

# 附 表



表-1 ジャボタベック地域水資源管理計画による水需要予測結果

(unit : cu.m/s)

Areas	Scenario	Surface Water Source								Groundwater Source								
		Year								Year								
		1990	1995	2000	2005	2010	2015	2020	2025	1990	1995	2000	2005	2010	2015	2020	2025	
Jakarta	North	A	6.6	7.6	8.4	10.8	12.3	13.9	15.3	18.1	7.2	7.5	7.8	7.8	7.7	7.5	7.2	6.6
		B	6.6	7.6	8.4	10.4	11.5	12.8	14.1	16.2	7.2	7.7	8.1	8.3	8.4	8.3	8.1	7.9
		C	6.6	9.1	11.9	18.5	23.9	24.3	24.6	26.2	7.2	7.1	6.7	5.2	3.3	3.0	2.7	2.5
	South	A	2.4	3.0	3.8	5.0	5.9	6.5	7.2	7.9	7.9	8.4	9.0	9.5	9.9	10.3	10.6	11.1
		B	2.4	3.1	4.0	4.8	5.6	6.2	6.7	7.4	7.9	8.5	9.1	9.7	10.1	10.5	10.8	11.2
		C	2.4	4.6	7.0	9.4	12.1	13.2	13.9	15.9	7.9	8.1	8.1	8.2	7.8	7.7	7.7	7.6
	Total	A	9.0	10.6	12.2	15.8	18.2	20.4	22.5	26.0	15.1	15.9	16.8	17.3	17.6	17.8	17.8	17.7
		B	9.0	10.7	12.4	15.2	17.1	19.0	20.8	23.6	15.1	16.2	17.2	18.0	18.5	18.8	18.9	19.1
		C	9.0	13.7	18.9	27.9	36.0	37.5	38.5	42.1	15.1	15.2	14.8	13.4	11.1	10.7	10.4	10.1
Tangerang	A	2.3	3.2	4.4	5.7	7.3	9.0	11.0	12.5	4.4	5.4	6.4	7.4	8.5	9.3	10.1	10.9	
	B	2.3	3.0	3.9	4.9	6.0	7.0	8.1	9.0	4.4	5.2	5.9	6.7	7.4	8.0	8.6	9.2	
	C	2.3	3.4	4.8	7.3	11.1	15.1	19.1	22.3	4.4	5.6	6.7	7.6	7.9	8.1	8.2	8.4	
Bekasi	A	1.6	2.1	2.8	3.7	4.8	5.9	7.4	8.6	3.4	4.3	5.2	6.1	7.0	7.8	8.6	9.2	
	B	1.6	2.0	2.5	3.1	3.9	4.6	5.4	6.0	3.4	4.1	4.7	5.4	6.0	6.6	7.2	7.7	
	C	1.6	2.2	3.1	4.2	7.4	10.2	13.6	16.2	3.4	4.5	5.5	6.5	6.8	7.1	7.2	7.3	
Bogor	North	A	0.4	0.6	1.2	1.7	2.4	3.1	3.7	4.6	1.6	2.1	2.6	3.2	3.7	4.2	4.7	5.0
		B	0.4	0.5	1.0	1.5	1.9	2.4	2.8	3.2	1.6	2.0	2.4	2.8	3.1	3.5	3.8	4.1
		C	0.4	0.7	1.2	1.9	2.7	3.7	4.4	5.3	1.6	1.8	2.1	2.3	2.4	2.4	2.4	2.4
	South	A	0.7	1.2	1.9	2.6	3.5	4.4	5.5	6.5	2.0	2.7	3.5	4.4	5.2	5.9	6.6	7.2
		B	0.7	1.1	1.6	2.3	3.1	3.8	4.7	5.3	2.0	2.6	3.2	3.8	4.4	4.8	5.3	5.6
		C	0.7	1.2	2.0	3.2	5.5	7.5	9.5	10.9	2.0	2.6	3.3	3.7	3.8	3.9	4.0	4.0
	South-west	A	0.3	0.5	0.7	1.0	1.2	1.7	2.0	2.4	1.3	1.6	1.9	2.2	2.5	2.7	3.1	3.3
		B	0.3	0.4	0.6	0.8	1.0	1.2	1.5	1.7	1.3	1.5	1.7	1.9	2.1	2.3	2.5	2.7
		C	0.3	0.5	0.6	0.8	1.4	2.0	2.6	3.3	1.3	1.5	1.8	2.1	2.1	2.2	2.2	2.2
	West	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.7	0.8	0.9	1.0	1.2	1.3	1.5
		B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.2
		C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.4
	East	A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.7	0.8	1.0	1.1	1.3	1.5	1.7
		B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.4
		C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5
Total	A	1.4	2.3	3.8	5.3	7.1	9.2	11.2	13.5	6.1	7.8	9.6	11.7	13.5	15.3	17.2	18.7	
	B	1.4	2.0	3.2	4.6	6.0	7.4	9.0	10.2	6.1	7.4	8.8	10.2	11.5	12.7	13.9	15.0	
	C	1.4	2.4	3.8	5.9	9.6	13.2	16.5	19.5	6.1	7.3	8.8	9.9	10.3	10.8	11.2	11.5	
Outside Jabotabek	Serang	A	2.2	3.2	4.3	5.8	7.1	8.7	10.2	11.8	2.6	3.2	4.0	5.1	6.0	6.8	7.5	8.2
		B	2.2	2.9	3.6	4.6	5.4	6.4	7.0	7.7	2.6	3.0	3.5	4.2	4.8	5.3	5.7	6.2
		C	2.2	3.3	4.4	6.9	9.1	12.2	14.3	17.3	2.6	3.2	4.0	4.6	5.0	5.1	5.2	5.3
	Purwakarta/ Karawang	A	1.0	1.5	2.8	4.1	5.5	7.2	8.9	11.0	3.5	4.0	4.7	5.7	6.8	7.7	8.5	9.2
		B	1.0	1.3	2.4	3.3	4.3	5.4	6.3	7.3	3.5	3.8	4.3	4.9	5.5	6.1	6.6	7.1
		C	1.0	1.5	2.9	4.9	7.7	11.4	14.6	18.1	3.5	4.0	4.7	5.4	5.7	5.7	5.6	5.6
Grand Total	A	17.5	22.9	30.3	40.4	50.0	60.4	71.2	83.4	35.1	40.6	46.7	53.3	59.4	64.7	69.7	73.9	
	B	17.5	21.9	28.0	35.7	42.7	49.8	56.6	63.8	35.1	39.7	44.4	49.4	53.7	57.5	60.9	64.3	
	C	17.5	26.5	37.9	57.1	80.9	99.6	116.6	135.5	35.1	39.8	44.5	47.4	46.8	47.5	47.8	48.2	

表-2 カリアン-スルボン導水システム主要構造物諸元

Main Features	KSCS I	KSCS II	KSCS III	Tanjung Canal	Cilawang Canal
1) Length					
2) Bed slope	1/5,000	1/5,000	-	1/600	1/500
3) Type of waterway	RC rectangular channel	RC rectangular channel	PC pipe (10.2 km) and steel pipe (1.7 km)	RC rectangular channel	RC rectangular channel
4) Maximum dimension of cross section	(w) 4.85 m (h) 3.05 m	(w) 5.30 m (h) 3.05 m	Ø 2.2 m	(w) 3.00 m (h) 1.95 m	(w) 2.10 m (h) 1.30 m
5) Maximum flow capacity	12.4 m <sup>3</sup> /s	13.8 m <sup>3</sup> /s	6.0 m <sup>3</sup> /s	9.7 m <sup>3</sup> /s	4.1 m <sup>3</sup> /s
6) Conveyance method	gravity	gravity	pressure flow	gravity	gravity
7) River crossing structures (numbers and total length)					
- Syphon	7 (775.2m)	4 (265.2m)	-	-	2 (350.7m)
- Aqueduct	-	-	1 (140m)	-	-
8) Road crossing structures (numbers)					
- Road	36	17	16	4	16
- Foot path	22	14	8	3	12
Total	58	31	24	7	28
9) Cross drain (numbers)	63	0	15	8	7
10) Railway crossing (numbers)	1	2	1	0	0

表-3 移 転 候 補 地

a. Estate						
Owner of the Area	Name of Location	Kabupaten	Kecamatan	Existing Area (ha)	Available Area (ha)	Remarks
PT.P11*	Cisalak Baru	Lebak	Rangkasbitung Maja, Cimarga	2,980	1,550	1,430 ha is in the Protection Area
PT.Candi Putra	Pasir Ayunan	Lebak	Sajira	600	570	30 ha is in the Protection Area.
PT.Silalangu	Silalangu	Lebak	Maja	464	379	85 ha to be submerged.
PT.Pasir Roko	Pasir Kopo	Lebak	Cimarga	91	-	Whole area is in the Protection Area
PT.Jaura Atmaja Utama	Jaura	Lebak	Maja	59	59	
Sub-total				4,194	2,558	
PT.P11*	Cikasungka	Bogor	P/panjang, Jasinga	3,094	3,094	Suitable for settlement but not for agriculture
Kab. Bogor	Cikopo Mayak	Bogor	Jasinga	600	600	ditto
PBS Cikopo Mayak	Cikopo Mayak	Bogor	Jasinga	2,427	2,427	ditto
PBS Jasinga	Jasinga	Bogor	Jasinga	518	518	ditto
Sub-total				6,639	6,639	
Total Existing Area				10,834		
Total Available Area for Relocation				9,198		

Note: " \* " - Estate company owned by the Department of Agriculture

## b. Forest

Owner of the Area	Name of Location	Kabupaten	Kecamatan	Existing Area (ha)	Available Area (ha)
Perum Perhutani**	1) Gn.Cabe (Cipanas)	Lebak	Cimarga	2,210	-
	2) Gn.Cabe (Muncang)	Lebak	Muncang	1,269	-
	3) Ciberang I, II, III	Lebak	Cipanas	928	-
Perum Perhutani **		Bogor	Tenjo, Jasinga	4,235	-
Total Existing Area				8,641	
Total Available Area for Relocation				-	

Note: \*\* - General Forestry Company owned by the Department of Forestry

表-4 提案された構造物の主要諸元

Main Features	Karian Dam	Pasir Kopo Dam		Cilawang Dam	Tanjung Dam
		A	C		
<b>I. Dam scheme</b>					
1) Catchment area (km <sup>2</sup> )	288	172	172	93	280
2) Dam type	Rockfill	Rockfill	Rockfill	Rockfill	Rockfill
3) Dam crest level (EL. m)	72.5	97.0	106.5	81.0	60.5
4) Flood high water level (EL.m)	69.9	94.2	103.7	78.5	59.5
5) Normal high water level	67.5	90.5	100.5	75.6	56.5
6) Low water level	46.0	80.0	80.0	66.5	50.0
7) Dam height (m)	60.5	52.0	61.5	36.0	35.5
8) Reservoir area (ha)	1,740	640	920	1,056	2,487
9) Effective storage volume (mil. m <sup>3</sup> )	219.0	44.5	112.6	62.0	120.0
10) Embankment volume of main dam (mil. m <sup>3</sup> )	1.23	0.42	0.70	0.42	8.39
11) Design flood discharge (PMF)					
a) Inflow	3,400	3,300	3,300	1,700	3,098
b) Outflow	2,670	1,760	1,430	1,230	727
12) Spillway gate					
a) Type	Radial gate	overflow type	overflow type	Radial gate	overflow type
b) Nos.	2			2	
c) Height	12.5			9.5	
d) Width	12.5			9.0	
13) Side overflow spillway weir (m)	50.0	125.0	125.0	20.0	-
14) Flood control volume against 10-year probable flood (mil. m <sup>3</sup> )	33.5	-	-	-	-
<b>II. Karian-Serpong conveyance system</b>					
1) Length (km)					
a) KSCS I			36.5		
b) KSCS II			19.3		
c) KSCS III			11.9		
d) Cilawang canal			17.1		
e) Tanjung canal			4.3		
2) Type of conveyance					
a) KSCS I&II and Cilawang & Tanjung Canal			gravity conveyance		
b) KSCS III			pumping-up and pipeline		
3) Maximum flow capacities (m <sup>3</sup> /s)					
a) KSCS I			12.4		
b) KSCS II			13.8		
c) KSCS III			6.0		
d) Cilawang canal			4.1		
e) Tanjung canal			9.7		
<b>III. River improvement works</b>					
1) River length to be improved (km)			18.20		
2) Improvement method			Provision of river dredging, short-cut channel (4 km) and flood dyke		
3) Design discharge					
a) Design scale			10-year probable flood discharge		
b) Design discharge			1,100 m <sup>3</sup> /s with retardation of flood peak discharge in the Karian reservoir		
4) Earth work volume					
a) Embankment volume (mil. m <sup>3</sup> )			0.60		
b) Excavation volume (mil. m <sup>3</sup> )			1.40		
c) Dredging volume (mil. m <sup>3</sup> )			0.67		

表-5 開発事業費

## First Phase Development

(Unit : million Rp)

