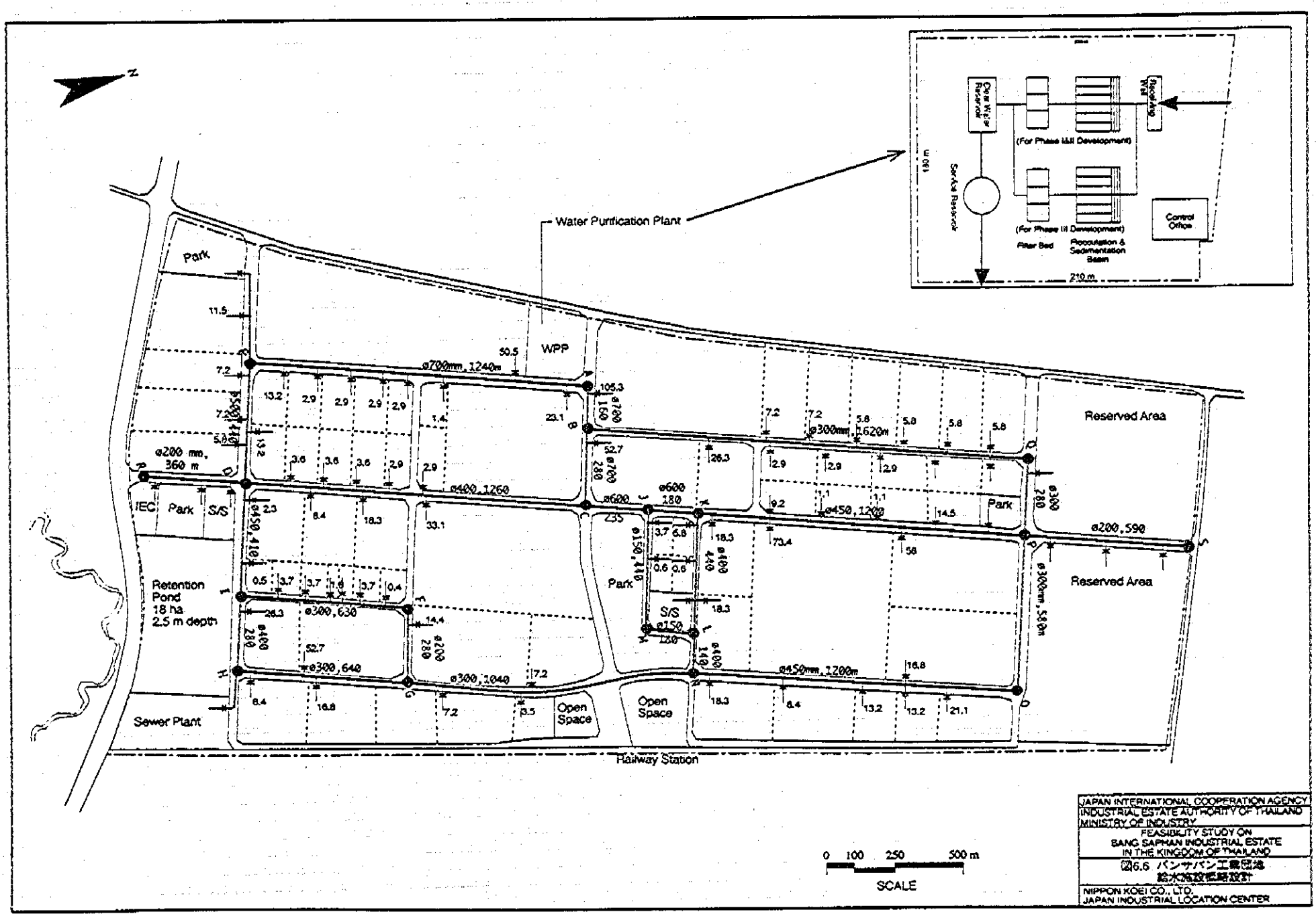
NIPPON KOEI CO., LTD.
JAPAN INDUSTRIAL LOCATION CENTER


Legend
Factory Lot
Factory Lot (for expansion)
Road
Utility
WP
Water purification plant
ST
Sewage treatment plant
Electric substation
Retention pond
Industrial Estate Center
Park & Green
Park
Multi purpose open space
Buffer Green & Reserve
Slope
North
Railway Station
0 100 200 300 400 500m
JAPAN INTERNATIONAL COOPERATION AGENCY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND
図 6.2 バンサパン工業団地
土地利用計画
NIPPON KOEI CO., LTD.
JAPAN INDUSTRIAL LOCATION CENTER

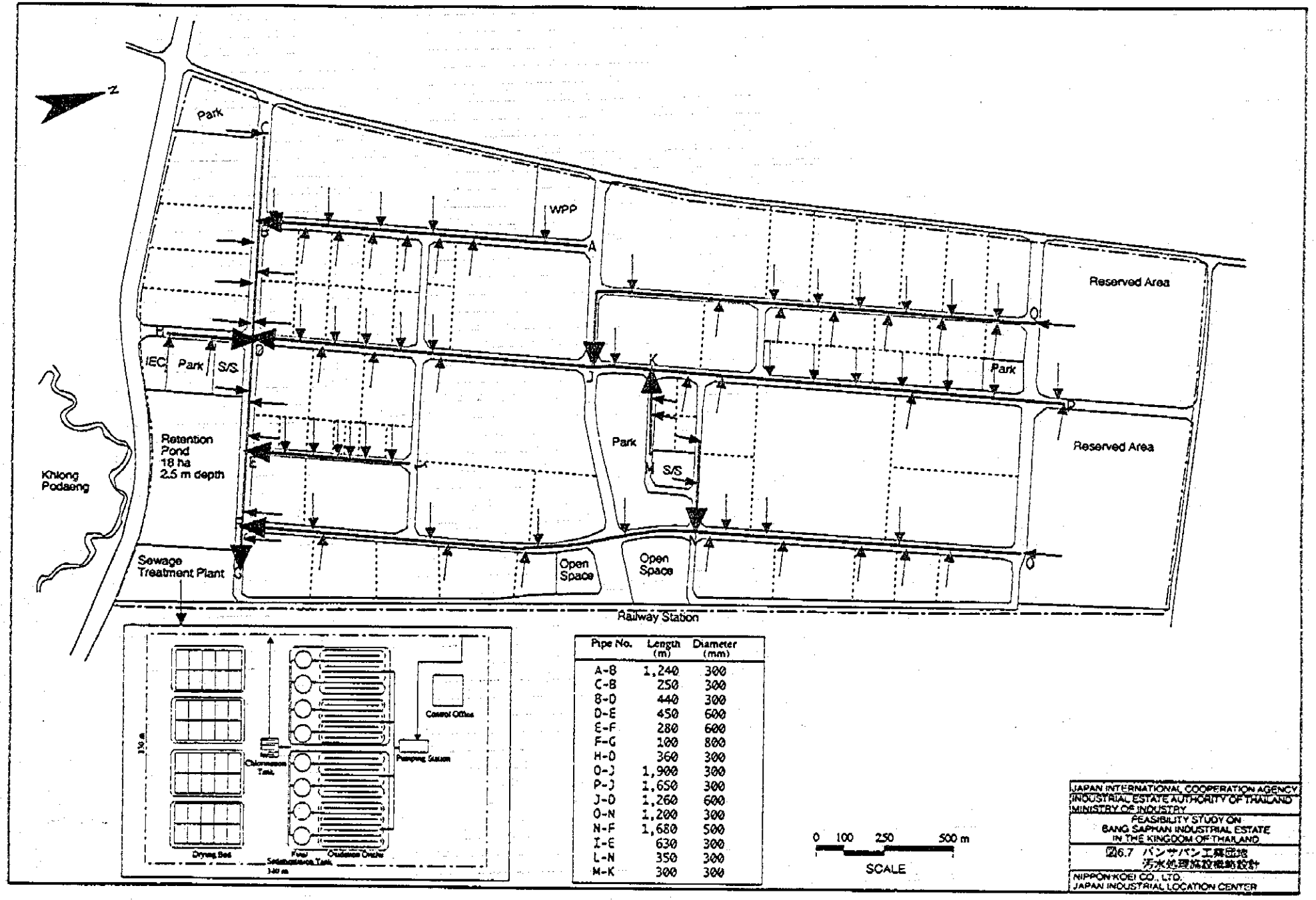

Legend
Pond
below 4m
4~6m
6~8m
8~10m
10~12m
12~14m
14~16m
16~18m
18~20m
above 20m
(unit: MSL m)
North
AREA
JAPAN INTERNATIONAL COOPERATION AGENCY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON BANG SAPHAN
INDUSTRIAL ESTATE
IN THE KINGDOM OF THAILAND
図 6.3 バンサパン工業団地用地
現況地形
NIPPON KOEI CO., LTD
JAPAN INDUSTRIAL LOCATION CENTER


North
Cut Volume : 4.06 million m³
Fill Volume : 3.66 million m³
Cut
Fill
JAPAN INTERNATIONAL COOPERATION AGENCY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON BANG SAPHAN
INDUSTRIAL ESTATE
IN THE KINGDOM OF THAILAND
図 6.4 バンサパン工業用地
切土、盛土区域の分布
NIPPON KOEI CO., LTD
JAPAN INDUSTRIAL LOCATION CENTER

