

Tables

Figures

表 1 初期環境調查結果

| River system | Construction Works | | | | | | | | | | | | | | |
|----------------------|----------------------------|---|-------------|-----------------------------------|---------------------------------|--------------------------------------|-----------------------|-----------------------------|-------------------------------------|-------------------------|--------------------------------|--|--|--|--|
| | Social Environmental Items | | | | Nature Environmental Items | | | | | | Pollution | | | | |
| | Resettlement | Impairment of the transportation system | Communities | Encroachment on historical Assets | Inundation of mineral resources | Encroachment into precious ecosystem | Aesthetic & Landscape | Change of river flow regime | Watershed erosion and sedimentation | Air pollution and noise | Deterioration of water quality | | | | |
| Cidurian River | B | D | C | B | D | D | D | D | D | C | A | | | | |
| Cimanceuri River | B | D | C | B | D | D | D | D | D | C | A | | | | |
| Cirarab River | B | D | C | B | D | D | D | D | D | C | A | | | | |
| Cisadane River | B | D | C | B | D | D | D | D | D | B | A | | | | |
| Cengkareng Floodway | B | A | C | B | D | D | D | D | C | A | A | | | | |
| Western Banjir Canal | A | A | C | B | D | B | D | D | D | A | B | | | | |
| Eastern Banjir Canal | A | A | A | B | D | D | D | D | D | A | A | | | | |
| CBL Floodway | B | D | C | B | D | D | D | D | D | B | A | | | | |

Note: A; Mostly significant item, B; Significant item, C; Significant but relatively minor item, D; No effect is expected.

表2 マスタープラン総合評価

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---------------------------|---------------------------|---------------------------|--|---|---|---------------------------|--|
| | Ciduan | Cimanau | Carab | Cagahang Floodway | Western Banjar Canal - Cascade | Eastern Banjar Canal | GBL Floodway | Non-structural Measures |
| River System | | | | | | | | |
| Outline of Plan (Improvement Length) | River Improvement 32km | River Improvement 22km | River Improvement 17km | River Improvement and Angkle floodway 22km | River Improvement and Cihwang floodway 38km | River Improvement and Eastern Banjar Canal 47km | River Improvement 50km | Flood forecasting and warning system. |
| Implementation Program (year) | 2018-2023 | 2022-2025 | 2019-2016 | 2013-2025 | 1997-2008/2008-2011 | 2005-2017 | 2014-2019 | Flood risk map, |
| Beneficial Population in 2025 (1,000 pop) | 495 | 605 | 144 | 2,505 | 1,865 | 4,119 | 1,607 | institutions, |
| Beneficial Area (km ²) | 180 | 240 | 70 | 120 | 230 | 210 | 570 | flood fighting system, |
| Land Use in 2025 | Agriculture | Agriculture | Agriculture | Residential Area | Gov. Ind. & Comm. | Res. & Industrial | Agri. & Residential | public education, |
| Return Period of Design Flood (year) | 2.5 | 2.5 | 2.5 | 100 | 100 and 50 | 100 | 50 | school education, |
| Financial Project Cost (Rp. billion) | 227 | 108 | 27 | 858 | 767 | 1,931 | 220 | etc. |
| Financial Land/House Cost (Rp. billion) | 87 | 59 | 12 | 295 | 305 | 945 | 88 | |
| ERRK (%) | 3.3 | | 12.1 | 14.6 | 16.1 | 20.6 | 6.2 | |
| Technical Evaluation | Ordinary | Ordinary | Ordinary | Completed | Completed | Ordinary | Ordinary | |
| Social Beneficial Impact | small | small | small | big | very big | big | middle | |
| Environmental Impact | not affect | might affect | not affect | not affect | not affect | not affect | might affect | |
| Project Status | F/S: not available | F/S: not available | F/S: not available | D/D: partly available | D/D: partly available | Partly implemented | F/S: not available | |
| Overall Point | 20 | 20 | 26 | 34 | 40 | 31 | 28 | |
| Priority Projects for F/S | | | | | | | | |

| Evaluation Criteria | | | |
|------------------------|------------------------|-------------------|------------|
| Land Use | Financial Project Cost | Land & house cost | ERRK |
| 1: Agriculture | 0: 1,500<X | 0: 1,000<X | 0: X<5 |
| 3: Agri. & residential | 1: 1,000<X<1,500 | 2: 800<X<1,000 | 2: 5<X<10 |
| 5: Residential | 2: 500<X<1,000 | 4: 600<X<800 | 4: 10<X<12 |
| 7: Resid. & Industrial | 3: X<500 | 6: 400<X<600 | 6: 12<X |
| 9: Gov. Ind. & Comm. | | 8: 200<X<400 | 10: X<200 |

*1) I/P: Implementation Program, Gov.: Governmental Office Area, Comm.: Commercial Area, Ind.: Industrial Area, Agri.: Agricultural Area, Land/house Cost: Land acquisition/house compensation cost
 *2) The project costs here are all those estimated on the master plan level.

表 3 優先プロジェクト最適計画規模代替案

| | Alt. 1 | Alt. 2 | Alt. 2' | Alt. 3 |
|--------------------------------------|---|---|---|---|
| Design Scale | WBC: 100-year, Cisadane: 50-year | WBC: 100-year, Cisadane: 25-year | WBC: 100-year, Cisadane: 25-year | WBC: 50-year, Cisadane: 10-year |
| Floodway tunnel (unit) | 2 | 1 | 2 | 1 |
| Financial Project Cost (Rp. billion) | 767 | 672 | 714 | 595 |
| ERR | 16.1% | 18.0% | 16.4% | 17.8% |
| Technical Evaluation | (1) Investigation of ground water once, (2) no restriction to existing tunnel and channel, (3) access easy by existing road, (4) inlet weir construction once, (5) temporary works once | (1) Investigation of ground water twice, (2) restriction to existing tunnel and channel, (3) access difficult after construction of one tunnel, (4) inlet weir reconstruction needed, (5) temporary works | (1) Investigation of ground water once, (2) no restriction to existing tunnel and channel, (3) access easy by existing road, (4) inlet weir construction once, (5) temporary works once | (1) Investigation of ground water once, (2) no restriction to existing tunnel and channel, (3) access easy by existing road, (4) inlet weir construction once, (5) temporary works once |
| Environmental Impact | (1) Temporary land use once, (2) affect to ground water once, (3) river water disturbance once, (4) possible impact to historical assets once | (1) Temporary land use twice, (2) affect to ground water twice, (3) river water disturbance twice, (4) possible impact to historical assets twice | (1) Temporary land use once, (2) affect to ground water once, (3) river water disturbance once, (4) possible impact to historical assets once | (1) Temporary land use twice, (2) affect to ground water twice, (3) river water disturbance twice, (4) possible impact to historical assets twice |
| Social Impact | (1) Land acquisition once, (2) transportation of heavy equipment once, (3) affect to groundwater once, (4) noise, vibration, resettlement once, (5) benefit big | (1) Land acquisition later more difficult, (2) transportation of heavy equipment twice, (3) affect to groundwater twice, (4) noise, vibration, resettlement twice, (5) benefit middle | (1) Land acquisition once, (2) transportation of heavy equipment once, (3) affect to groundwater once, (4) noise, vibration, resettlement once, (5) benefit middle | (1) Land acquisition later more difficult, (2) transportation of heavy equipment twice, (3) affect to groundwater twice, (4) noise, vibration, resettlement twice, (5) benefit middle |
| Overall Score | 11 | 8 | 13 | 9 |
| | | | Optimum | |

Note: Estimated financial project cost is on the Master Plan level.

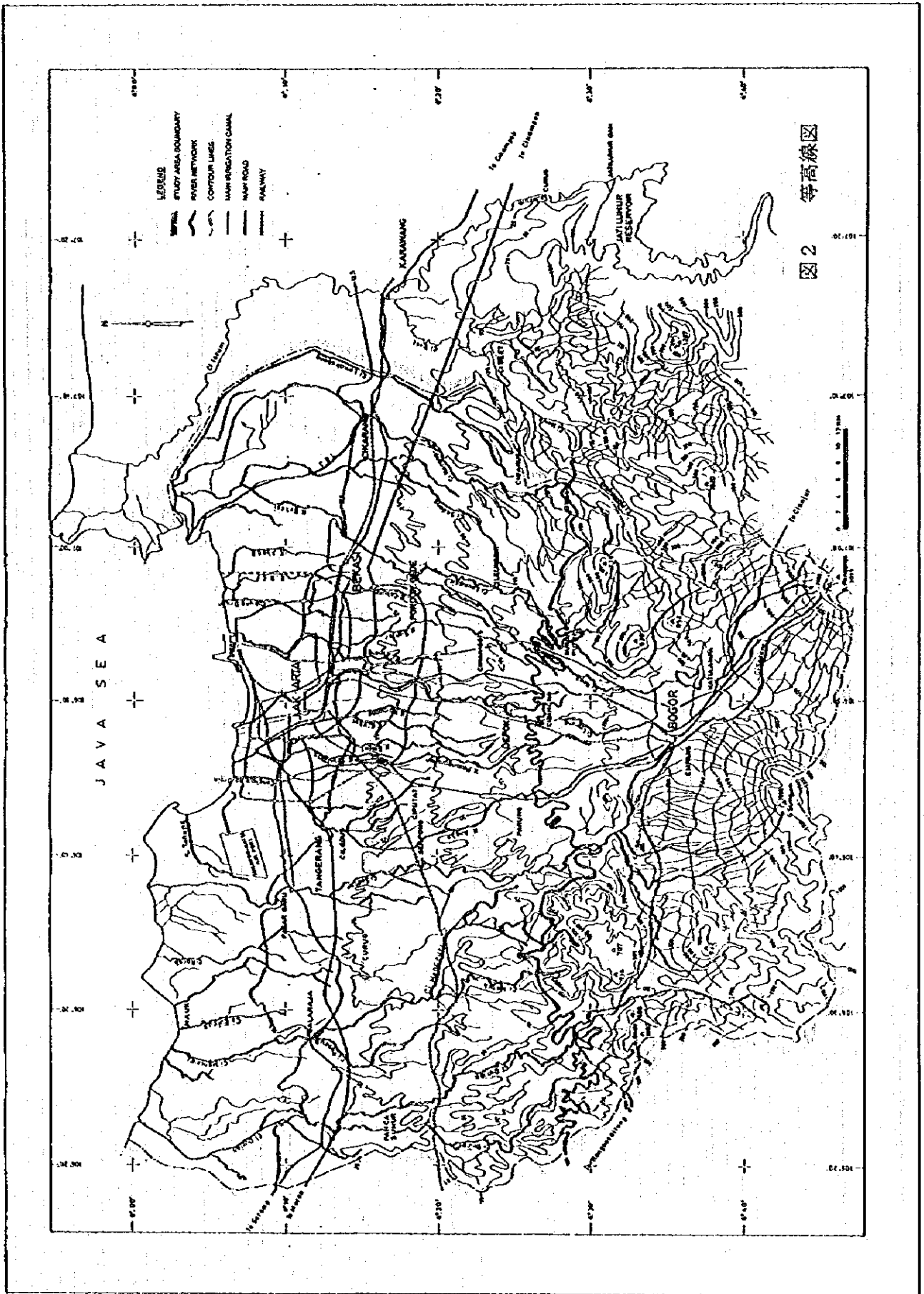


图 2 等高线图

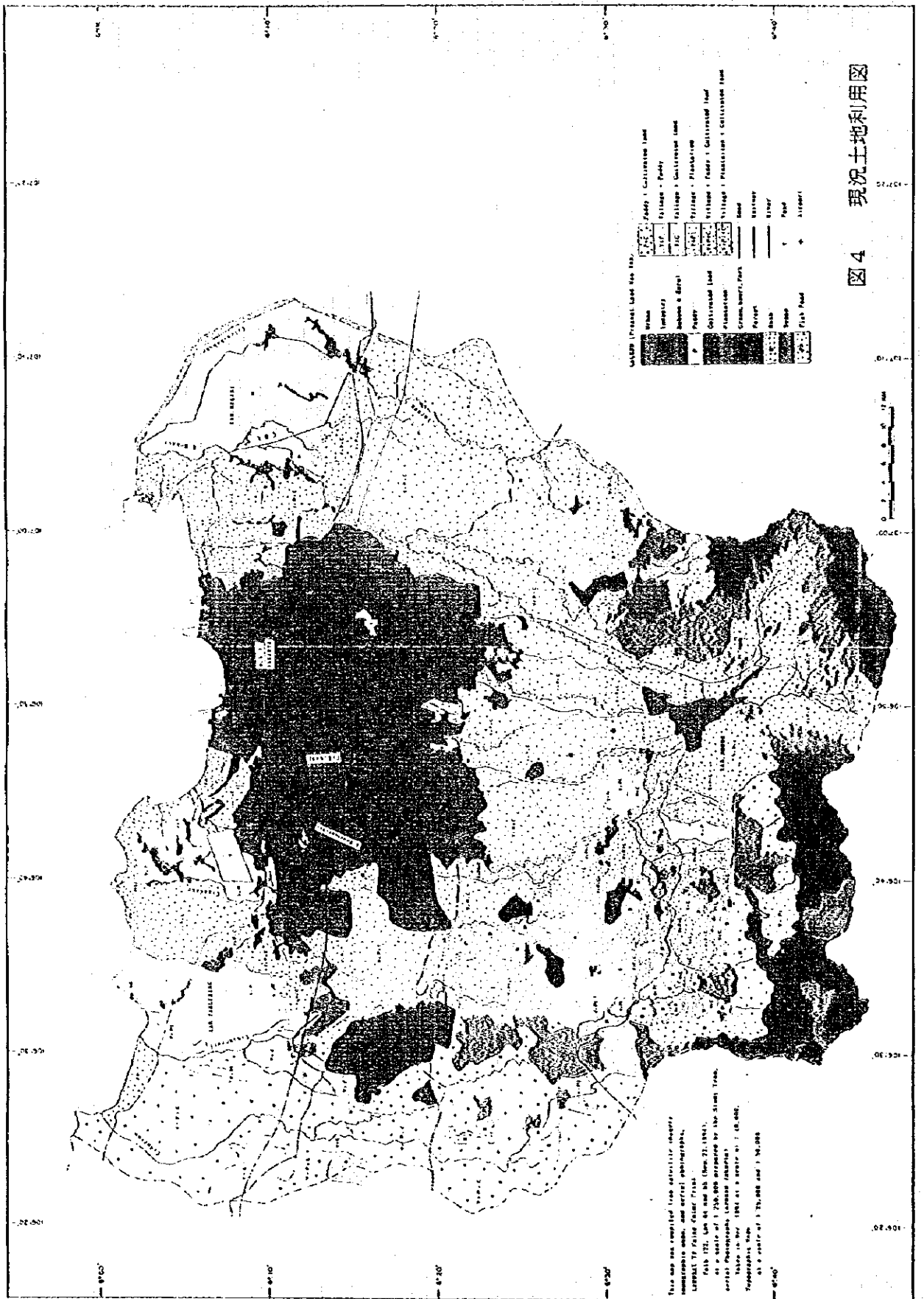


图 4 现状土地利用图

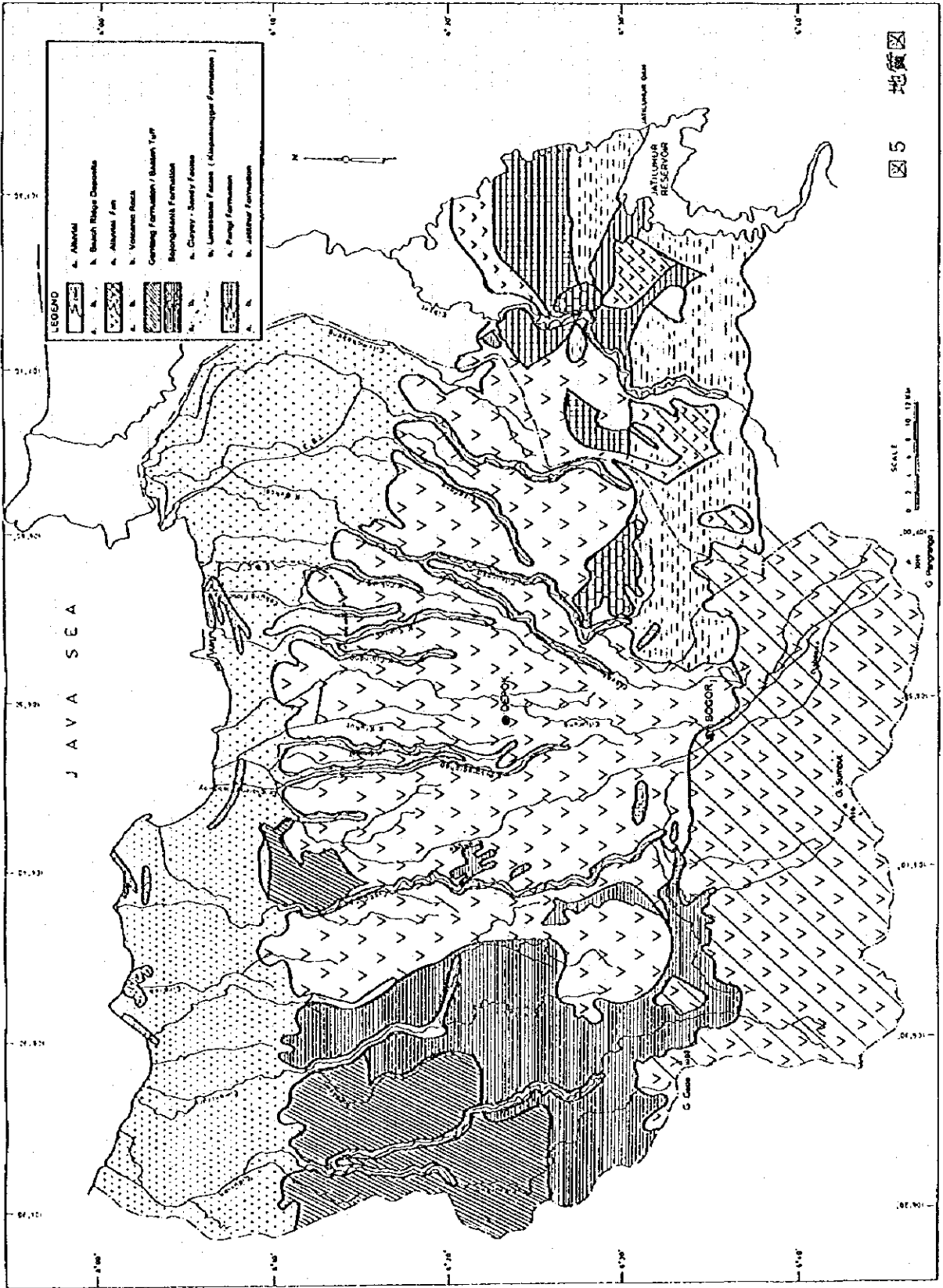


图 5 地质图

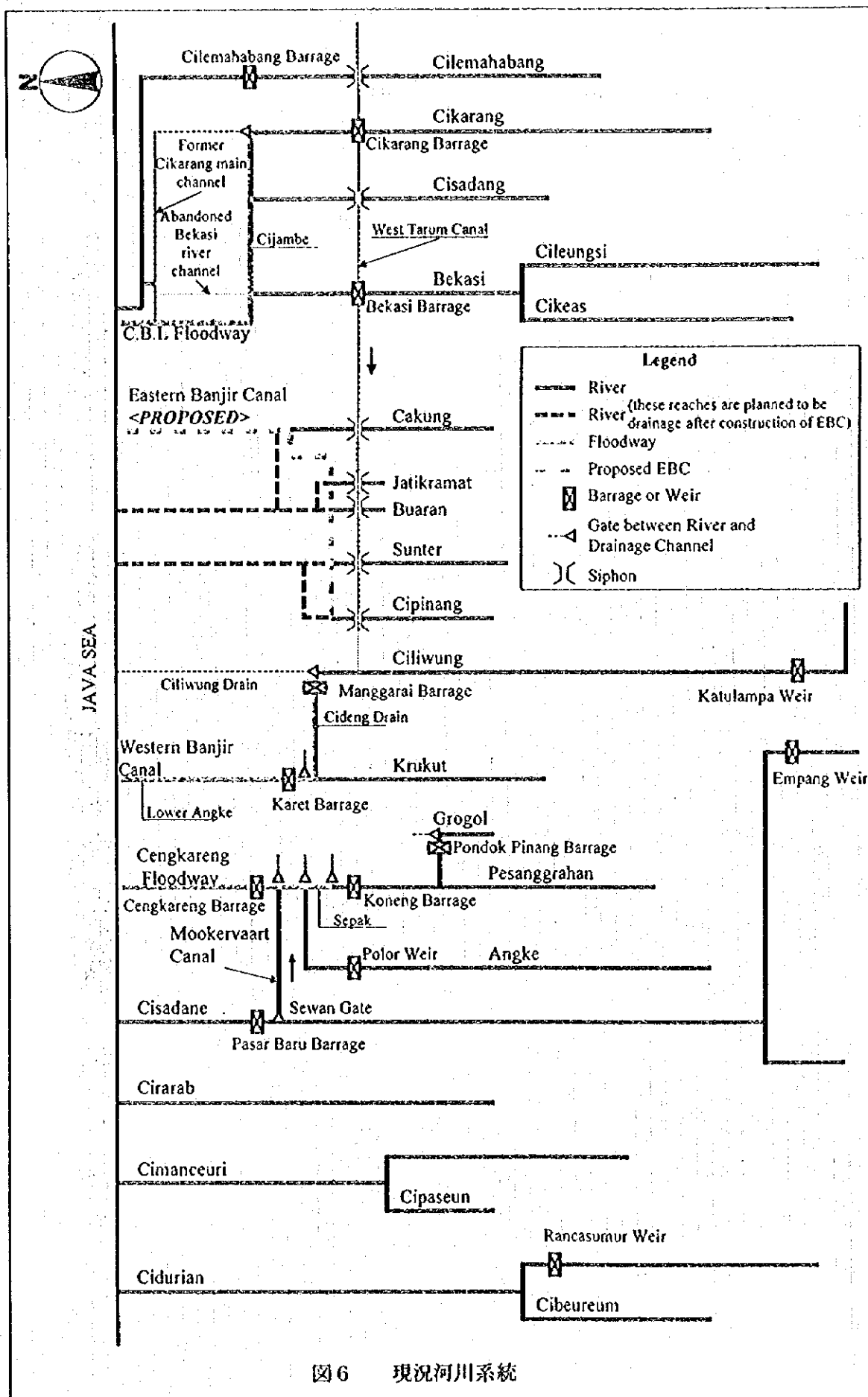


図6 現況河川系統

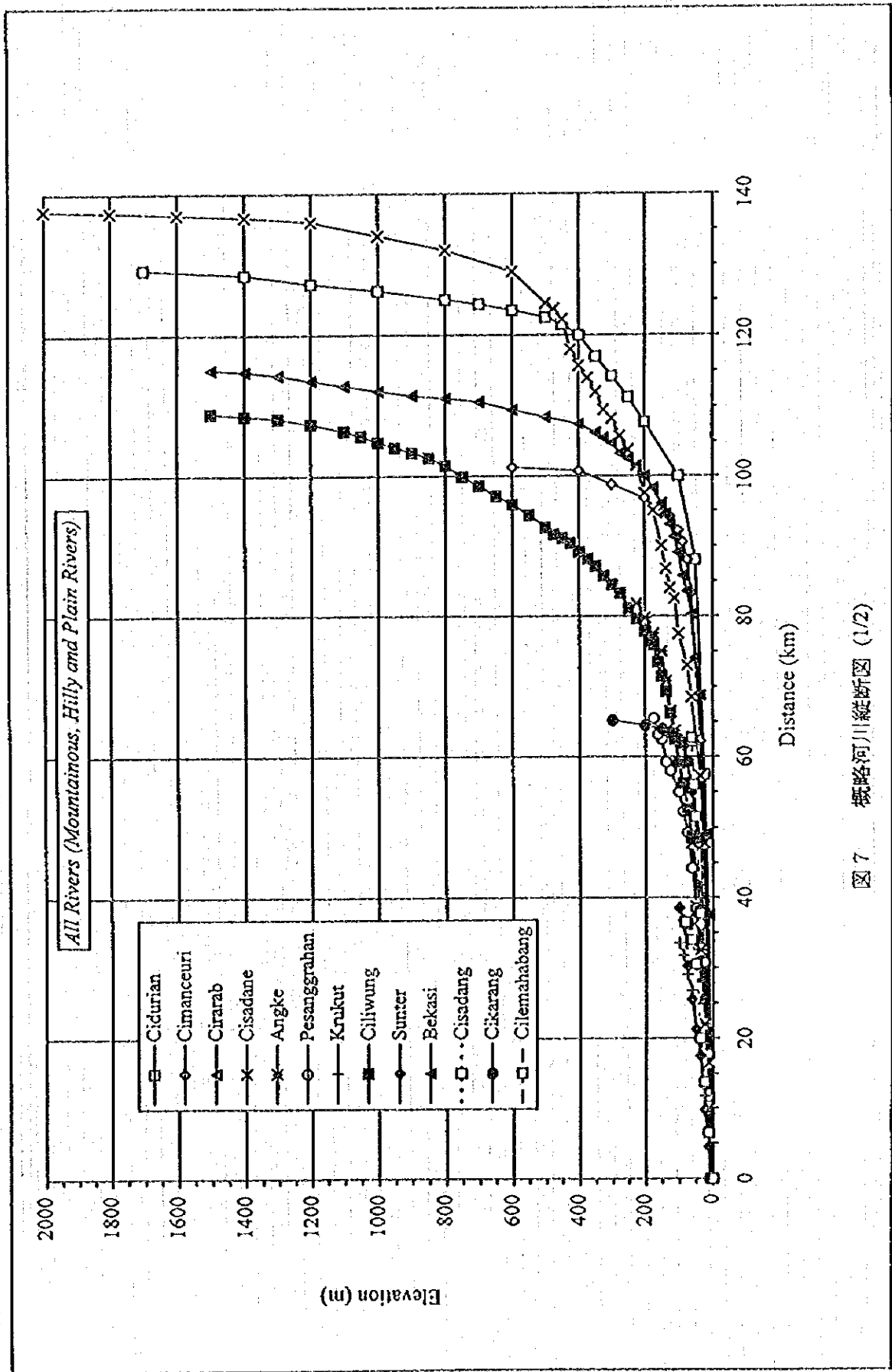


图7 概略河川縦断面图 (1/2)