Description	Karian Dam		Ciuyah Tunnel		KSCS I		River Improvement		Total	
	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC
I. Basic Cost										
1) Preparatory Works	11,032	7,266	469	205	10,703	8,799	2,659	2,541	24,863	18,811
2) Civil Works	87,765	34,892	10,277	4,383	97,002	59,854	17,862	11,392	212,906	110,521
3) Metal Works	11,390	1,266	2,021	225	1,894	211	0	0	15,305	1,702
4) Engineering Service	15,426	3,908	1,787	433	15,344	6,198	2,873	1,254	35,430	11,793
5) Administration	0	7,681	0	879	0	8,923	0	1,723	0	19,205
6) Compensation Cost	0	58,714	0	0	0	6,266	0	1,926	0	66,906
7) Tax (PPN)	0	17,295	0	1,980	0	20,001	0	3,858	0	43,133
Sub-total	125,613	131,021	14,554	8,105	124,943	110,251	23,394	22,694	288,504	272,072
II. Contingency										
1) Physical Contingency	12,561	13,102	1,455	811	12,494	11,025	3,503	3,404	30,014	28,342
2) Price Escalation	21,647	53,483	2,738	4,506	22,728	57,850	4,061	11,144	51,173	126,982
Sub-total	34,208	66,585	4,193	5,316	35,222	68,875	7,563	14,548	81,187	155,324
III. Interest During Construction	14,946	0	1,534	0	13,813	0	2,869	0	33,162	0
Total	174,767	197,606	20,281	13,422	173,978	179,127	33,826	37,242	402,853	427,396
Grand Total (FC+LC)		372,373		33,703		353,105		71,068		830,249

## Second Phase Development (IIA) in Scenario A

(Unit : million Rp)

Description	Posir Kopo Dam		Cilawang Dam		KSCS II&III Cilawang Canal		Total	
	FC	LC	FC	LC	FC	LC	FC	LC
I. Basic Cost								
1) Preparatory Works	5,936	3,255	10,217	5,154	8,763	7,602	24,916	16,011
2) Civil Works	43,704	19,573	33,116	13,926	89,475	55,635	166,295	89,134
3) Metal Works	9,185	1,021	7,483	831	49,941	5,549	66,609	7,401
4) Engineering Service	8,236	2,146	7,114	1,792	20,745	6,191	36,095	10,129
5) Administration	0	4,134	0	3,536	0	10,848	0	18,518
6) Compensation Cost	0	20,138	0	25,226	0	1,270	0	46,634
7) Tax (PPN)	0	9,306	0	7,963	0	24,390	0	41,659
Sub-total	67,061	59,573	57,930	58,429	168,924	111,485	293,915	229,486
II. Contingency								
1) Physical Contingency	6,706	5,957	5,793	5,843	16,892	11,149	29,391	22,949
2) Price Escalation	17,890	50,692	15,454	49,719	45,064	94,866	78,408	195,277
Sub-total	24,596	56,649	21,247	55,562	61,956	106,015	107,799	218,226
III. Interest During Construction	8,228	0	7,578	0	16,998	0	32,804	0
Total	99,884	116,222	86,756	113,990	247,879	217,500	434,518	447,712
Grand Total (FC+LC)		216,106		200,746		465,378		882,230

## Second Phase Development (IIC) in Scenario C

(Unit : million Rp)

Description	Posir Kopo Dam		Tanjung Dam		Cilawang Dam		KSCS II&III Tanjung Canal		Cilawang Canal		Total	
	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC	FC	LC
I. Basic Cost												
1) Preparatory Works	5,936	3,255	27,531	14,590	10,217	5,154	7,741	7,371	6,708	4,977	58,133	35,347
2) Civil Works	55,063	19,573	265,468	107,442	33,116	13,926	78,946	46,846	25,136	17,730	457,729	205,517
3) Metal Works	11,860	1,021	2,352	261	7,483	831	49,828	5,537	269	30	71,792	7,680
4) Engineering Service	10,200	2,146	41,349	17,121	7,114	1,792	19,112	5,378	4,496	2,046	82,272	28,484
5) Administration	0	4,835	0	20,882	0	3,536	0	9,813	0	2,743	0	41,810
6) Compensation Cost	0	33,579	0	89,246	0	25,226	0	1,512	0	171	0	149,734
7) Tax (PPN)	0	10,905	0	47,611	0	7,963	0	22,076	0	6,139	0	94,695
Sub-total	83,059	75,315	336,700	297,154	57,930	58,429	155,627	98,533	36,609	33,836	669,926	563,267
II. Contingency												
1) Physical Contingency	8,306	7,532	33,670	29,715	5,793	5,843	15,563	9,853	3,661	3,384	66,993	56,327
2) Price Escalation	22,158	64,088	87,009	246,096	15,454	49,719	41,517	83,845	9,766	28,792	175,903	472,540
Sub-total	30,464	71,620	120,679	275,812	21,247	55,562	57,079	93,698	13,427	32,176	242,896	528,867
III. Interest During Construction	10,159	0	54,960	0	7,578	0	15,639	0	3,145	0	91,481	0
Total	123,682	146,935	512,339	572,965	86,756	113,990	228,345	192,231	53,180	66,012	1,004,302	1,092,134
Grand Total (FC+LC)		270,617		1,085,304		200,746		420,577		119,192		2,096,436

表-6 第1期事業資金配分計画 (1/2)

**Karian Dam**

Description	Disbursement (F.C. in million Rp)									Disbursement (L.C. in million Rp)								
	Total	1995	1996	1997	1998	1999	2000	2001	2002	Total	1995	1996	1997	1998	1999	2000	2001	2002
I. Basic Cost																		
1) Preparatory Works	11,032				8,274	2,758				7,266				5,450	1,817			
2) Civil Works																		
River diversion	13,930				4,040	7,940	1,950			6,451				1,871	3,677	903		
Coffer dam	4,237						4,237			1,605						1,605		
Main dam	51,844				7,777	15,553	15,553	12,961		19,309				2,896	5,793	5,793	4,827	
Saddle dam	6,414				2,117	4,297				2,429				802	1,627			
Spillway	10,491					2,623	3,882	3,987		4,616					1,154	1,708	1,754	
Intake	849					340	509			482					193	289		
Subtotal	87,765				13,933	30,753	26,131	16,948		34,892				5,569	12,444	10,298	6,581	
3) Metal Works	11,390					3,417	3,417	3,417	1,139	1,266					380	380	380	127
Total of 1 to 3	110,187				22,207	36,928	29,548	20,365	1,139	43,424				11,018	14,640	10,678	6,961	127
4) Engineering Service	15,426	1,620	2,314	694	2,052	2,700	2,700	2,700	648	3,908	410	586	176	520	684	684	684	164
5) Administration										7,681	768	768	768	1,152	1,152	1,152	1,152	768
6) Compensation Cost										58,714			39,338	19,376				
7) Tax (PPN)										17,295	203	290	87	3,580	5,495	4,361	3,071	208
Total of 1 to 7	125,613	1,620	2,314	694	24,259	39,628	32,248	23,064	1,787	131,021	1,381	1,644	40,369	35,645	21,971	16,875	11,868	1,267
II. Contingency																		
1) Physical	12,561	162	231		2,426	3,963	3,225	2,306	179	13,102	138	164	4,037	3,565	2,197	1,687	1,187	127
2) Price Escalation	21,647	49	141	64	3,045	6,312	6,258	5,302	477	53,483	111	274	10,484	12,850	10,312	9,903	8,472	1,078
Total of 1 & 2	34,208	211	372		5,471	10,274	9,483	7,608	655	66,585	249	438	14,521	16,414	12,509	11,591	9,659	1,204
III. Interest during Construction	14,946	48	117	135	908	2,206	3,291	4,088	4,152									
Financial Cost	174,767	1,878	2,804	830	30,638	52,108	45,022	34,761	6,594	197,606	1,630	2,082	54,891	52,060	34,480	28,466	21,527	2,471
IV. O & M		935									355							1,290

**Ciayah Tunnel**

Description	Disbursement (F.C. in million Rp)									Disbursement (L.C. in million Rp)								
	Total	1995	1996	1997	1998	1999	2000	2001	2002	Total	1995	1996	1997	1998	1999	2000	2001	2002
I. Basic Cost																		
1) Preparatory Works	469				469					205				205				
2) Civil Works																		
Inlet and Outlet	465				465					260				260				
Tunnel	7,263				436	2,542	1,307	2,542	436	3,076				185	1,077	554	1,077	185
Intake Shaft	2,216						1,418	798		823						527	296	
Approach Channel	333							266	67	224						179	45	
Subtotal	10,277				901	2,542	2,726	3,606	502	4,383				445	1,077	1,260	1,418	185
3) Metal Works	2,021					606	606	606	202	225					68	68	68	23
Total of 1 to 3	12,767				1,370	3,148	3,332	4,213	704	4,813				650	1,144	1,327	1,485	207
4) Engineering Service	1,787	188	268	80	238	313	313	313	75	433	45	65	19	58	76	76	76	18
5) Administration										879	88	88	88	132	132	132	132	88
6) Compensation Cost										1,980	23	33	10	231	468	505	609	100
7) Tax (PPN)																		
Total of 1 to 7	14,554	188	268	80	1,608	3,461	3,645	4,525	780	8,105	157	186	117	1,070	1,820	2,040	2,301	414
II. Contingency																		
1) Physical	1,455	19	27	8	161	346	364	453	78	811	16	19		107	182	204	230	41
2) Price Escalation	2,738	6	16	7	202	551	707	1,040	208	4,506	13	31	30	386	854	1,197	1,643	352
Total of 1 & 2	4,193	24	43	16	363	897	1,072	1,493	286	5,316	28	50	30	493	1,036	1,401	1,873	393
III. Interest during Construction	1,534	6	14	16	67	181	303	460	487									
Financial Cost	20,281	218	325	112	2,037	4,539	5,020	6,478	1,553	13,422	185	236	148	1,563	2,856	3,440	4,174	807
IV. O & M		113									45							158

Note: Engineering service FC : 14 % and LC : 9 % for total of items I.1 to I.3. Physical Copntingency FC : 10 % and LC : 10 % for total of items I.  
 Administration FC : 5 % and LC : 5 % for total of items I.1 to I.3. Price escalation FC : 3 % and LC : 8 % for total of items I.  
 Tax FC : 10 % and LC : 10 % for total of items I.1 to I.4. Interest rate 2.6 % for FC  
 O&M 1 % for Item I.2 and 0.5 % for Item I.3 in both FC and LC



表-7 第1期事業資金配分計画 (2/2)

**Karia-Serpong Conveyance System (KSCS)**

Description	Disbursement (F.C. in million Rp)										Disbursement (L.C. in million Rp)									
	Total	1995	1996	1997	1998	1999	2000	2001	2002	Total	1995	1996	1997	1998	1999	2000	2001	2002		
I. Basic Cost																				
1) Preparatory Works	10,703				10,703					8,799				8,799						
2) Civil Works																				
Waterway	72,652				9,445	19,616	19,616	19,616	4,359	45,794			5,953	12,364	12,364	12,364	2,748			
Syphon	4,455				579	1,292	1,292	1,292		2,769			360	803	803	803				
Railway Crossing	6,537							6,014	523	1,863						1,714	149			
Road Crossing	3,589				251	1,113	1,113	1,113		2,272			159	704	704	704				
Spillway at Cicinta	191							191		123							123			
Division Structure at Tenjo	856						856			543					543					
Division Structure at Parunpanjang	194					194				124				124						
Inspection Road	5,164							2,582	2,582	3,988					1,994	1,994				
Foot path	132				25	36	36	36		61				12	16	16	16			
Cross Drain	3,232				420	937	937	937		2,317				301	672	672	672			
Subtotal	97,002				10,720	23,188	26,432	31,781	4,882	59,854			6,785	14,684	17,097	18,391	2,897			
3) Metal Works																				
Syphon	59				8	17	17	17		7				1	2	2	2			
Spillway at Cicinta	372									41							41			
Division Structure at Cicinta	945							945		105						105				
Division Structure at Subtotal	518					518				58				58						
Subtotal	1,894				8	535	962	389		211			1	60	107	43				
Total of 1 to 3	109,599				21,431	23,723	27,394	32,170	4,882	68,864				15,585	14,744	17,204	18,434	2,897		
4) Engineering Service	15,344	1,611	2,302	690	2,041	2,685	2,685	2,685	644	6,198	651	930	279	824	1,085	1,085	1,085	260		
5) Administration										8,923	892	892	892	1,338	1,338	1,338	1,338	892		
6) Compensation Cost										6,266			4,198	2,068						
7) Tax (PPN)										20,001	226	323	97	3,988	4,224	4,837	5,437	868		
Total of 1 to 7	124,943	1,611	2,302	690	23,472	26,408	30,079	34,855	5,527	110,251	1,769	2,145	5,466	23,804	21,391	24,464	26,295	4,918		
II. Contingency																				
1) Physical	12,494	161	230		2,347	2,641	3,008	3,485	553	11,025	177	215		2,380	2,139	2,446	2,629	492		
2) Price Escalation	22,728	48	140	64	2,946	4,206	5,837	8,012	1,474	57,850	142	357	1,420	8,581	10,039	14,357	18,770	4,185		
Total of 1 & 2	35,222	209	370		5,293	6,847	8,845	11,498	2,027	68,875	318	571	1,420	10,961	12,178	16,804	21,399	4,676		
III. Interest during Construction	13,813	47	117	135	883	1,747	2,759	3,964	4,161											
Financial Cost	173,978	1,868	2,789	825	29,648	35,002	41,683	50,317	11,714	179,127	2,088	2,717	6,886	34,765	33,569	41,268	47,694	9,594		
IV. O & M		979									600							1,579		