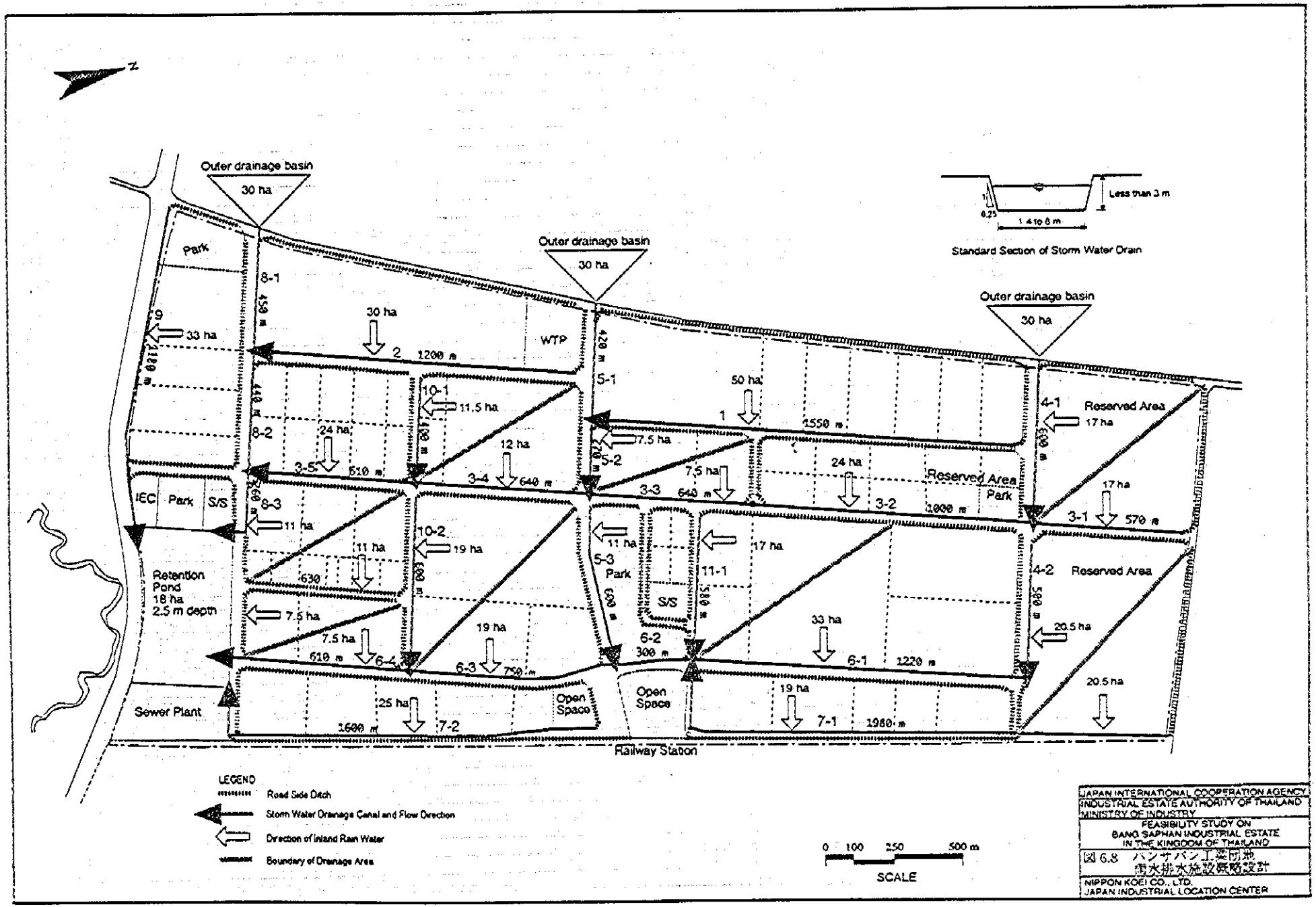

Legend
Access Road to Port & R.4
Main Road
Sub-main Road
Collector Road
Boulevard in front of Station
North
JAPAN INTERNATIONAL COOPERATION AGENCY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON BANG SAPHAN
INDUSTRIAL ESTATE
IN THE KINGDOM OF THAILAND
図 6.5 バンサパン工業団地
道路整備計画
NIPPON KOEI CO., LTD
JAPAN INDUSTRIAL LOCATION CENTER