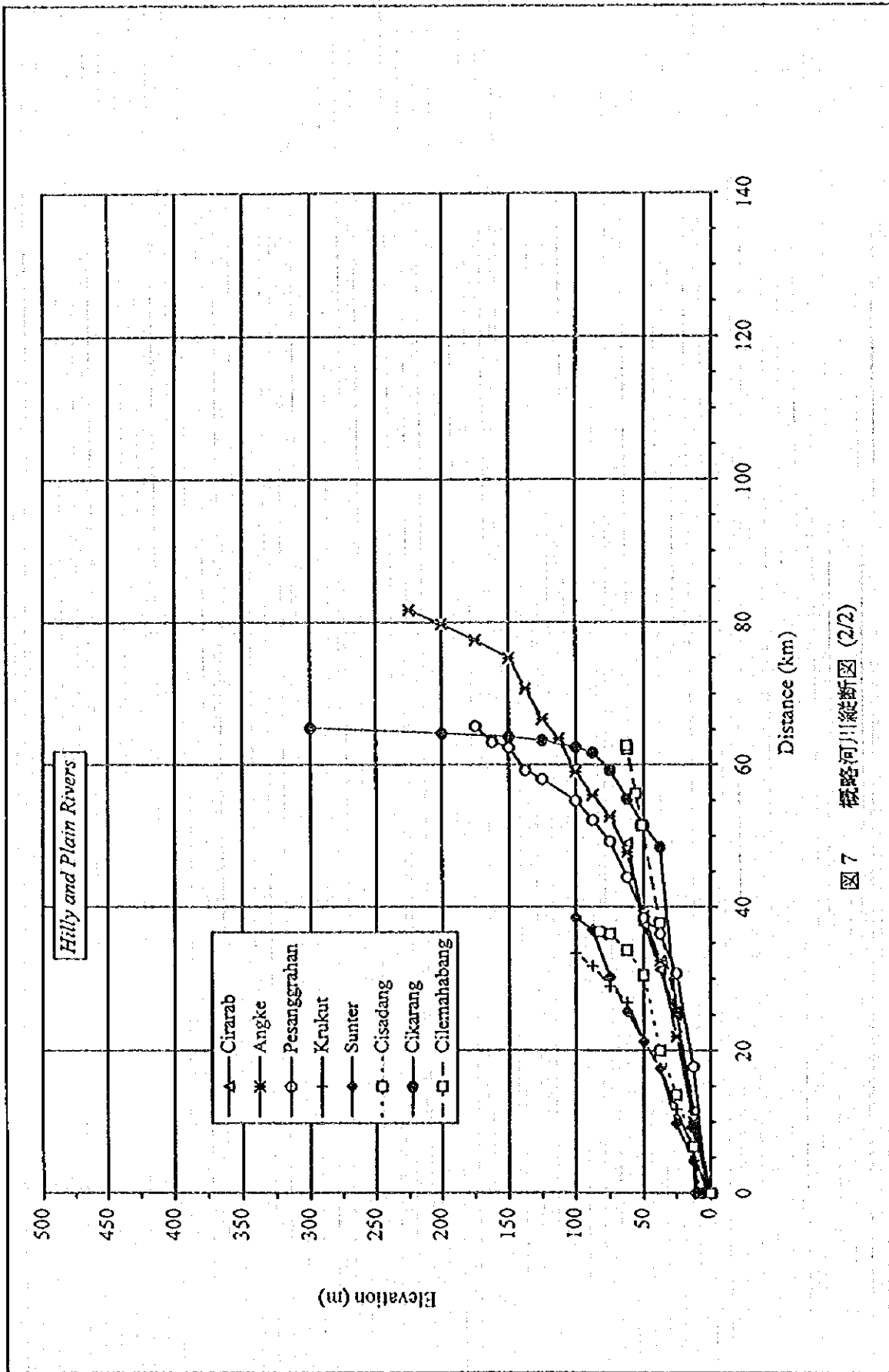
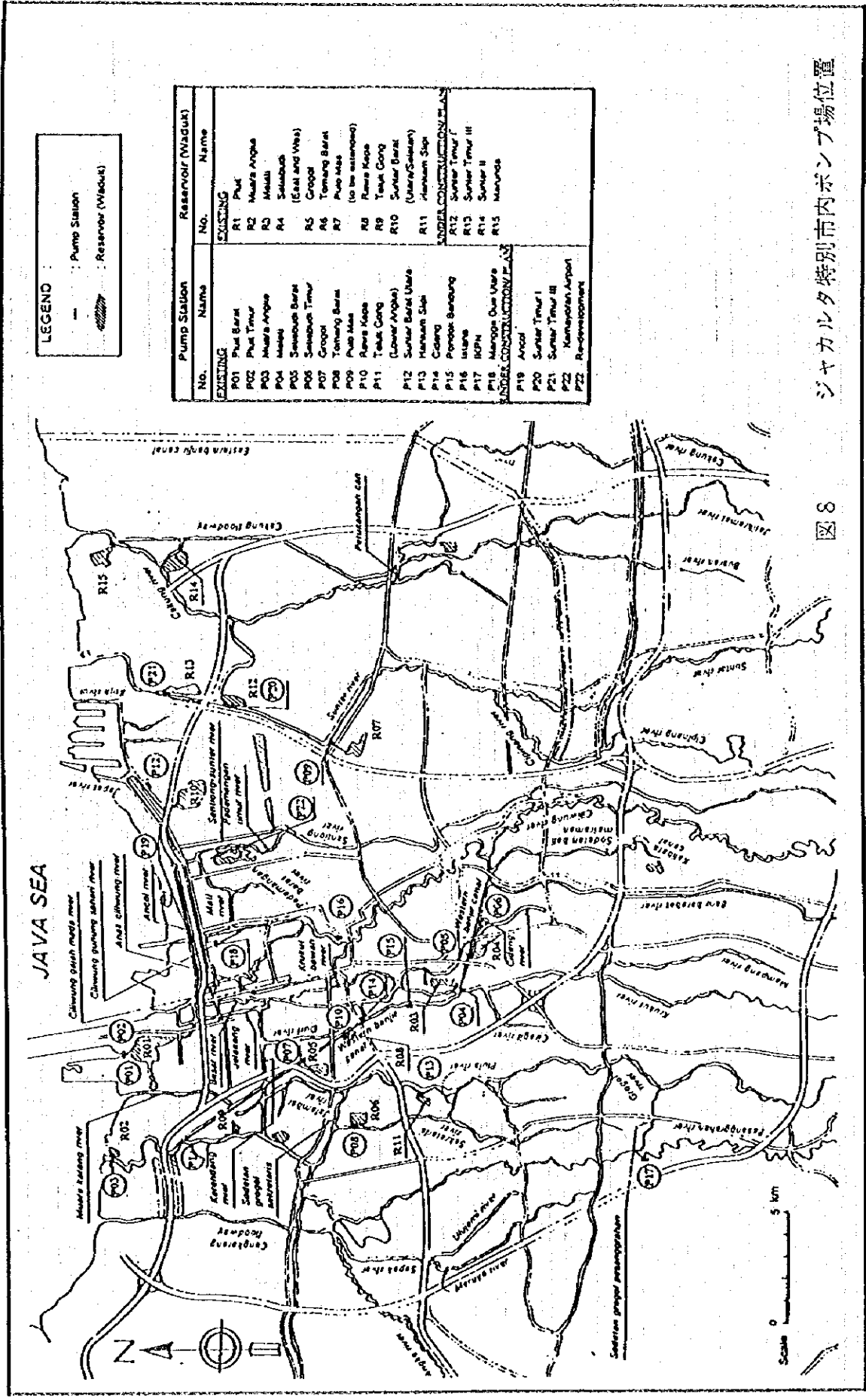


図7 概略河川縦断面図 (2/2)



LEGEND

— : Pump Station

▭ : Reservoir (Waduk)

| Pump Station | | Reservoir (Waduk) | |
|-----------------|--------------------|-------------------|------------------|
| No. | Name | No. | Name |
| EXISTING | | | |
| P01 | Pulut Barat | R1 | Pulut |
| P02 | Pulut Timur | R2 | Muara Angke |
| P03 | Muara Angke | R3 | Melali |
| P04 | Melali | R4 | Selabuh |
| P05 | Sembouh Barat | R5 | (East and West) |
| P06 | Sembouh Timur | R6 | Crocod |
| P07 | Crocod | R7 | Tomang Barat |
| P08 | Tomang Barat | R7 | Pulut Utara |
| P09 | Pulut Utara | R8 | (to be extended) |
| P10 | Rawa Kupa | R9 | Rawa Kupa |
| P11 | Teluk Gong | R9 | Teluk Gong |
| P12 | (Lower Angke) | R10 | Sunter Barat |
| P13 | Sunter Barat Utara | R10 | (Upper/Southern) |
| P14 | Maninjau Utara | R11 | Maninjau Utara |
| P15 | Maninjau Selatan | R11 | Maninjau Selatan |
| P16 | Pondok Bening | R12 | Sunter Timur I |
| P17 | Isang | R13 | Sunter Timur III |
| P18 | MPN | R14 | Sunter II |
| P19 | Mangga Dua Utara | R15 | Mangga Dua |
| P20 | Angol | | |
| P21 | Sunter Timur I | | |
| P22 | Sunter Timur III | | |
| P22 | Kanayutan Airport | | |
| P22 | Re-development | | |

図 8 ジャカルタ特別市内ポンプ場位置

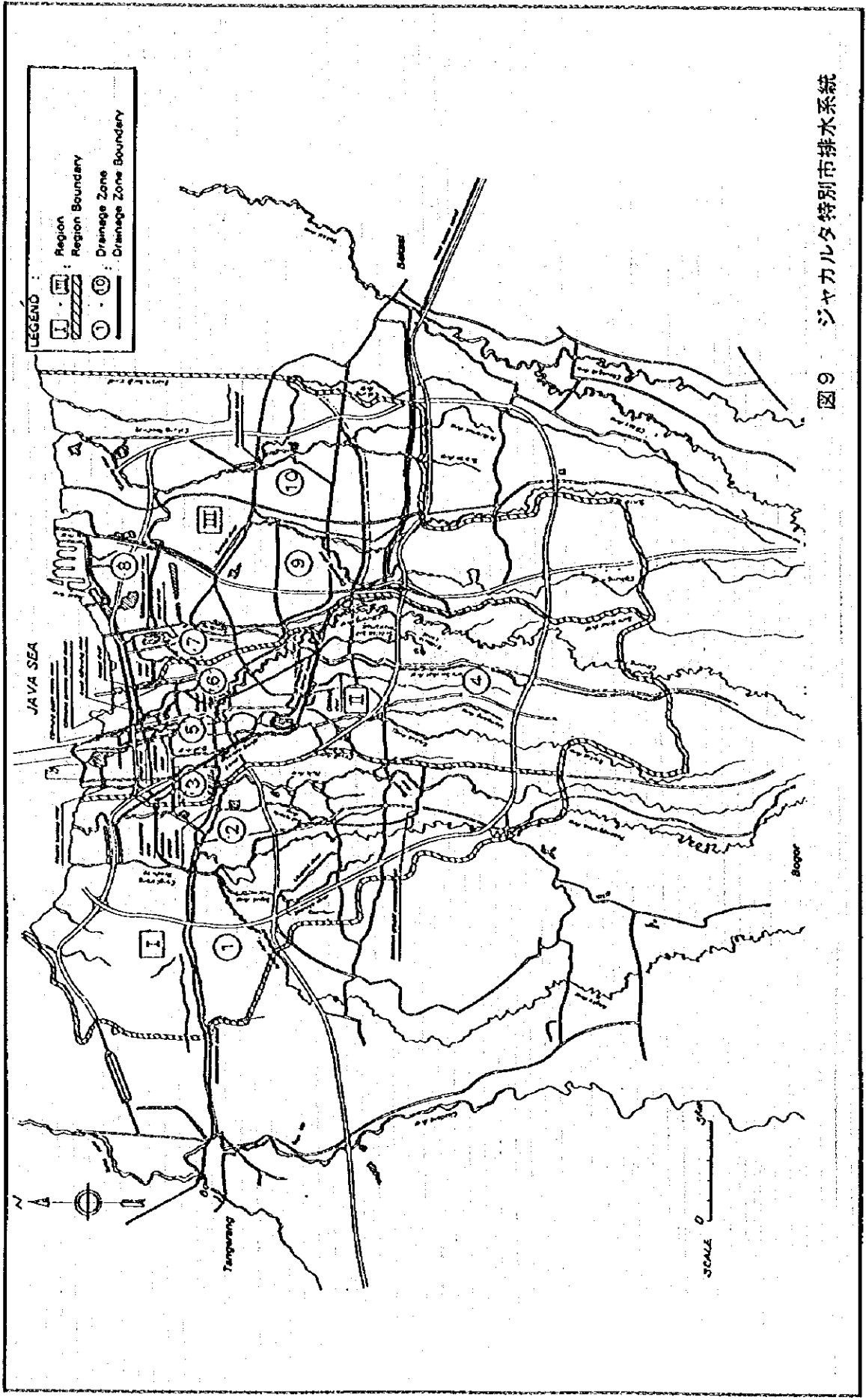


図9 ジャカルタ特別市排水系統

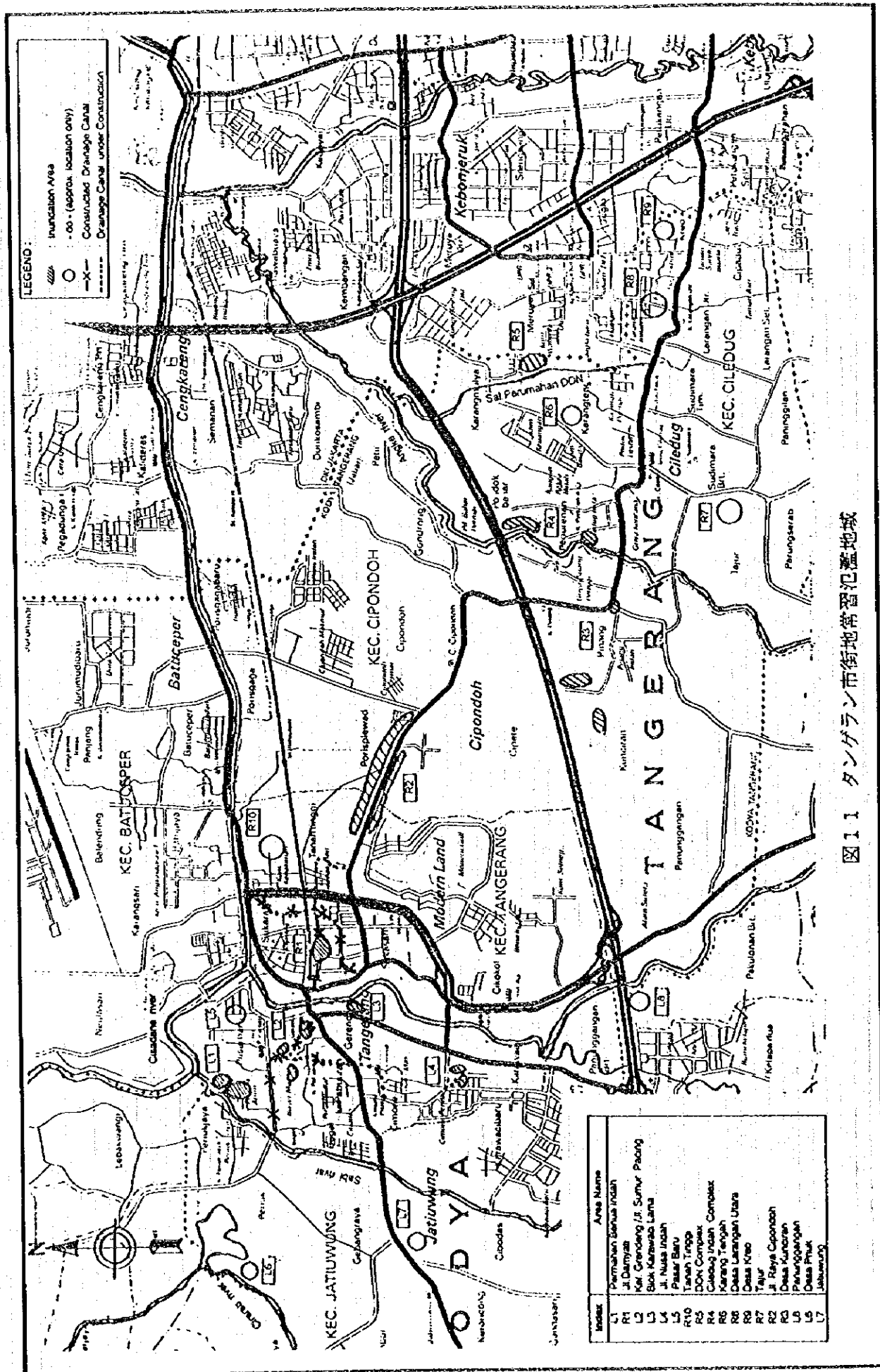


図 1.1 タンガラン市街地常習氾濫地域

| Index | Area Name |
|-------|--------------------------------|
| L1 | Pemukiman Sempoa Indah |
| R1 | Jl. Damay |
| L2 | Kel. Grendeng Jf. Sumur Pacong |
| L3 | Bluk Kawas Lama |
| L4 | Jl. Nusa Indah |
| L5 | Pasar Baru |
| R10 | Tanah Tinggi |
| R5 | DOA Complex |
| R4 | Ciledug Indah Complex |
| R6 | Karang Tengah |
| R8 | Desa Larian Utara |
| R9 | Desa Krib |
| R7 | Tajur |
| R2 | Jl. Raya Cipondoh |
| R3 | Desa Kuncen |
| L6 | Perunggan |
| L5 | Desa Pruk |
| L7 | Jatuhung |