**First Phase : River Improvement Works**

Description	Disbursement (F.C. in million Rp)										Disbursement (L.C. in million Rp)									
	Total	1995	1996	1997	1998	1999	2000	2001	2002	Total	1995	1996	1997	1998	1999	2000	2001	2002		
I. Basic Cost																				
1) Preparatory Works	2,659				2,659					2,541				2,541						
2) Civil Works																				
Earth Works	14,158				2,690	3,823	3,823	3,823		9,016			1,713	2,434	2,434	2,434				
Structural Works	1,490				283	402	402	402		1,371			260	370	370	370				
Road Works	2,214						1,107	1,107		1,005					503	503				
Subtotal	17,862				2,973	4,225	5,332	5,332		11,392			1,974	2,804	3,307	3,307				
Total of 1 & 2	20,521				5,632	4,225	5,332	5,332		13,933			4,515	2,804	3,307	3,307				
3) Engineering Service	2,873	302	431	129	382	503	503	503	121	1,254	132	188	56	167	219	219	53			
4) Administration										1,723	172	172	172	258	258	258	172			
5) Compensation Cost										1,926			1,290	636						
6) Tax (PPN)										3,858	43	62	19	1,070	775	936	17			
Total of 1 to 6	23,394	302	431	129	6,014	4,728	5,835	5,835	121	22,694	347	422	1,538	6,645	4,058	4,721	242			
II. Contingency																				
1) Physical	3,503	45	65	13	902	709	875	875	18	3,404	52	63	231	997	609	708	36			
2) Price Escalation	4,061	9	26	12	755	753	1,132	1,341	32	11,144	28	70	399	2,395	1,904	2,771	206			
Total of 1 & 2	7,563	54	91	25	1,657	1,462	2,007	2,216	50	14,548	80	134	630	3,392	2,513	3,479	242			
III. Interest during Construction	2,869	9	23	27	226	387	591	800	805											
Financial Cost	33,826	365	545	181	7,897	6,577	8,433	8,852	976	37,242	427	556	2,168	10,037	6,570	8,200	8,799	485		
IV. O & M		205									139							345		

Note: Engineering service FC : 14 % and LC : 9 % for total of items 1.1 to 1.3. Price escalation FC : 3 % and LC : 8 % for total of items 1.  
 Administration FC : 5 % and LC : 5 % for total of items 1.1 to 1.3. Interest rate 2.6 % for FC  
 Tax FC : 10 % and LC : 10 % for total of items 1.1 to 1.4.  
 O&M 0.5 % for civil work and metal work in both FC and LC  
 Physical Copningenc FC : 10 % and LC : 10 % for total of items I. (KSCS)  
 FC : 15 % and LC : 15 % for total of items I. (River improvement)

表-8 第2期事業資金配分計画：シナリオ (A) (1/2)

Pasir Kopo Dam Description	Disbursement (F.C. in million Rp)										Disbursement (L.C. in million Rp)									
	Total	2008	2009	2010	2011	2012	2013	2014	2015	Total	2008	2009	2010	2011	2012	2013	2014	2015		
I. Basic Cost																				
1) Preparatory Works	5,936				4,452	1,484				3,255				2,441	814					
2) Civil Works																				
River diversion	5,991				1,737	3,415	839			2,689				780	1,533	376				
Coffer dam	1,764						1,764			653					653					
Main dam	14,872				2,231	4,462	4,462	3,718		5,507				826	1,652	1,652	1,377			
Spillway	20,002					5,001	7,401	7,601		10,194					2,549	3,772	3,874			
Intake and Emergency Outlet	1,075					430	645			530					212	318				
Subtotal	43,704				3,968	13,307	15,110	11,319		19,573				1,606	5,945	6,771	5,250			
3) Metal Works	9,185					2,756	2,756	2,756	919	1,021					306	306	306	102		
Total of 1 to 3	58,825				8,420	17,546	17,866	14,074	919	23,849				4,047	7,065	7,078	5,557	102		
4) Engineering Service	8,236	865	1,235	371	1,095	1,441	1,441	1,441	346	2,146	225	322	97	285	376	376	376	90		
5) Administration										4,134	413	413	413	620	620	620	620	413		
6) Compensation Cost										20,138			13,492	6,646						
7) Tax (PPN)										9,306	109	156	47	1,385	2,643	2,676	2,145	146		
Total of 1 to 7	67,061	865	1,235	371	9,516	18,988	19,307	15,515	1,264	59,573	748	891	14,049	12,983	10,704	10,749	8,697	751		
II. Contingency																				
1) Physical	6,706	86	124	37	952	1,899	1,931	1,552	126	5,957	75	89	1,405	1,298	1,070	1,075	870	75		
2) Price Escalation	17,890	231	330	99	2,538	5,065	5,150	4,139	337	50,692	636	758	11,954	11,048	9,108	9,147	7,401	639		
Total of 1 & 2	24,596	317	453	136	3,490	6,964	7,081	5,691	464	56,649	711	847	13,359	12,346	10,179	10,222	8,270	714		
III. Interest during Construction	8,228	31	75	88	426	1,101	1,787	2,338	2,383											
Financial Cost	99,884	1,213	1,763	594	13,431	27,052	28,175	23,544	4,111	116,222	1,459	1,738	27,408	25,330	20,883	20,971	16,968	1,466		
IV. O & M	483									201								684		

Note: Engineering service FC: 14 % and LC: 9 % for total of items I.1 to I.3. Physical Copntügency FC: 10 % and LC: 10 % for total of items I.  
 Administration FC: 5 % and LC: 5 % for total of items I.1 to I.3. Price escalation FC: 3 % and LC: 8 % for total of items I till 2002.  
 Tax FC: 10 % and LC: 10 % for total of items I.1 to I.4. 0 % after 2002  
 O&M 1 % for Item I.2 and 0.5 % for Item I.3 in both FC and LC Interest rate 2.6 % for FC



表-10 第2期事業資金配分計画：シナリオ (C) (1/3)

Pasir Kopo Dam

Description	Disbursement (F.C. in million Rp)										Disbursement (L.C. in million Rp)							
	Total	2004	2005	2006	2007	2008	2009	2010	2011	Total	2004	2005	2006	2007	2008	2009	2010	2011
I. Basic Cost																		
1) Preparatory Works	5,936				4,452	1,484				3,255				2,441	814			
2) Civil Works																		
River diversion	6,766				1,962	3,857	947			2,689				780	1,533	376		
Coffer dam	3,497						3,497			653						653		
Main dam	23,547				3,532	7,064	7,064	5,887		5,507				826	1,652	1,652	1,377	
Spillway	19,892					4,973	7,360	7,559		10,194					2,549	3,772	3,874	
Intake and Emergency Outlet	1,361					544	817			530					212	318		
Subtotal	55,063				5,494	16,438	19,685	13,446		19,573				1,606	5,945	6,771	5,250	
3) Metal Works	11,860					3,558	3,558	3,558	1,186	1,021					306	306	306	102
Total of 1 to 3	72,859				9,946	21,480	23,243	17,004	1,186	23,849				4,047	7,065	7,078	5,557	102
4) Engineering Service	10,200	1,071	1,530	459	1,357	1,785	1,785	1,785	428	2,146	225	322	97	285	376	376	376	90
5) Administration										4,835	484	484	484	725	725	725	725	484
6) Compensation Cost										33,579			22,498	11,081				
7) Tax (PPN)										10,905	130	185	56	1,564	3,071	3,248	2,472	181
Total of 1 to 7	83,059	1,071	1,530	459	11,303	23,265	25,028	18,789	1,614	75,315	839	991	23,134	17,702	11,237	11,427	9,130	856
II. Contingency																		
1) Physical	8,306	107	153	46	1,130	2,327	2,503	1,879	161	7,532	84	99	2,313	1,770	1,124	1,143	913	86
2) Price Escalation	22,158	286	408	122	3,015	6,206	6,677	5,012	431	64,088	714	843	19,685	15,064	9,562	9,723	7,769	729
Total of 1 & 2	30,464	393	561	168	4,146	8,533	9,180	6,891	592	71,620	797	942	21,999	16,834	10,686	10,866	8,682	814
III. Interest during Construction	10,159	38	92	109	510	1,337	2,227	2,894	2,952									
Financial Cost	123,682	1,502	2,184	736	15,959	33,135	36,434	28,574	5,158	146,935	1,636	1,933	45,132	34,536	21,922	22,293	17,812	1,671
IV. O & M	610									201								811

Note: Enginnering service FC: 14 % and LC: 9 % for total of items I.1 to I.3. Physical Copnugency FC: 10 % and LC: 10 % for total of items I.  
Administration FC: 5 % and LC: 5 % for total of items I.1 to I.3. Price escalation FC: 3 % and LC: 8 % for total of items I till 2002.  
Tax FC: 10 % and LC: 10 % for total of items I.1 to I.4. 0 % after 2002  
O&M 1 % for Item I.2 and 0.5 % for Item I.3 in both FC and LC Interest rate 2.6 % for FC



表-12 第2期事業資金配分計画：シナリオ (C) (3/3)

Description		Disbursement (F.C. in million Rp)								Disbursement (L.C. in million Rp)									
		Total	2011	2012	2013	2014	2015	2016	2017	2018	Total	2011	2012	2013	2014	2015	2016	2017	2018
<b>I. Basic Cost</b>																			
1) Preparatory Works	10,217				7,663	2,554				5,154					3,866	1,289			
2) Civil Works																			
River diversion	5,514				1,599	3,143	772			2,582					749	1,472	361		
Coffer dam	2,147						2,147			802							802		
Main dam	15,174				2,276	4,552	4,552	3,794		5,495					824	1,649	1,649	1,374	
Saddle dam	1,563				516	1,047				586					193	393			
Spillway	8,280				2,070	3,064	3,146			4,239						1,060	1,568	1,611	
Intake	438					175	263			222						89	133		
Subtotal	33,116				4,391	10,988	10,798	6,940		13,926					1,766	4,661	4,514	2,985	
3) Metal Works	7,483					2,245	2,245	2,245	748	831						249	249	83	
Total of 1 to 3	50,816				12,054	15,787	13,042	9,185	748	19,911					5,632	6,199	4,763	3,234	
4) Engineering Service	7,114	747	1,067	320	946	1,245	1,245	1,245	299	1,792	188	269	81		238	314	314	75	
5) Administration										3,536	354	354	354		530	530	530	354	
6) Compensation Cost										25,226				16,901	8,325				
7) Tax (PPN)										7,963	94	134	40		1,887	2,354	1,398	121	
Total of 1 to 7	57,930	747	1,067	320	13,000	17,032	14,287	10,430	1,047	58,429	635	756	17,376	16,612	9,398	7,543	5,476	633	
<b>II. Contingency</b>																			
1) Physical	5,793	75	107	32	1,300	1,703	1,429	1,043	105	5,843	64	76	1,738	1,661	940	754	548	63	
2) Price Escalation	15,454	199	285	85	3,468	4,544	3,811	2,782	279	49,719	541	643	14,786	14,136	7,997	6,419	4,659	538	
Total of 1 & 2	21,247	274	391	117	4,768	6,247	5,240	3,825	384	55,562	604	719	16,523	15,797	8,937	7,173	5,207	602	
<b>III. Interest during Construction</b>		7,578	27	64	76	538	1,143	1,651	2,021	2,059									
Financial Cost	86,756	1,048	1,523	513	18,306	24,422	21,178	16,277	3,490	113,990	1,239	1,475	33,899	32,409	18,334	14,717	10,683	1,234	
<b>IV. O &amp; M</b>		369									143								512