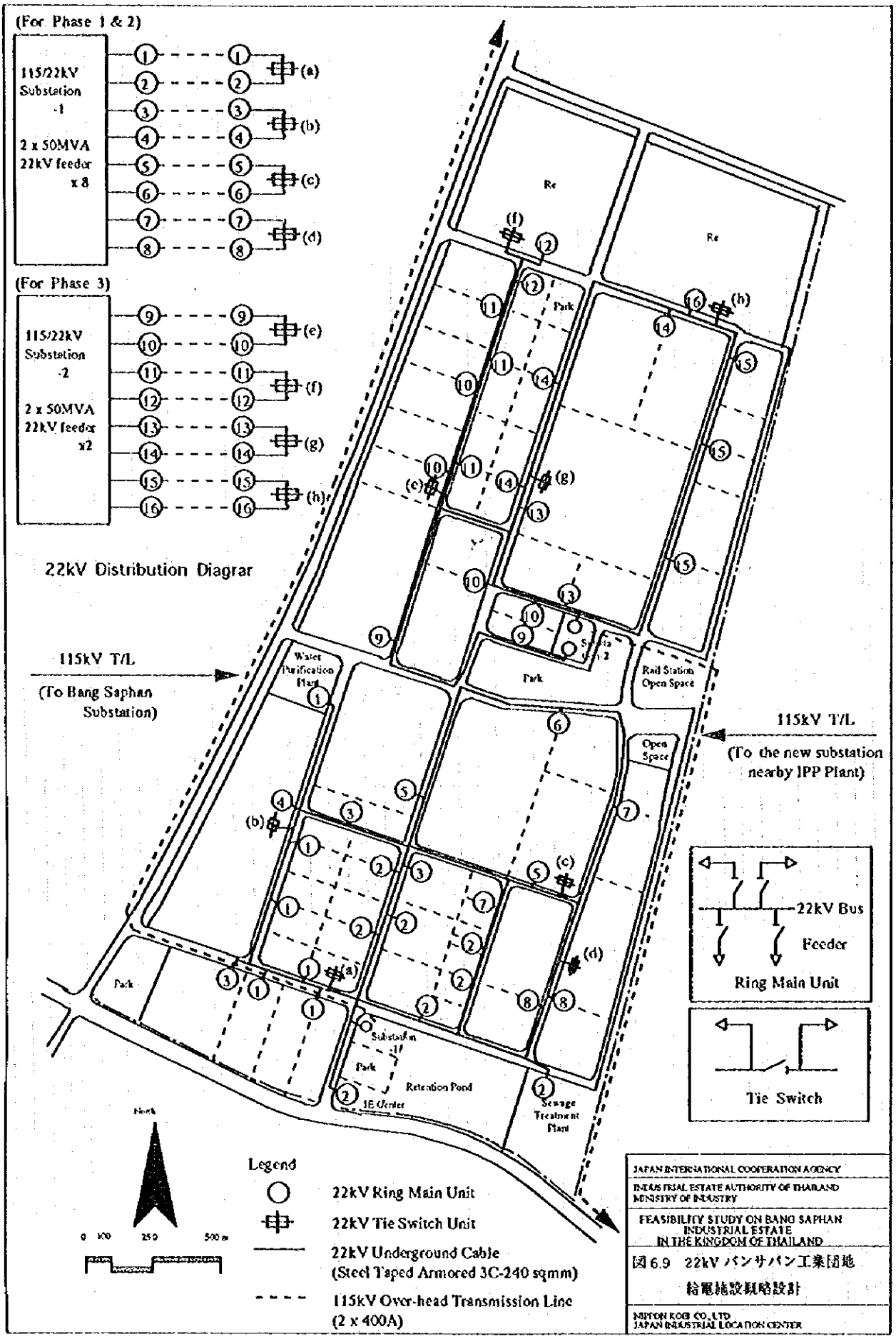


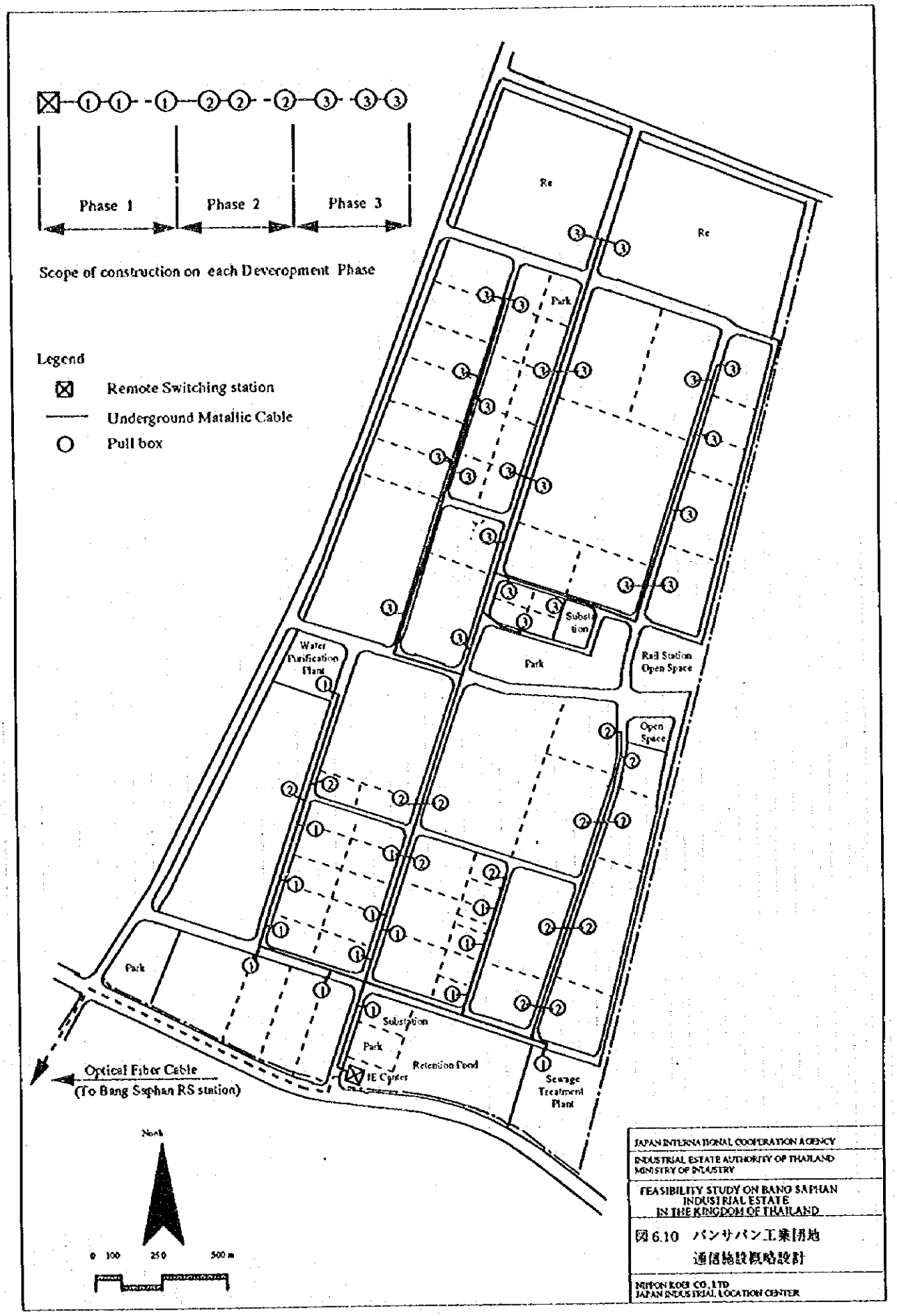

JAPAN INTERNATIONAL COOPERATION AGENCY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON
BANG SAPHAN INDUSTRIAL ESTATE
IN THE KINGDOM OF THAILAND
図6.6 バンサパン工業団地
全体配置計画
NIPPON KOEI CO., LTD.
JAPAN INDUSTRIAL LOCATION CENTER

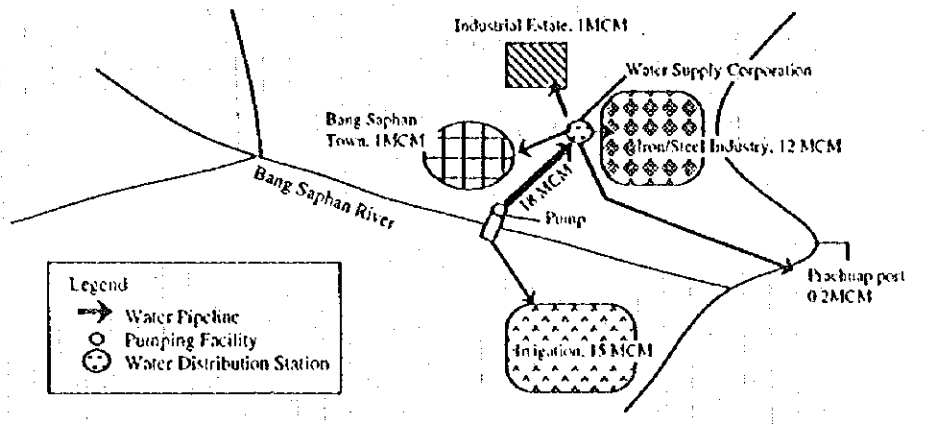



| Pipe No. | Length (m) | Diameter (mm) |
|---|---|---|
| A-B | 1,240 | 300 |
| C-B | 250 | 300 |
| B-D | 440 | 300 |
| D-E | 450 | 600 |
| E-F | 280 | 600 |
| F-G | 100 | 800 |
| H-D | 360 | 300 |
| O-J | 1,900 | 300 |
| P-J | 1,650 | 300 |
| J-D | 1,260 | 600 |
| O-N | 1,200 | 300 |
| N-F | 1,680 | 500 |
| I-E | 630 | 300 |
| L-N | 350 | 300 |
| M-K | 300 | 300 |


Outer drainage basin
30 ha
Outer drainage basin
30 ha
Outer drainage basin
30 ha
Less than 3 m
0.25
1.4 to 8 m
Standard Section of Storm Water Drain
Park
8-1
450 m
9
33 ha
1180 m
30 ha
2
1200 m
WTP
420 m
5-1
50 ha
1
1550 m
4-1
Reserved Area
17 ha
10-1
11.5 ha
440 m
8-2
24 ha
3-5
510 m
12 ha
3-4
640 m
7.5 ha
5-2
7.5 ha
3-3
640 m
24 ha
3-2
1000 m
Reserved Area
Park
17 ha
3-1
570 m
IEC
Park
S/S
8-3
11 ha
10-2
19 ha
11 ha
630
11 ha
5-3
Park
17 ha
11-1
4-2
Reserved Area
Retention
Pond
18 ha
2.5 m depth
7.5 ha
7.5 ha
510 m
6-4
19 ha
6-3
750 m
S/S
6-2
300 m
33 ha
6-1
1220 m
20.5 ha
Sewer Plant
25 ha
1600 m
7-2
Open
Space
Open
Space
19 ha
7-1
1980 m
20.5 ha
Railway Station
LEGEND
Road Side Ditch
Storm Water Drainage Canal and Flow Direction
Direction of Inland Rain Water
Boundary of Drainage Area
0 100 250 500 m
SCALE
JAPAN INTERNATIONAL COOPERATION AGENCY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON
BANG SAPHAN INDUSTRIAL ESTATE
IN THE KINGDOM OF THAILAND
図 6.8 バンサパン工業団地
雨水排水施設概略設計
NIPPON KOEI CO., LTD.
JAPAN INDUSTRIAL LOCATION CENTER


(For Phase 1 & 2)
115/22kV Substation -1
2 x 50MVA 22kV feeder x 8
(For Phase 3)
115/22kV Substation -2
2 x 50MVA 22kV feeder x2
22kV Distribution Diagrar
115kV T/L
(To Bang Saphan Substation)
115kV T/L
(To the new substation nearby IPP Plant)
Water Purification Plant
Park
Rail Station Open Space
Open Space
Substation -1
Retention Pond
IE Center
Sewage Treatment Plant
22kV Bus
Feeder
Ring Main Unit
Tie Switch
Legend
22kV Ring Main Unit
22kV Tie Switch Unit
22kV Underground Cable (Steel Taped Armored 3C-240 sqmm)
115kV Over-head Transmission Line (2 x 400A)
JAPAN INTERNATIONAL COOPERATION AGENCY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND
図 6.9 22kV バンサパン工業団地
給電施設概略設計
NIPPON KOEI CO., LTD
JAPAN INDUSTRIAL LOCATION CENTER

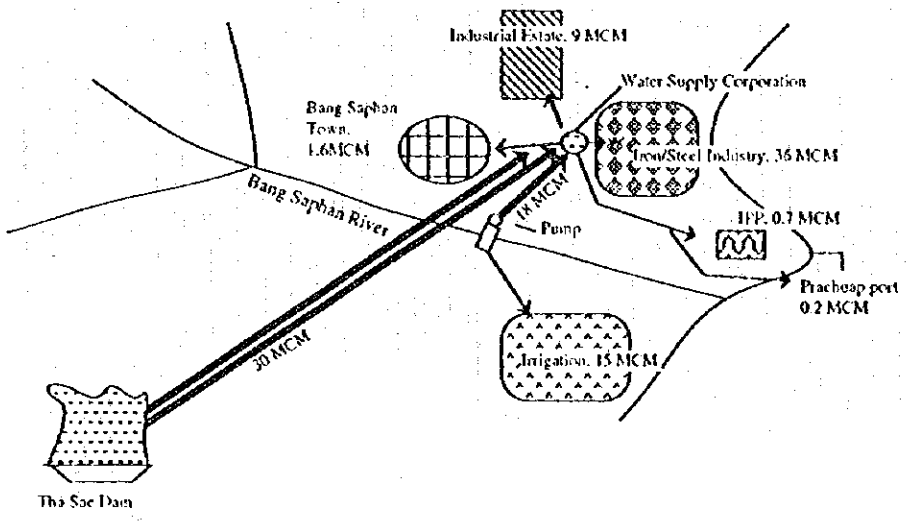

Phase 1
Phase 2
Phase 3
Scope of construction on each Deveropment Phase
Legend
Remote Switching station
Underground Matallic Cable
Pull box
Re
Re
Park
Substation
Park
Rail Station Open Space
Water Purification Plant
Open Space
Park
Substation
Park
Retention Pond
IE Center
Sewage Treatment Plant
Optical Fiber Cable
(To Bang Saphan RS station)
North
0 100 250 500 m
JAPAN INTERNATIONAL COOPERATION AGENCY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND
図6.10 バンサパン工業団地
通信施設概略設計
NIPPON KOEI CO., LTD
JAPAN INDUSTRIAL LOCATION CENTER