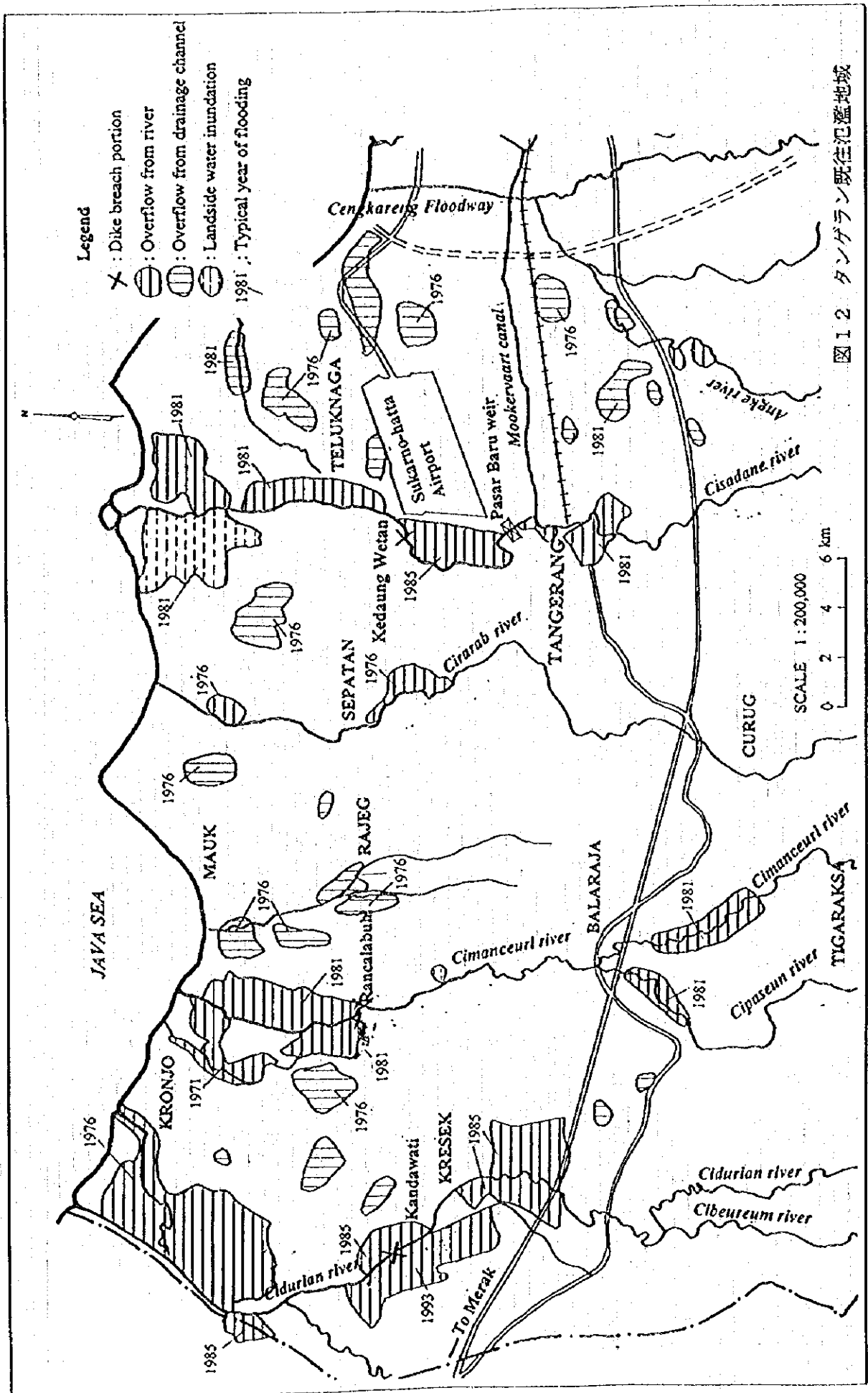


図 1.2 タンゲラン既往氾濫地域

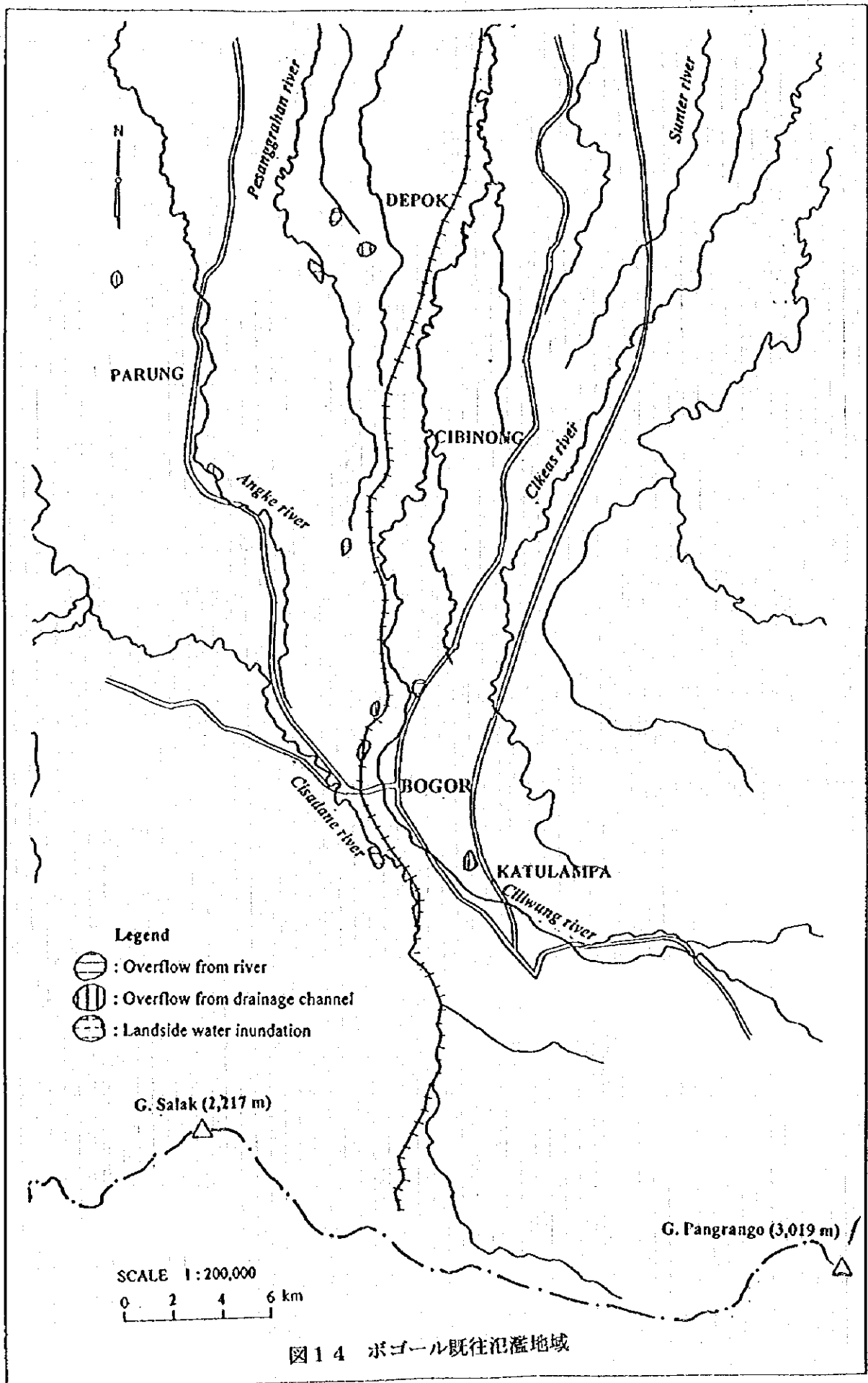


図14 ボゴール既往氾濫地域

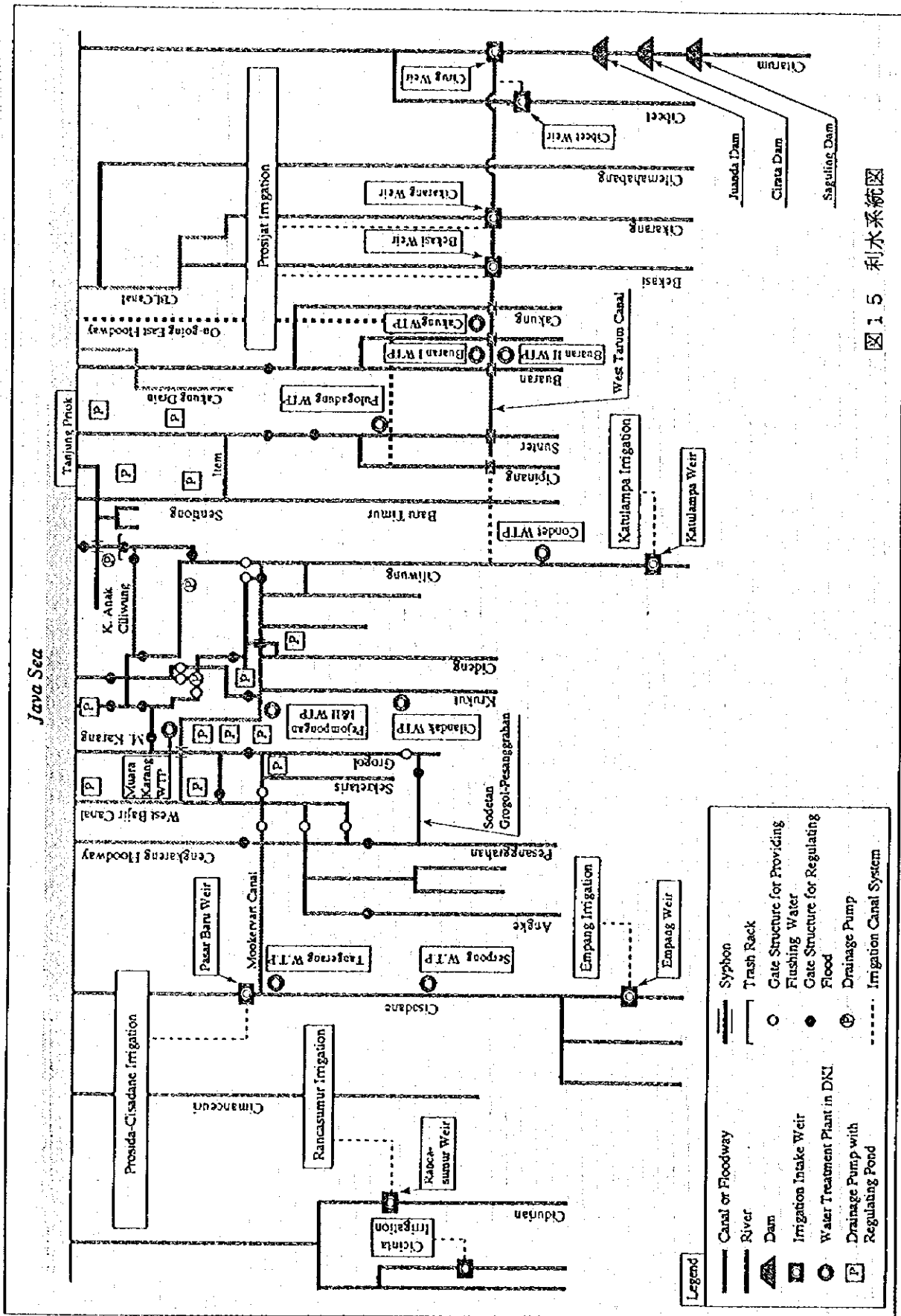


图 1.5 利水系统图

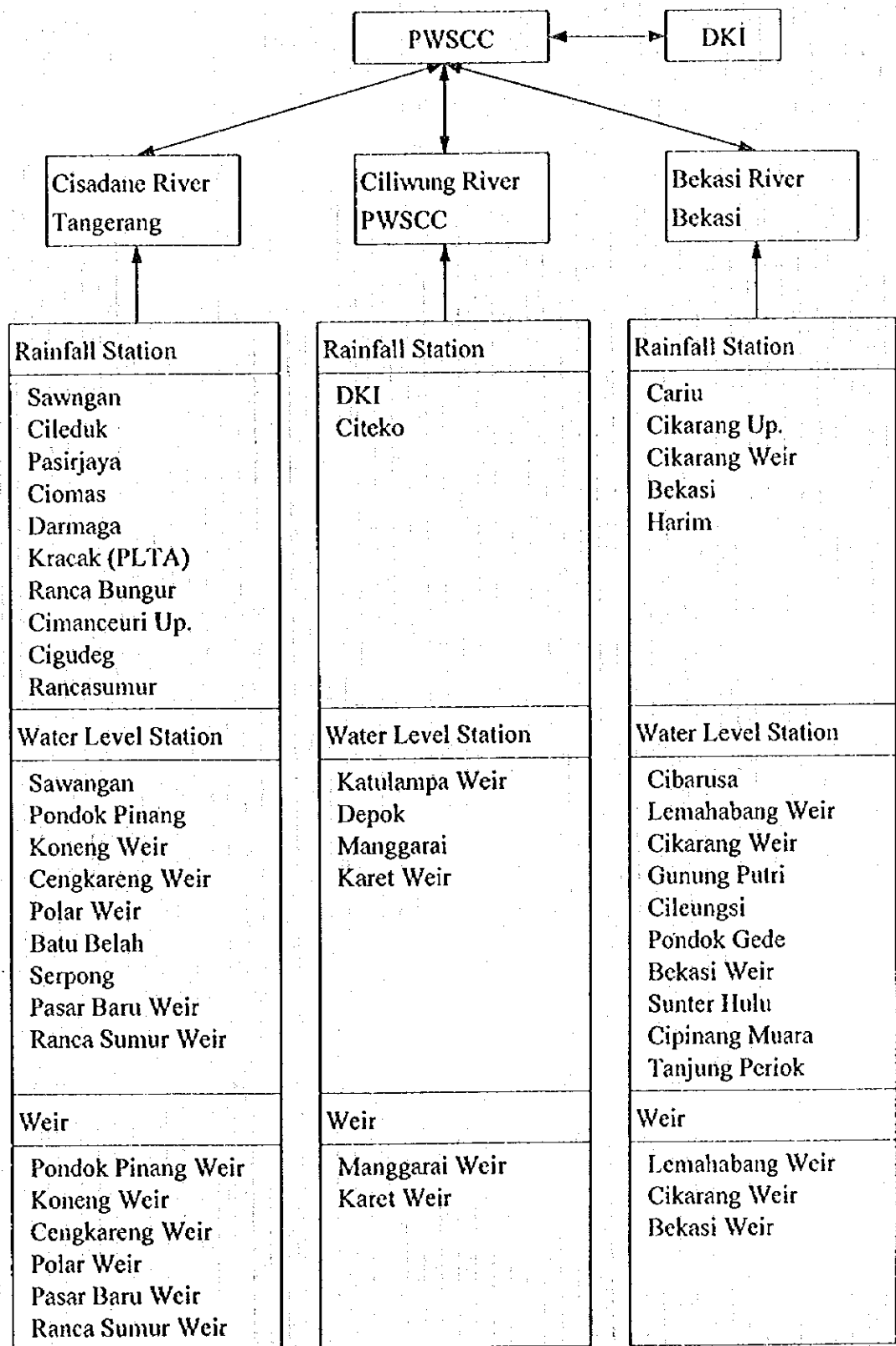


図 16 現況河川水モニタリングシステム

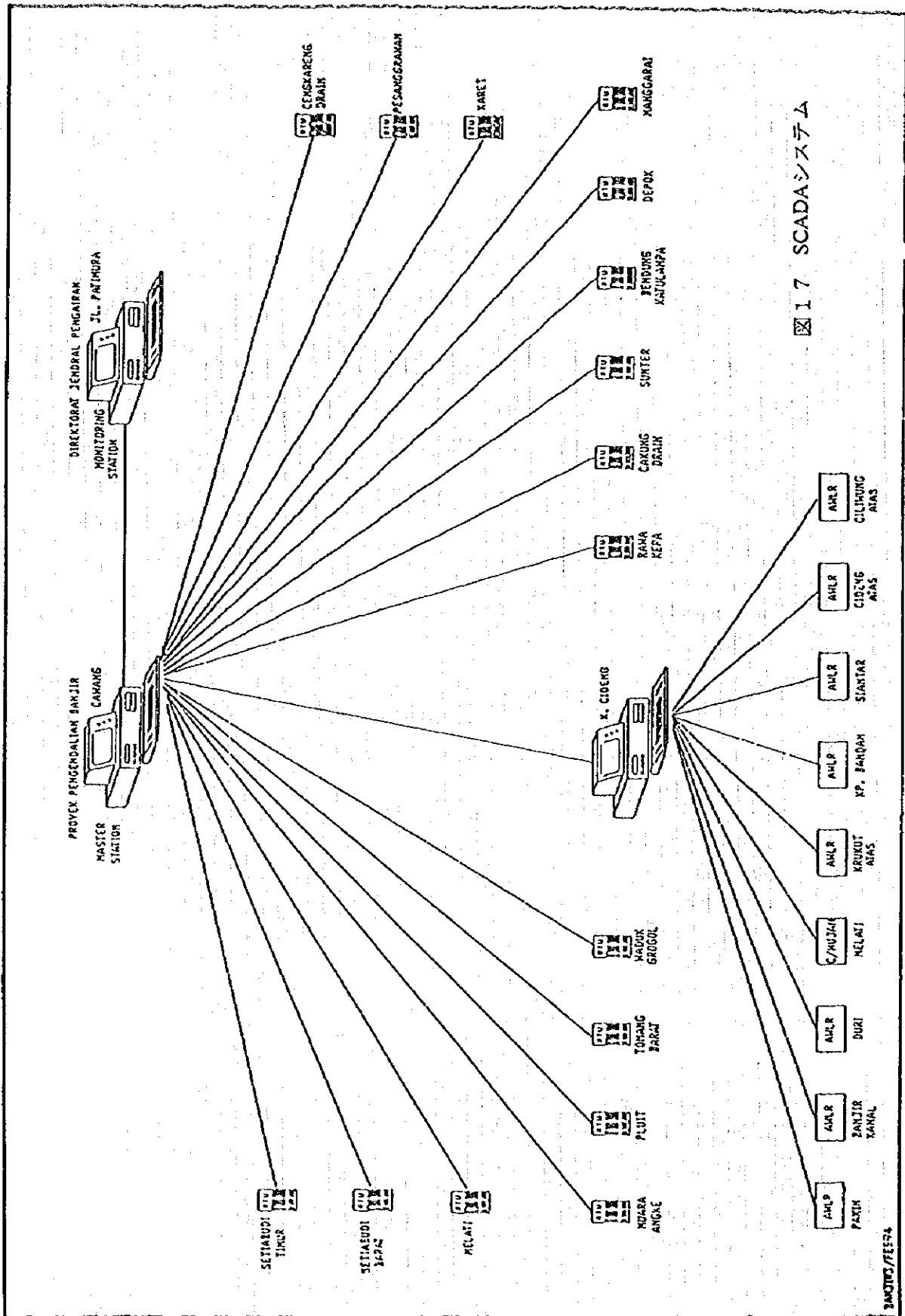
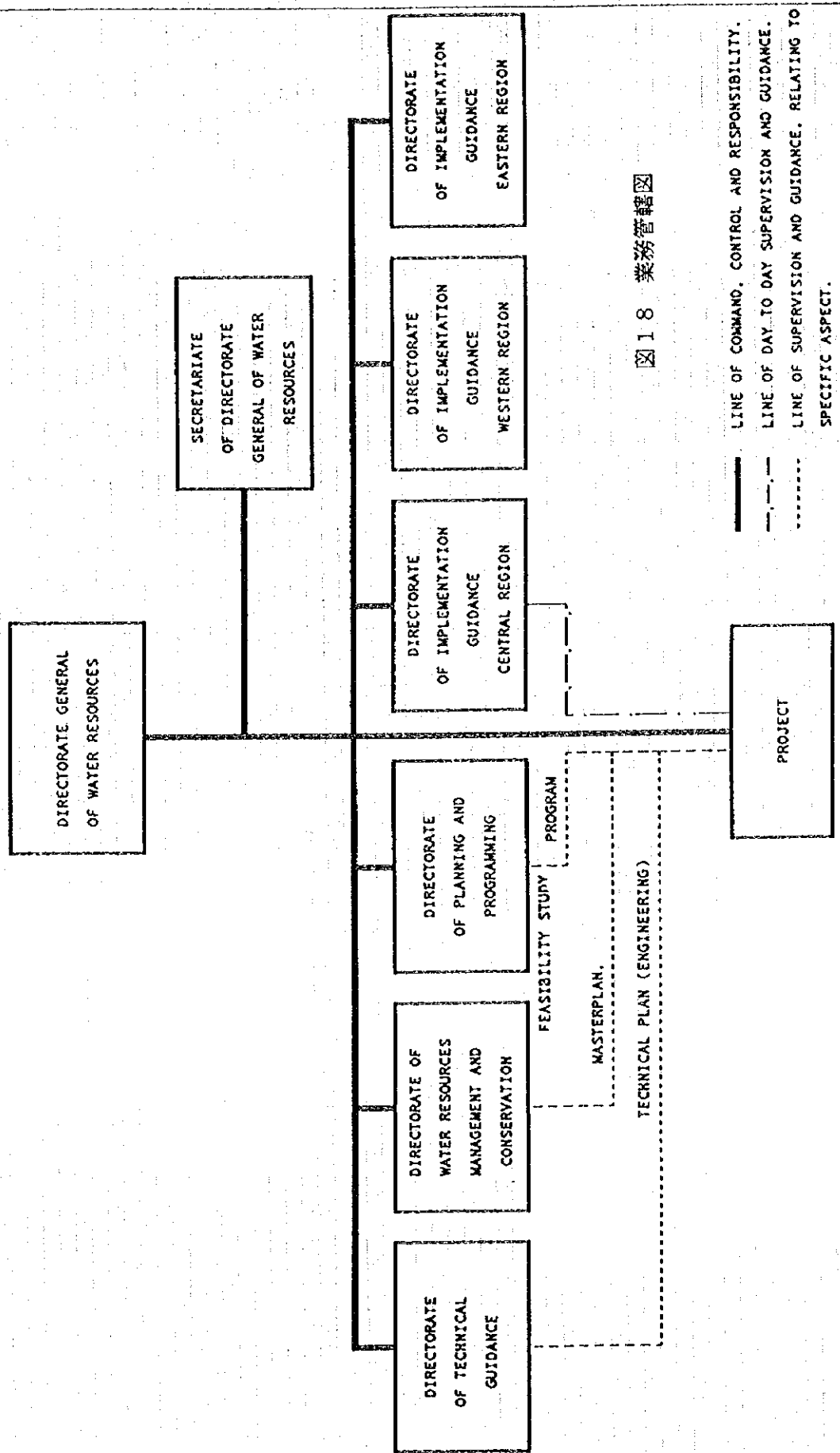