**Cilawang Canal**

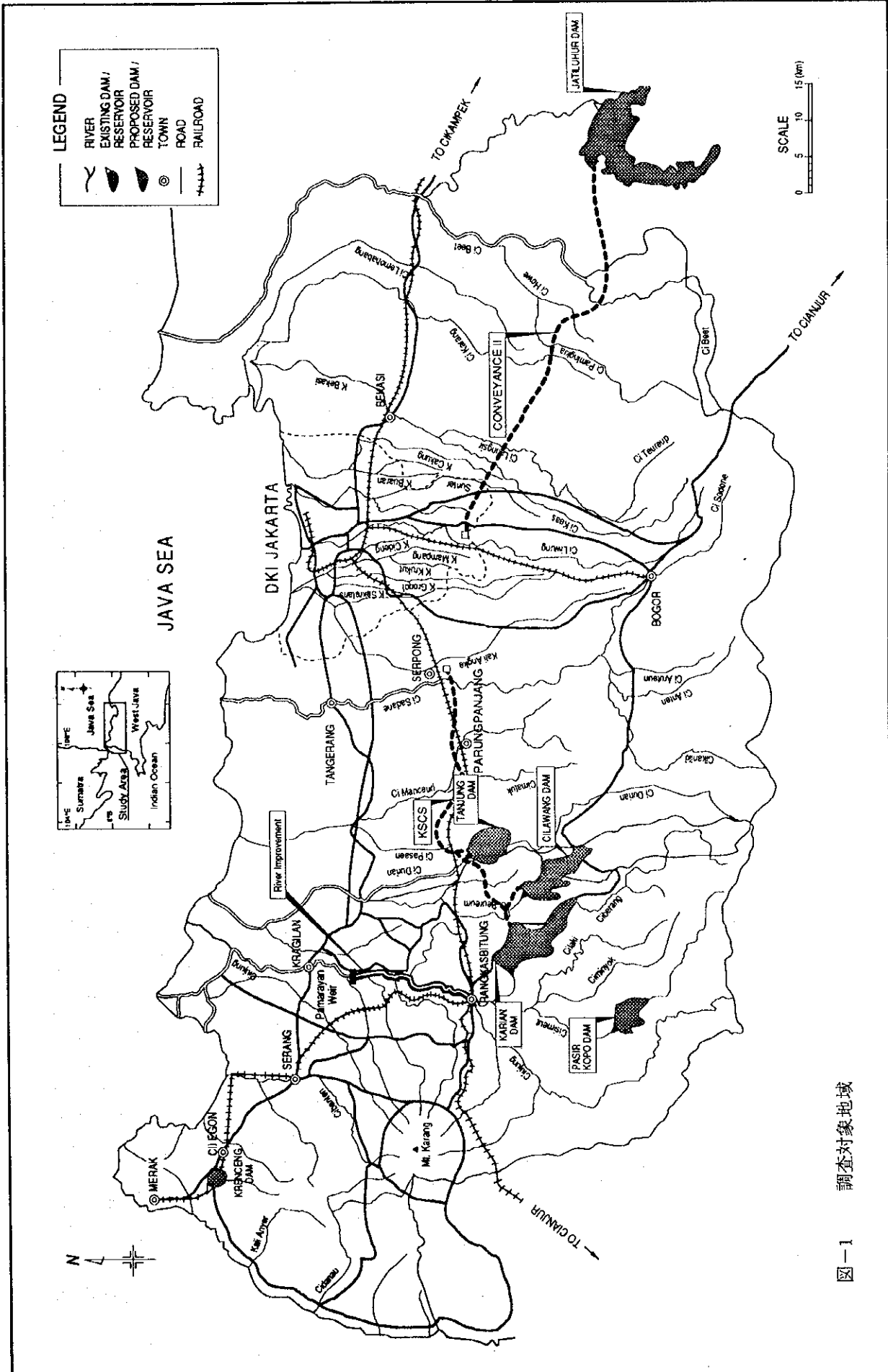
Description		Disbursement (F.C. in million Rp)								Disbursement (L.C. in million Rp)									
		Total	2011	2012	2013	2014	2015	2016	2017	2018	Total	2011	2012	2013	2014	2015	2016	2017	2018
<b>I. Basic Cost</b>																			
1) Preparatory Works	6,708						6,708			4,977						4,977			
2) Civil Works																			
Waterway	19,446						5,639	11,084	2,722	14,037						4,071	8,001	1,965	
Syphon	1,099							1,099		694							694		
Spillway at Cicinta	202							202		130							130		
Division structure at	287							287		207							207		
Road Crossing	1,833						697	1,136		1,133						431	702		
Inspection Road	1,819							1,819		1,226							1,226		
Foot Path	39							13	26	13						4	9		
Cross Drain	411						148	263		290						104	186		
Subtotal	25,136						6,497	15,917	2,722	17,730						4,610	11,155	1,965	
3) Metal Works																			
Syphon	49							49		5							5		
Spillway at Cicinta	178							178		20							20		
Division Structure at Tenjo	42							42		5							5		
Subtotal	269							269		30							30		
Total of 1 to 3	32,113							13,205	16,186	2,722	22,737						9,587	11,185	1,965
4) Engineering Service	4,496			472	674	202	913	1,794	441	2,046				215	307	92	415	816	201
5) Administration										2,743				274	274	527	724	724	219
6) Compensation Cost										171						115	56		
7) Tax (PPN)										6,139				69	98	29	2,412	2,998	533
Total of 1 to 7	36,609			472	674	202	14,117	17,980	3,163	33,836				558	679	763	13,194	15,723	2,918