*in 2001*

From Bang Saphan River : 33 MCM
Pump 18 MCM
Irrigation 15 MCM

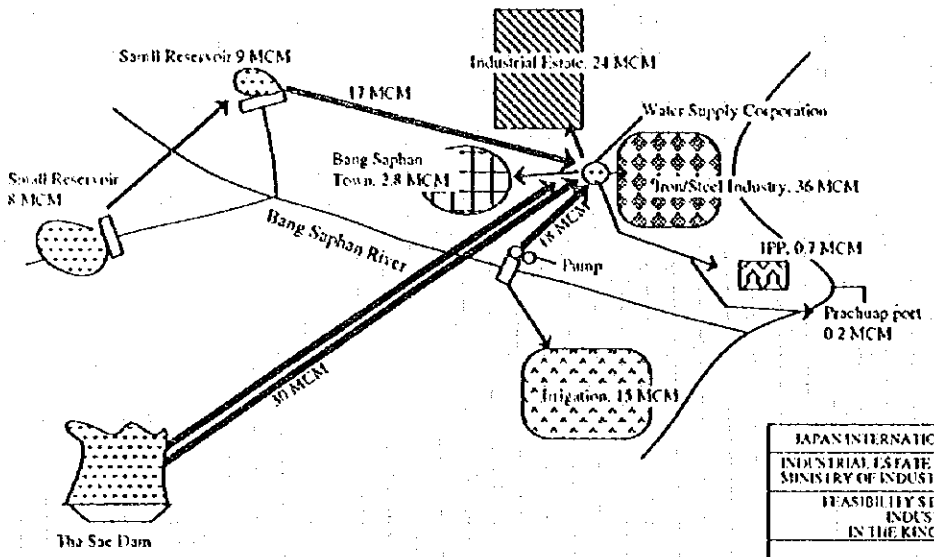
Demand : 30 MCM
Iron industry : 12 MCM
IE : 1 MCM
Domestic use : 1 MCM
Irrigation : 15 MCM
Others : 0.2 MCM
Total : 30 MCM




*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*

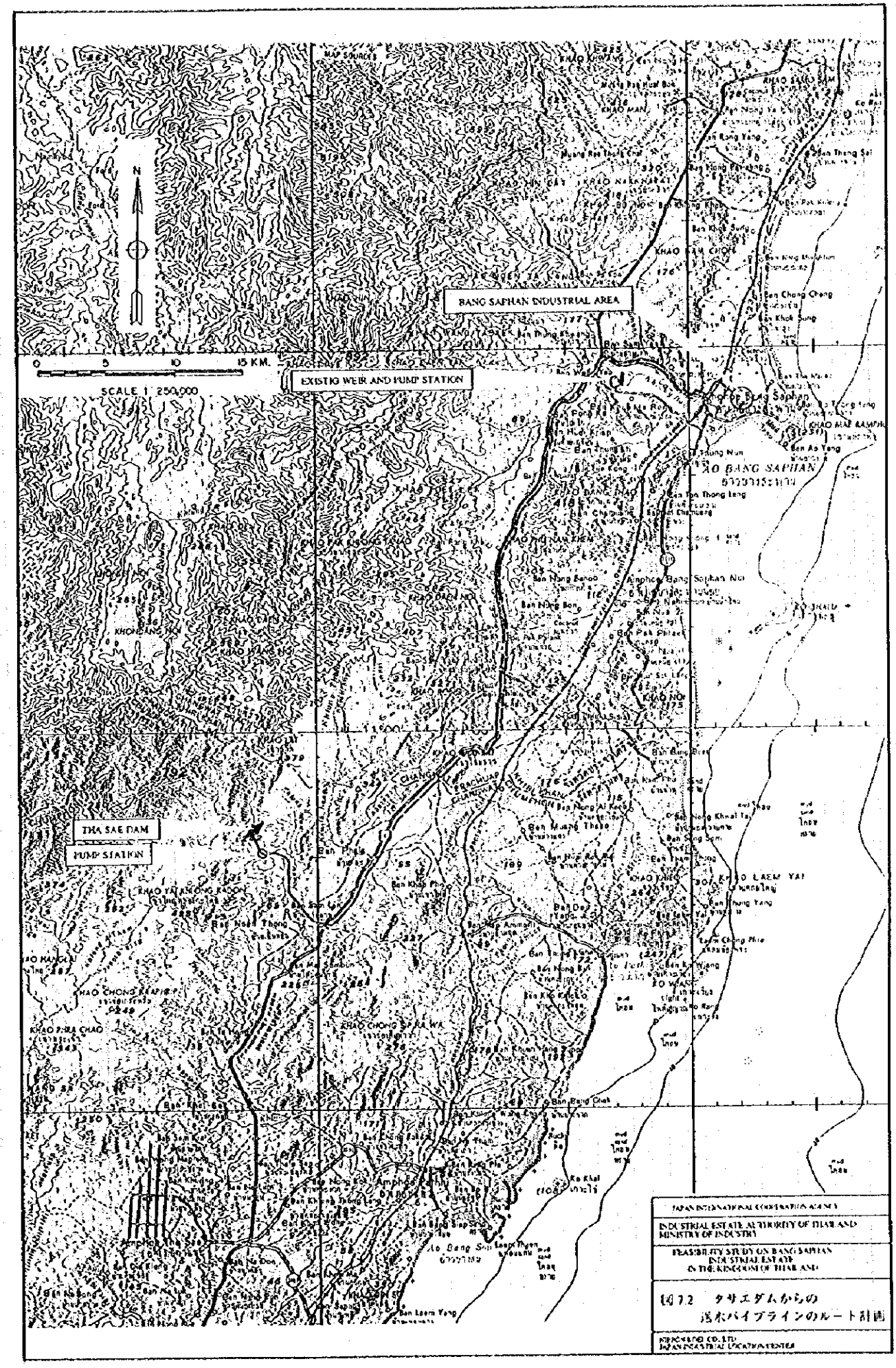
From Bang Saphan River : 50 MCM
Pump 18 MCM
Dam 17 MCM
Irrigation 15 MCM
From Tha Sae Dam : 30 MCM
Total : 80 MCM

Demand : 77 MCM
Iron industry : 36 MCM
IE : 22 MCM
Domestic use : 3 MCM
Irrigation : 15 MCM
Others : 1 MCM
Total : 77 MCM

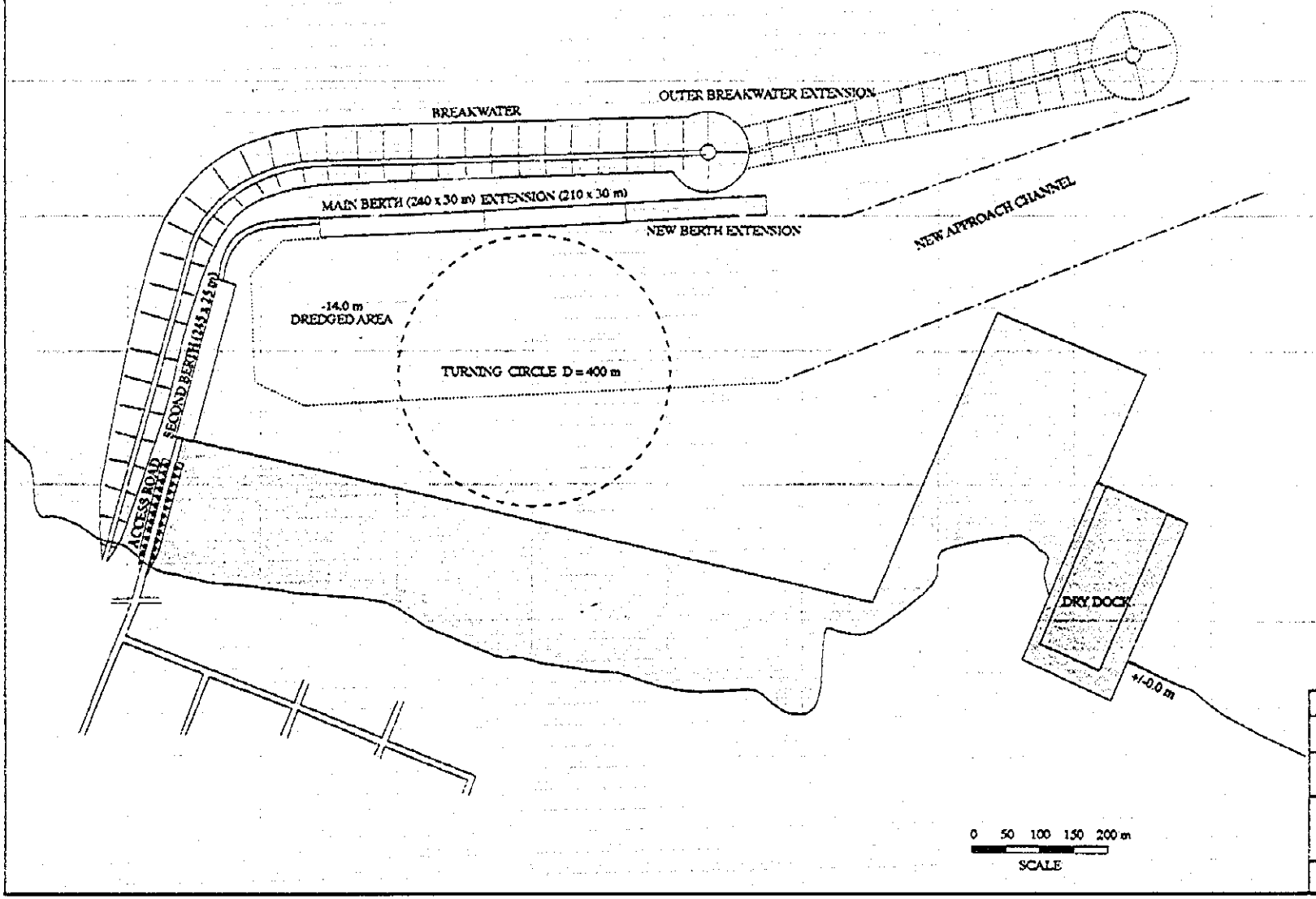
JAPAN INTERNATIONAL COOPERATION AGENCY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND

図 7.1　バンサパン地区への給水計画

NIPPON KOEI CO., LTD.
JAPAN INTERNATIONAL COOPERATION CENTER


BANG SAPHAN INDUSTRIAL AREA
EXISTIG WEIR AND PUMP STATION
THA SAE DAM
PUMP STATION
SCALE 1 : 250,000
0 5 10 15 KM.
N
AO BANG SAPHAN
JAPAN INTERNATIONAL COOPERATION AGENCY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND
図7.2 タサエダムからの送水パイプラインのルート計画
NIPPON KOEI CO., LTD.
JAPAN INDUSTRIAL LOCATION CENTER

# PRACHUAP PORT DEVELOPMENT
# ALTERNATIVE PLAN C



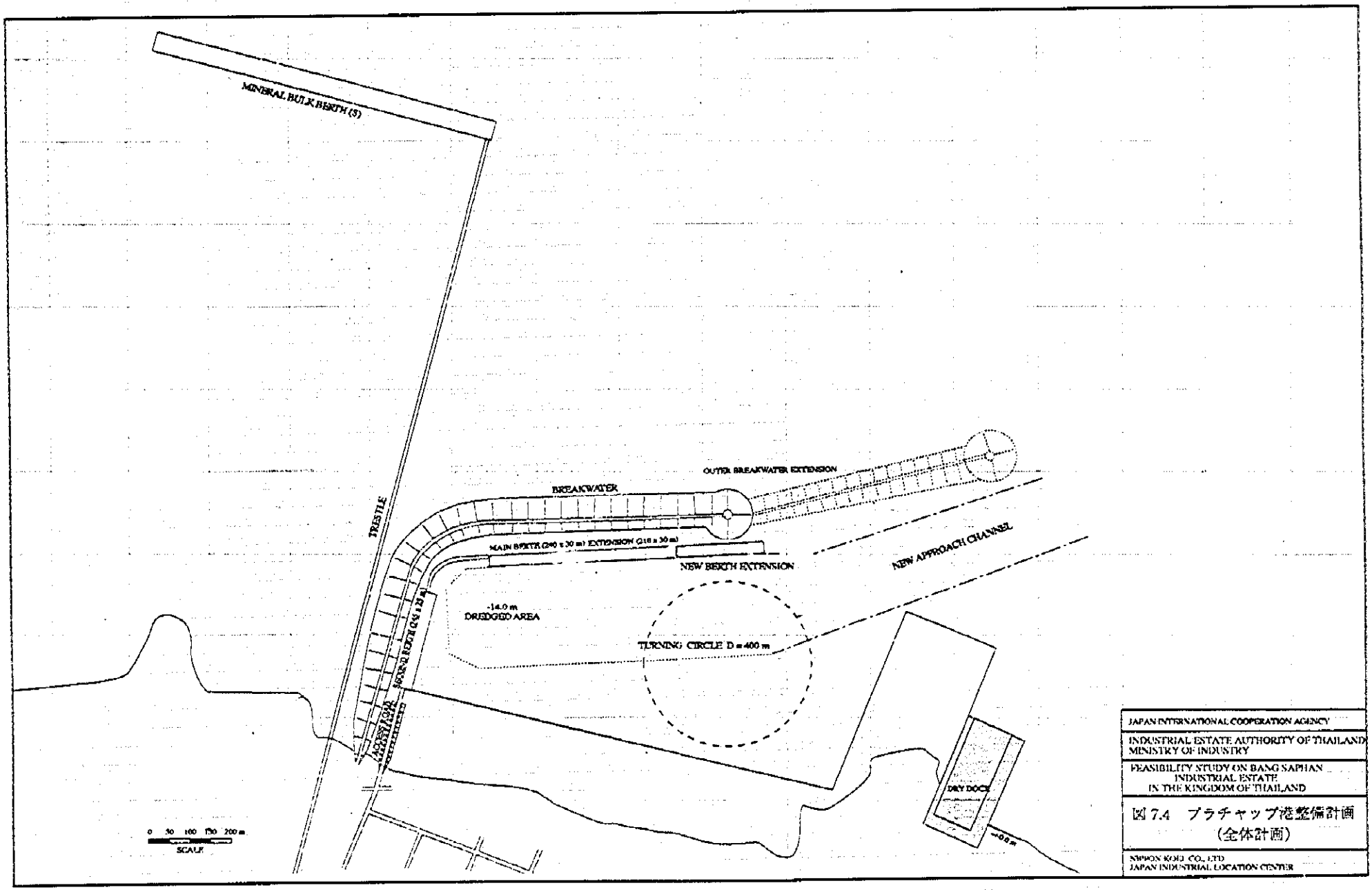

JAPAN INTERNATIONAL COOPERATION AGENCY

INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY

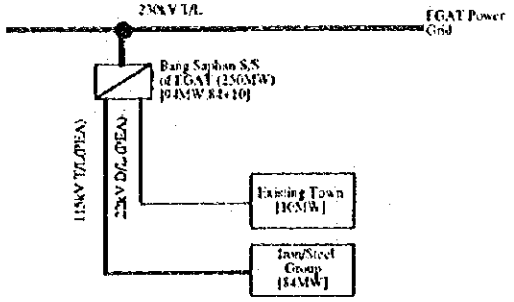
FEASIBILITY STUDY ON BANG SAPHAN
INDUSTRIAL ESTATE
IN THE KINGDOM OF THAILAND

図 7.3　プラチャップ港整備計画

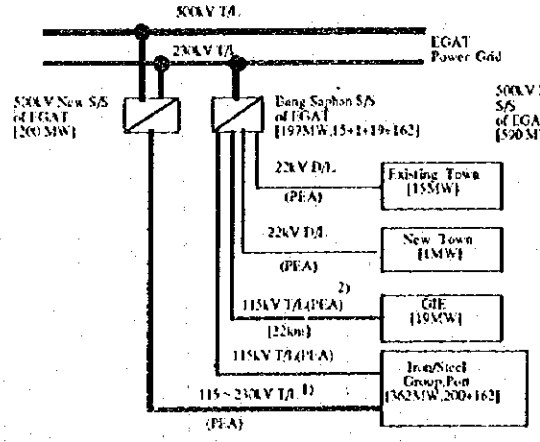
NIPPON KOEI CO., LTD.
JAPAN INDUSTRIAL LOCATION CENTER


MINERAL BULK BERTH (S)
TRESTLE
BREAKWATER
OUTER BREAKWATER EXTENSION
MAIN BERTH (240 x 30 m) EXTENSION (210 x 30 m)
NEW BERTH EXTENSION
NEW APPROACH CHANNEL
-14.0 m
DREDGED AREA
TURNING CIRCLE D = 400 m
DRY DOCK
0 50 100 150 200 m
SCALE
JAPAN INTERNATIONAL COOPERATION AGENCY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND
図 7.4 プラチャップ港整備計画
(全体計画)
NIPPON KOEI CO., LTD
JAPAN INDUSTRIAL LOCATION CENTER