CHART OF

INTER-RELATION BETWEEN DGRH AND THE PIPHS CILIKUNG - CISAQANE



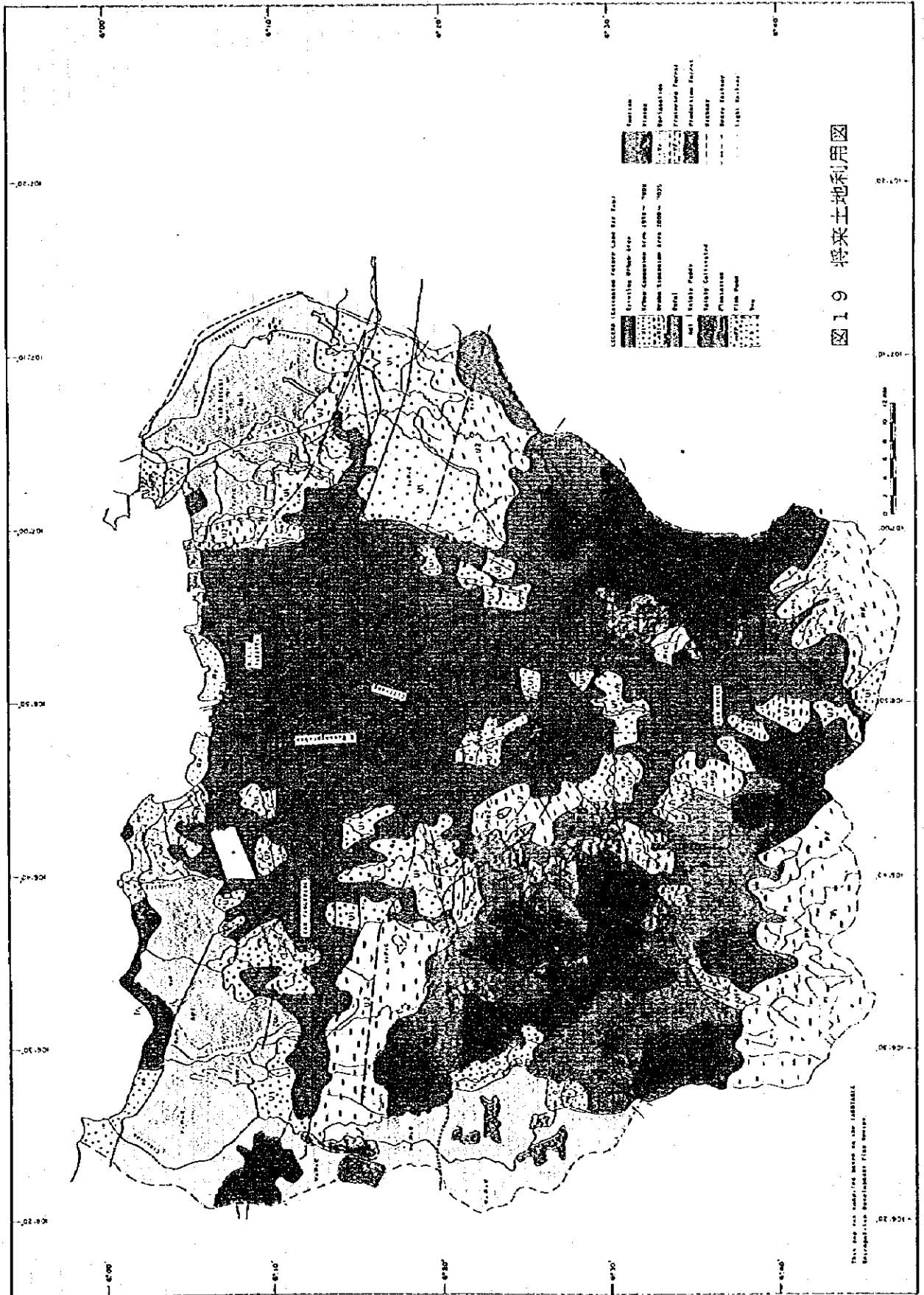


图 19 美国农业用地

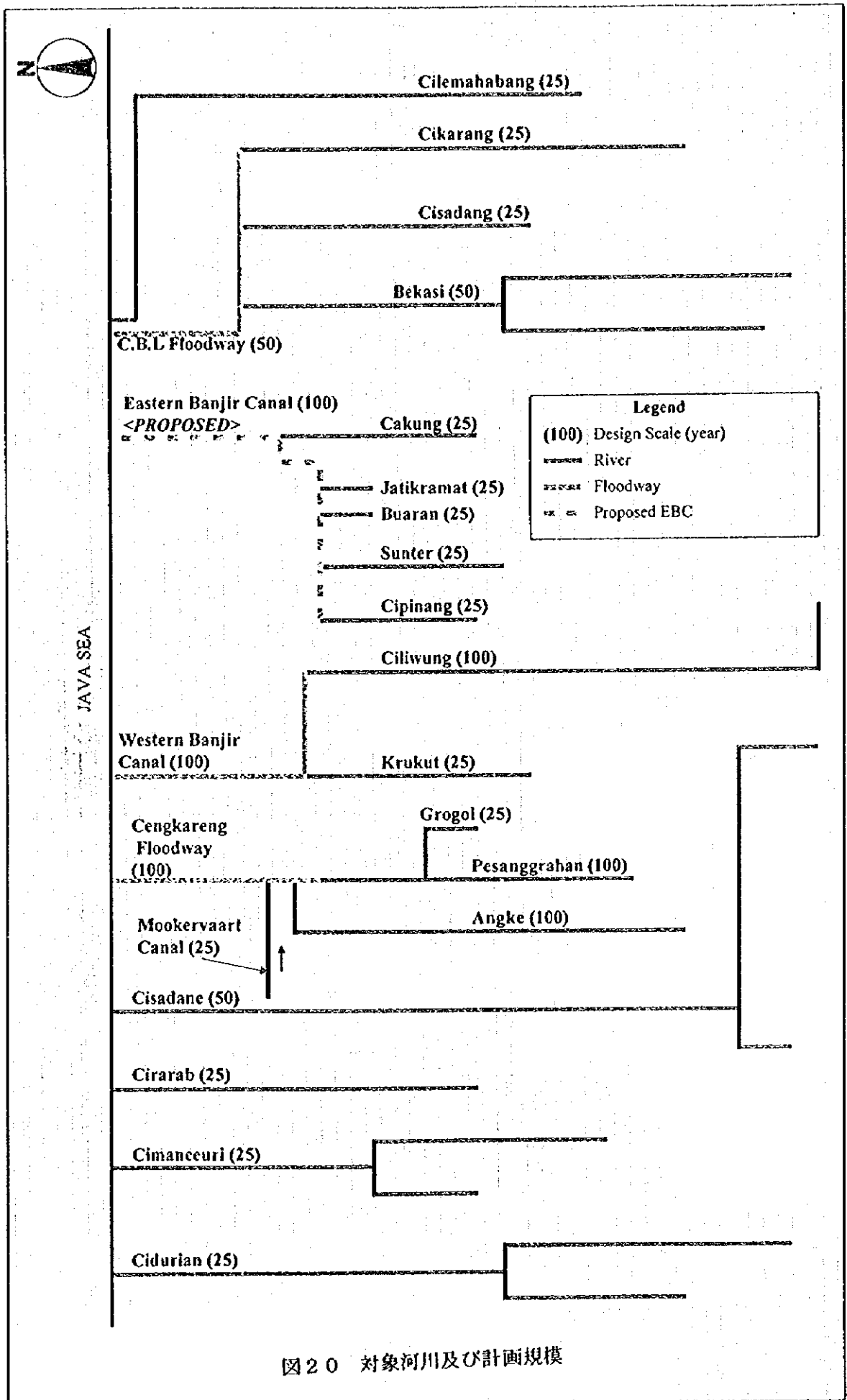


図 20 対象河川及び計画規模

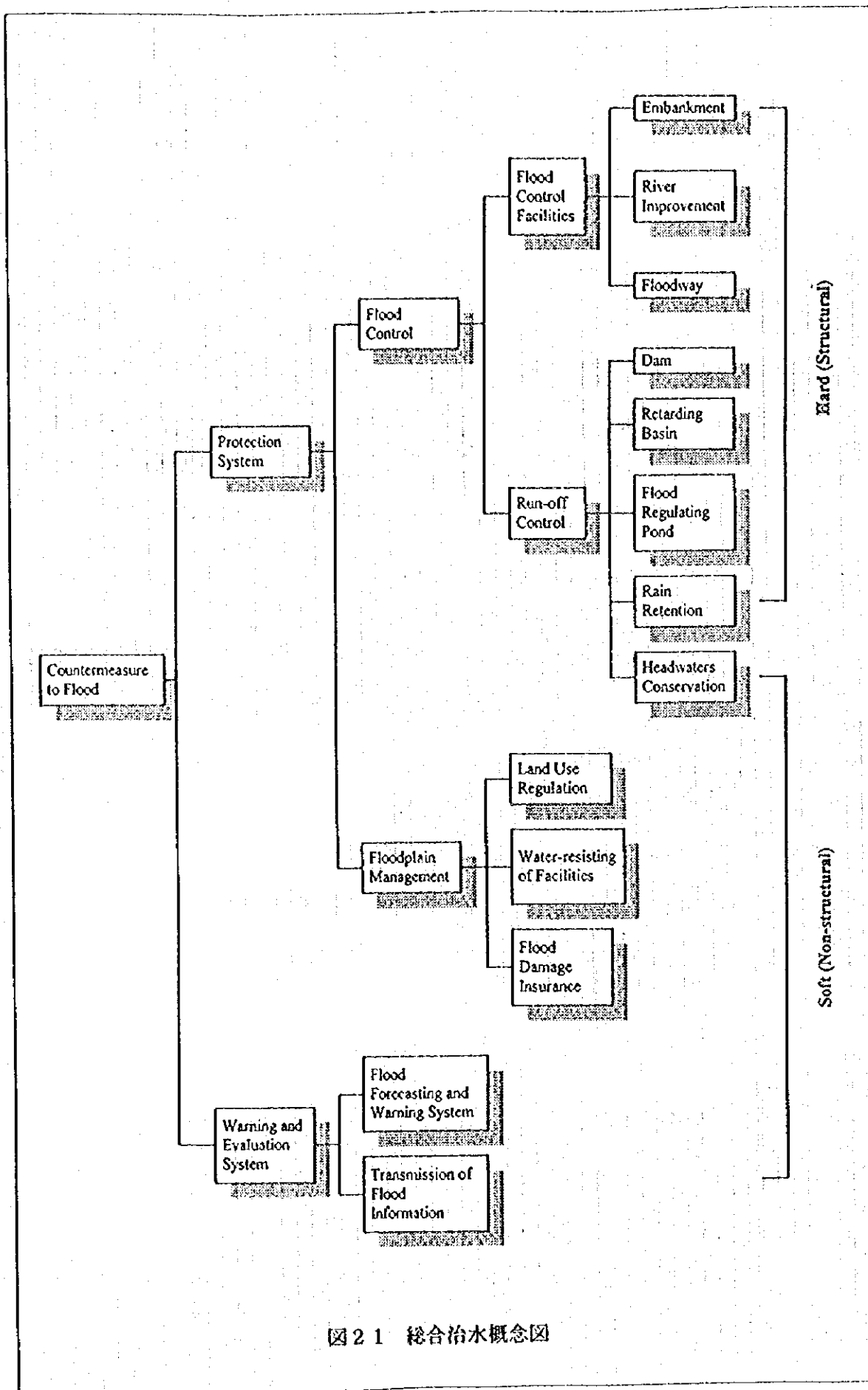


図 2 1 総合治水概念図

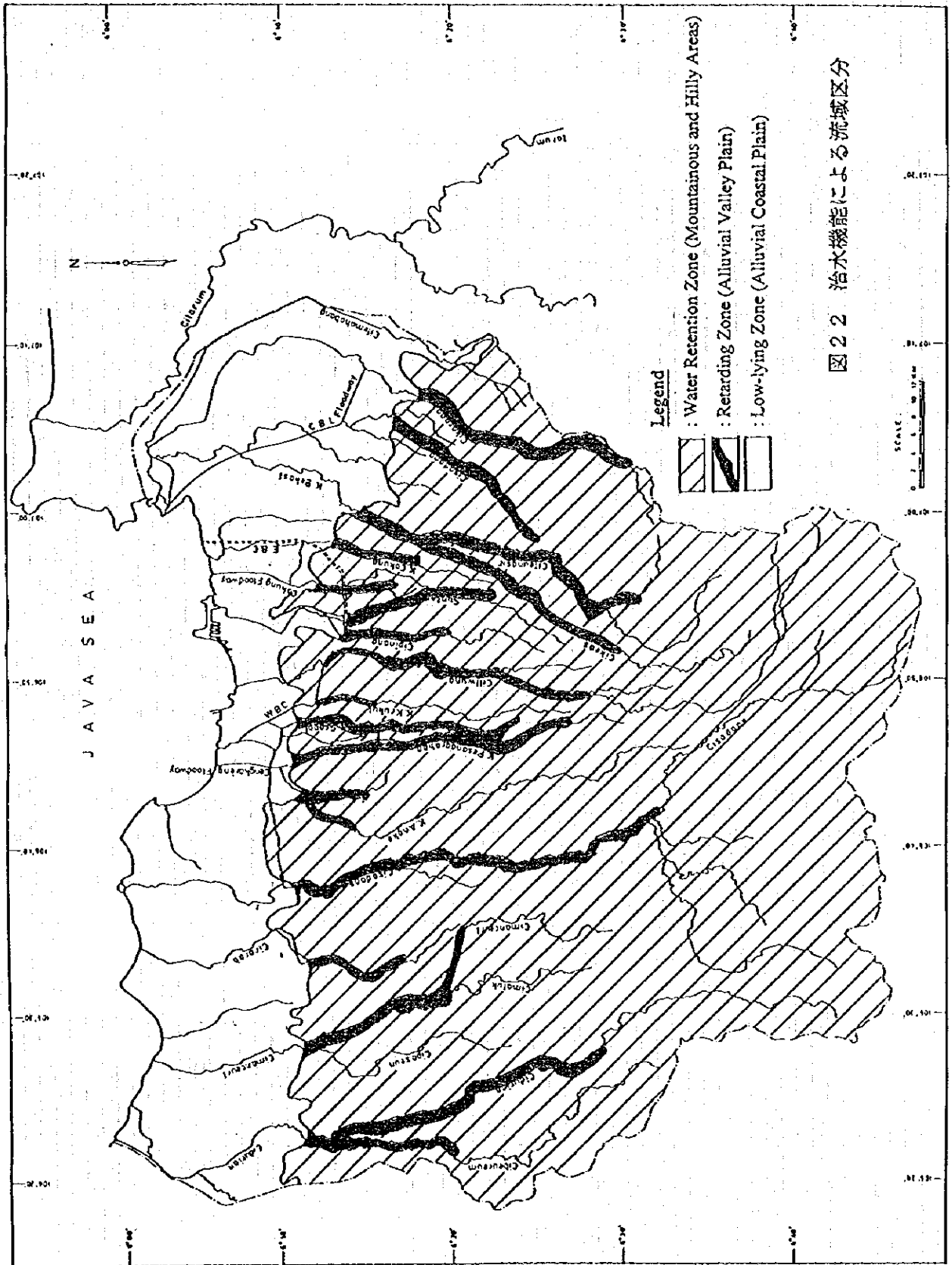


図 2 治水機能による流域区分

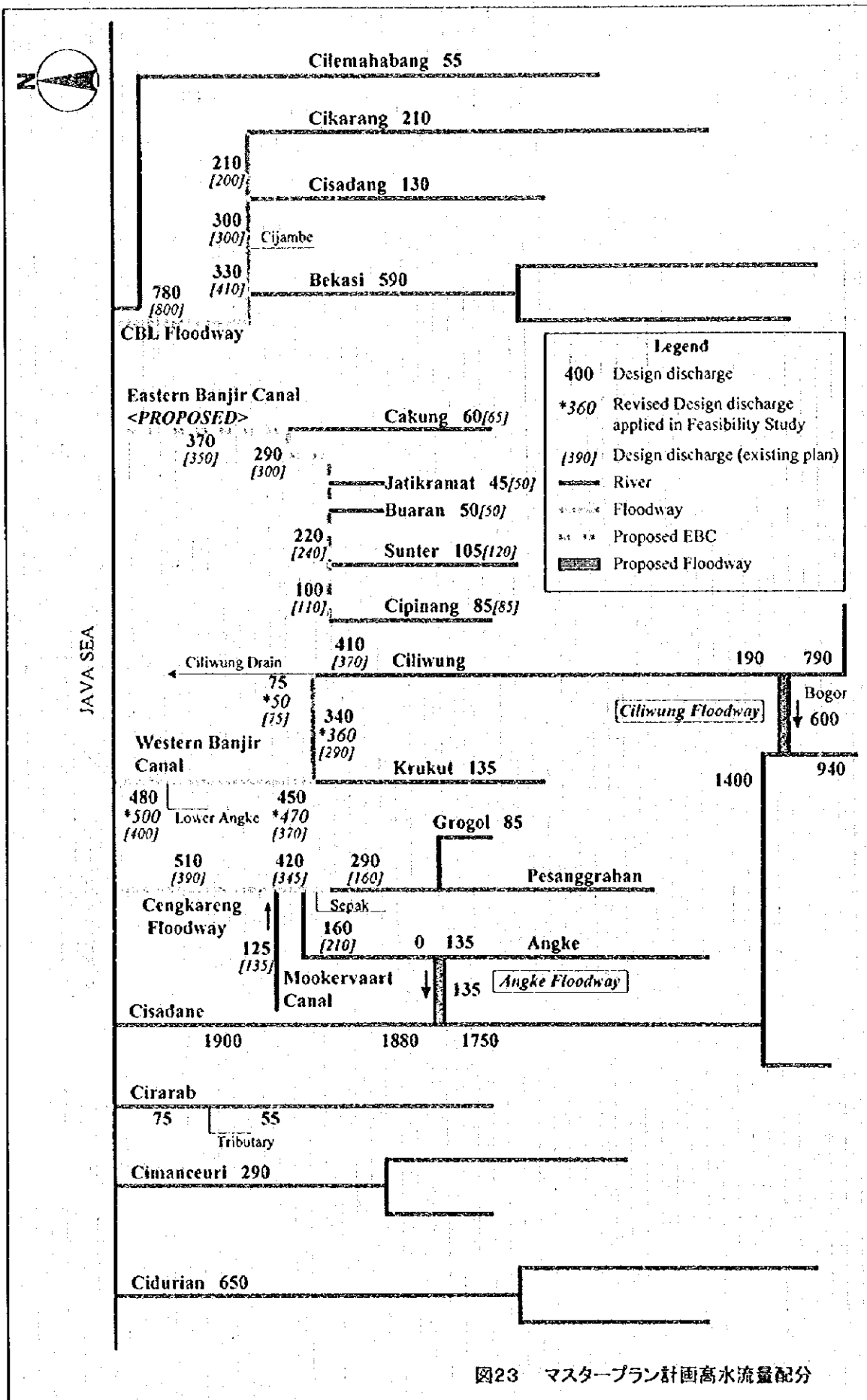
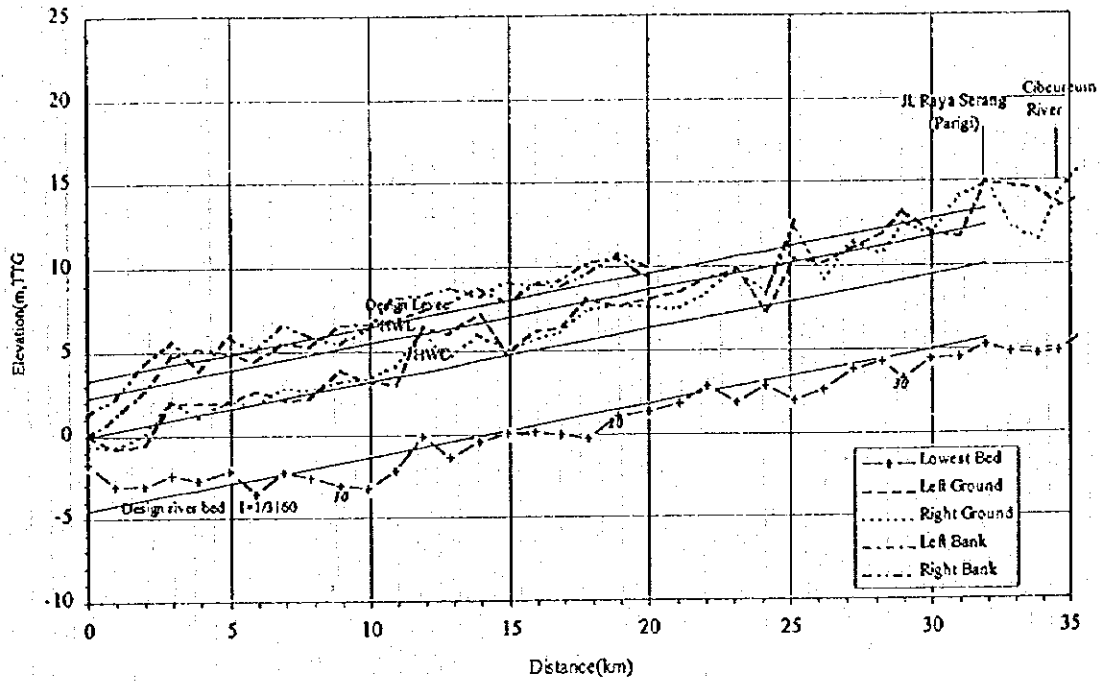


図23 マスタープラン計画高水流量配分

CIDURIAN RIVER SYSTEM

CIDURIAN RIVER



CIDURIAN RIVER (Estuary - Jl Serang Raya <Parigi>)

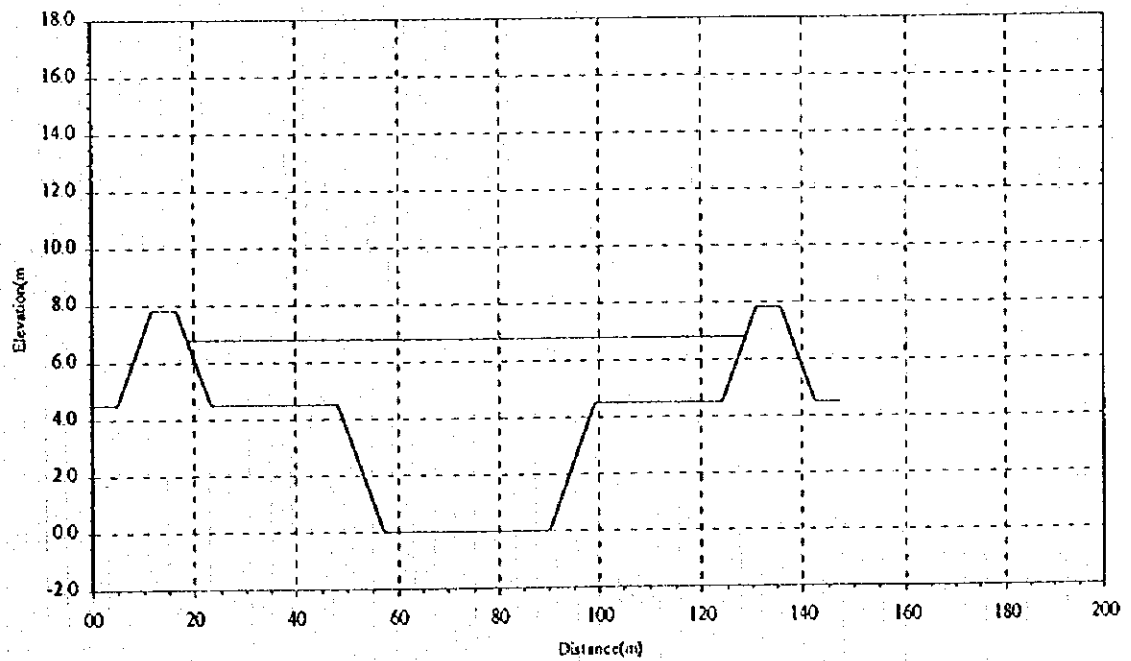
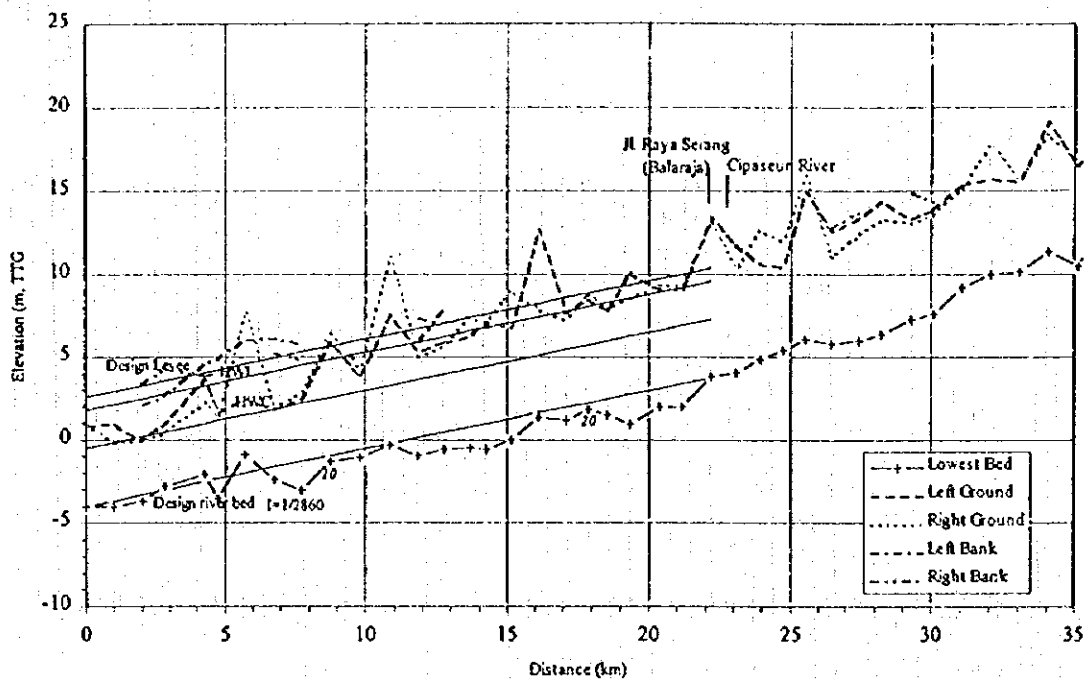


図 2 4 計画河川縦横断面図 (1/13)

CIMANCEURI RIVER SYSTEM

CIMANCEURI RIVER



CIMANCEURI RIVER (Estuary - Jl. Serang Raya <Balaraja>)

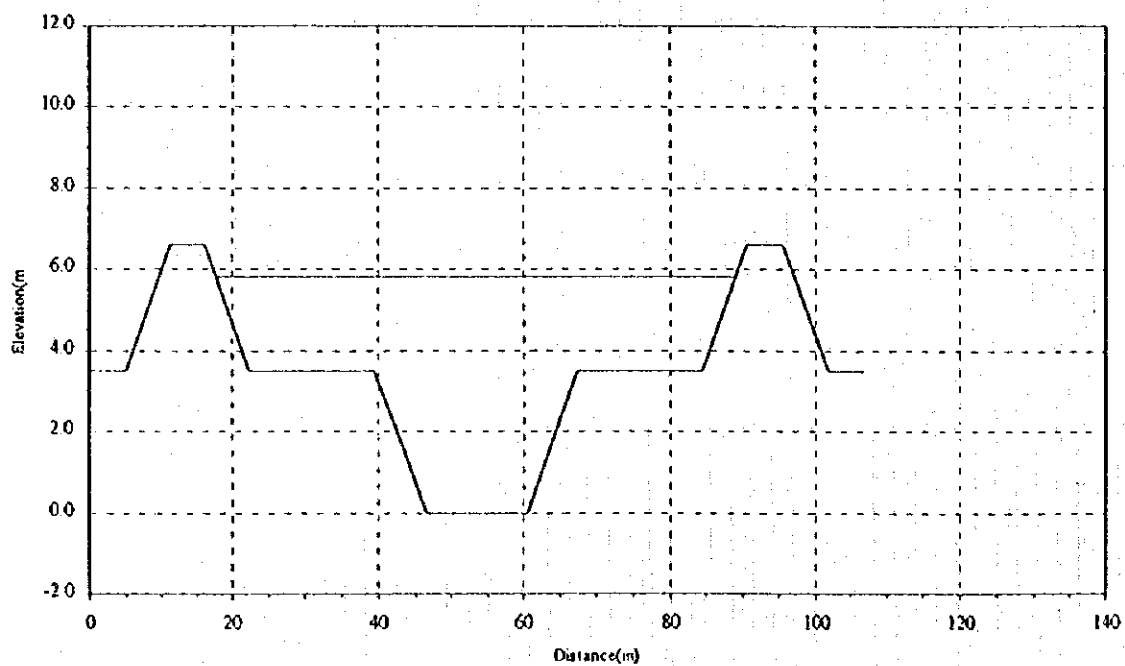
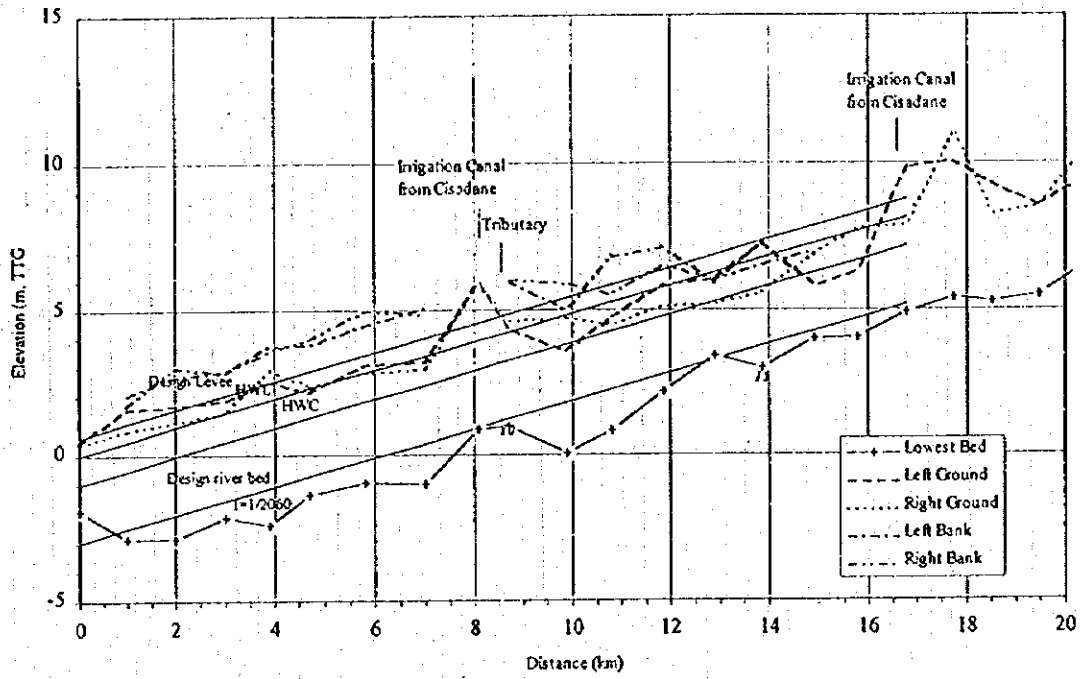


図 2 4 計画河川縦横断面図 (2/13)

CIRARAB RIVER SYSTEM

CIRARAB RIVER



CIRARAB RIVER

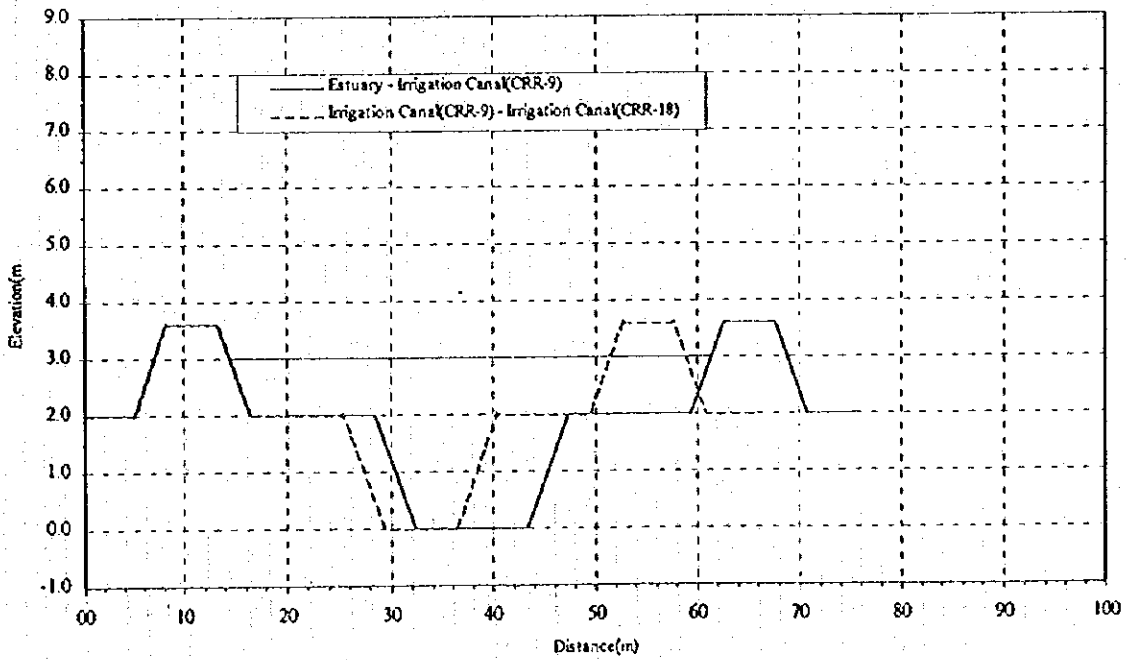
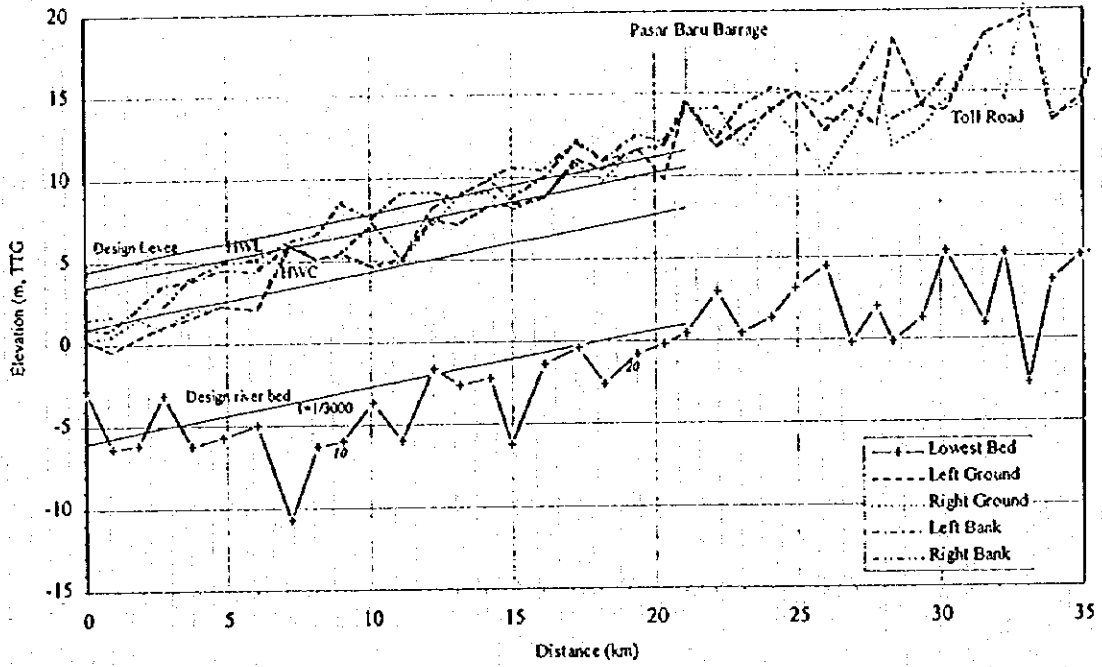


図 2 4 計画河川縦横断面図 (3/13)

CISADANE RIVER SYSTEM

CISADANE RIVER



CISADANE RIVER (Estuary - Pasar Baru Barrage)

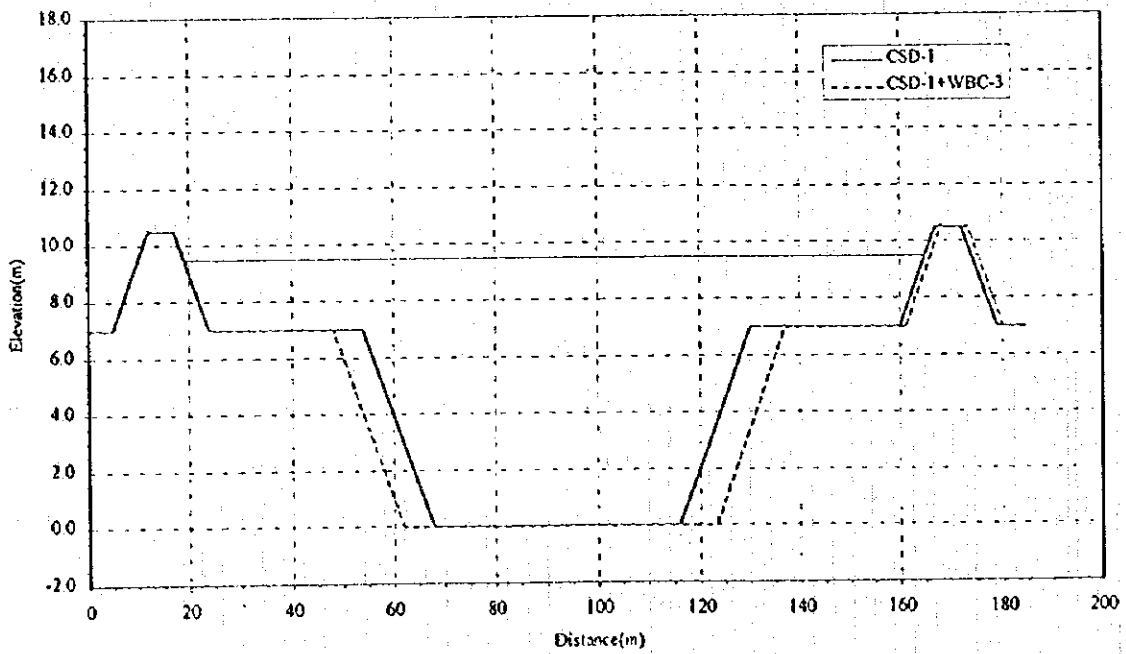
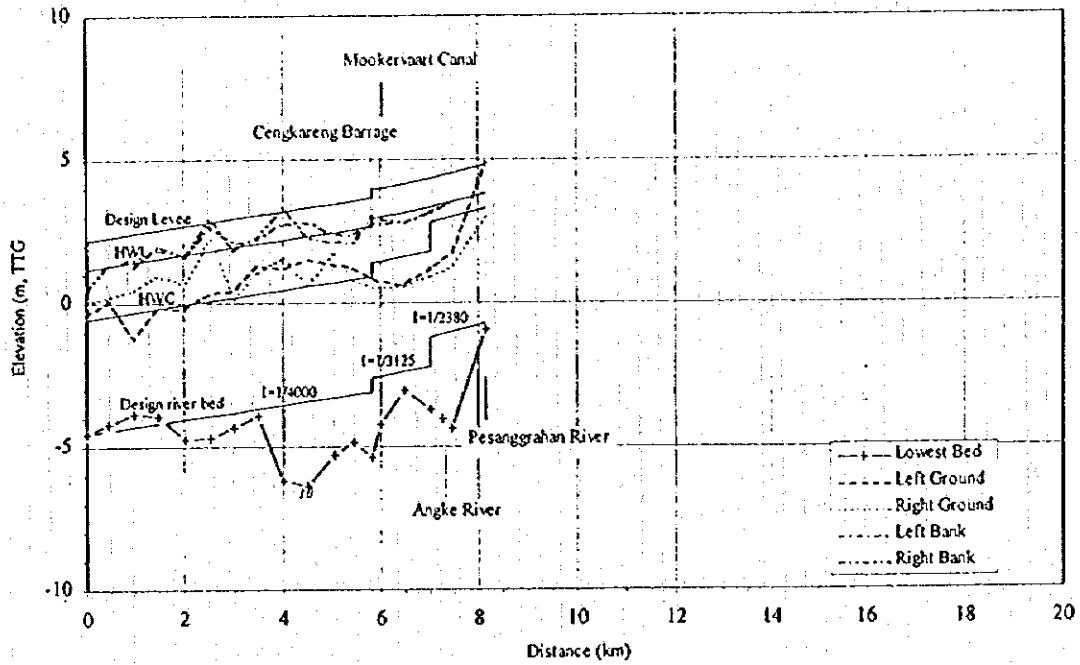


図 2 4 計画河川縦横断面図 (4/13)

CENGKARENG FLOODWAY SYSTEM (1/4)