<b>II. Contingency</b>																			
1) Physical	3,661			47	67	20	1,412	1,798	316	3,384				56	68	76	1,319	1,572	292
2) Price Escalation	9,766			126	180	54	3,766	4,796	844	28,792				475	578	649	11,227	13,380	2,483
Total of 1 & 2	13,427			173	247	74	5,178	6,594	1,160	32,176				530	646	726	12,547	14,952	2,775
<b>III. Interest during Construction</b>		3,145			17	41	48	550	1,189	1,301									
Financial Cost	53,180			662	962	324	19,845	25,763	5,624	66,012				1,088	1,325	1,489	25,741	30,675	5,693
<b>IV. O&amp;M</b>		286									202								

Note: Engineering service FC: 14 % and LC: 9 % for total of items I.1 to I.3. Physical Contingency FC: 10 % and LC: 10 % for total of items I.  
 Administration FC: 5 % and LC: 5 % for total of items I.1 to I.3. Price escalation FC: 3 % and LC: 8 % for total of items I till 2002.  
 Tax FC: 10 % and LC: 10 % for total of items I.1 to I.4. 0 % after 2002.  
 O&M 1 % for Item I.2 and 0.5 % for Item I.3 in both FC and LC. Interest rate 2.6 % for FC.  
 0.5 % for Items I.2 and I.3 in both FC and LC (KSCS)

# 附 図







**LEGEND**

- RIVER
- EXISTING DAM / RESERVOIR
- PROPOSED DAM / RESERVOIR
- TOWN
- ROAD
- RAILROAD

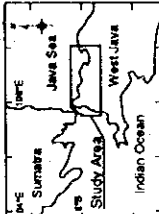


図-1 調査対象地域

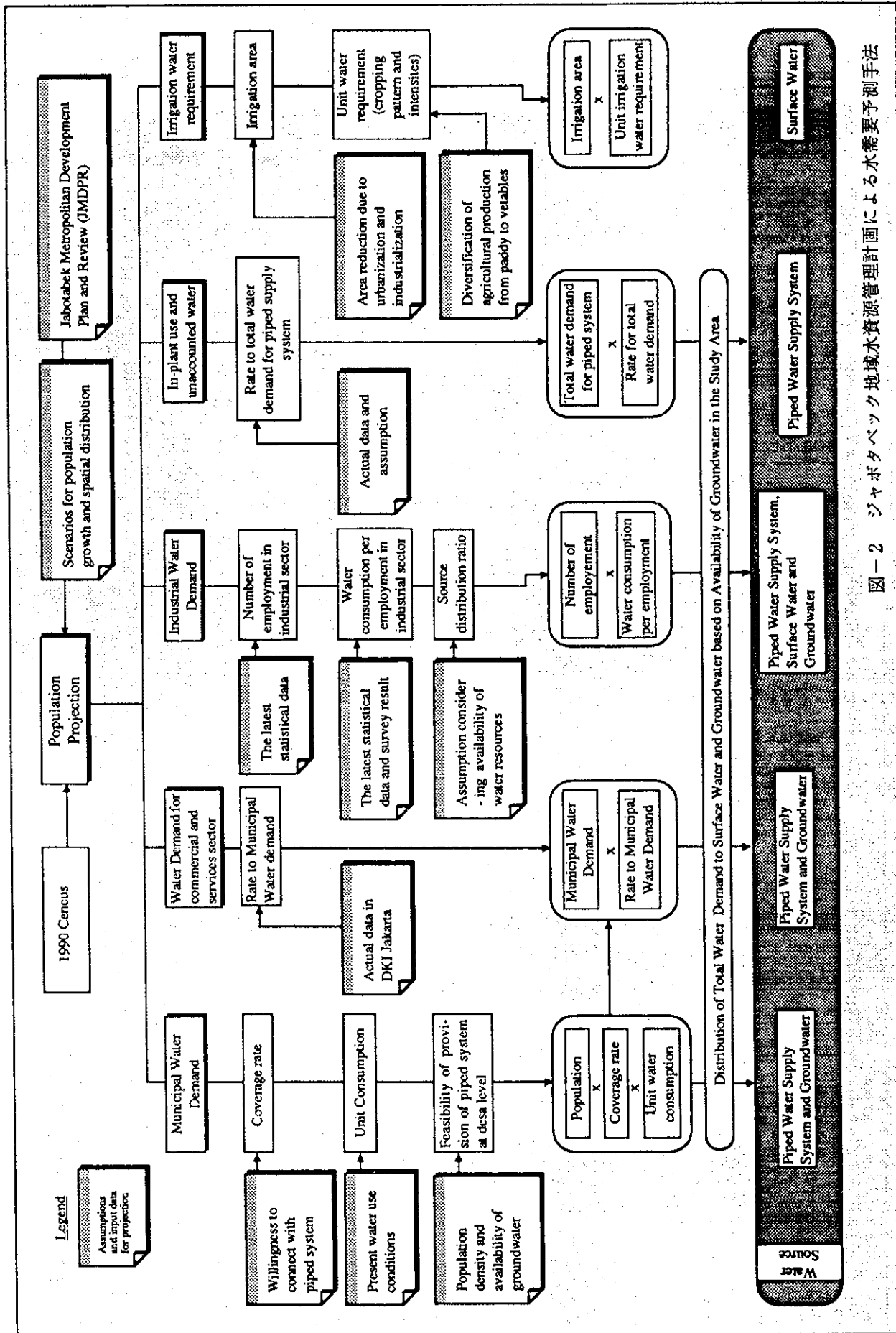
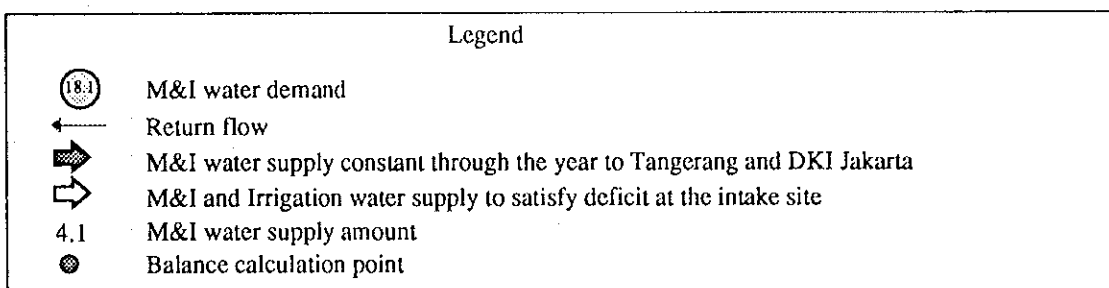
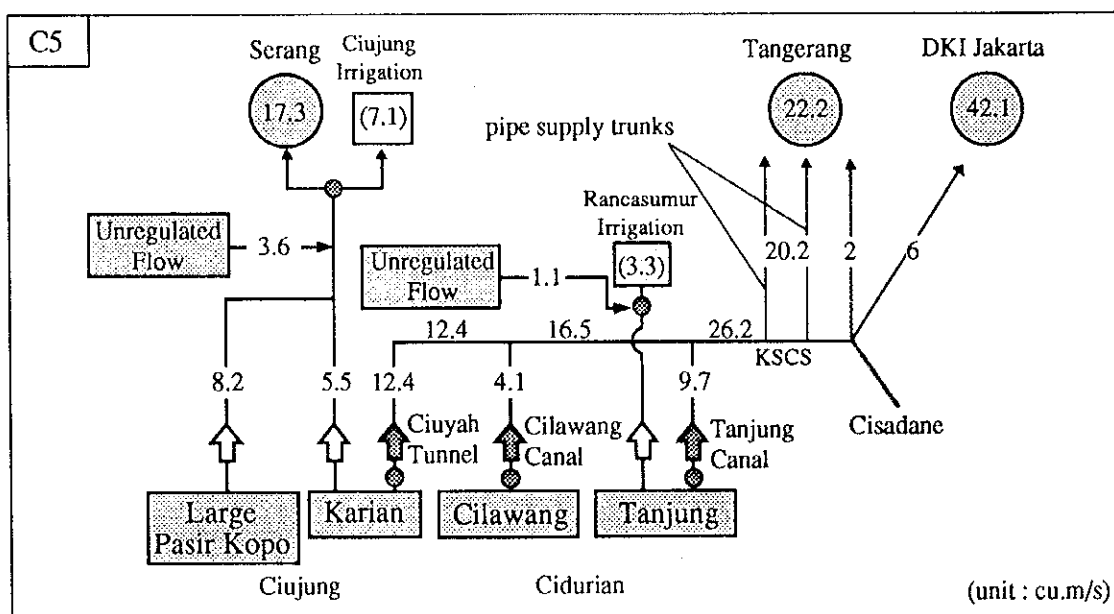
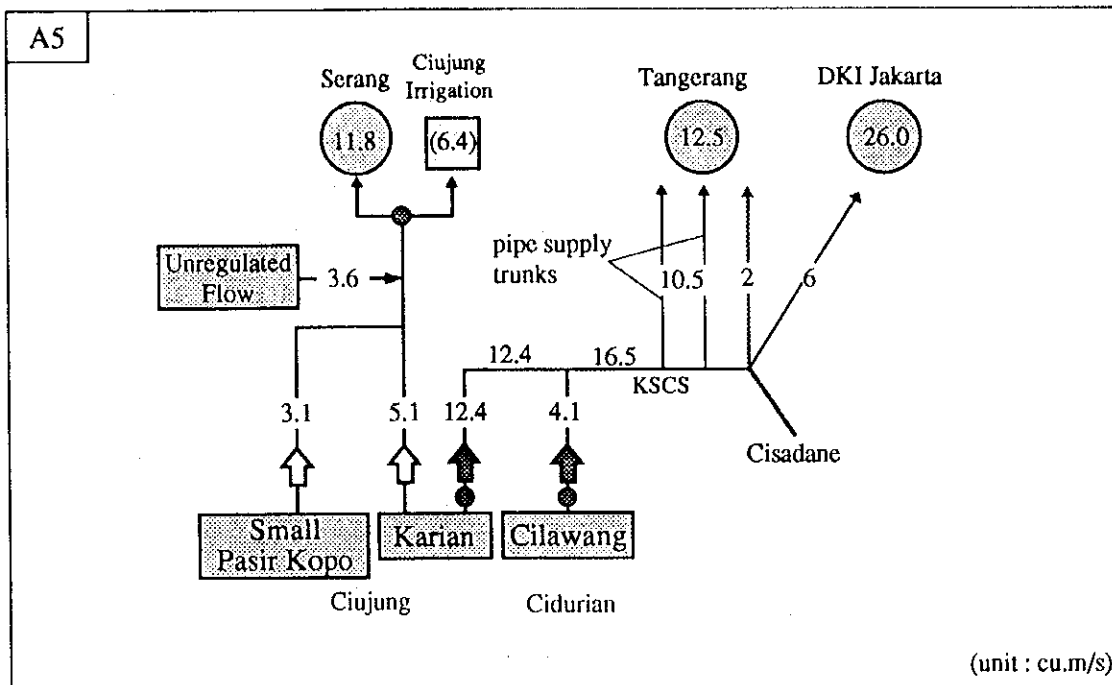
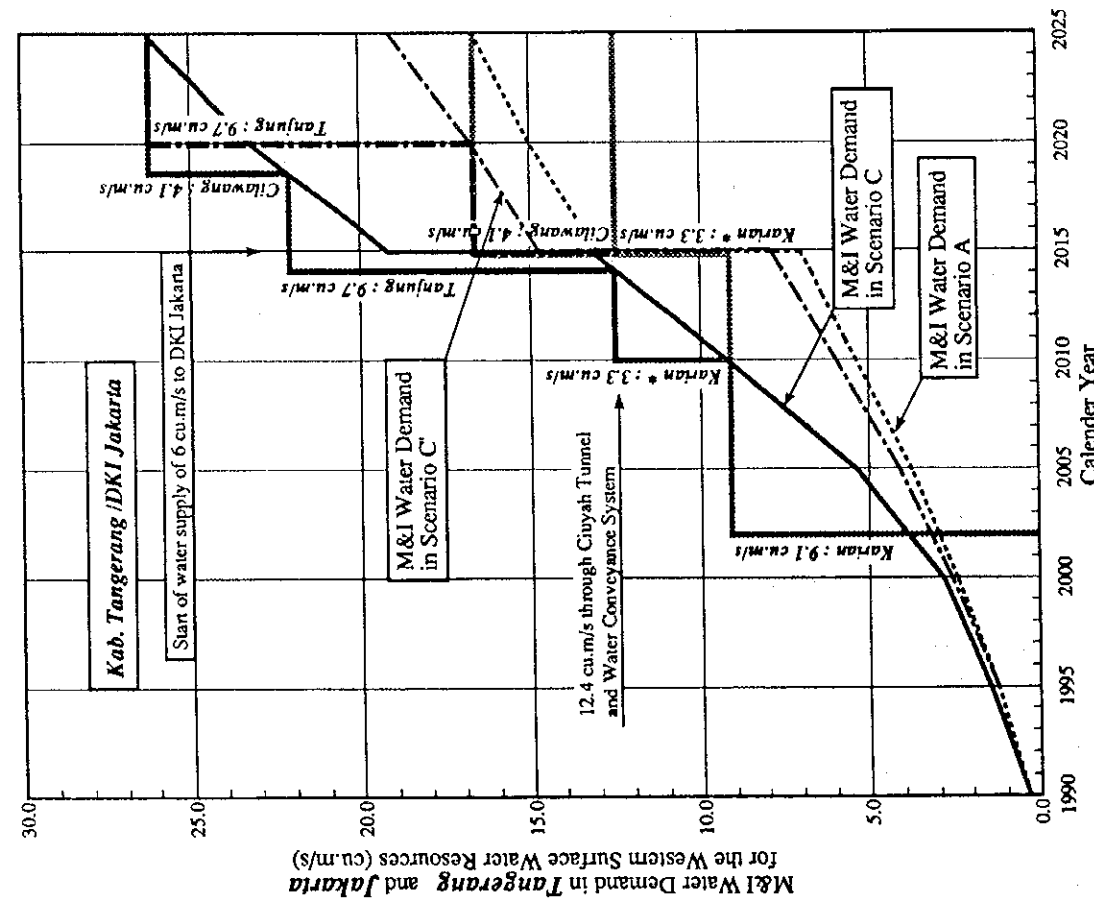
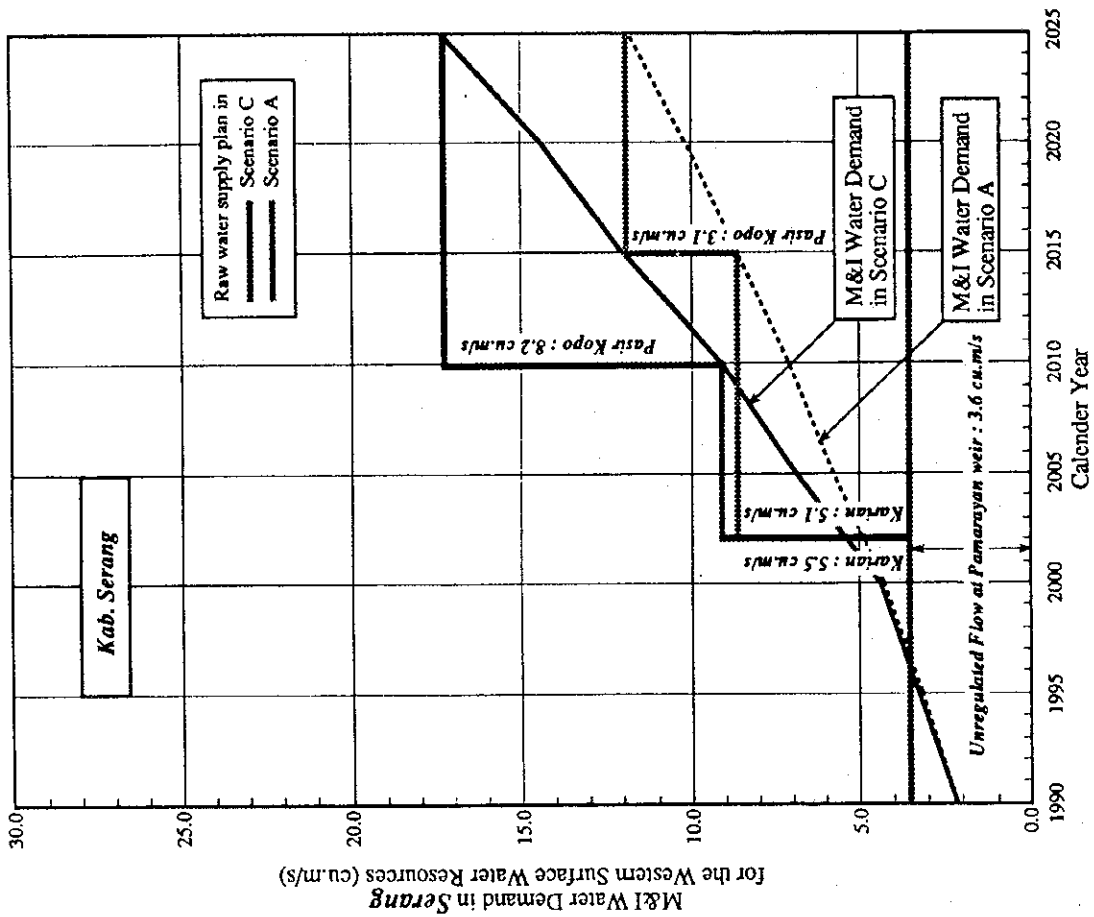