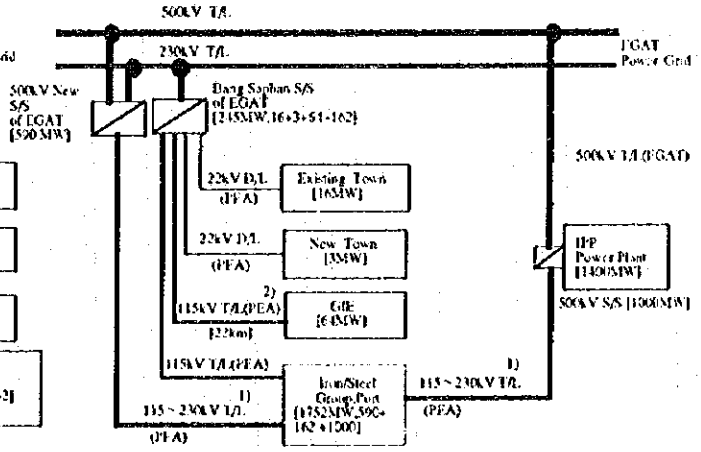
in 1995



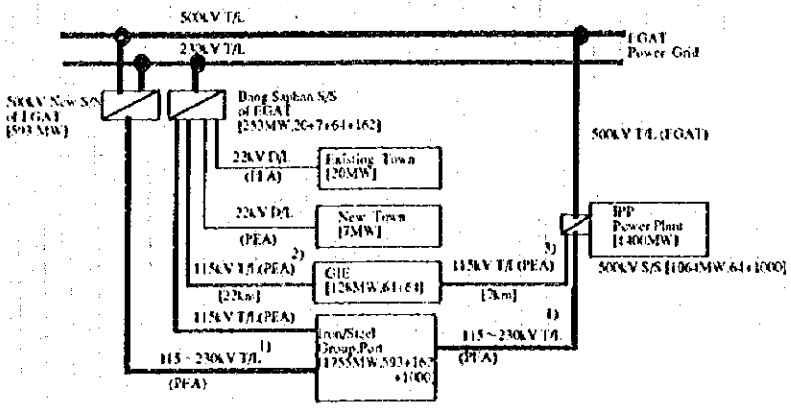

End of 2001




in 2006




in 2011

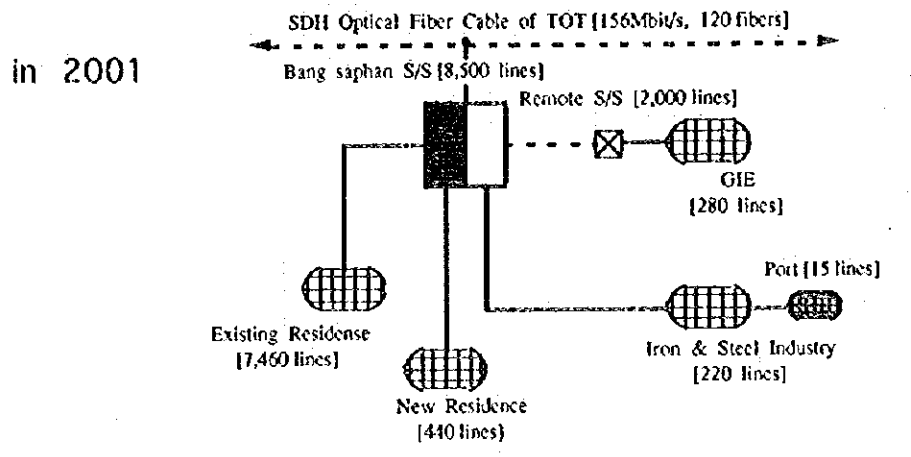


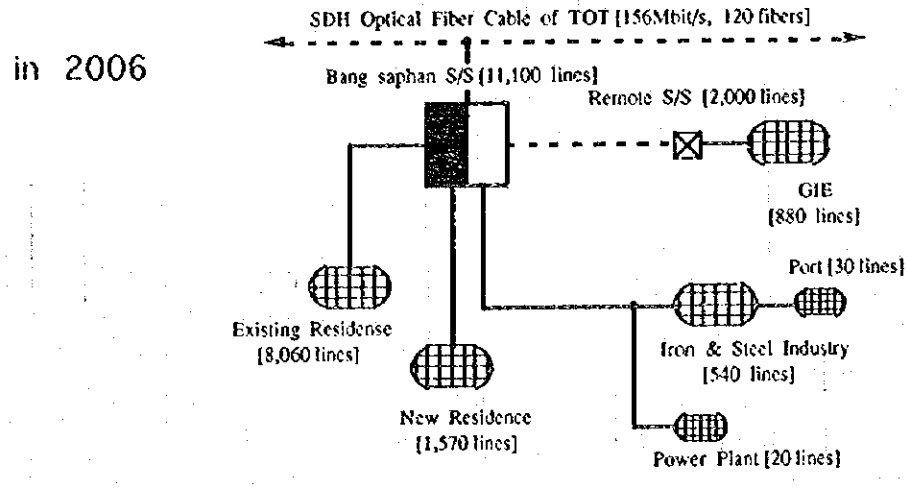

Remarks 1) : Transmission voltage will depend on electricity demand of each consumer.

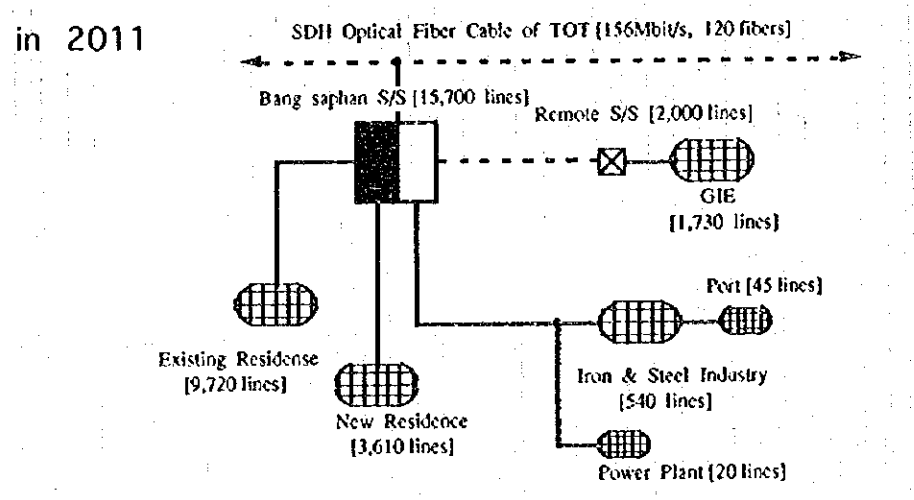
2) : To be constructed by the end of 2000.

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

| |
|---|
| JAPAN INTERNATIONL COOPERATION AGENCY |
| INDUSTRIAL ESTATE AUTHORITY OF THAILAND<br>MINISTRY OF INDUSTRY |
| FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND |
| 図 7.5<br>バンサパン工業都市全体の<br>配電計画 |
| NIPPON KOEI CO. LTD<br>JAPAN INDUSTRIAL LOCATION CENTER |



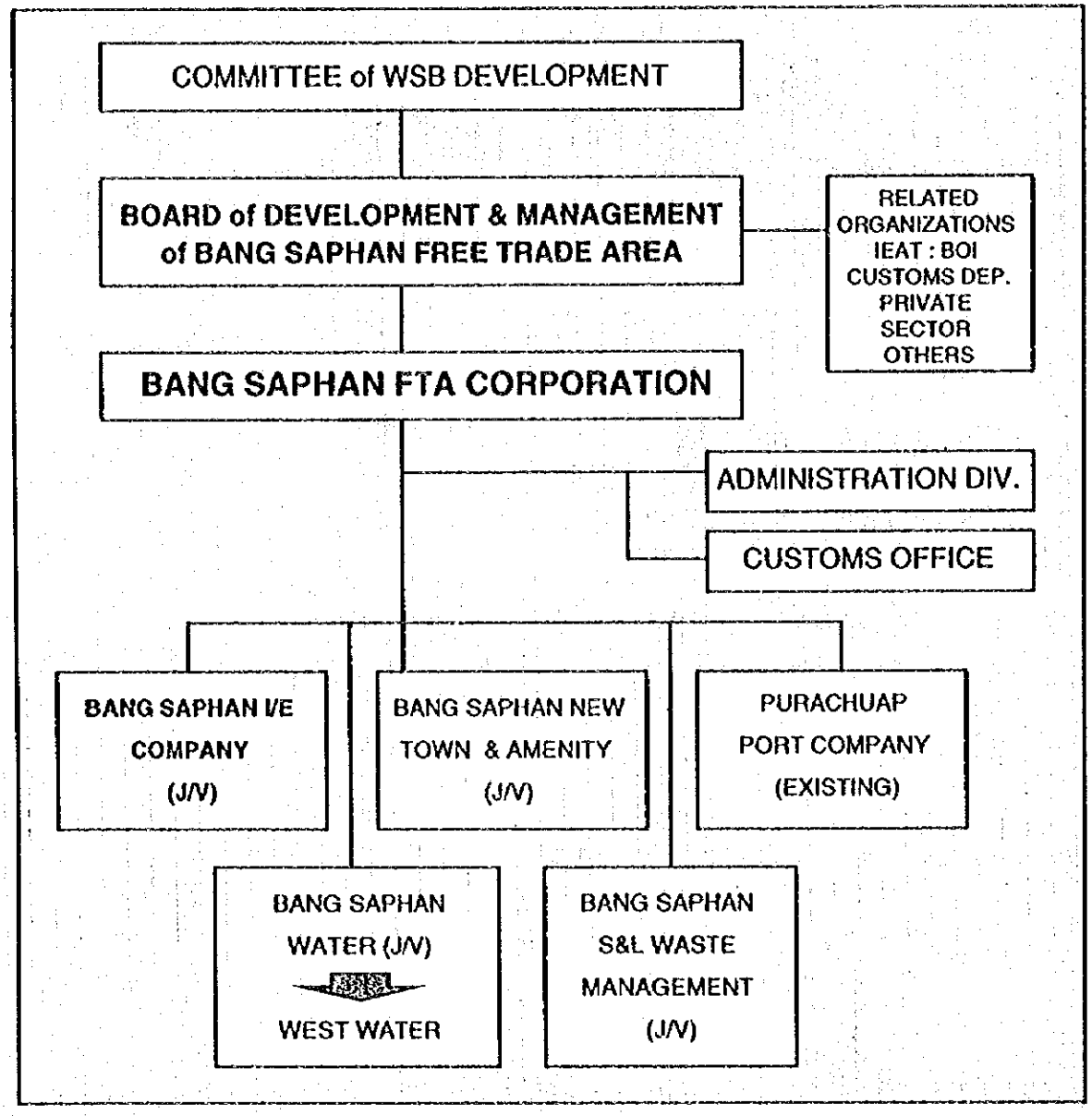




Legend

- 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

| |
|---|
| JAPAN INTERNATIONL COOPERATION AGENCY |
| INDUSTRIAL ESTATE AUTHORITY OF THAILAND<br>MINISTRY OF INDUSTRY |
| FEASIBLITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND |
| 図7.6 バンサパン工業都市全体の通信施設計画 |
| NIPPON KOEI CO.,LTD<br>JAPAN INDUSTRIAL LOCATION CENTER |