CENGKARENG FLOODWAY



CENGKARENG FLOODWAY

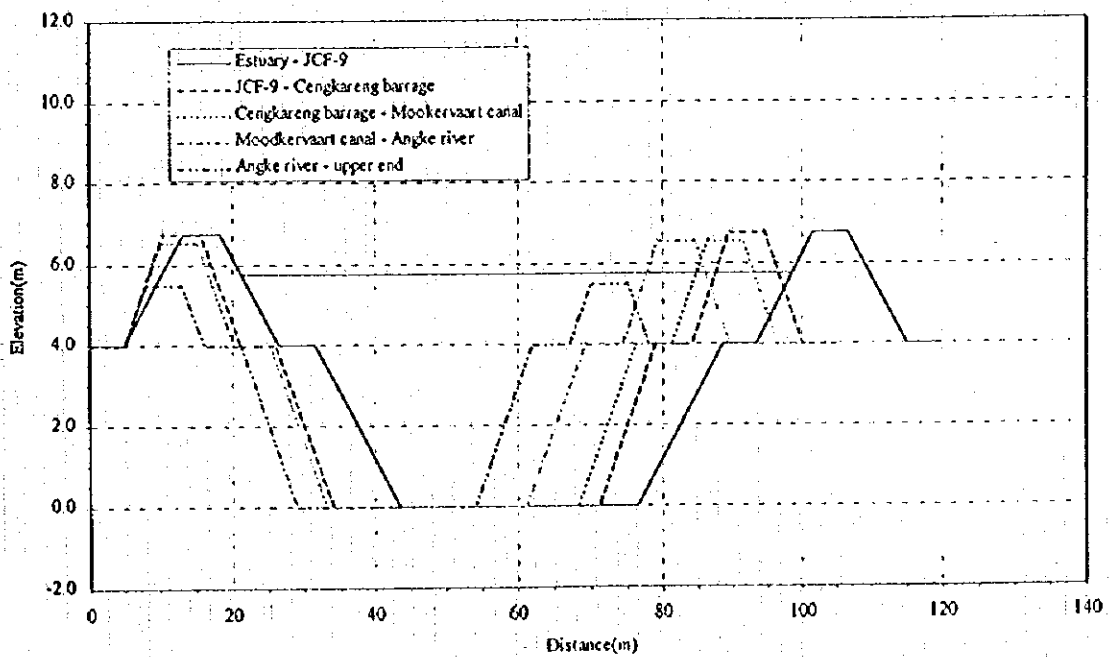
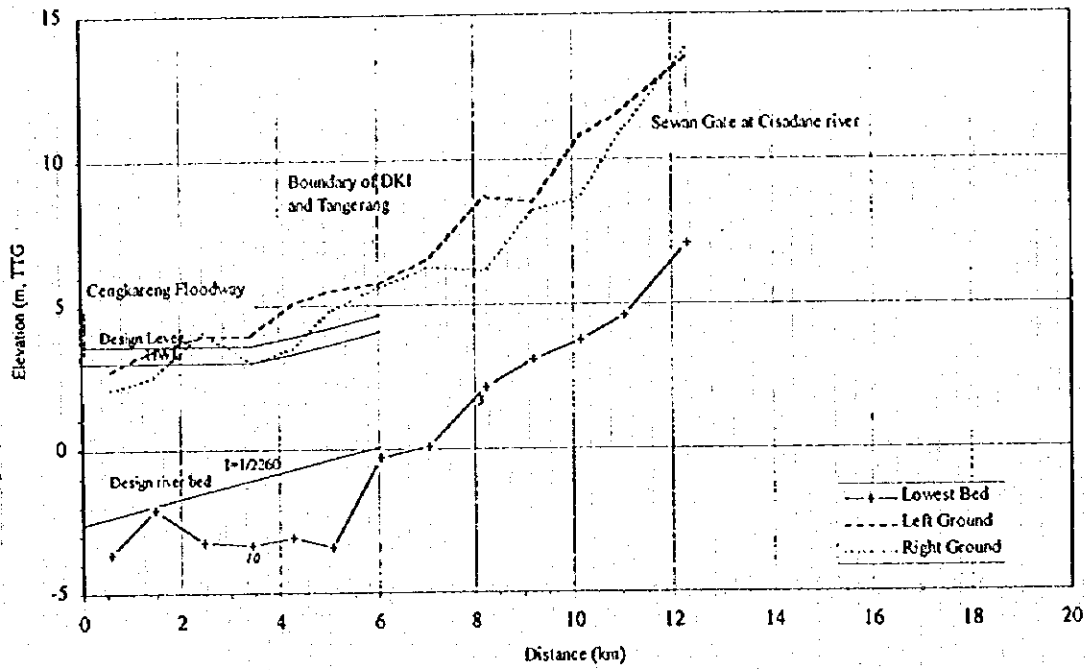


図 2 4 計画河川縦横断面図 (5/13)

CENGKARENG FLOODWAY SYSTEM (2/4)



MOOKERVAART CANAL (Cengkareng Floodway - Boundary of DKI and Tangerang)

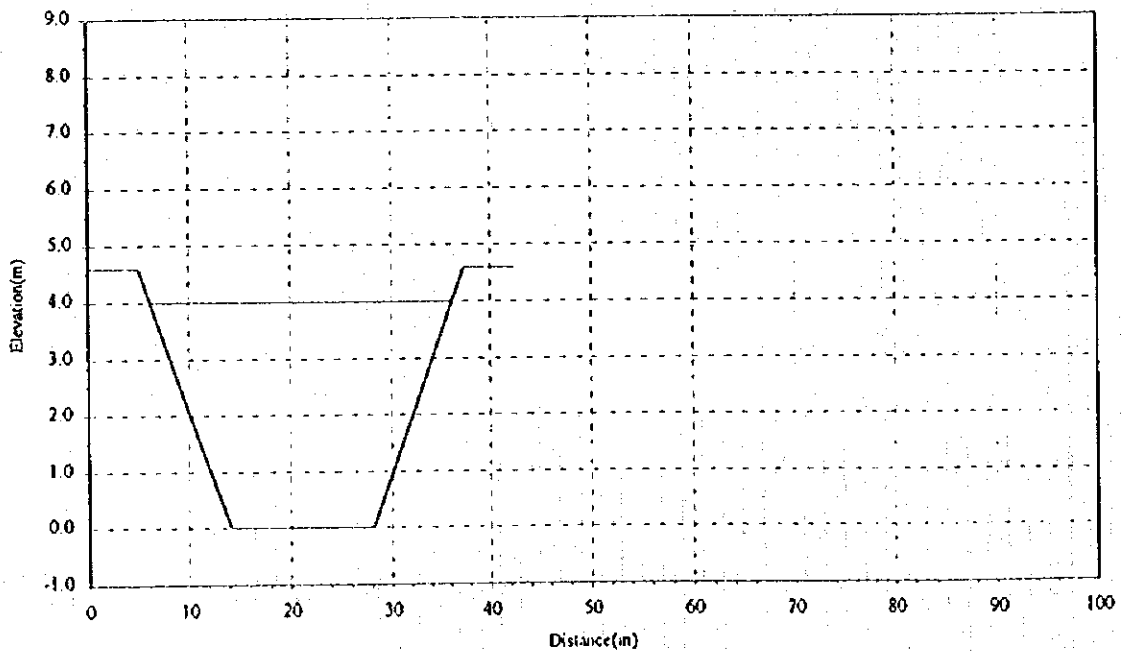
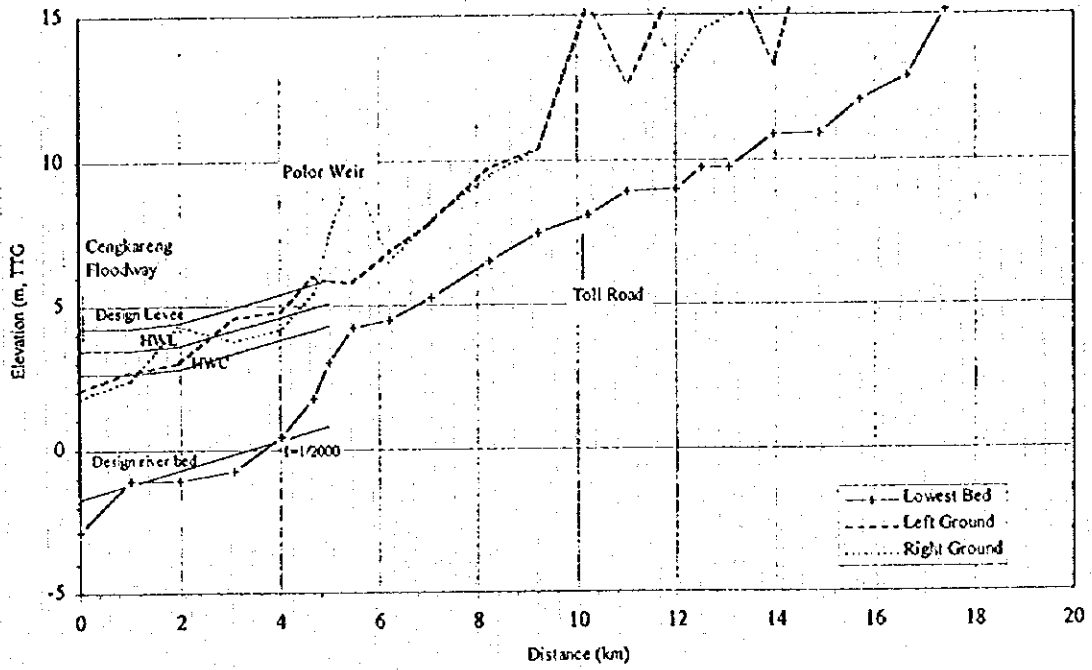


図 2 4 計画河川縦横断面図 (6/13)

CENGKARENG FLOODWAY SYSTEM (3/4)

ANGKE RIVER



ANGKE RIVER (Conf with Cengkareng Floodway - Polabr Weir)

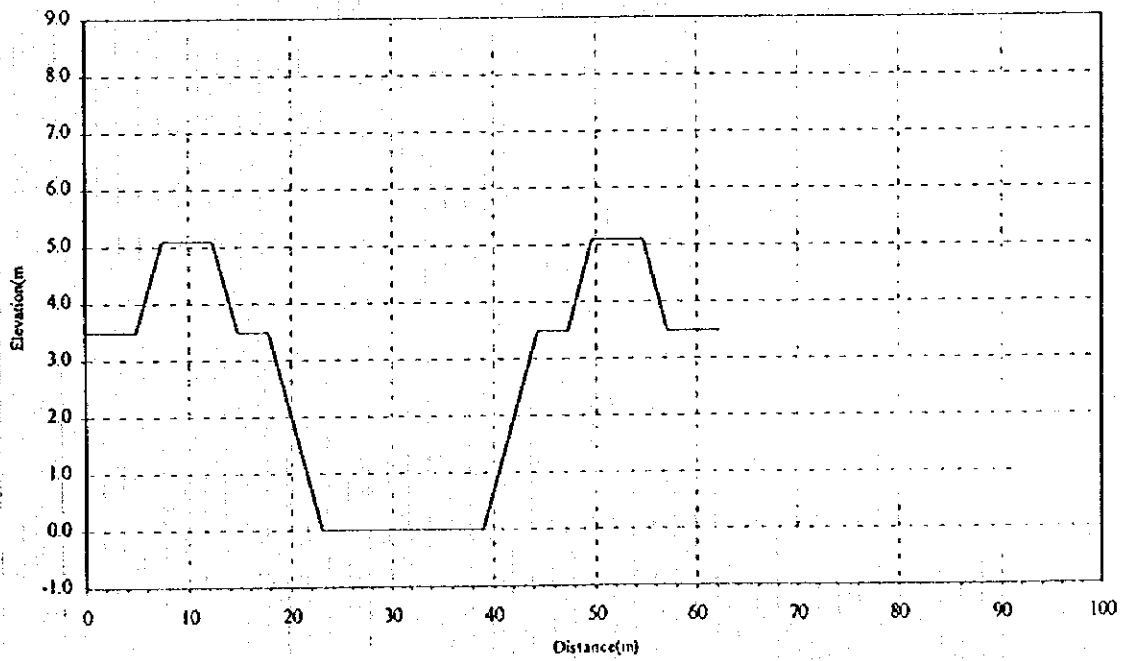
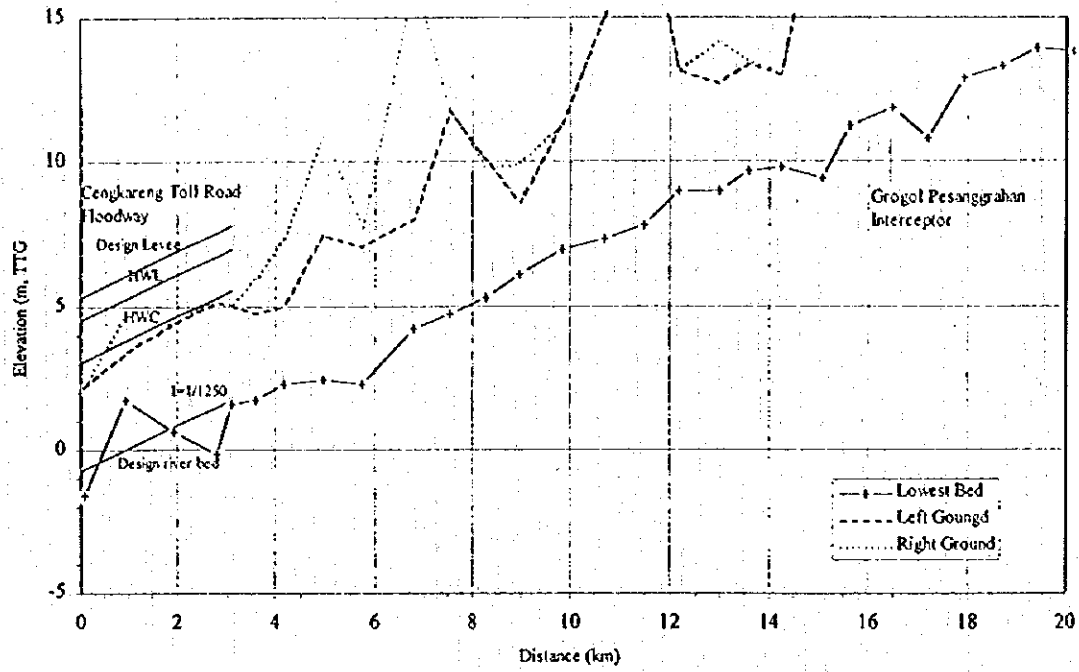


図 2 4 計画河川縦横断面図 (7/13)

CENKARENG FLOODWAY SYSTEM (4/4)

PESANGGRAHAN RIVER



PESANGGRAHAN RIVER (Conf. with Cengkareng Floodway - Toll Jakarta-Merak)

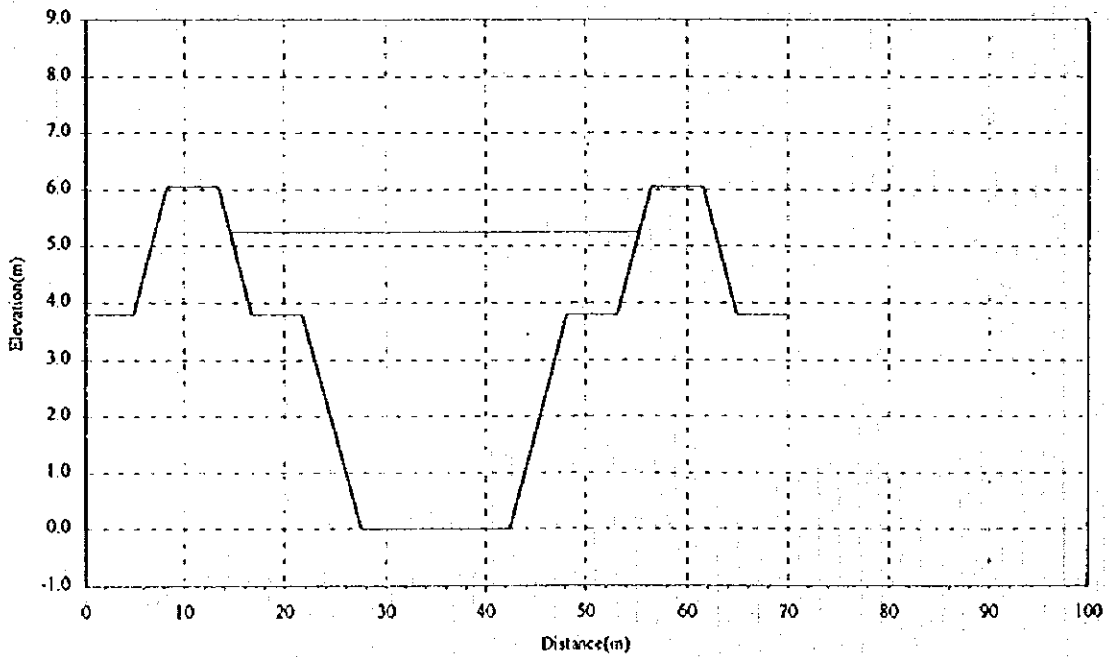
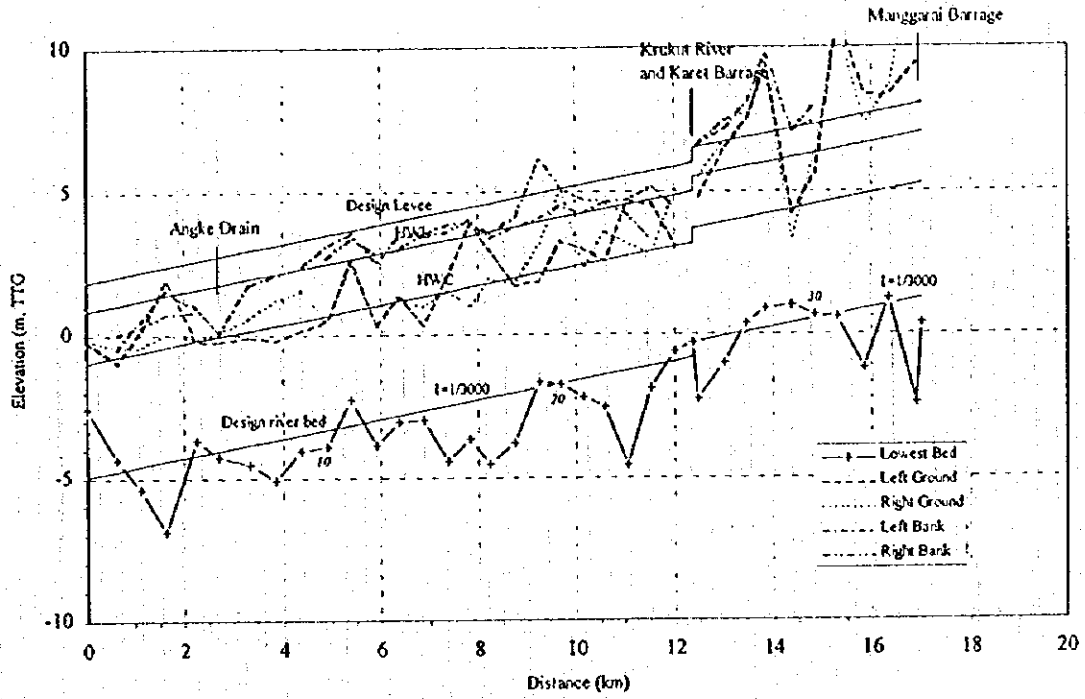


図 2 4 計画河川縦横断面図 (8/13)

WESTERN BANJIR CANAL SYSTEM

WESTERN BANJIR CANAL



WESTERN BANJIR CANAL

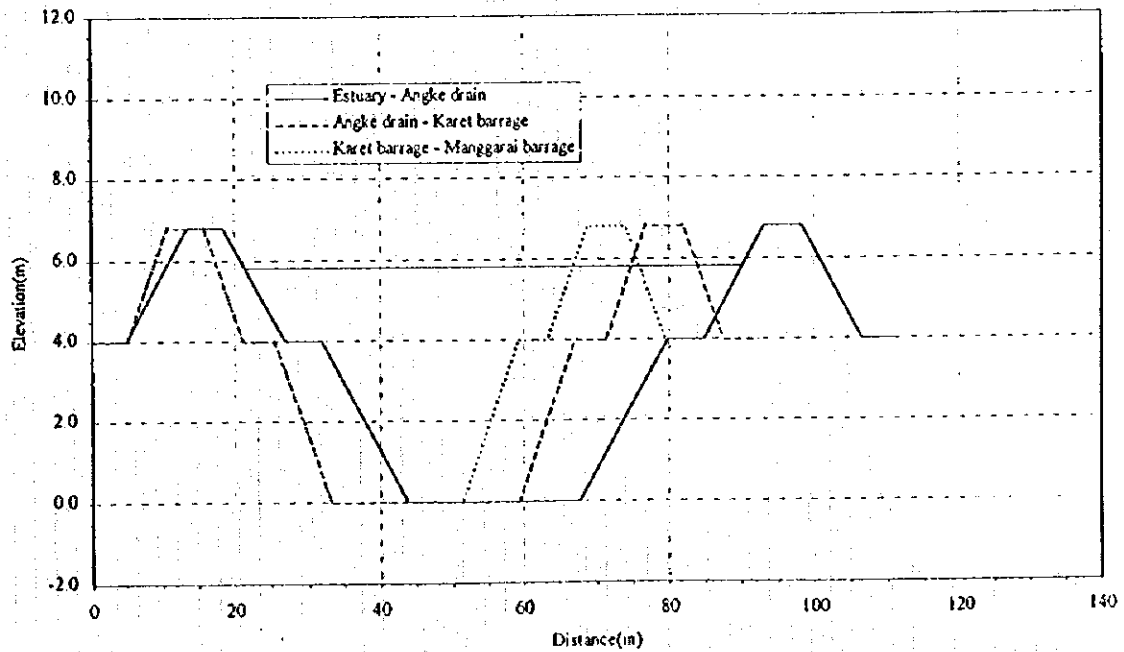
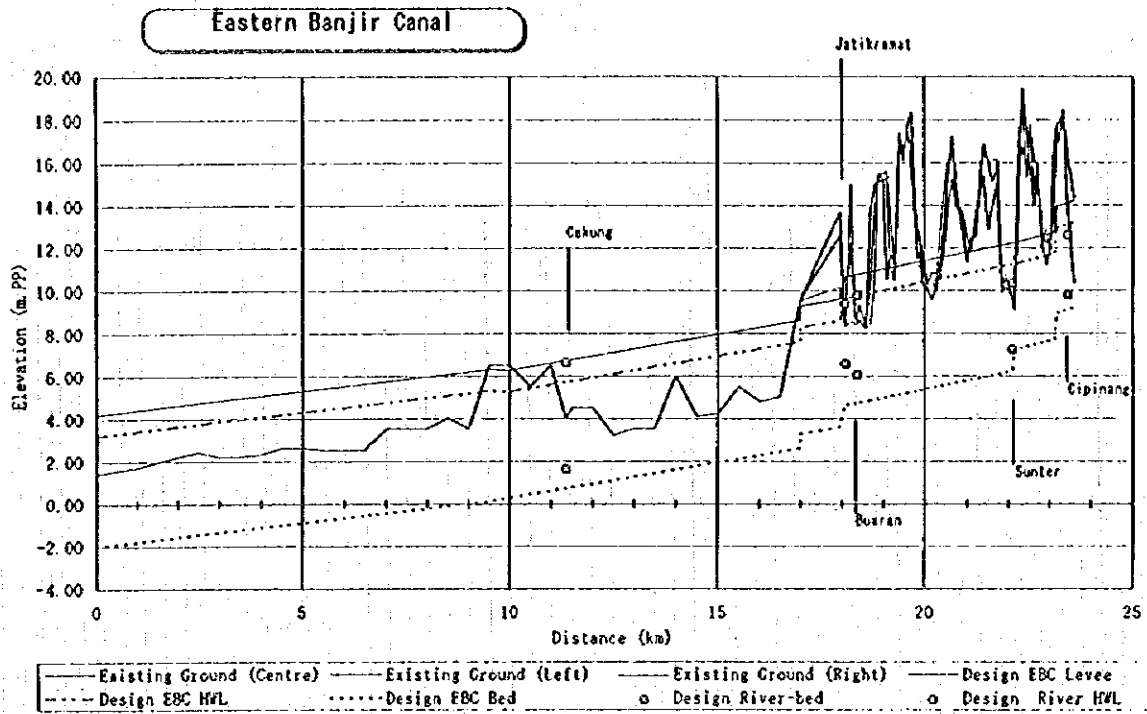


図 2 4 計画河川縦横断面図 (9/13)



EASTERN BANJIR CANAL

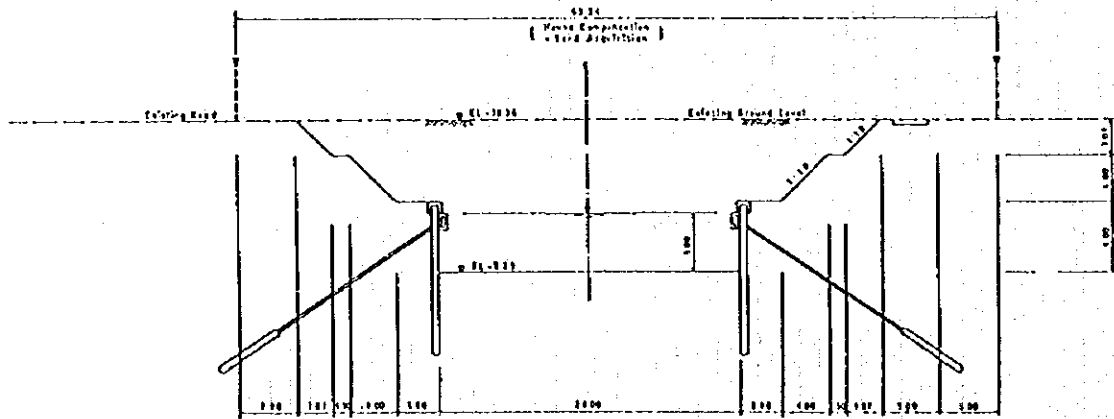
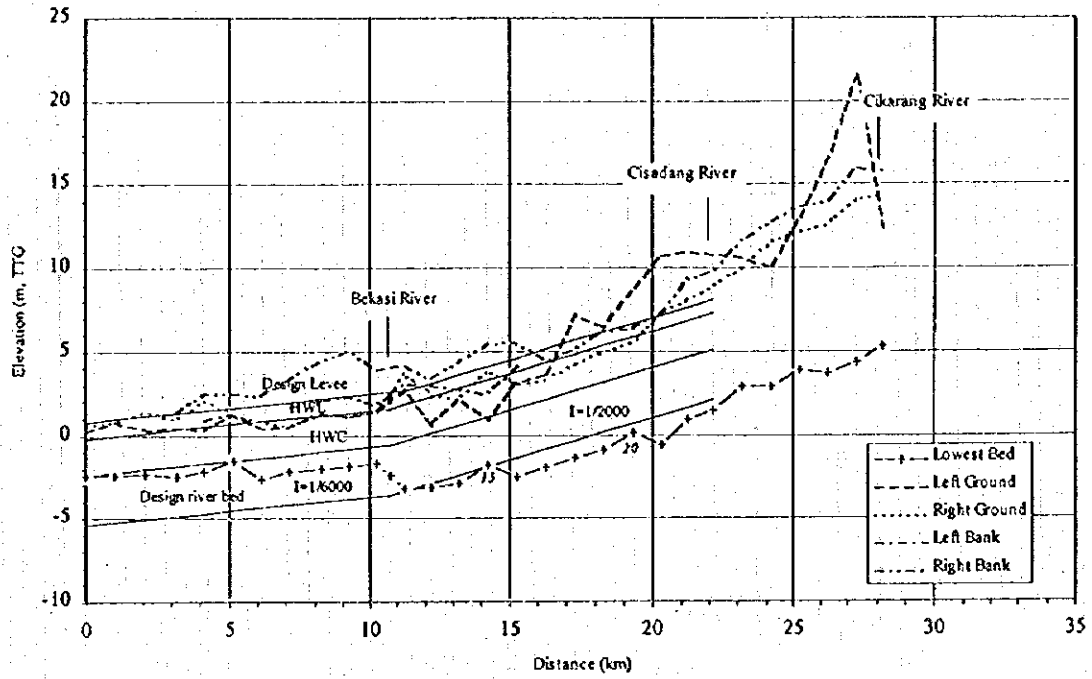


図 2 4 計画河川縦横断面図 (10/13)

CBL FLOODWAY SYSTEM (1/3)