図-2 ジャバベタベック地域水資源管理計画による水需要予測手法



Note:  
 Figures in parenthesis indicate the water amount supplied to the existing irrigation areas by the proposed dams in addition to that for M&I water supply in terms of annual mean.

図-3 2025年における水供給計画



Note: Karian with a symbol of "\*" means incremental discharge from the Karian dam to Karian-Serpong Conveyance System and decrease of water supply amount for Serang. The decreased discharge is planned to be replaced by the Pasir Kopo dam.

図一 4 水資源開発計画

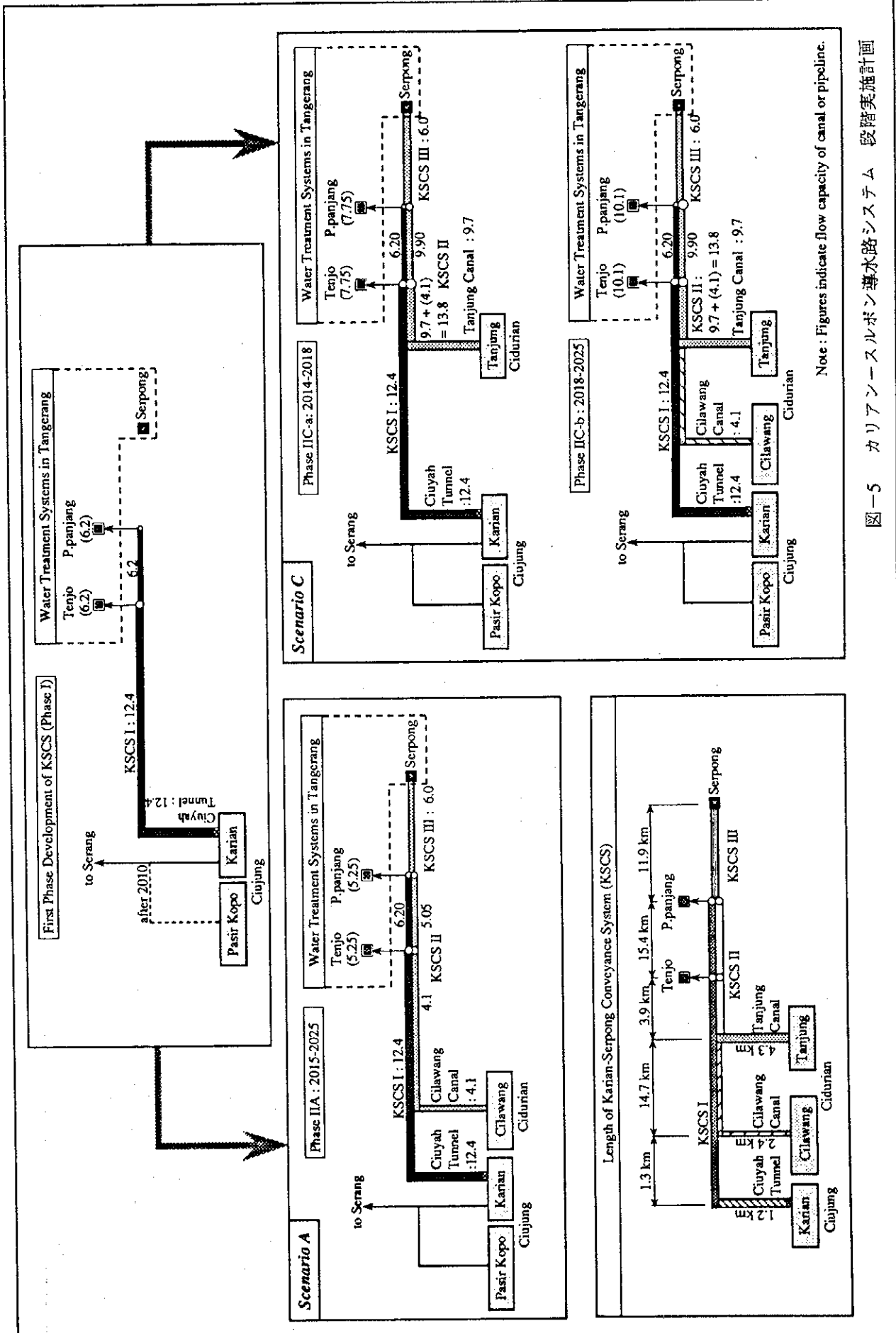


図-5 カリアン-スボルボン導水路システム 段階実施計画

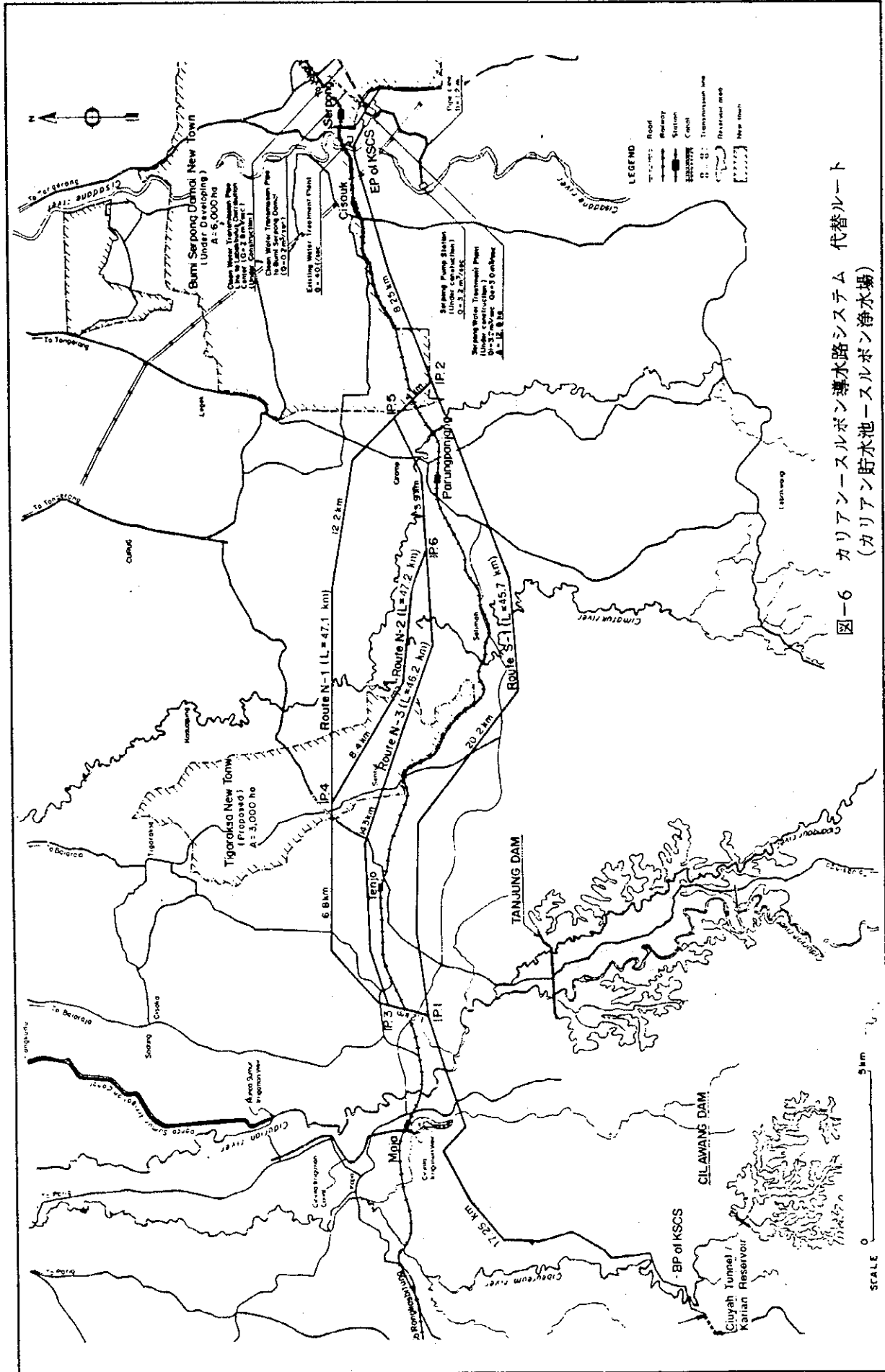
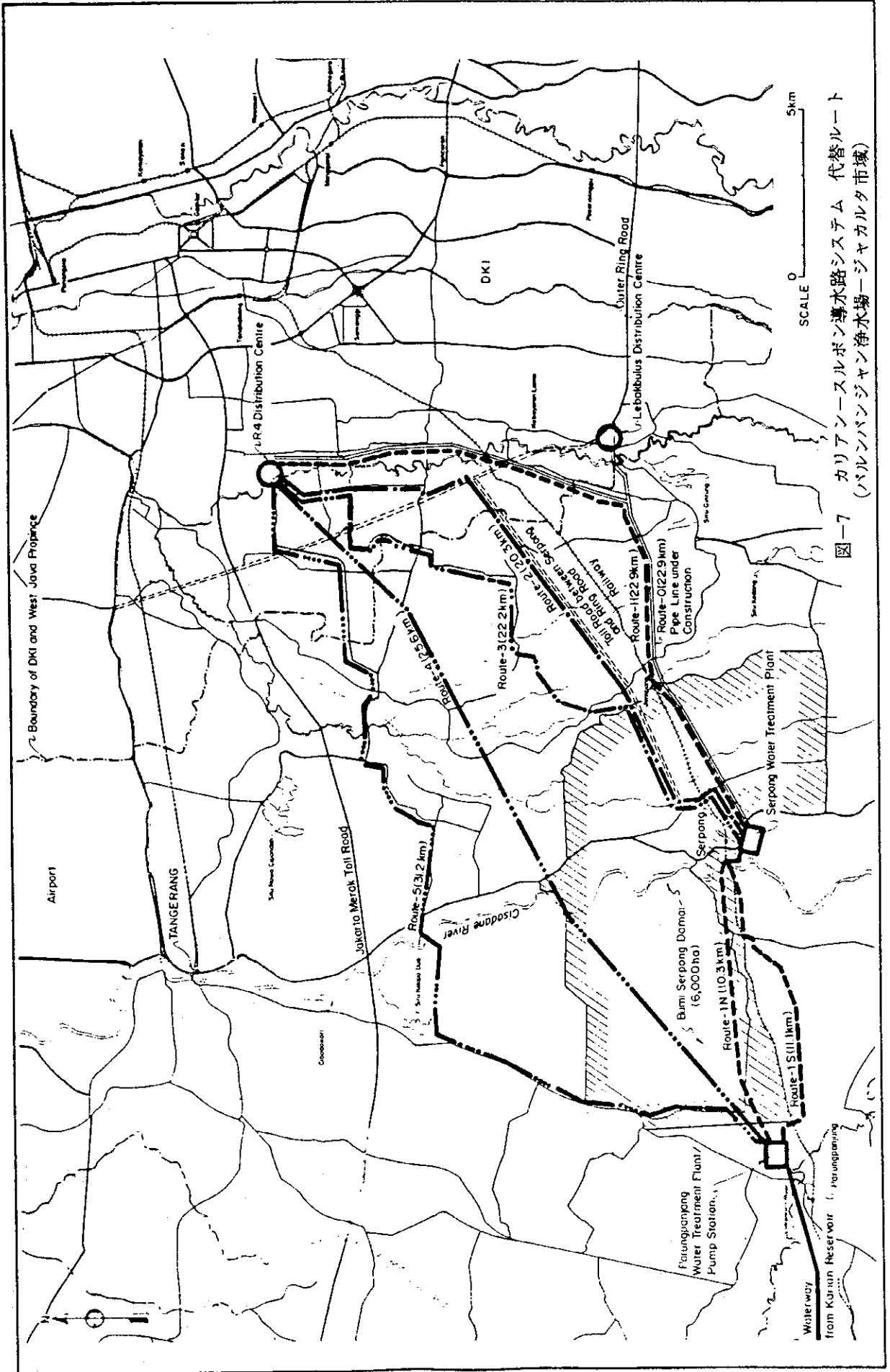


図-6 カリアン-スルボン導水路システム 代替ルート  
(カリアン貯水池-スルボン浄水場)



図一七 カリアン-スルボン導水路システム 代替ルート (パルンパンジャン浄水場-ジャカルタ地域)

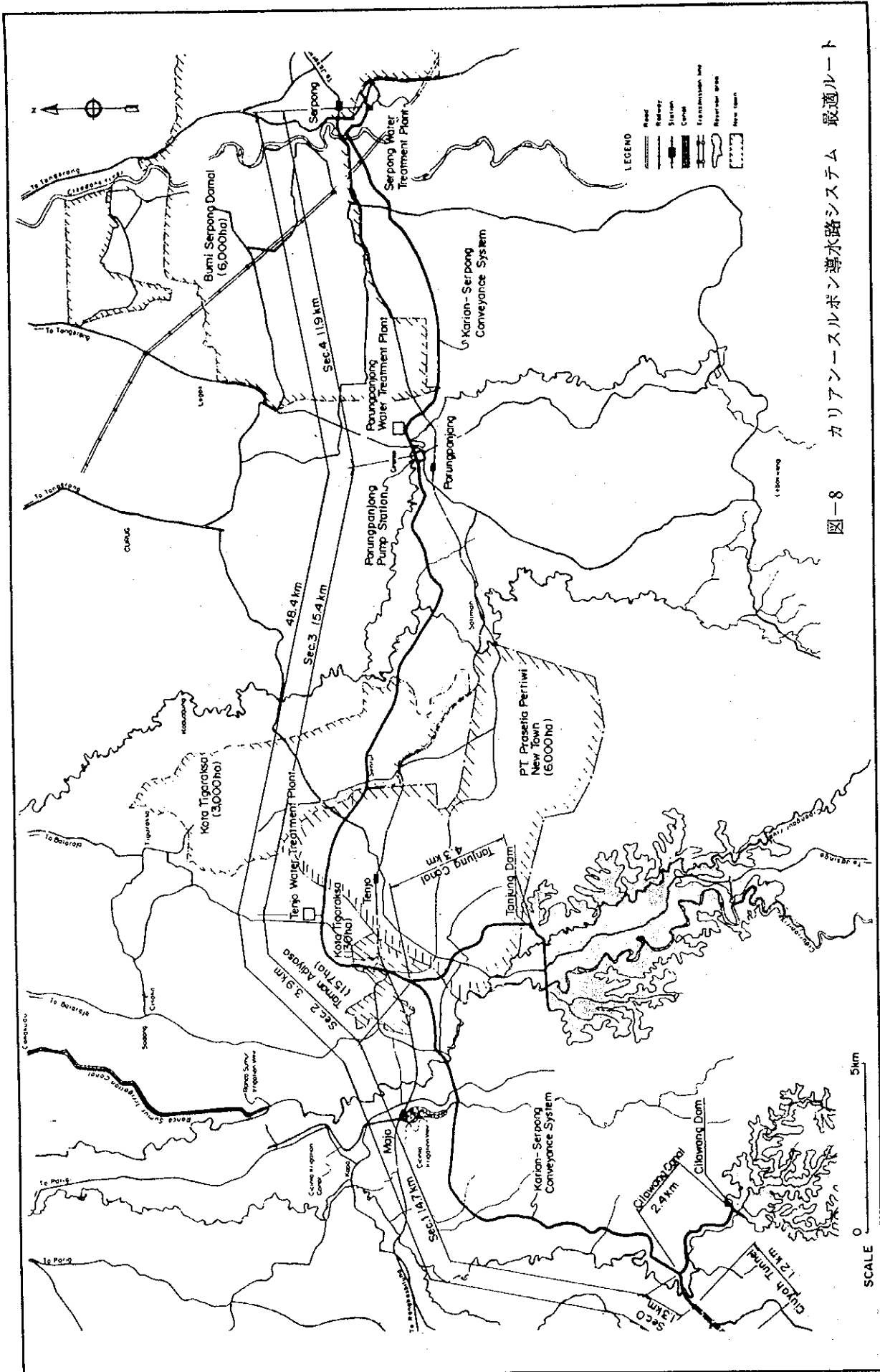


図-8 カリアン-スルボン導水路システム 最適ルート



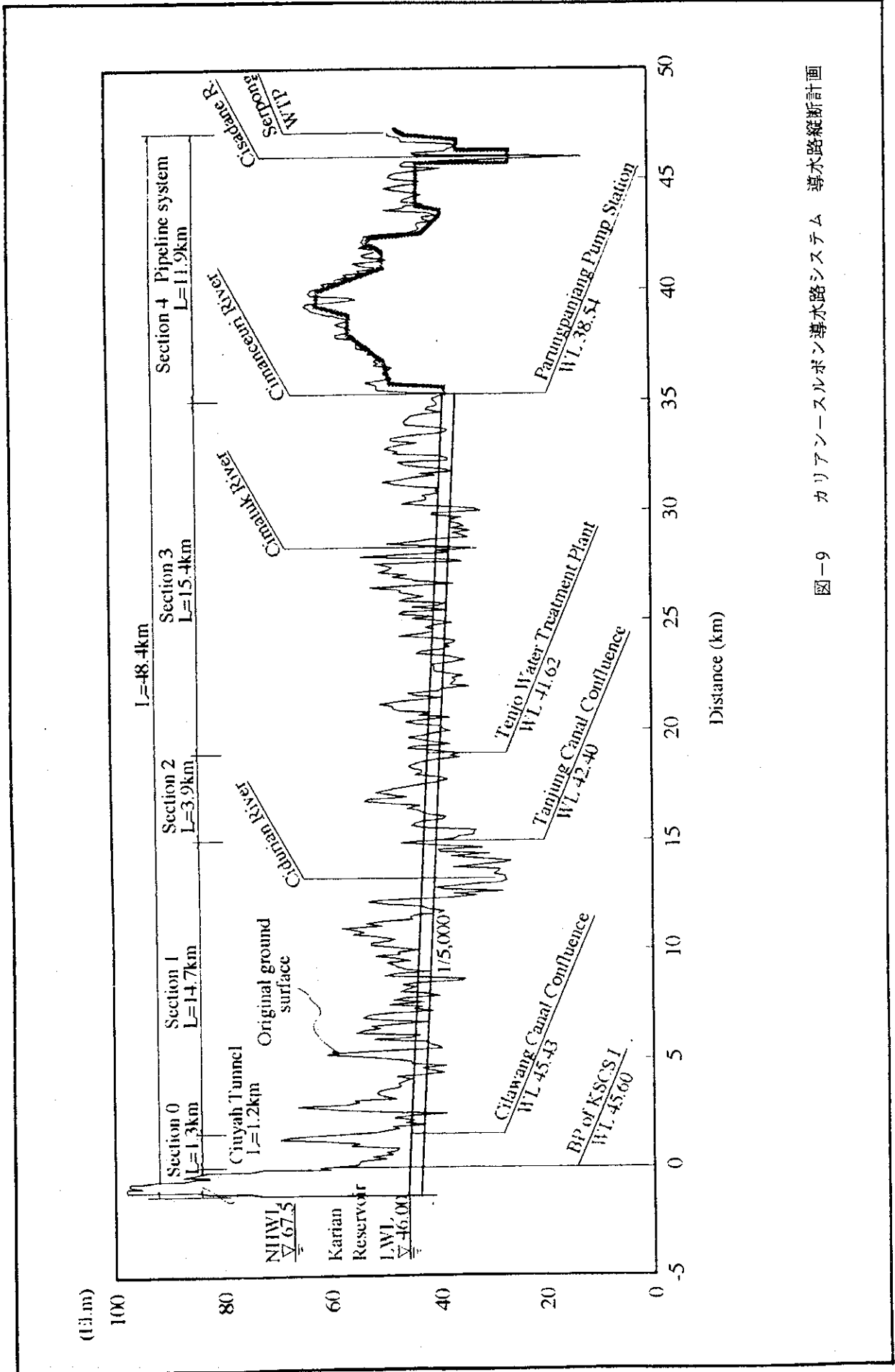
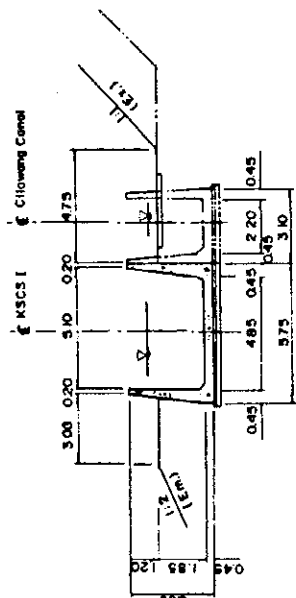
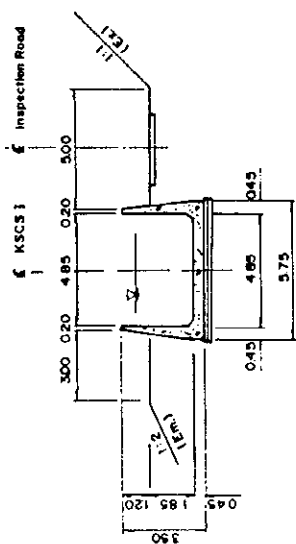