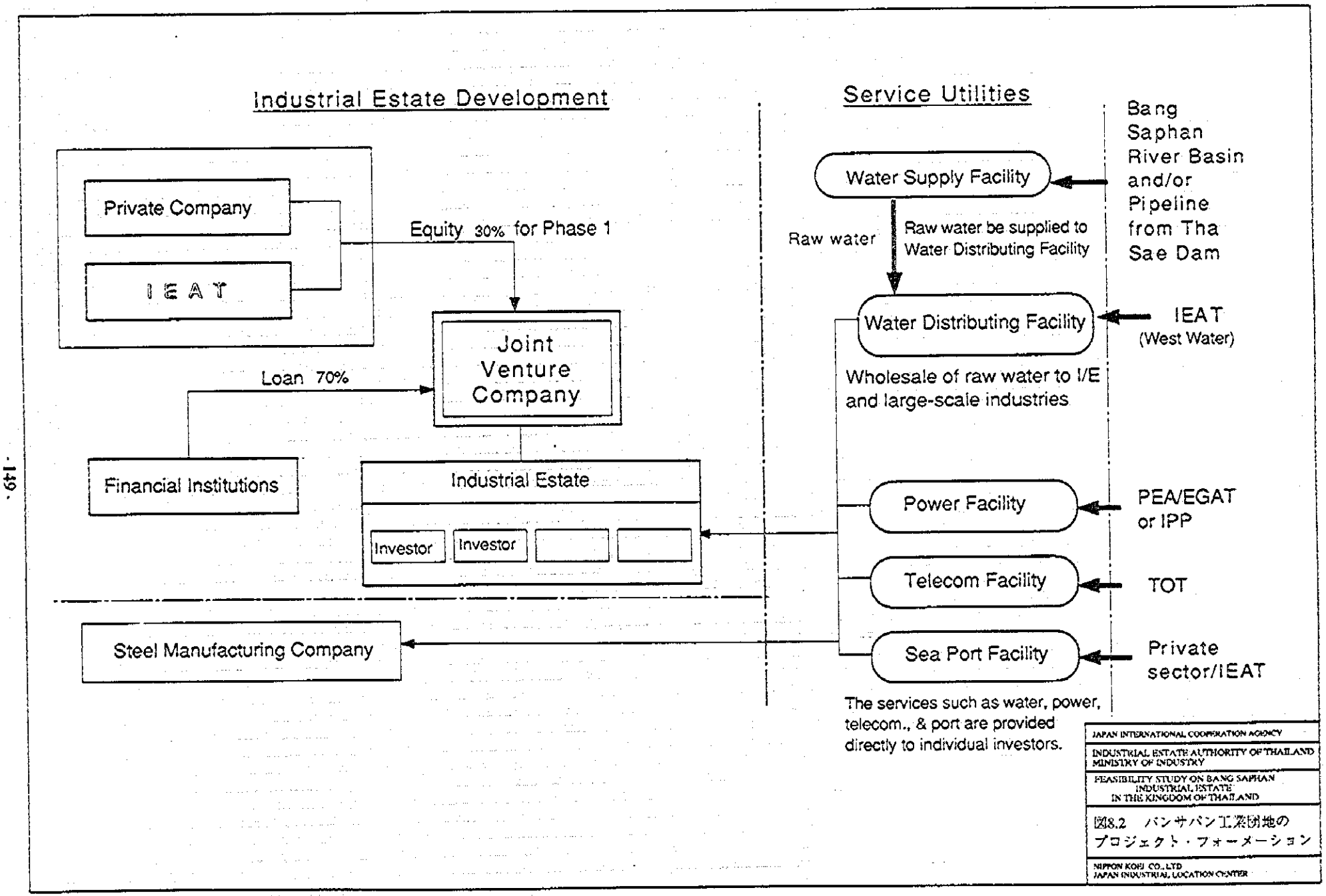

JAPAN INTERNATIONAL COOPERATION AGENCY

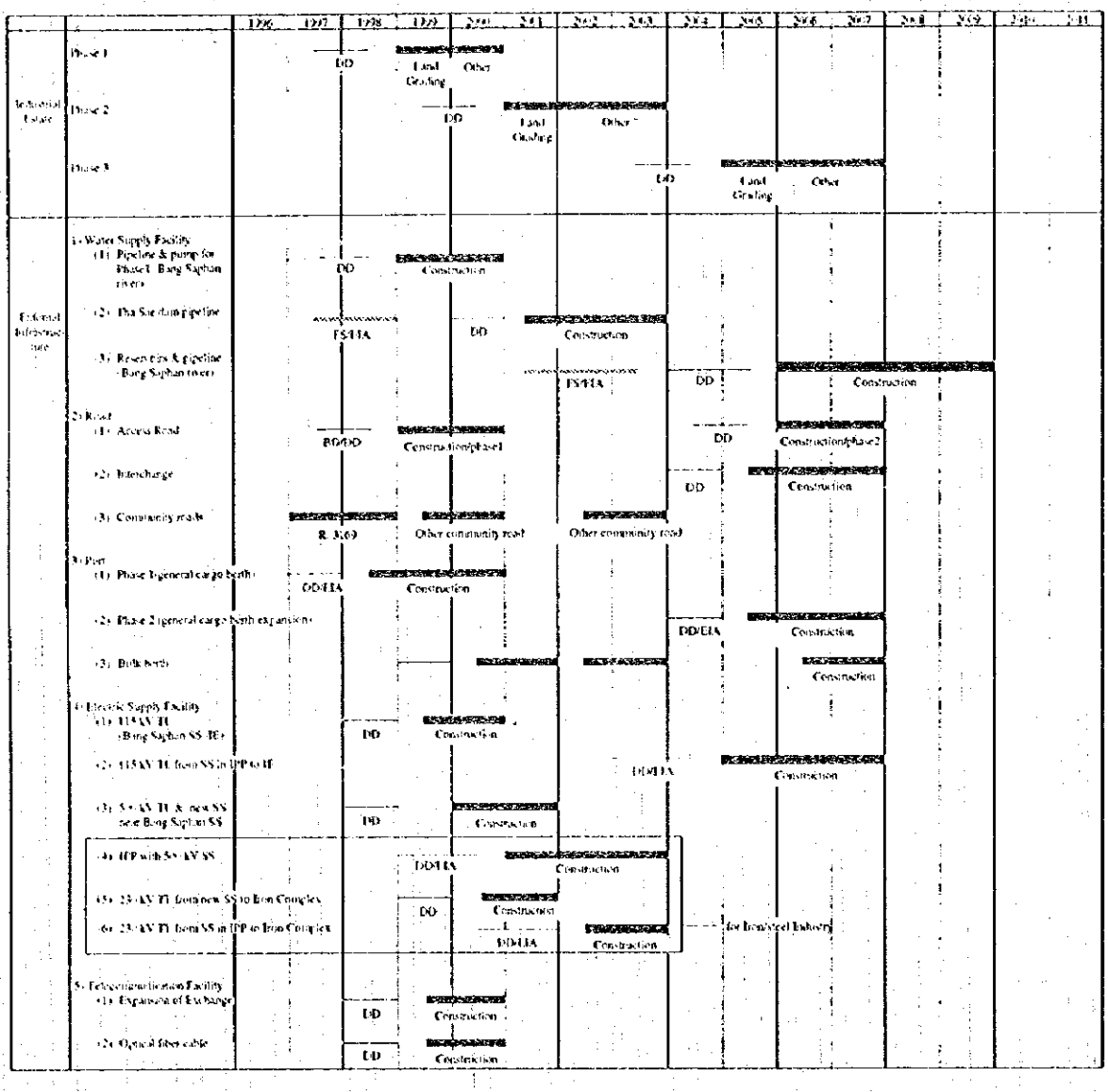
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY

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

図 8.1　全体開発組織

NIPPON KOEI CO., LTD
JAPAN INDUSTRIAL LOCATION CENTER


Industrial Estate Development
Private Company
IEAT
Equity 30% for Phase 1
Joint Venture Company
Loan 70%
Financial Institutions
Industrial Estate
Investor
Investor
Steel Manufacturing Company
Service Utilities
Water Supply Facility
Raw water
Raw water be supplied to Water Distributing Facility
Bang Saphan River Basin and/or Pipeline from Tha Sae Dam
Water Distributing Facility
IEAT (West Water)
Wholesale of raw water to I/E and large-scale industries
Power Facility
PEA/EGAT or IPP
Telecom Facility
TOT
Sea Port Facility
Private sector/IEAT
The services such as water, power, telecom., & port are provided directly to individual investors.
JAPAN INTERNATIONAL COOPERATION AGENCY
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY
FEASIBILITY STUDY ON BANG SAPHAN INDUSTRIAL ESTATE IN THE KINGDOM OF THAILAND
図8.2 バンサパン工業団地のプロジェクト・フォーメーション
NIPPON KOEI CO., LTD
JAPAN INDUSTRIAL LOCATION CENTER