CBL FLOODWAY



CBL FLOODWAY

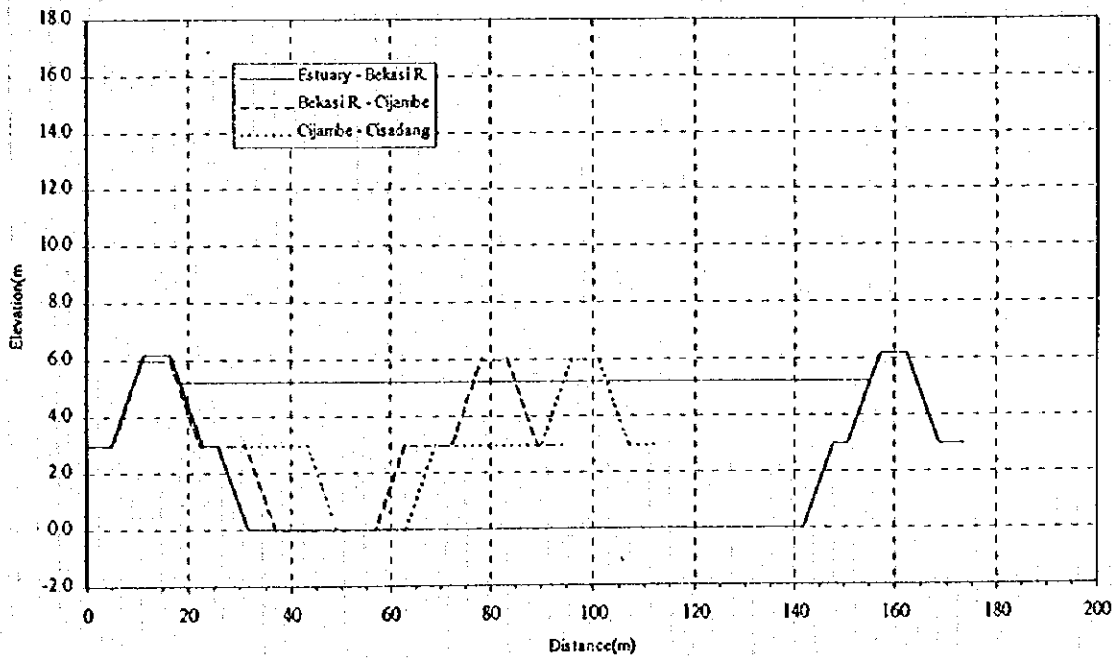
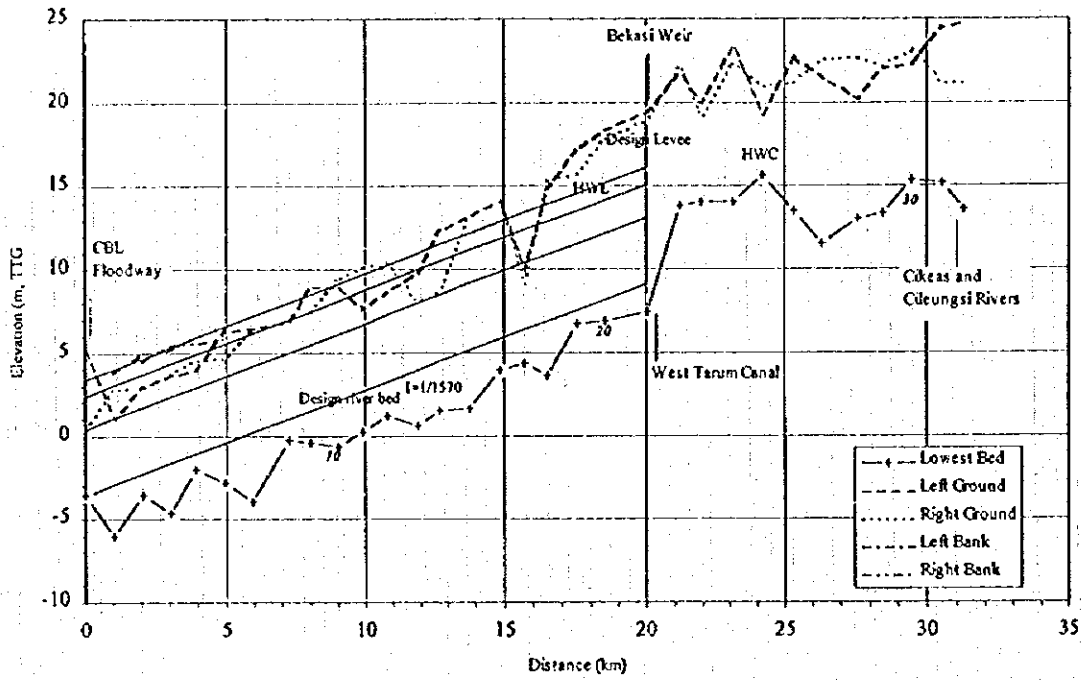


図 2 4 計画河川縦横断面図 (11/13)

CBL FLOODWAY SYSTEM (2/3)

BEKASI RIVER



BEKASI RIVER (Conf with CBL - Bekasi Weir)

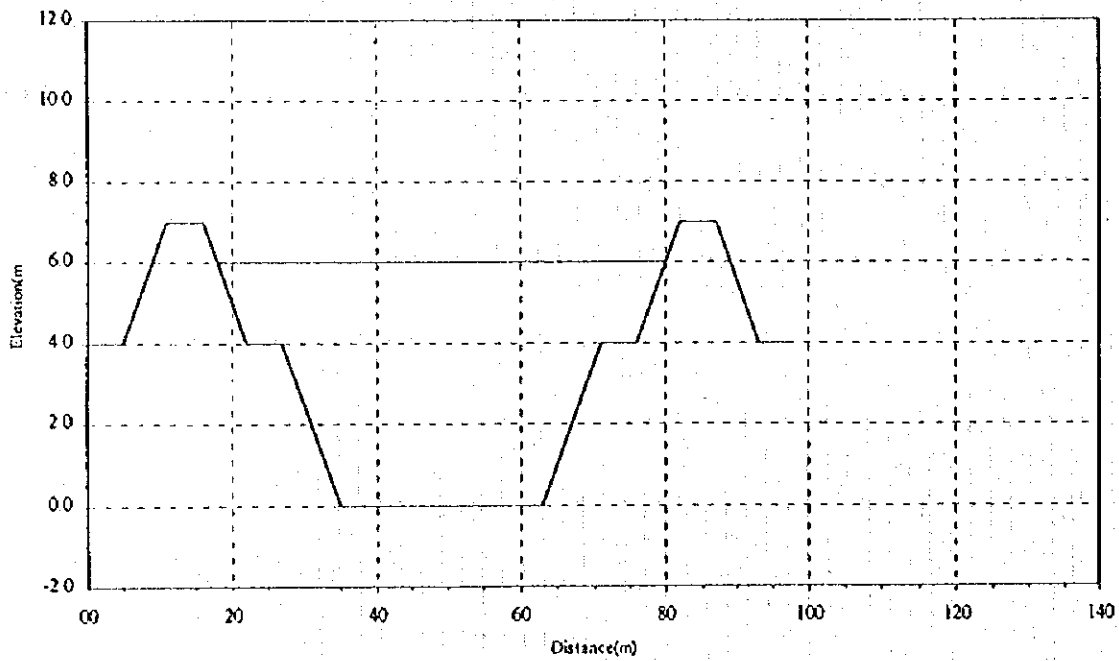
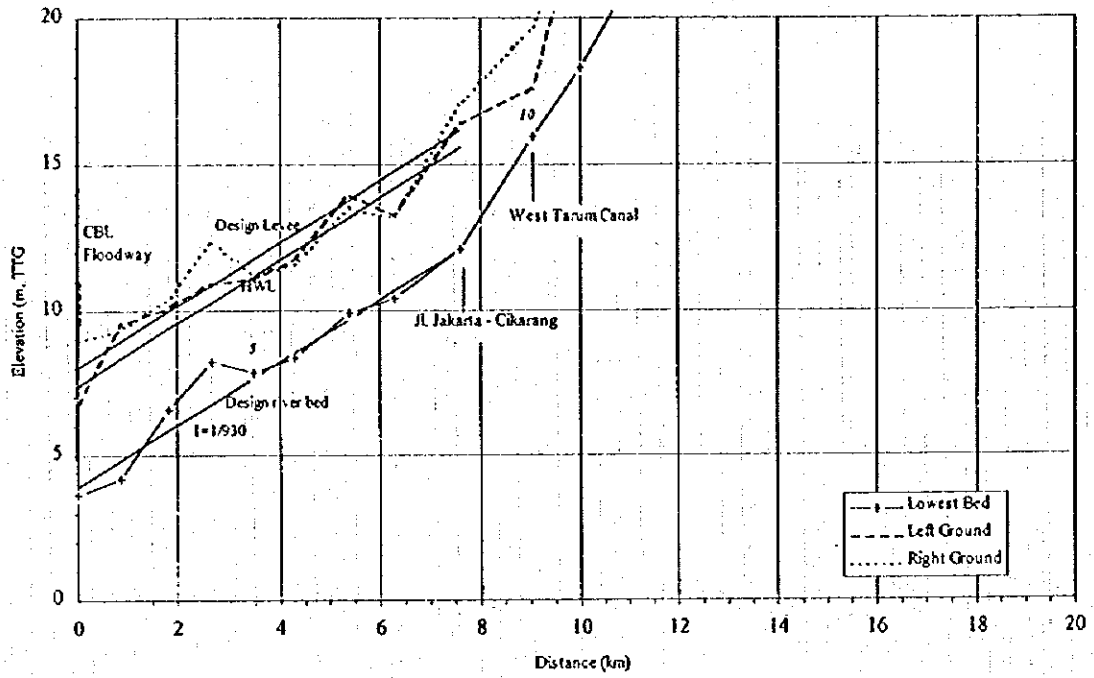


図 2 4 計画河川縦横断面図 (12/13)

CBL FLOODWAY SYSTEM (3/3)

CISADANG RIVER



CISADANG RIVER (Conf. with CBL - Jl Jakarta-Cikarang)

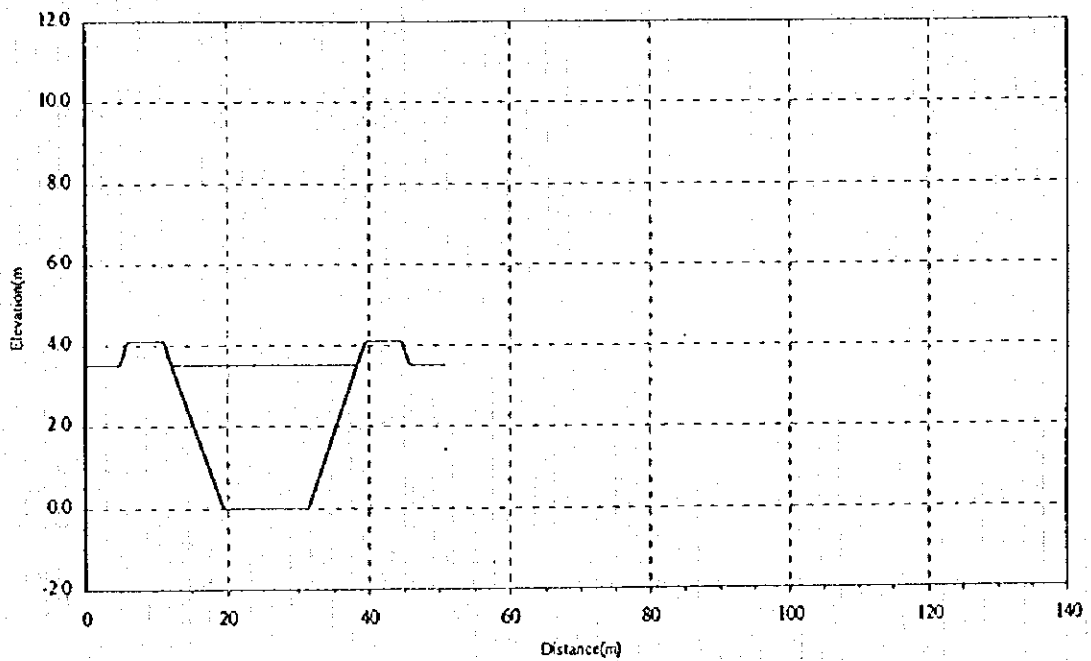
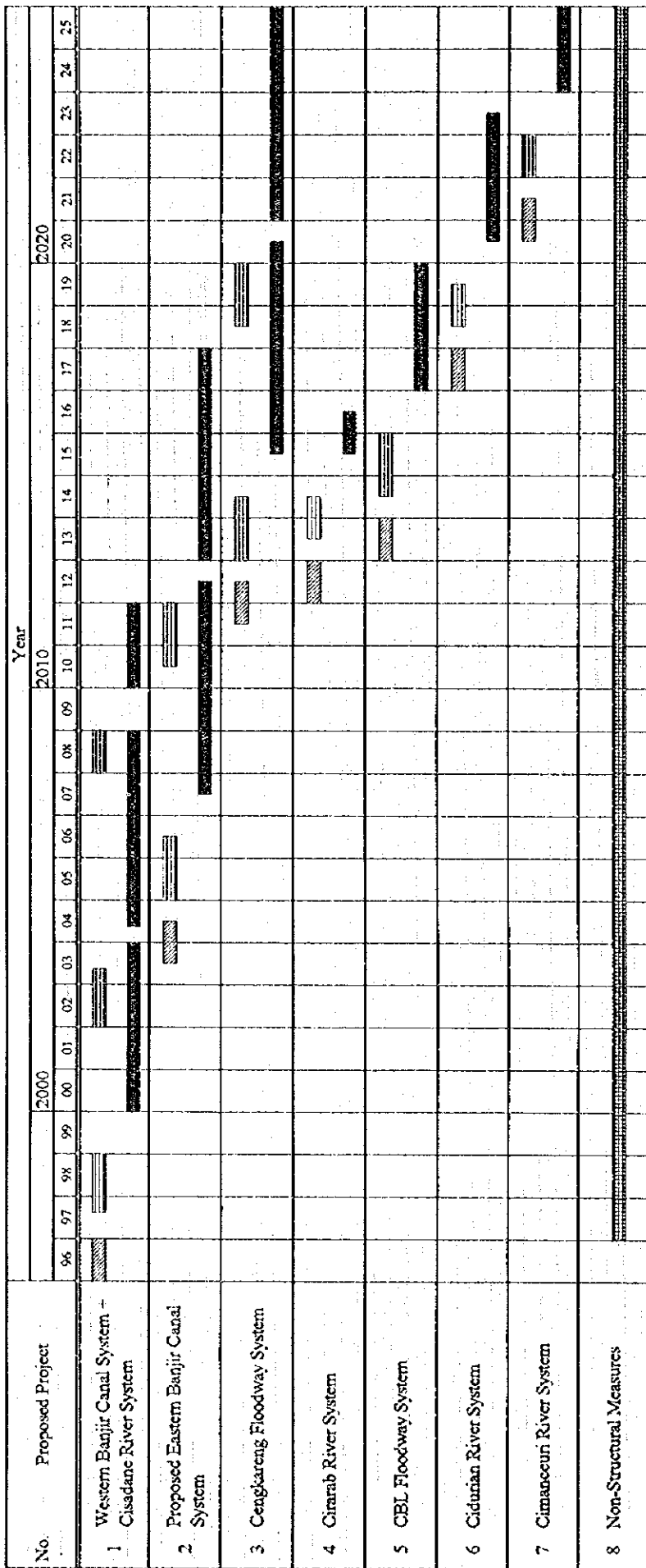


図 2 4 計画河川縦横断面図 (13/13)



 : Feasibility Study,
  : Detailed Design,
  : Construction,
  : Non-Structural Measures

图 2 5 事業実施計画

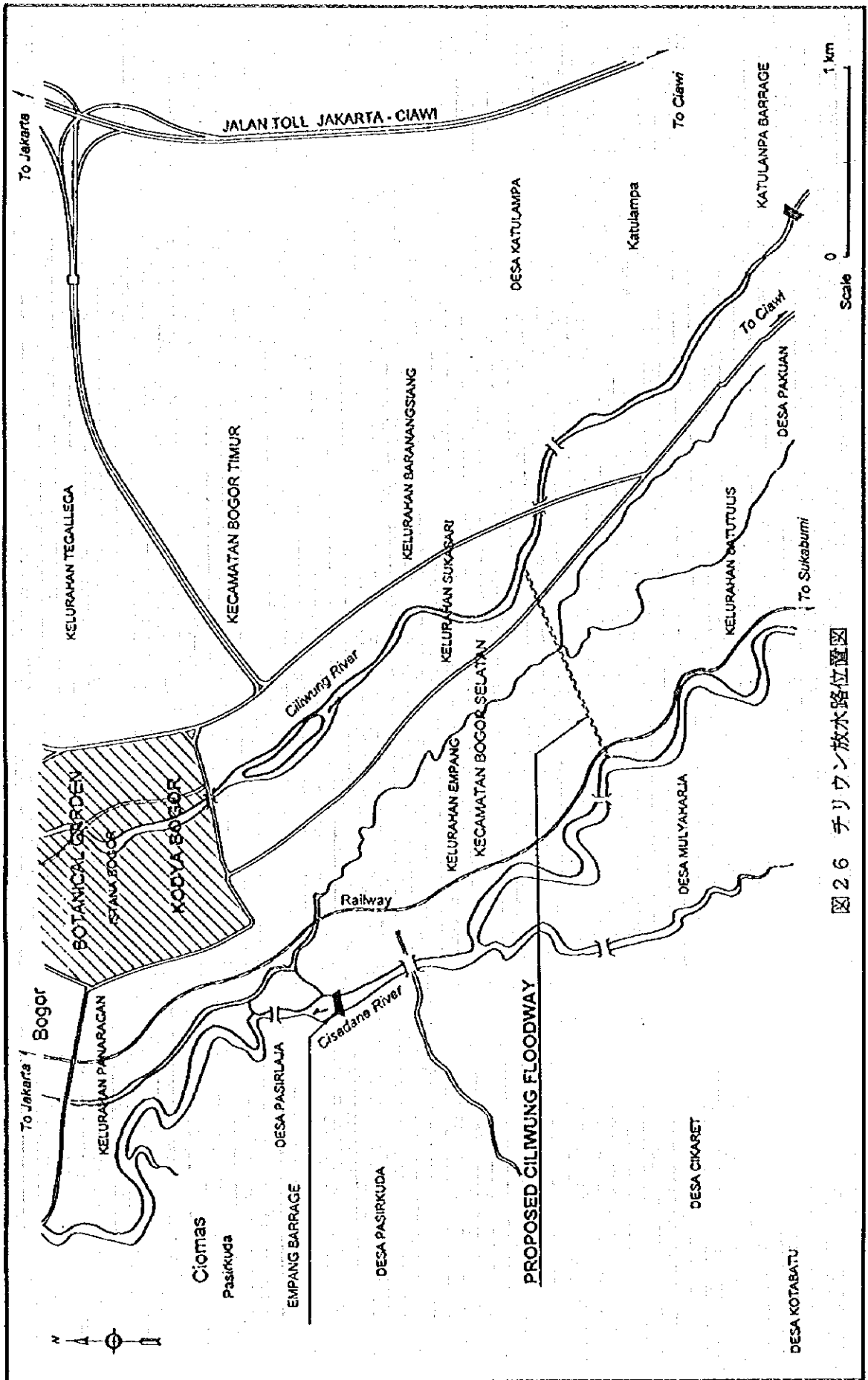


図 2.6 チリウング放水路位置図

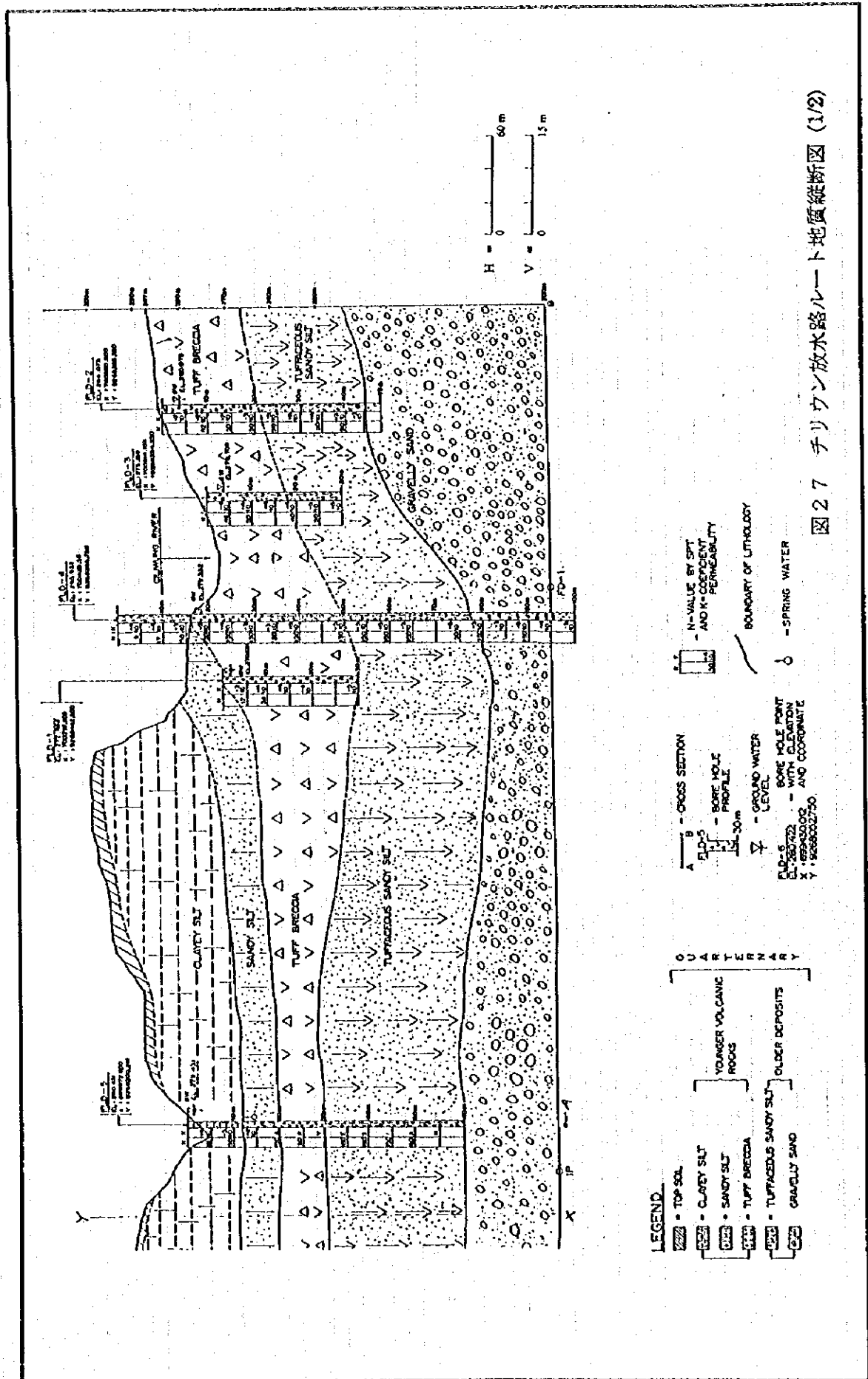


図 27 チリカン放水ルート地質縦断面図 (1/2)

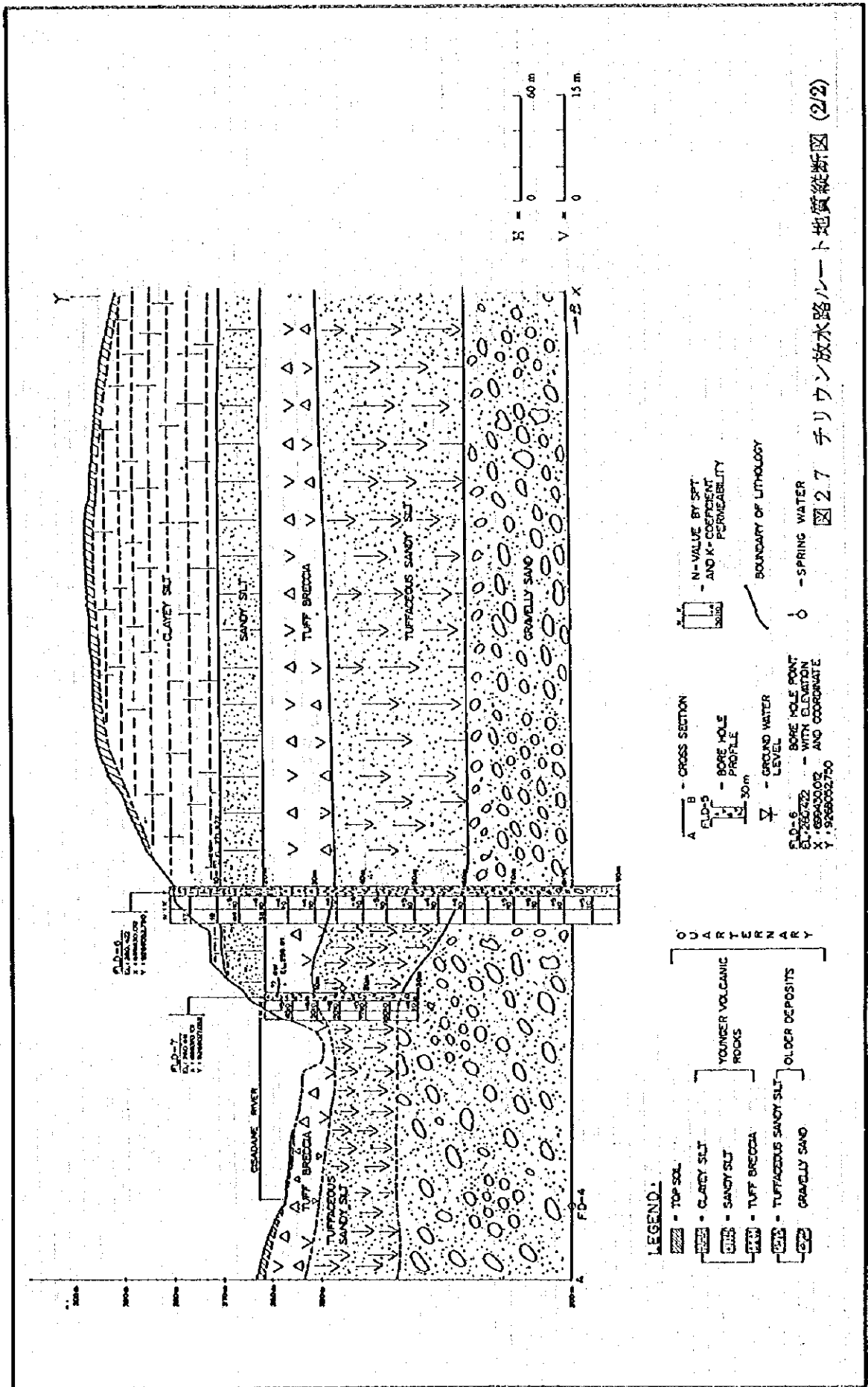
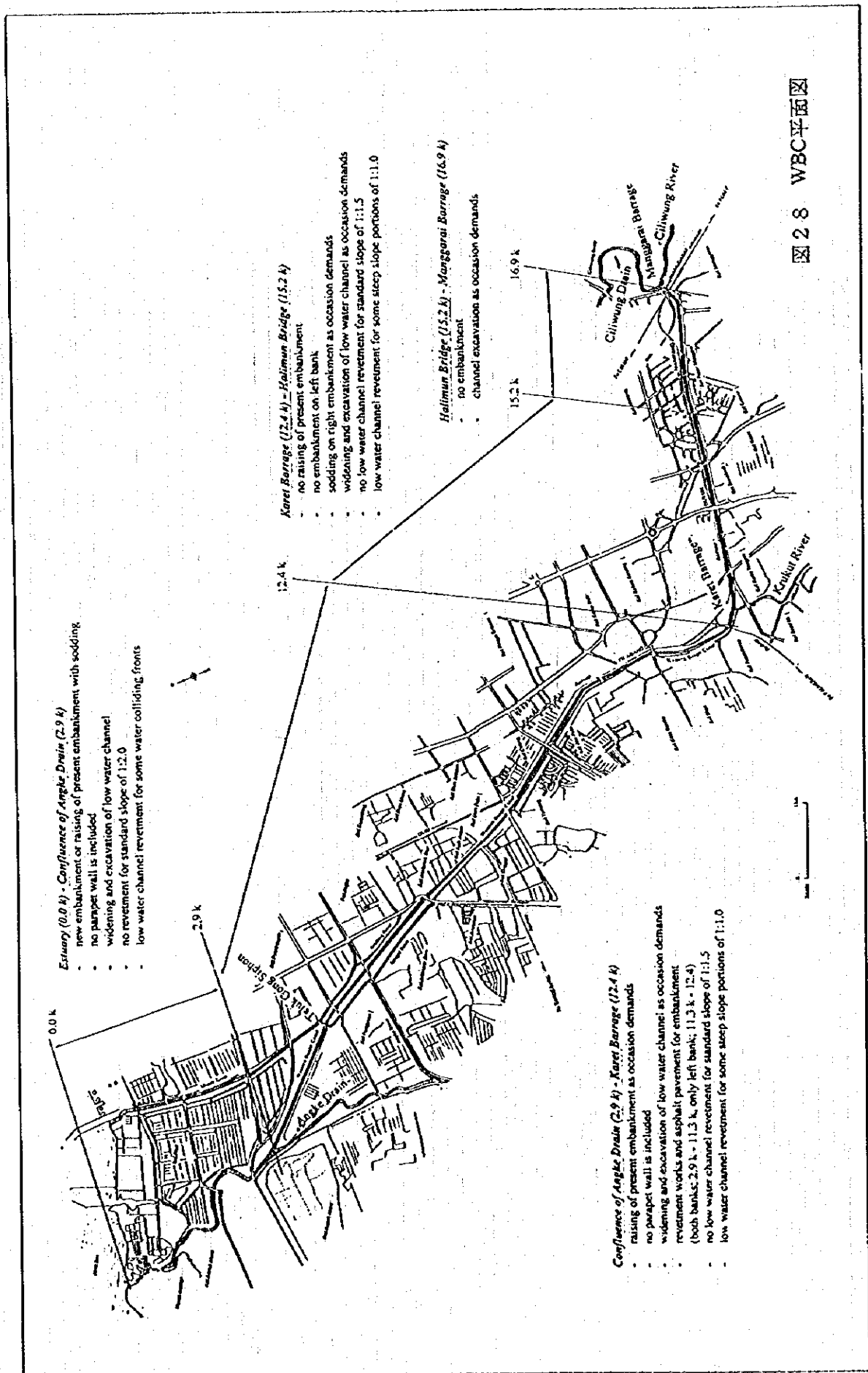