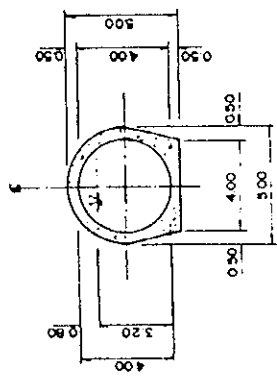
図-9 カリアン-スルボン導水路システム 導水路縦断計画



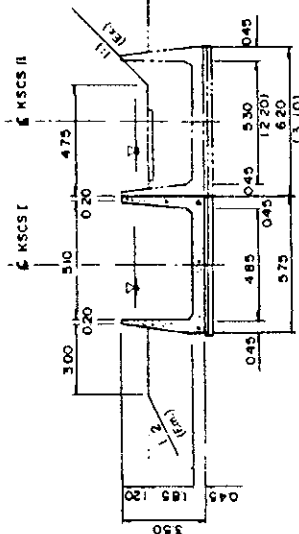
SECTION 1 (Q = 12.4, 4.1 m<sup>3</sup>/s)



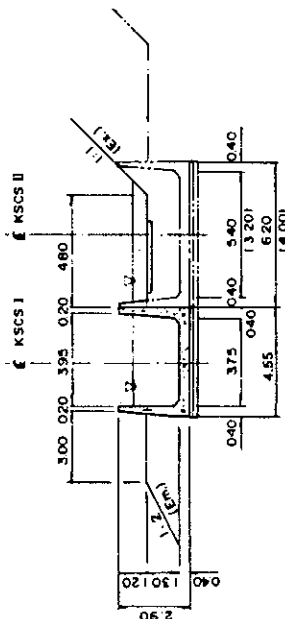
SECTION 0 (Q = 12.4 m<sup>3</sup>/s)



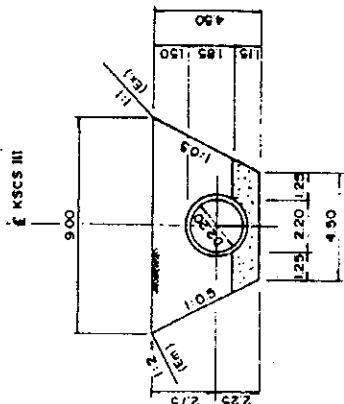
CIUYAH TUNNEL (Q=12.4 m<sup>3</sup>/s)



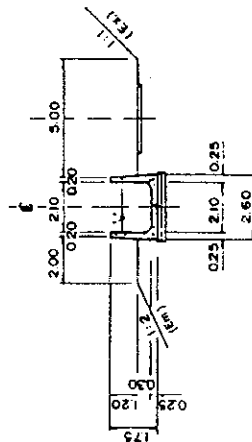
SECTION 2 (Q = 12.4, 13.8 m<sup>3</sup>/s)  
(4.1 m<sup>3</sup>/s)



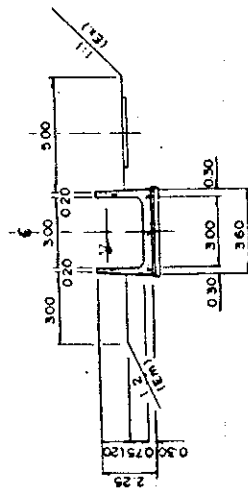
SECTION 3 (Q = 6.2, 9.9 m<sup>3</sup>/s)  
(5.05 m<sup>3</sup>/s)



SECTION 4 (Q = 6.0 m<sup>3</sup>/s)



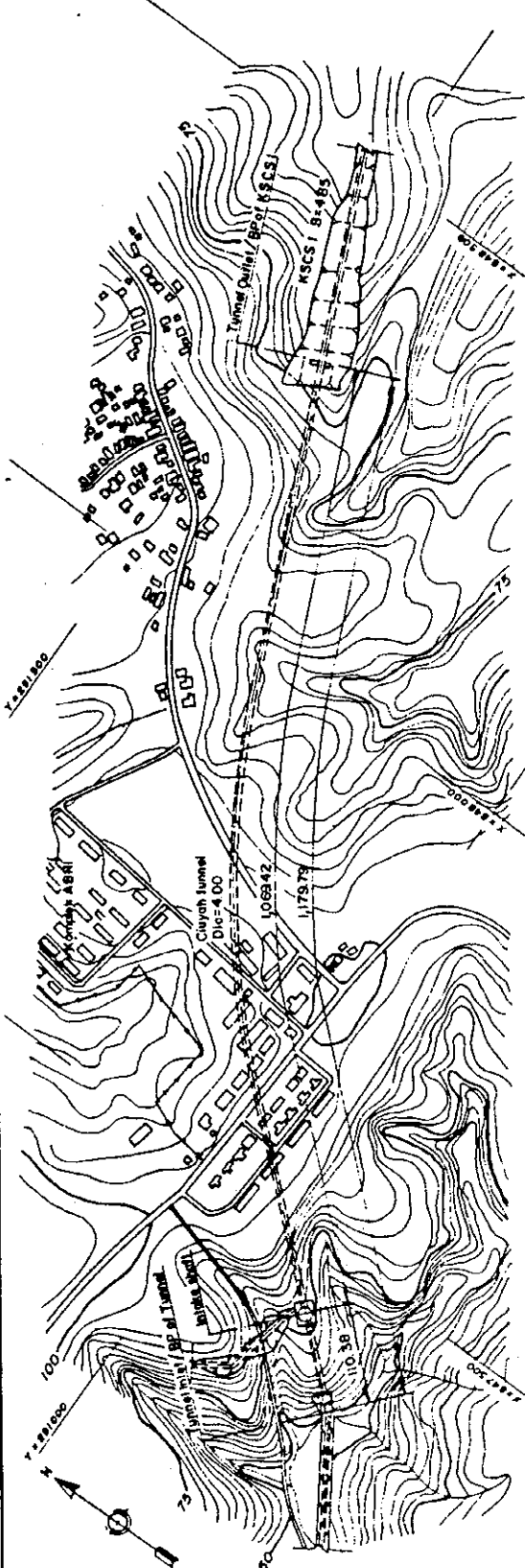
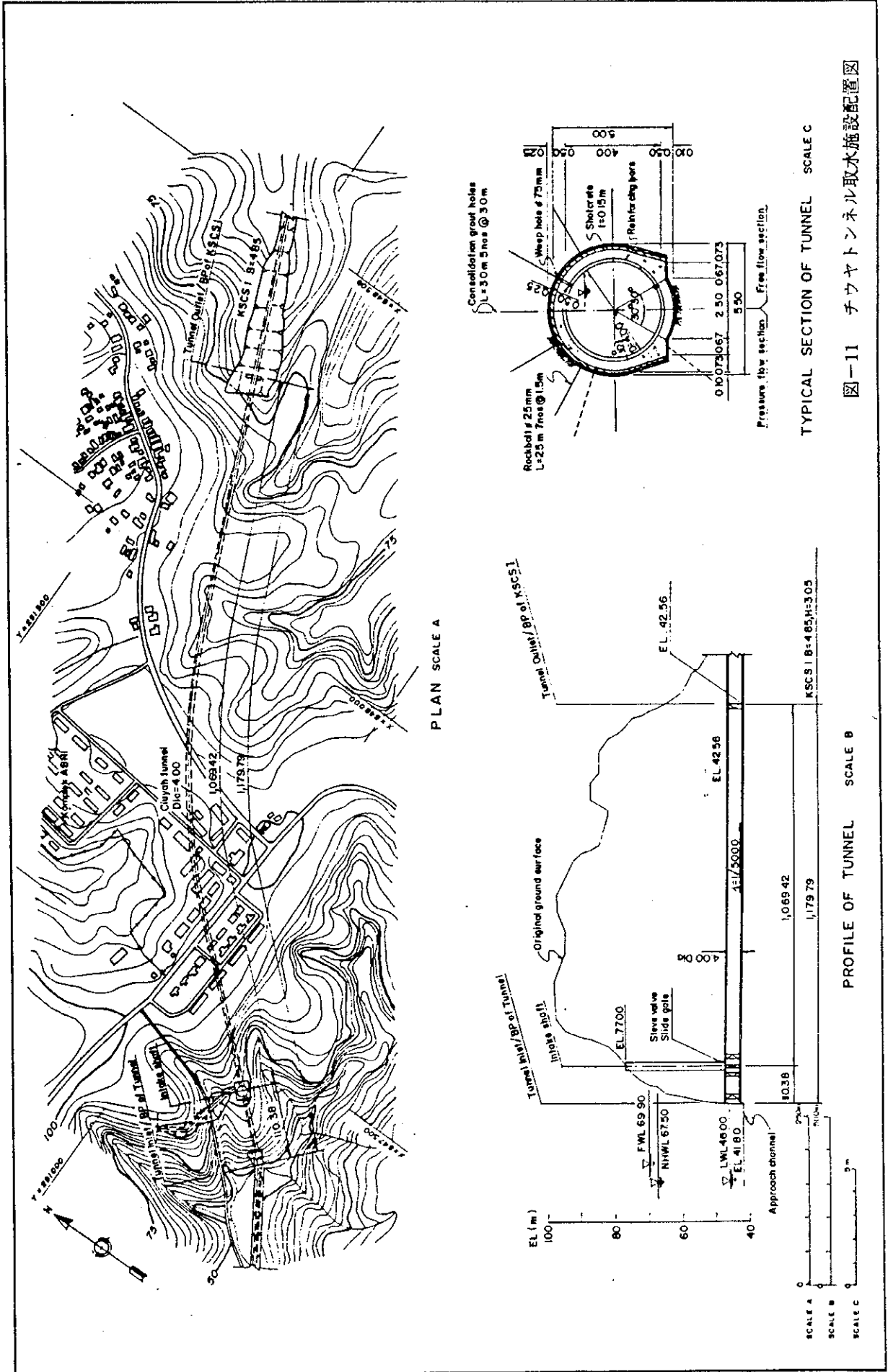
CILWANG CANAL (Q = 4.1 m<sup>3</sup>/s)



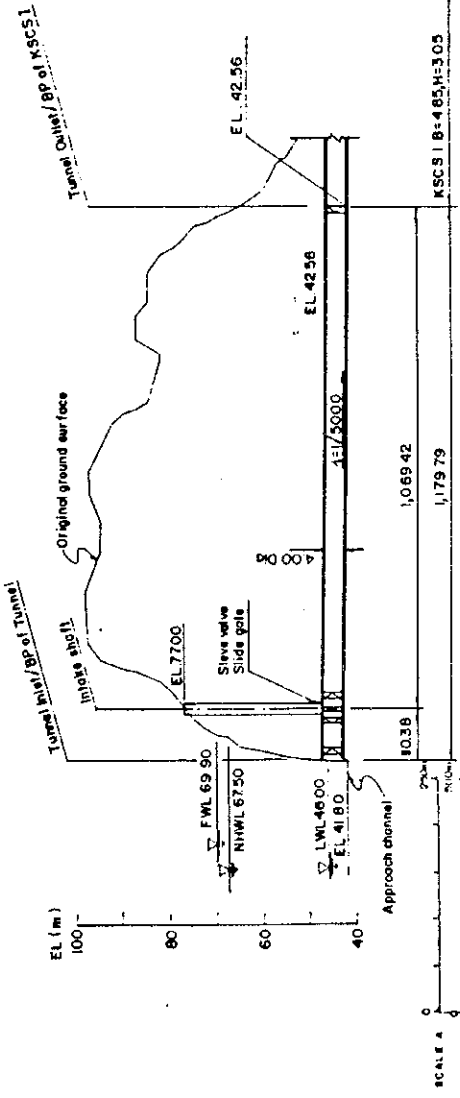
TANJUNG CANAL (Q = 9.7 m<sup>3</sup>/s)