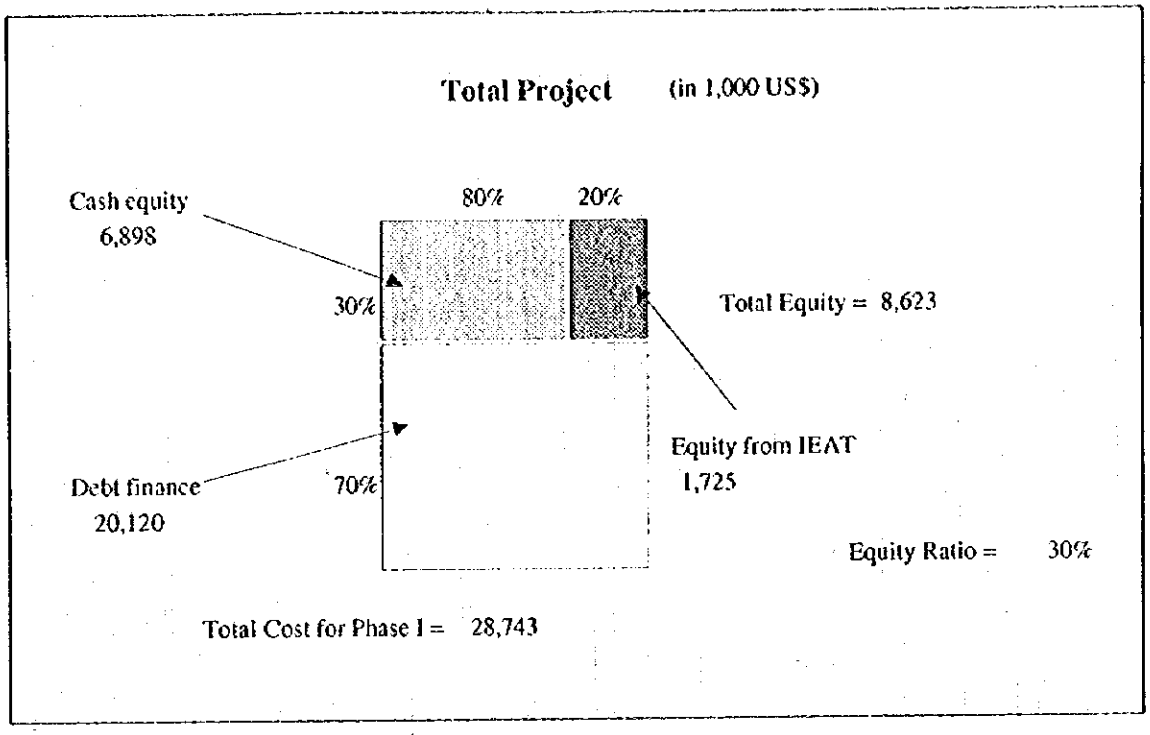

JAPAN INTERNATIONAL COOPERATION AGENCY

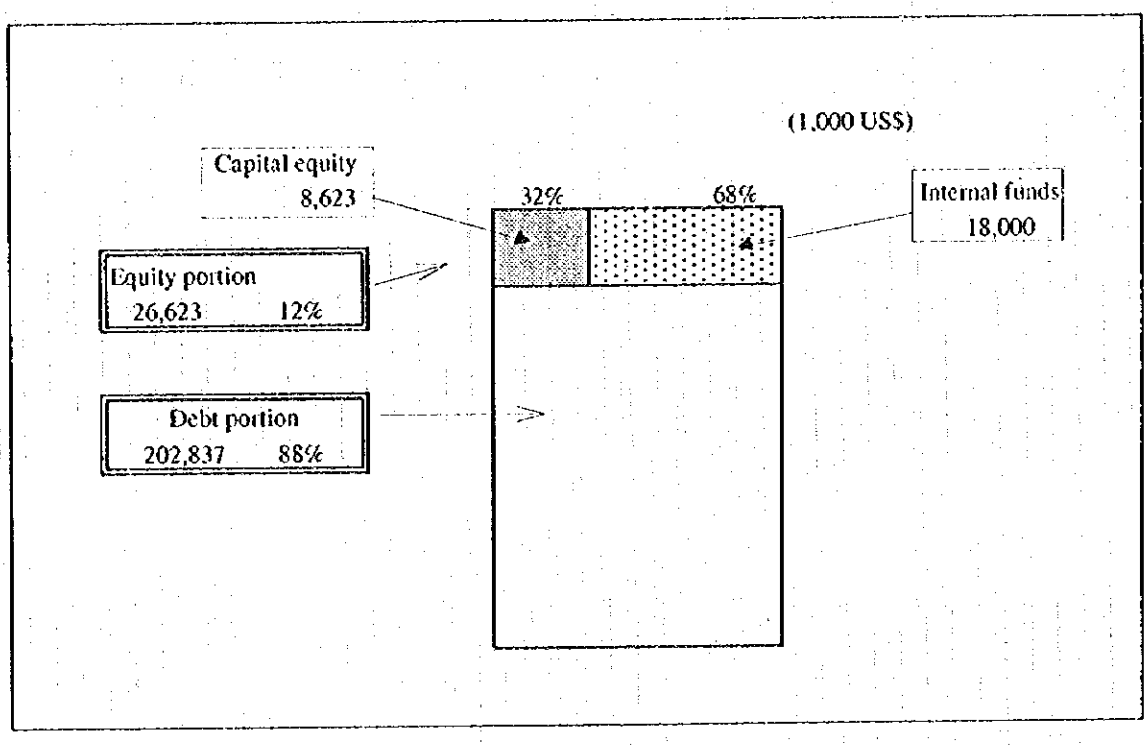
INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY

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

図 8.3
開発スケジュール

NIPPON KOEI CO., LTD
JAPAN INDUSTRIAL LOCATION CENTER



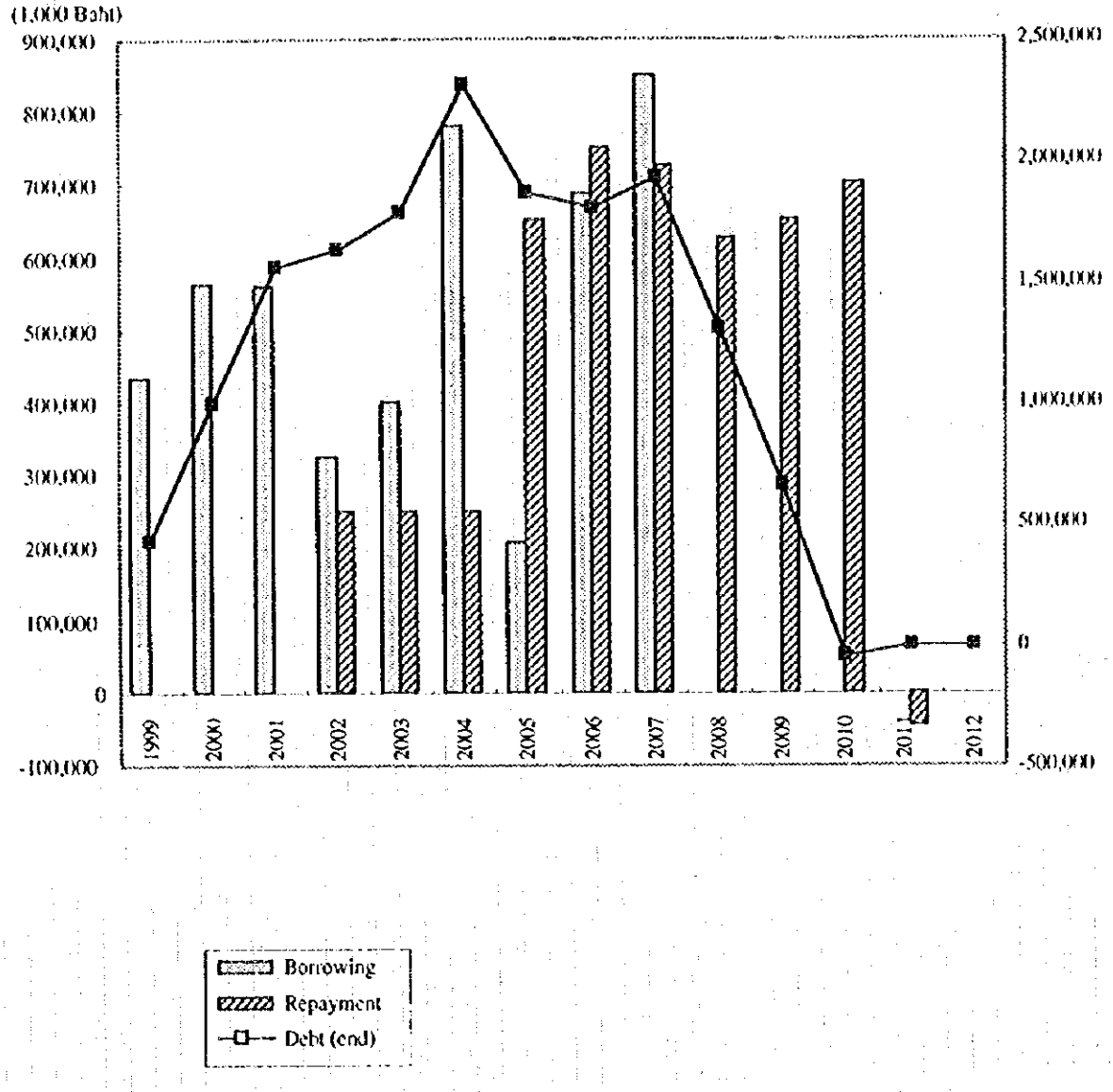

JAPAN INTERNATIONAL COOPERATION AGENCY

INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY

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

図 10.1
資金計画

NIPPON KOEI CO., LTD.
JAPAN INDUSTRIAL LOCATION CENTER




JAPAN INTERNATIONAL COOPERATION AGENCY

INDUSTRIAL ESTATE AUTHORITY OF THAILAND
MINISTRY OF INDUSTRY

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

図 10..2
借入、返済、債務残高の推移

NIPPON KOEI CO., LTD
JAPAN INDUSTRIAL LOCATION CENTER

JICA