図 2.7 チリクイン放水ルート地質縦断面図 (2/2)



- Estuary (0.0 k) - Confluence of Angke Drain (2.9 k)**
- new embankment or raising of present embankment with sodding
 - no parapet wall is included
 - widening and excavation of low water channel
 - no revetment for standard slope of 1:2.0
 - low water channel revetment for some water colliding fronts

- Karet Barrage (12.4 k) - Halimun Bridge (15.2 k)**
- no raising of present embankment
 - no embankment on left bank
 - sodding on right embankment as occasion demands
 - widening and excavation of low water channel as occasion demands
 - no low water channel revetment for standard slope of 1:1.5
 - low water channel revetment for some steep slope portions of 1:1.0

- Halimun Bridge (15.2 k) - Manggarai Barrage (16.9 k)**
- no embankment
 - channel excavation as occasion demands

- Confluence of Angke Drain (2.9 k) - Karet Barrage (12.4 k)**
- raising of present embankment as occasion demands
 - no parapet wall is included
 - widening and excavation of low water channel as occasion demands
 - revetment works and asphalt pavement for embankment (both banks: 2.9 k - 11.3 k, only left bank: 11.3 k - 12.4 k)
 - no low water channel revetment for standard slope of 1:1.5
 - low water channel revetment for some steep slope portions of 1:1.0

图 28 WBC平面图

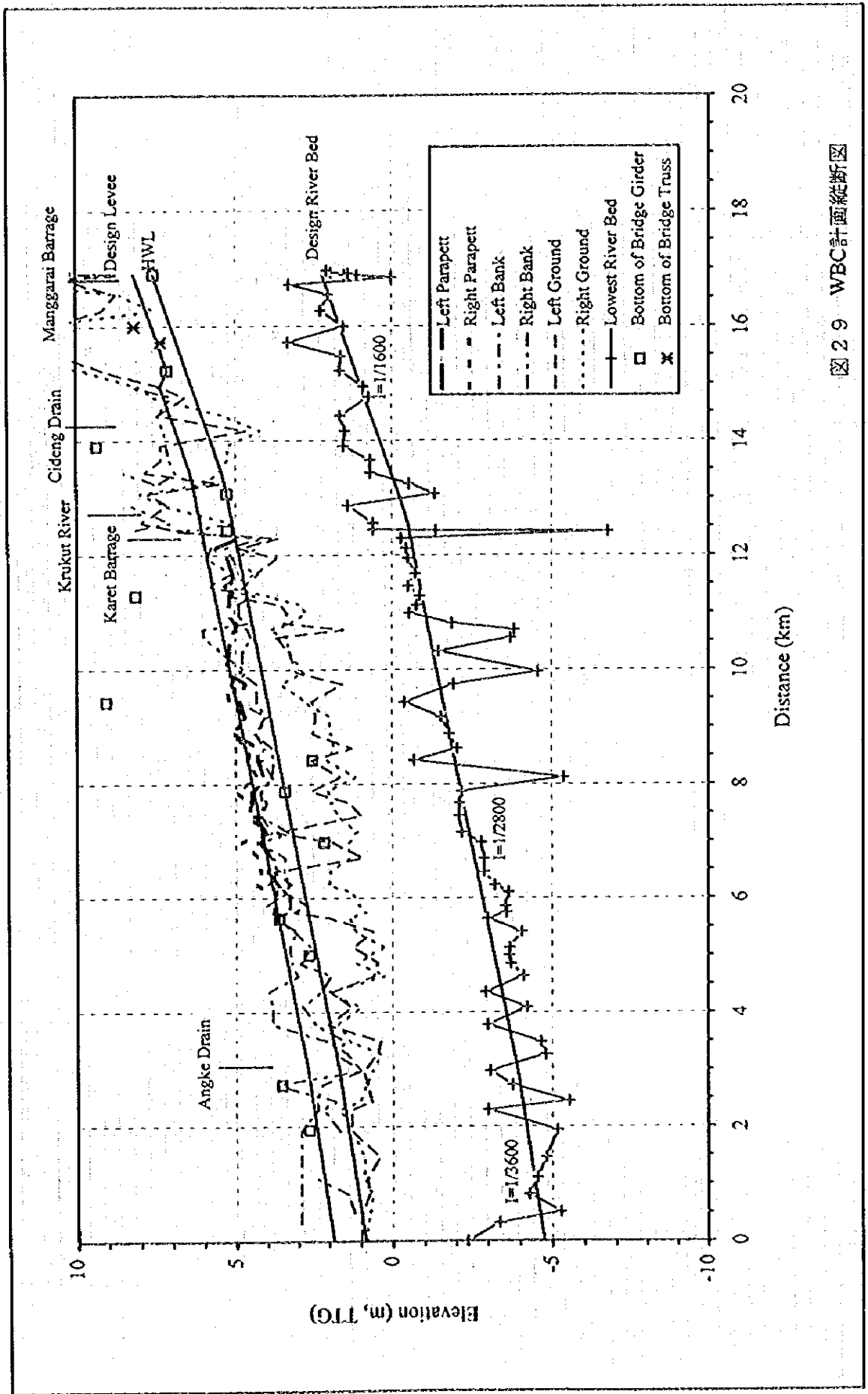


図 29 WBC 計画縦断面図

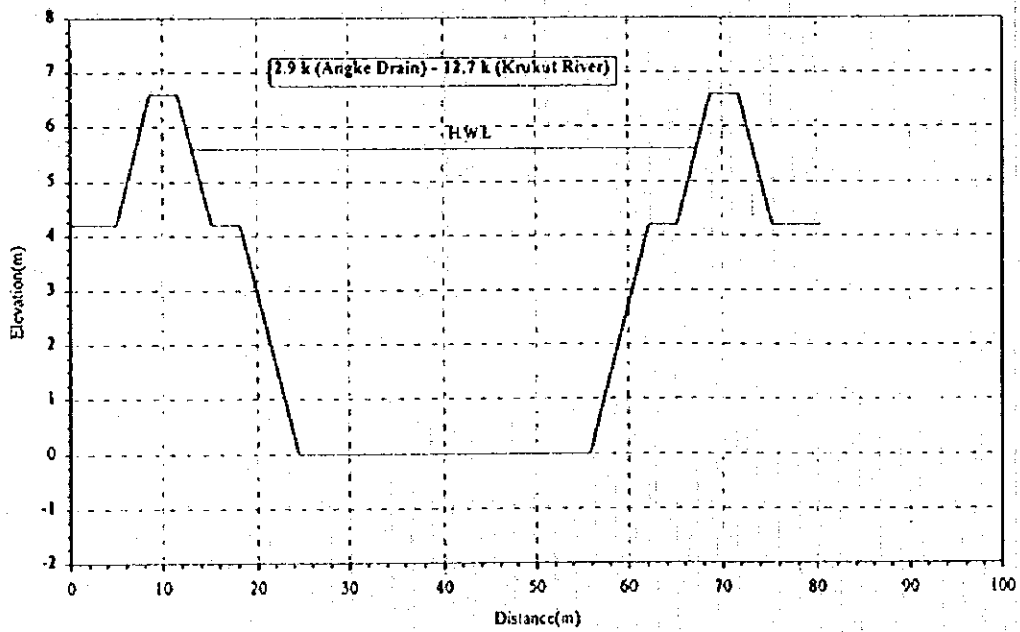
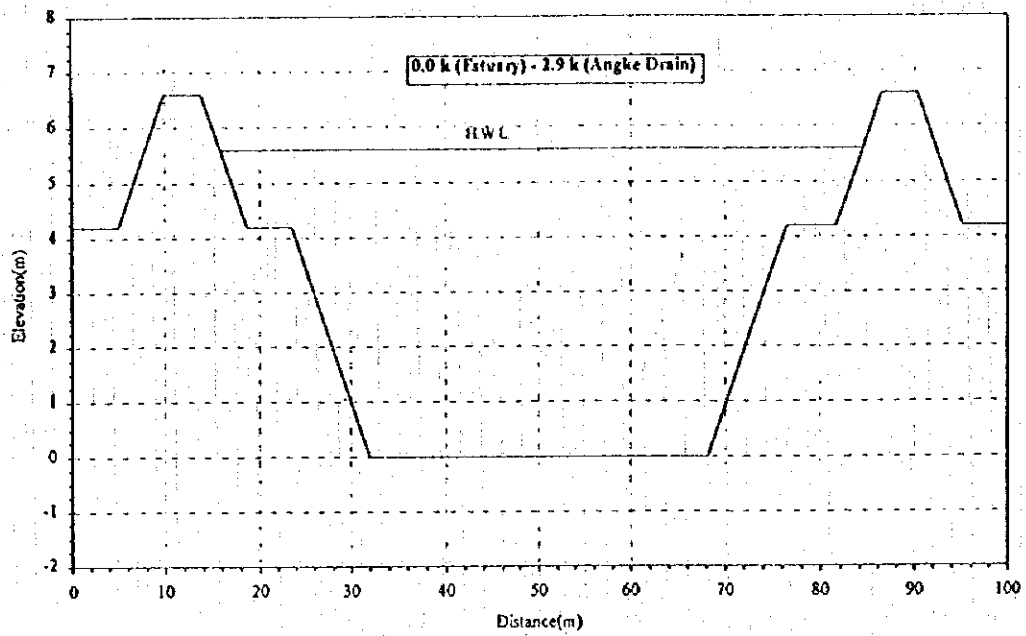


图 30 WBC 計画横断面 (1/2)

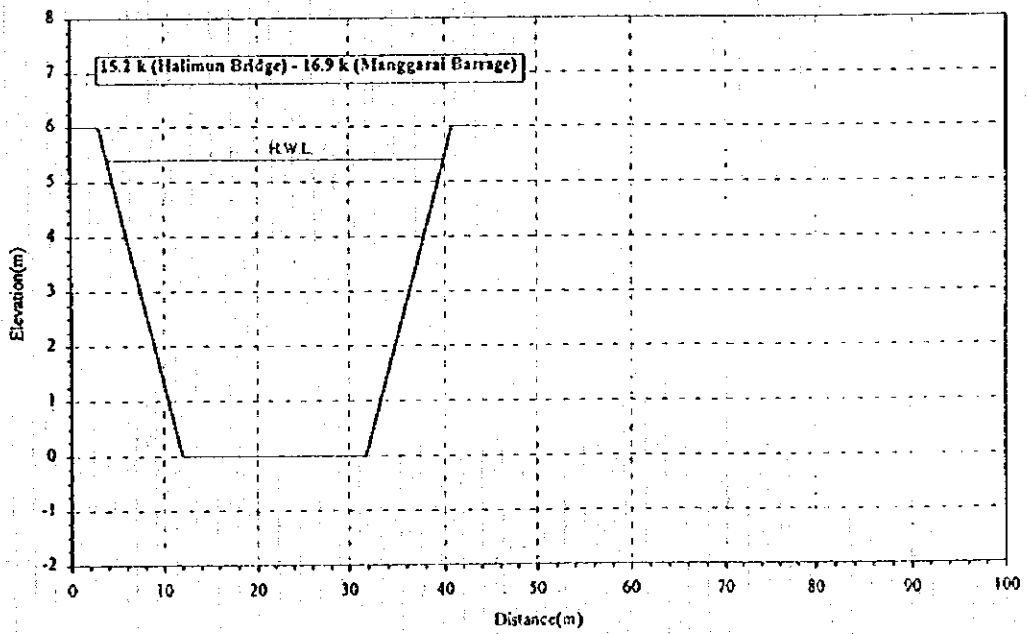
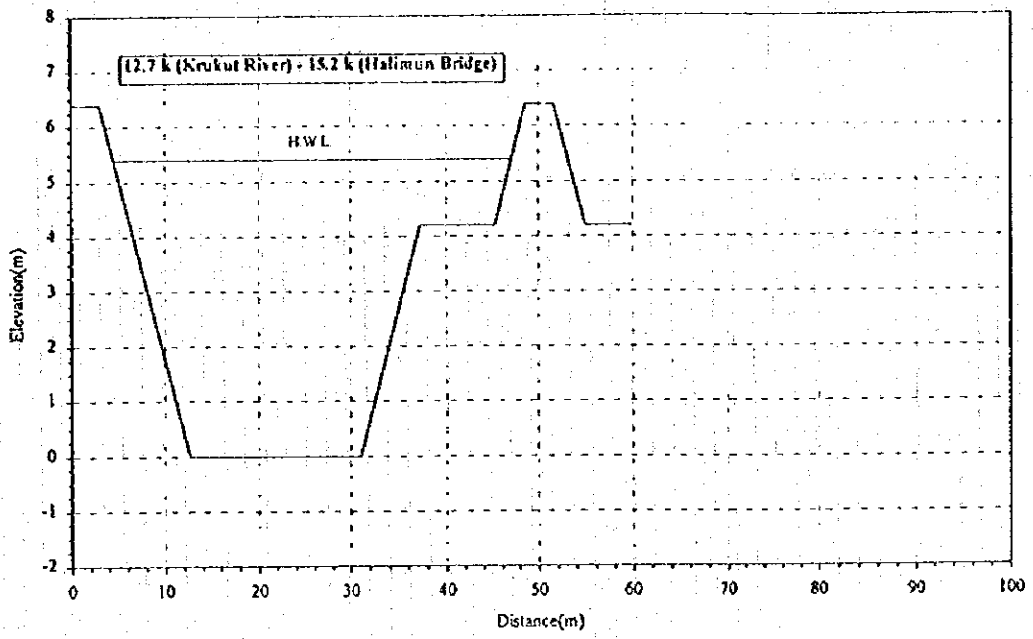


図 30 WBC計画横断面図 (2/2)

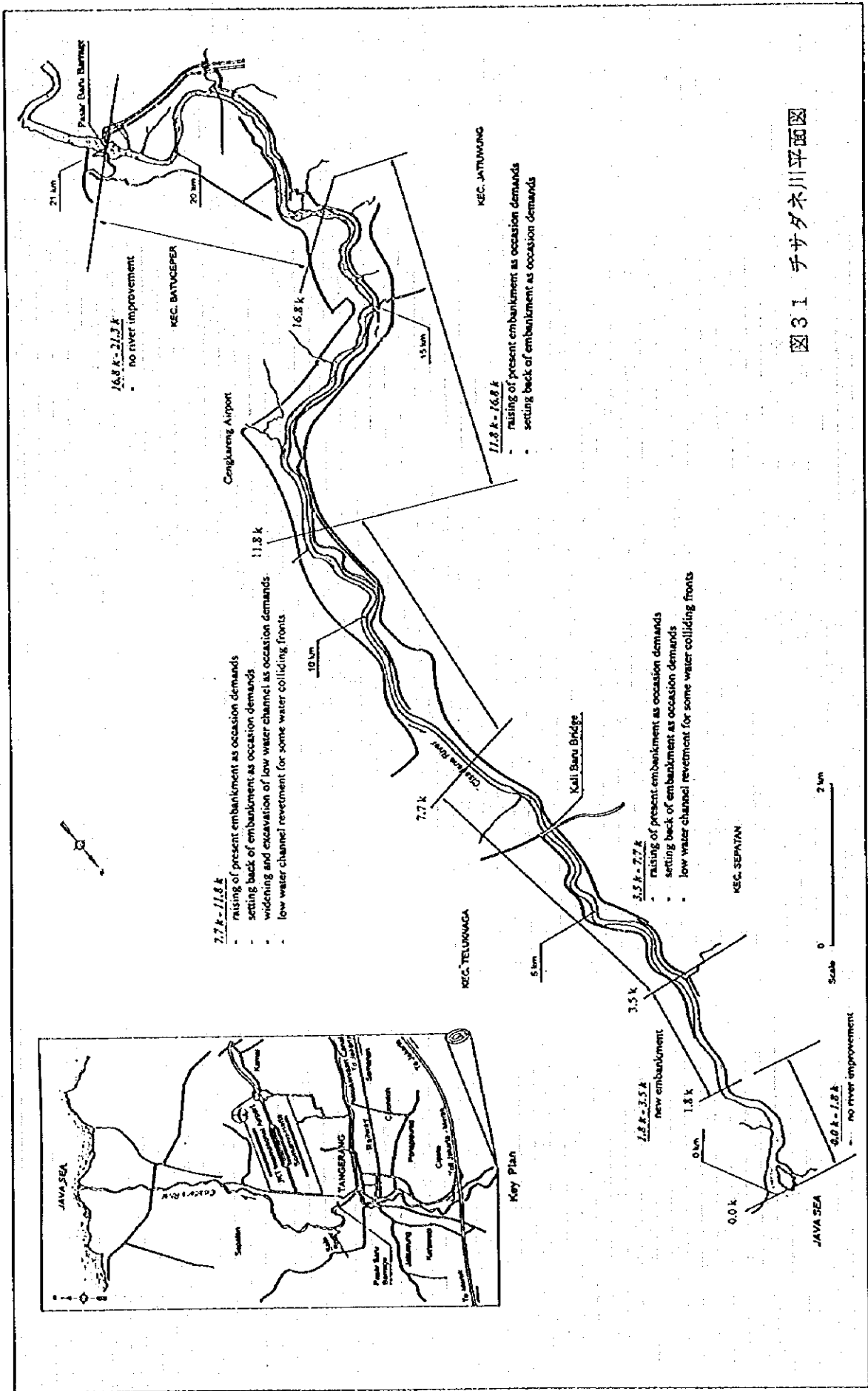


図 3 I チサダネ川平面図

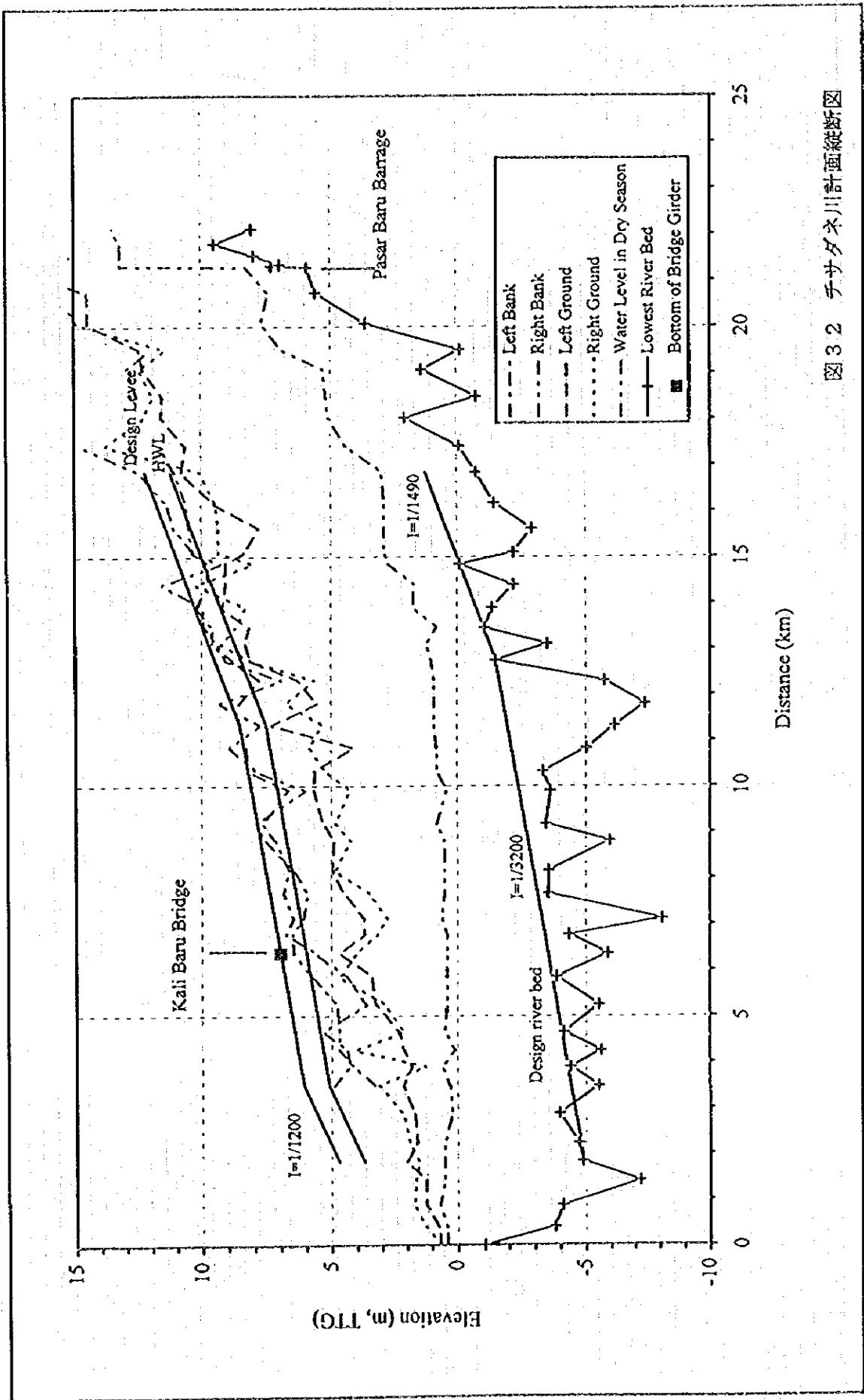


図 3 2 チサダネ川計画縦断面図

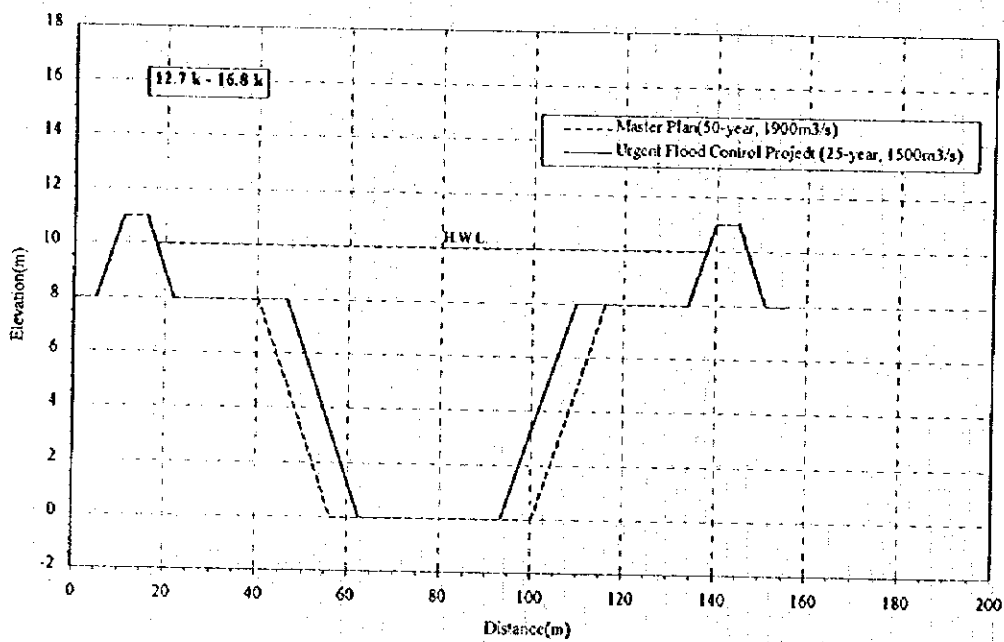
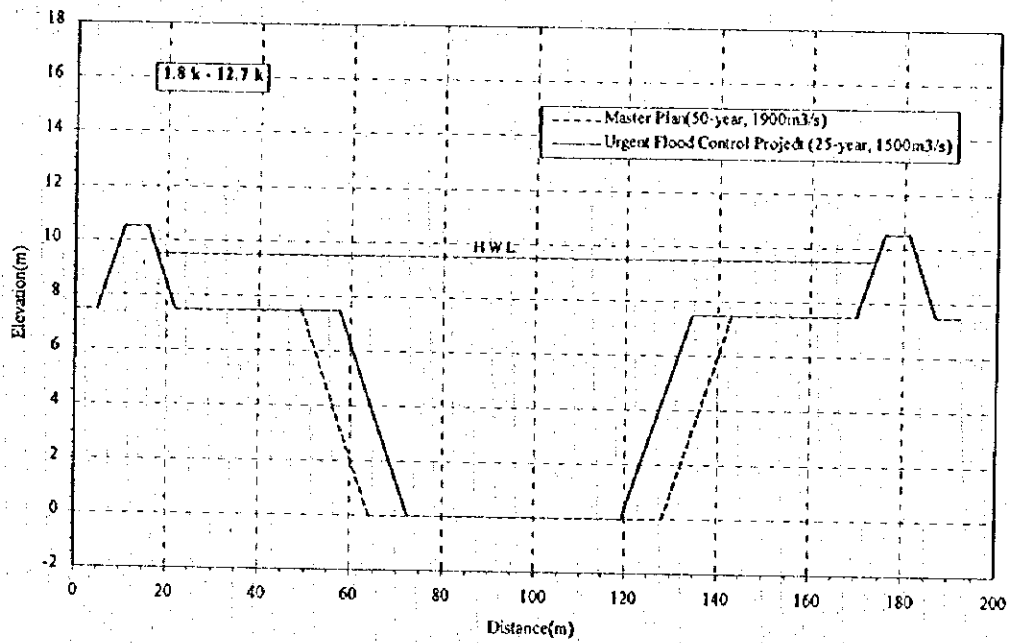


図33 子サダネ川計画横断面図

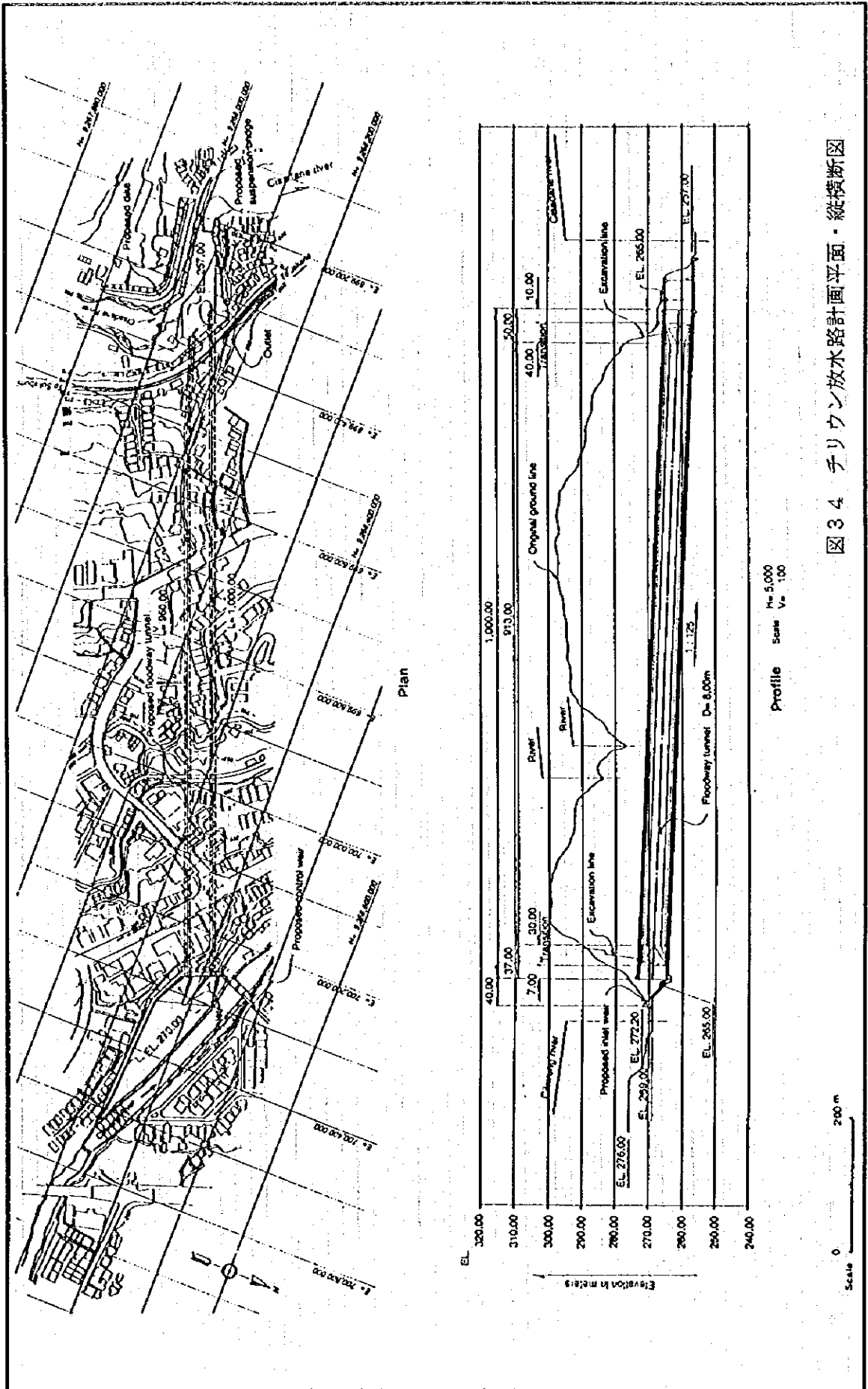


図 3 4 チリウン放水路計画平面・縦横断面

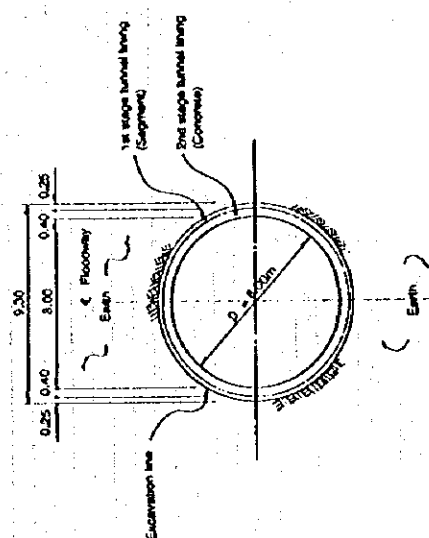
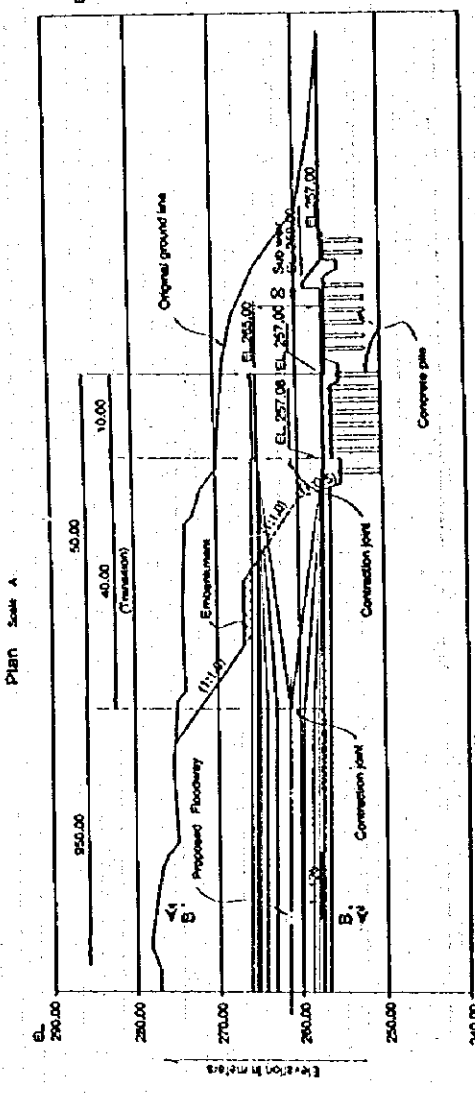
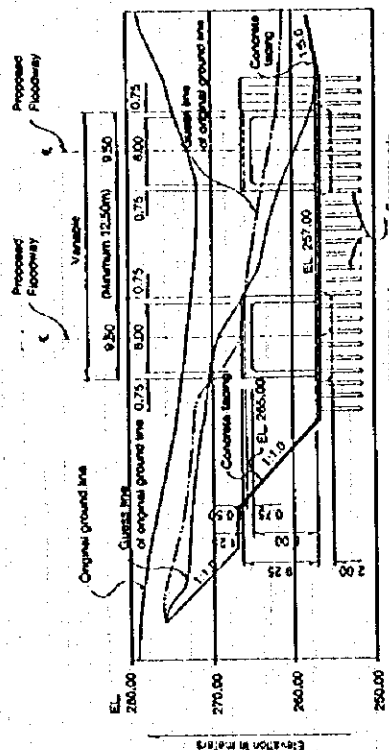


図 3.5 チリクワン放水路吐口計画平面・縦横断面図

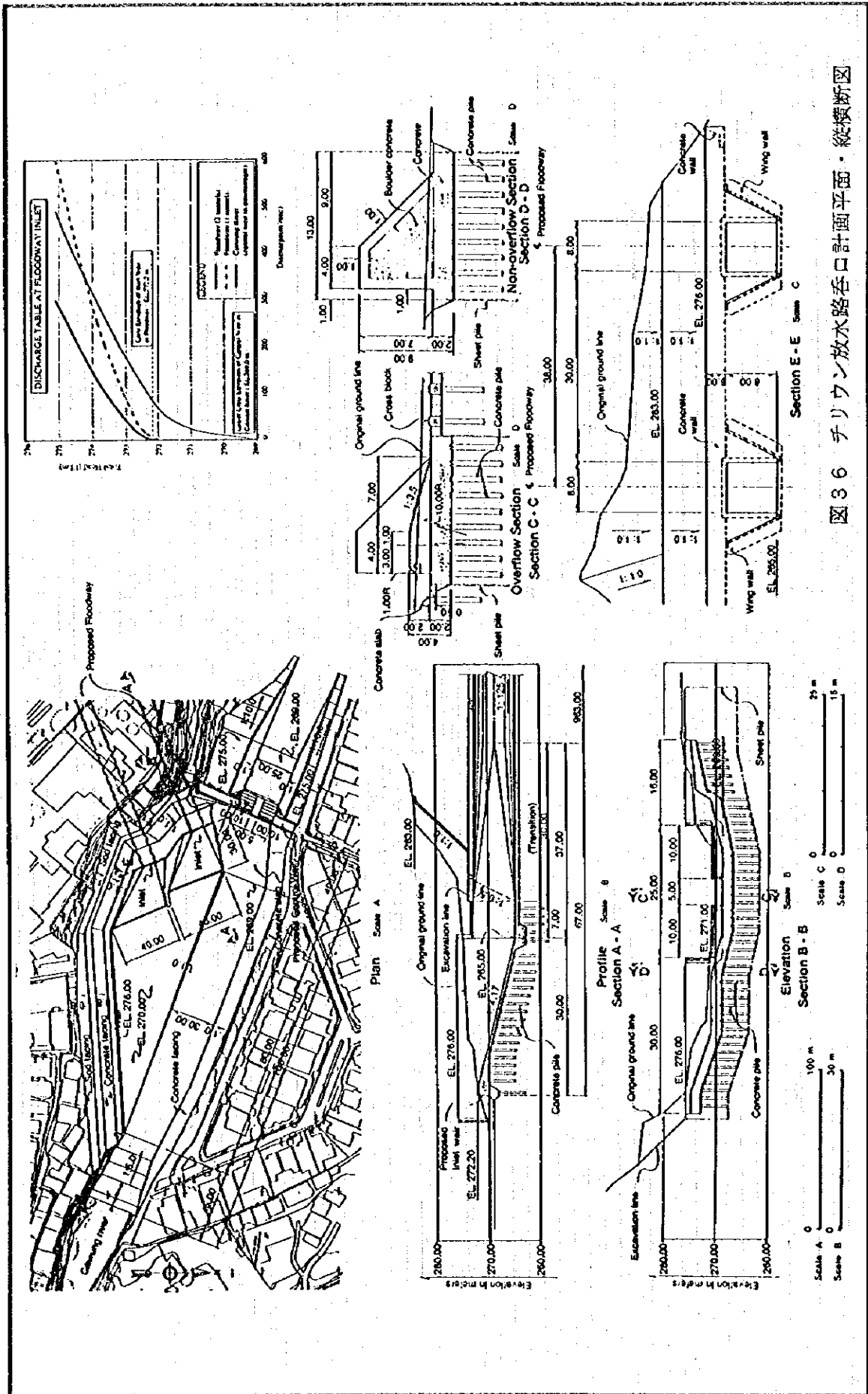
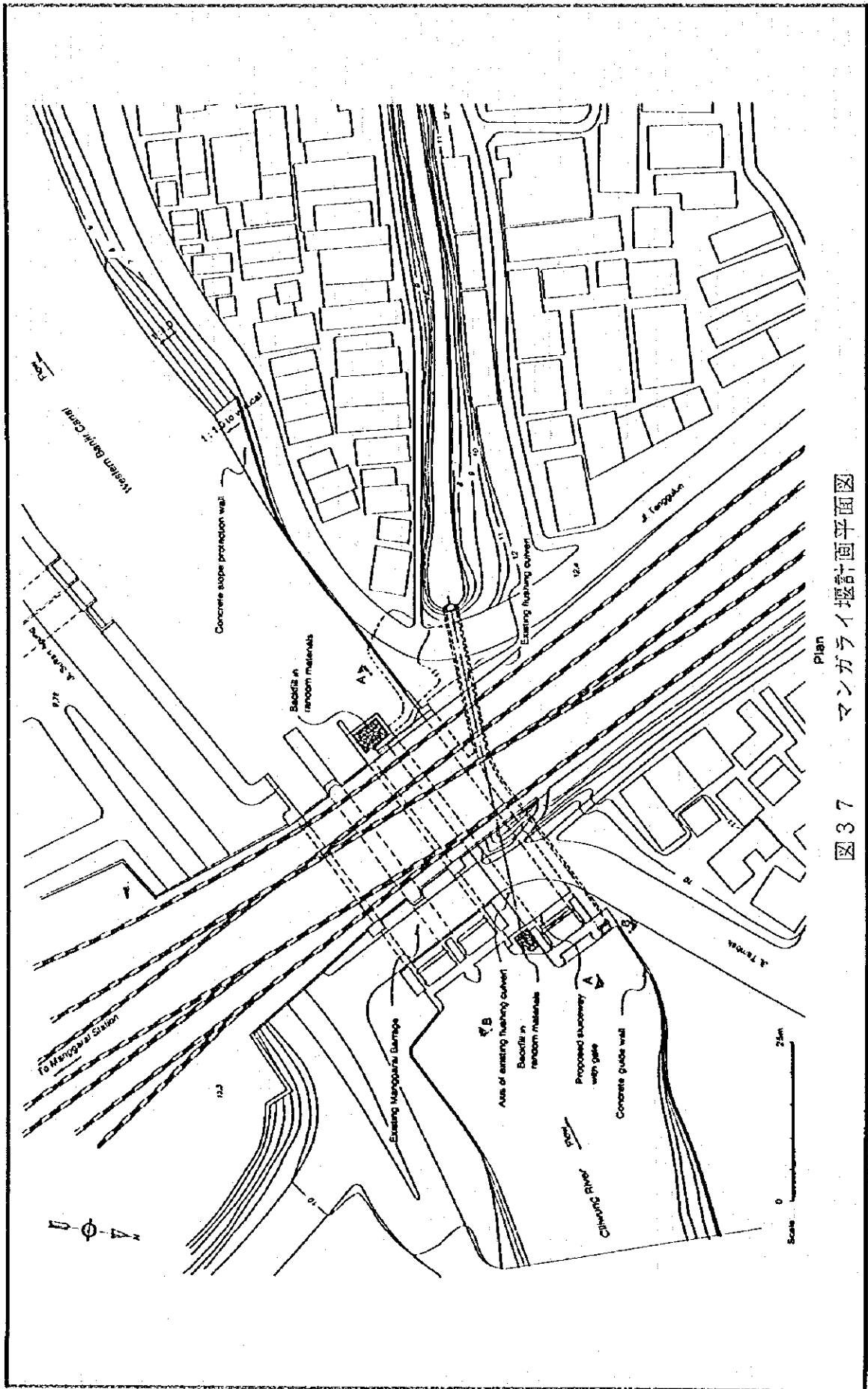
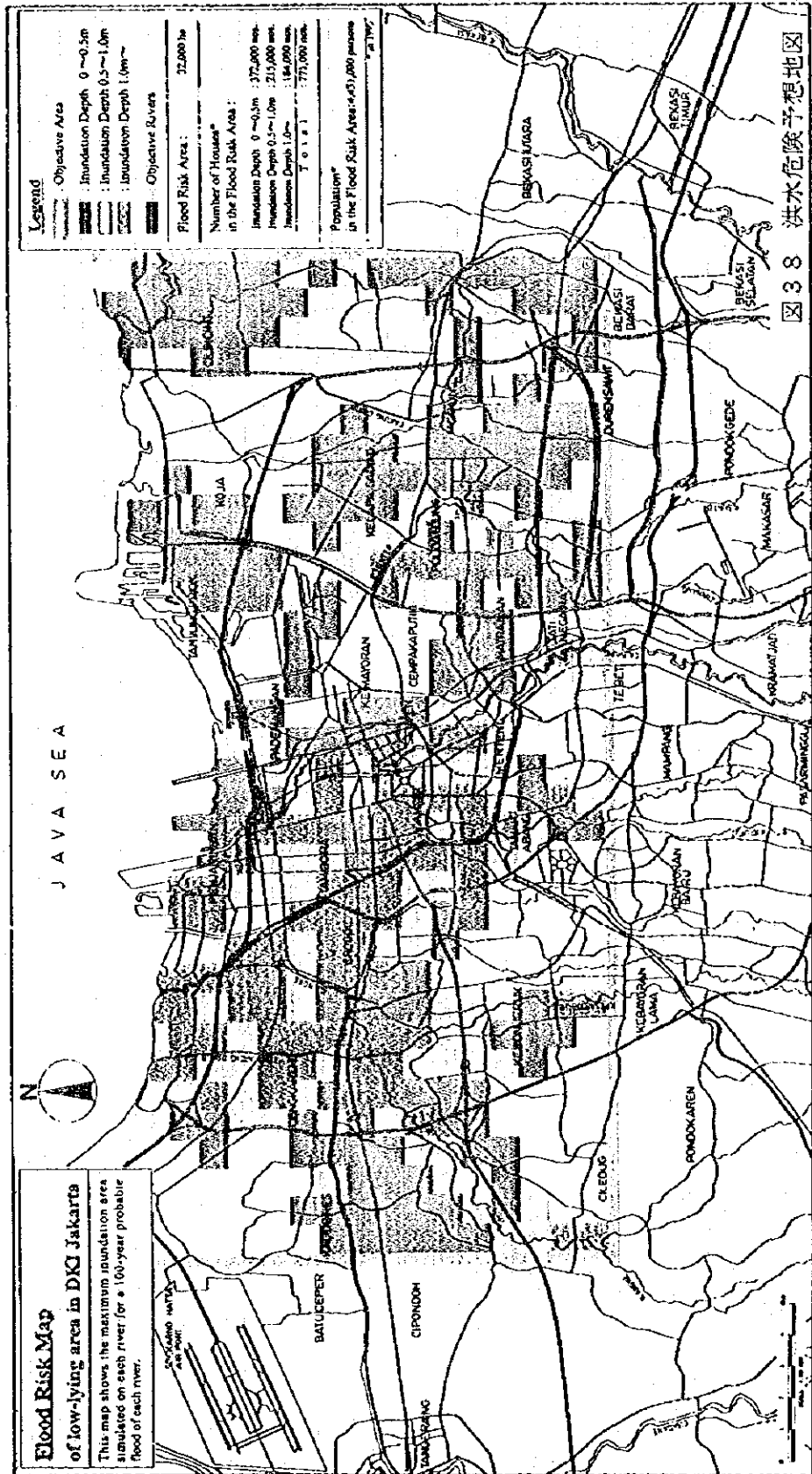


図 3.6 チリワン放水路呑口計画平面・縦横断面



Plan
 図 37 マンガライ堰計画平面図



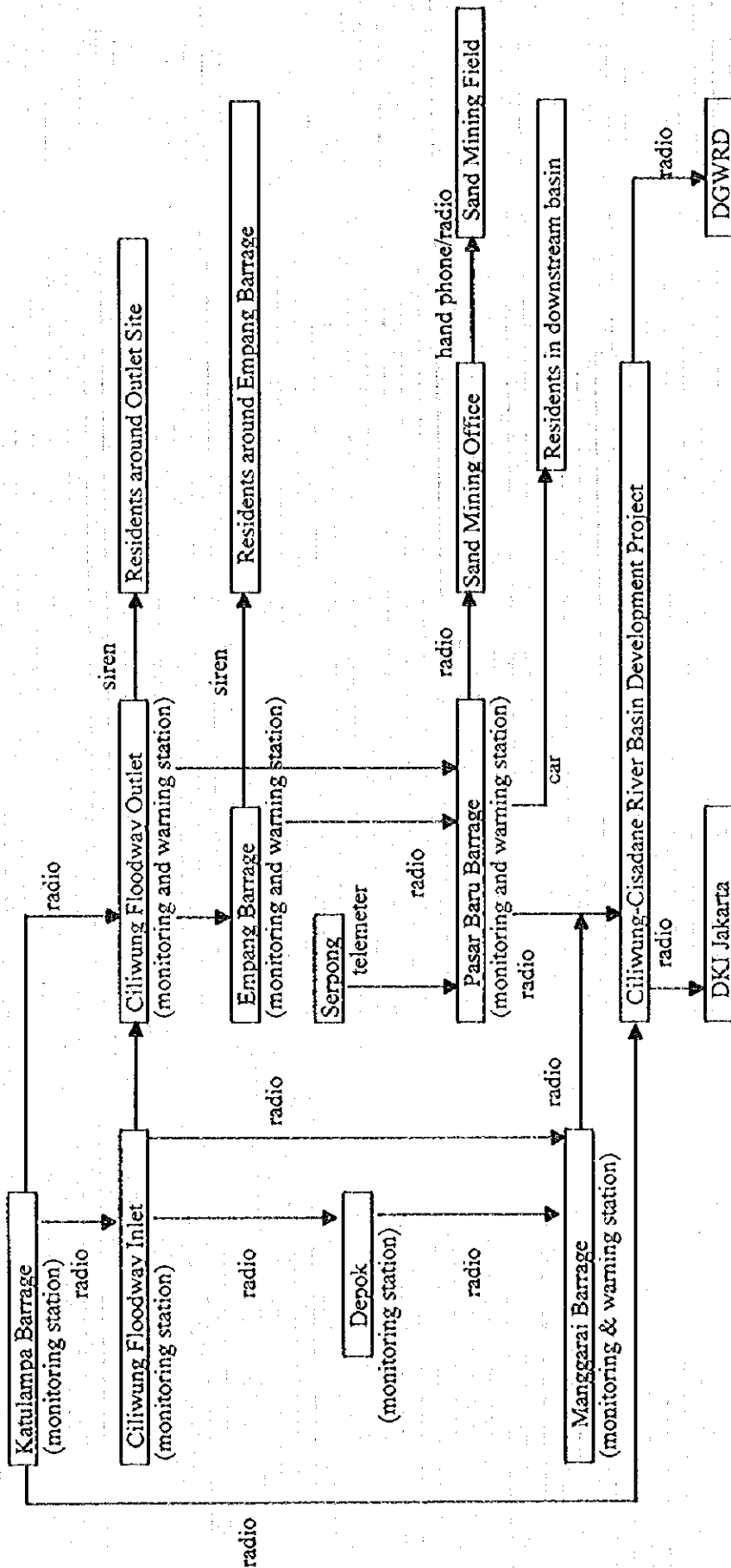
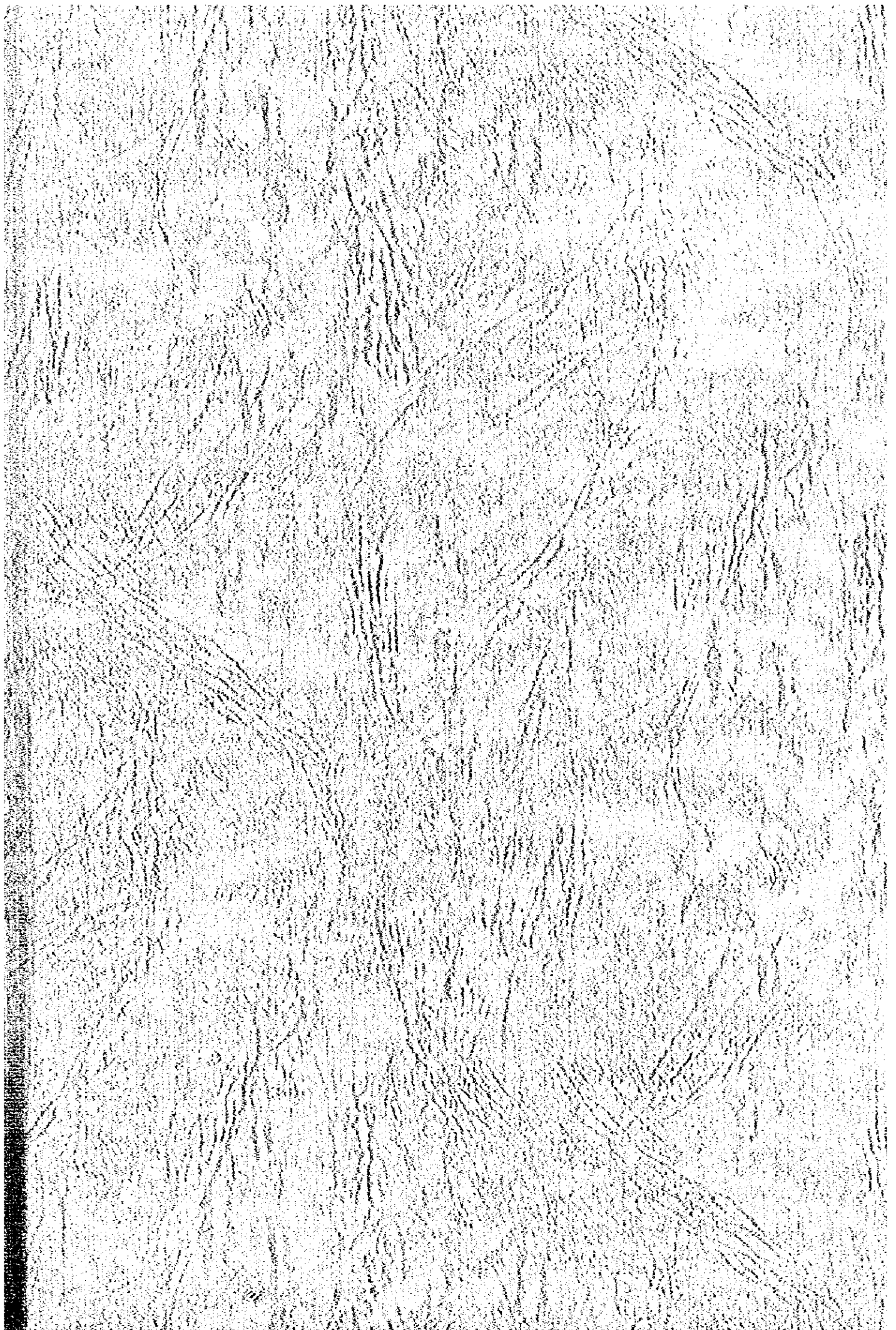


図 39 洪水警報ネットワーク図



JICA