SCALE 0 5m

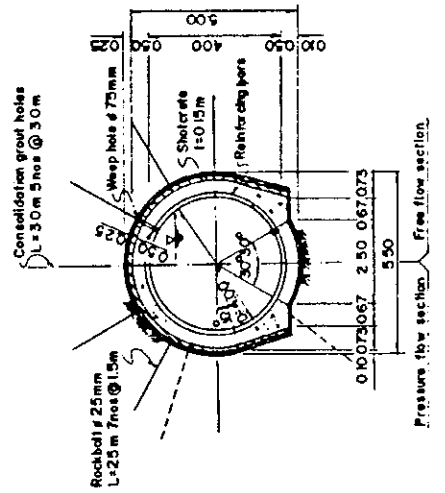
図-10 カリアン-スルボン導水路システム 導水路横断面計画



PLAN SCALE A



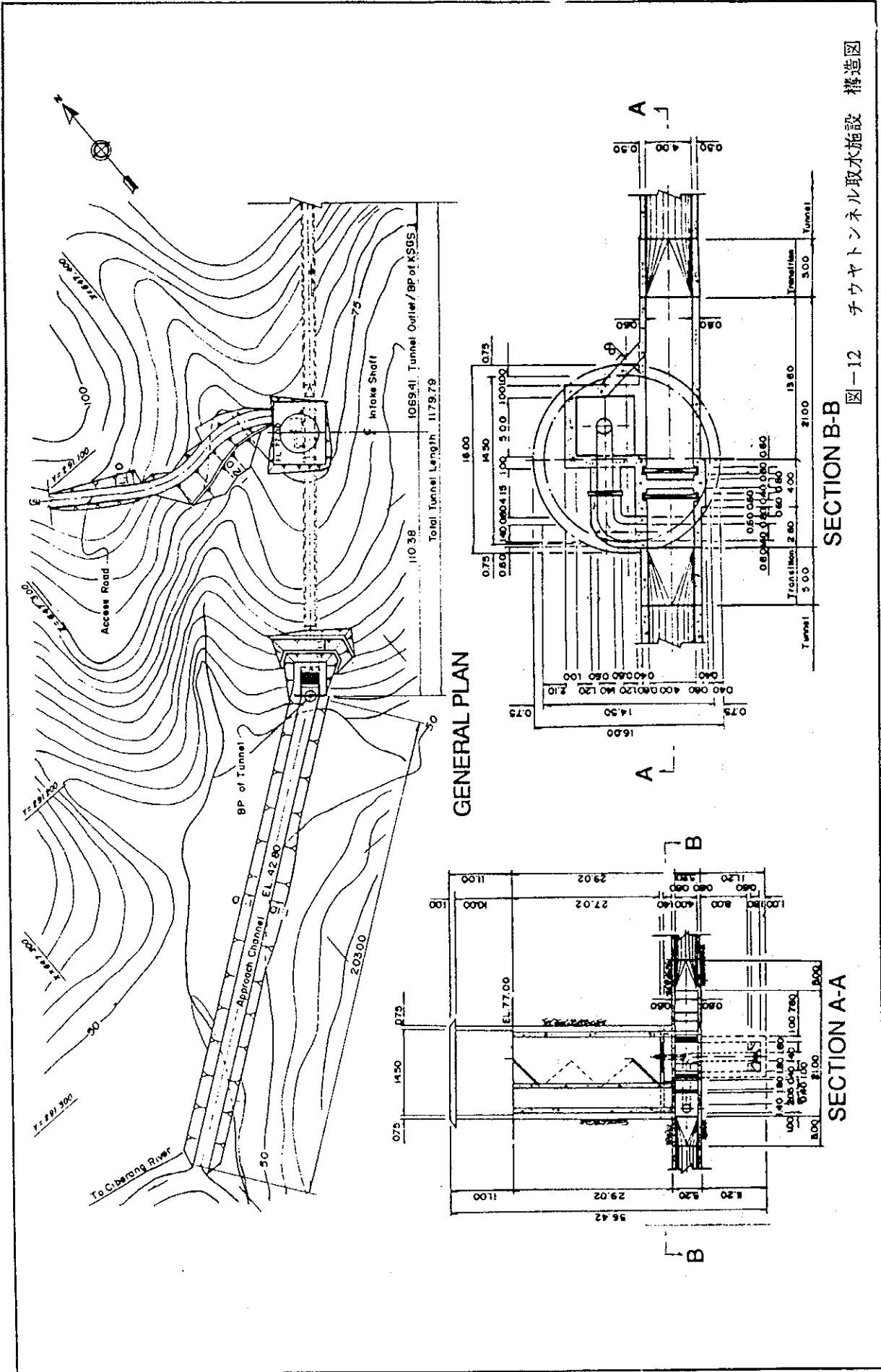
PROFILE OF TUNNEL SCALE B



TYPICAL SECTION OF TUNNEL SCALE C

図-11 チウヤトンネル取水施設配置図

図-12 チヤトネル取水施設 構造図



SECTION B-B

SECTION A-A

GENERAL PLAN

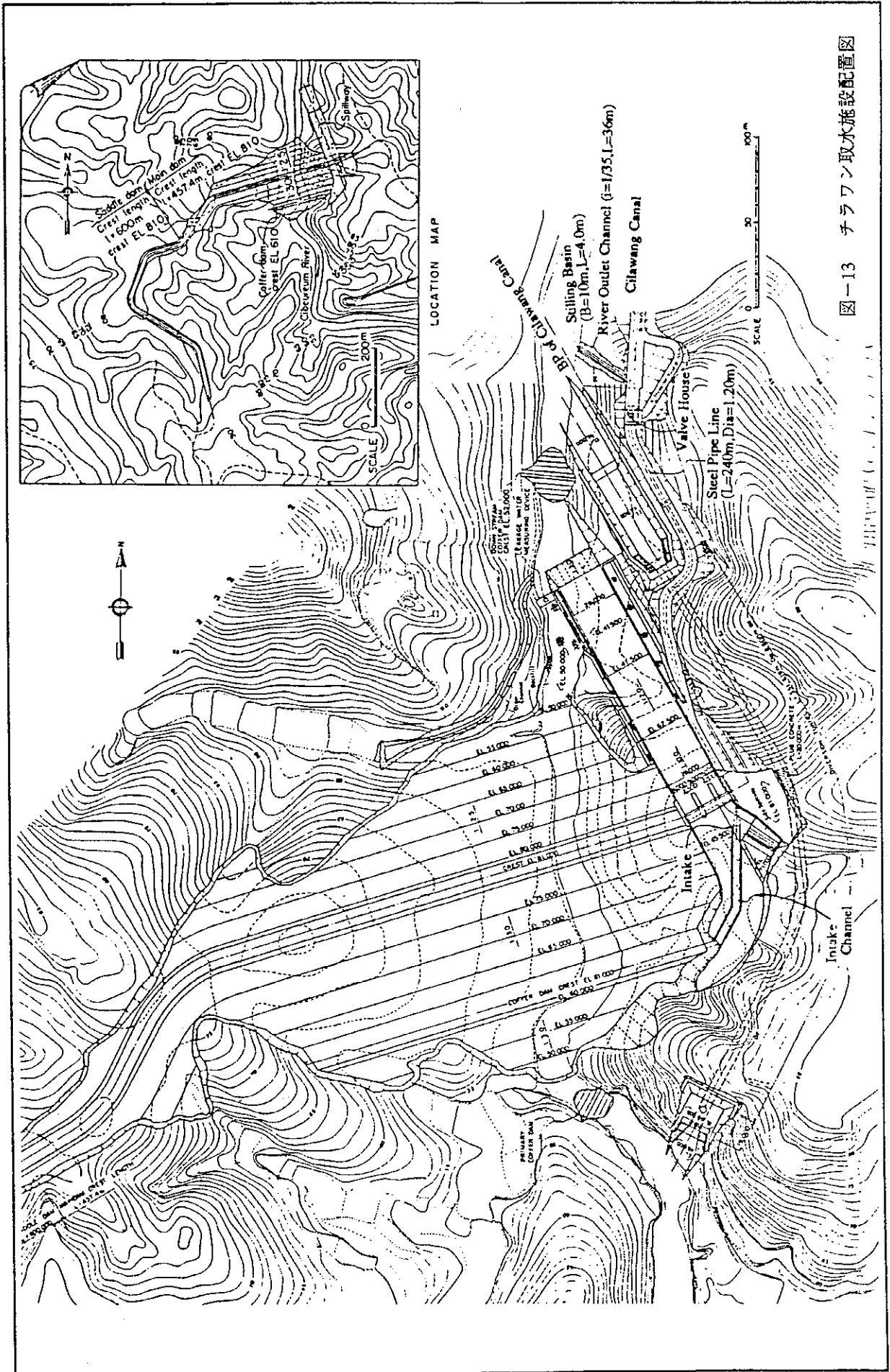
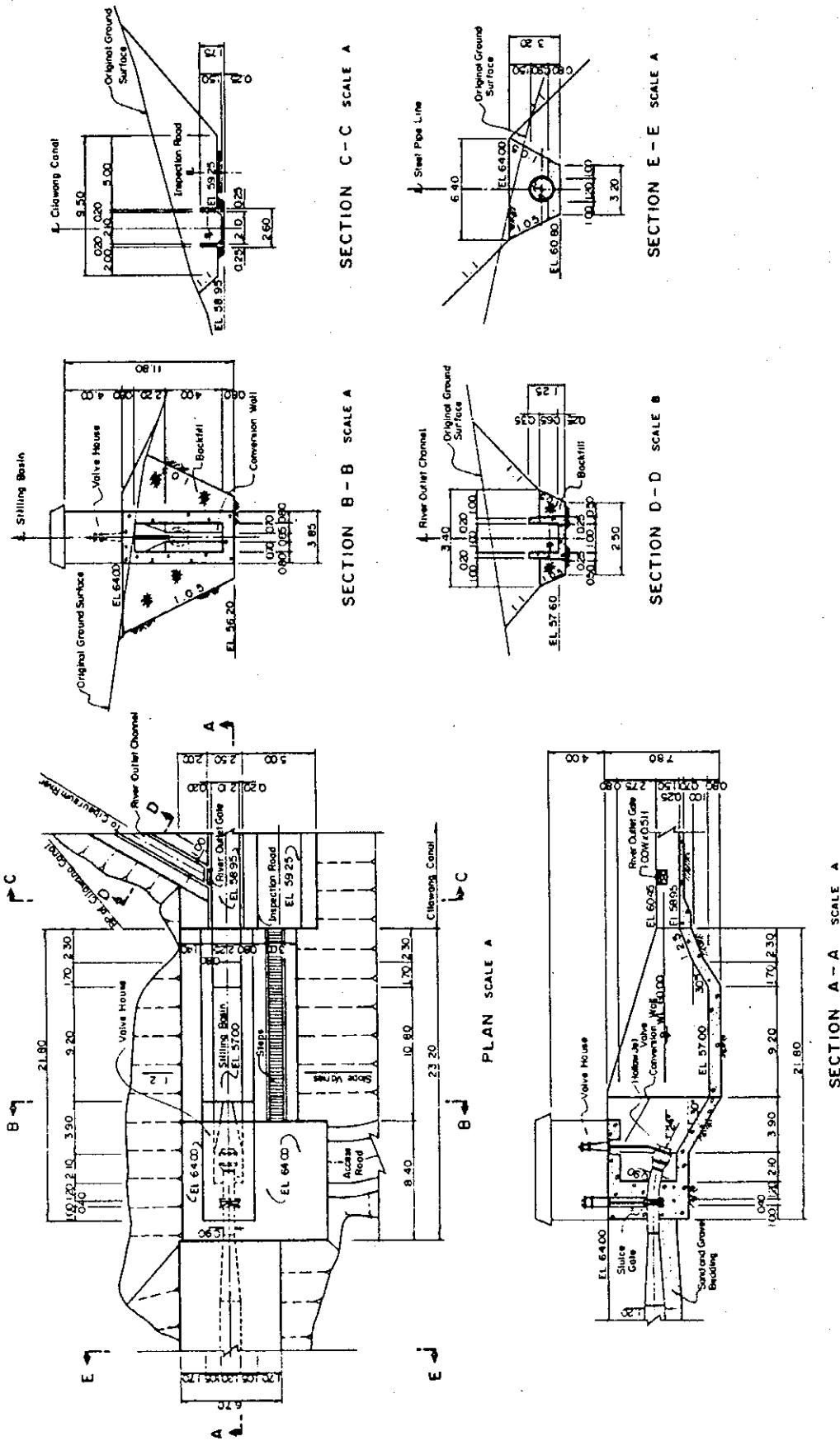


図-13 チラワン取水施設配置図



SCALE A 10(m)  
SCALE B 5(m)

図-14 チラワン取水施設 構造図

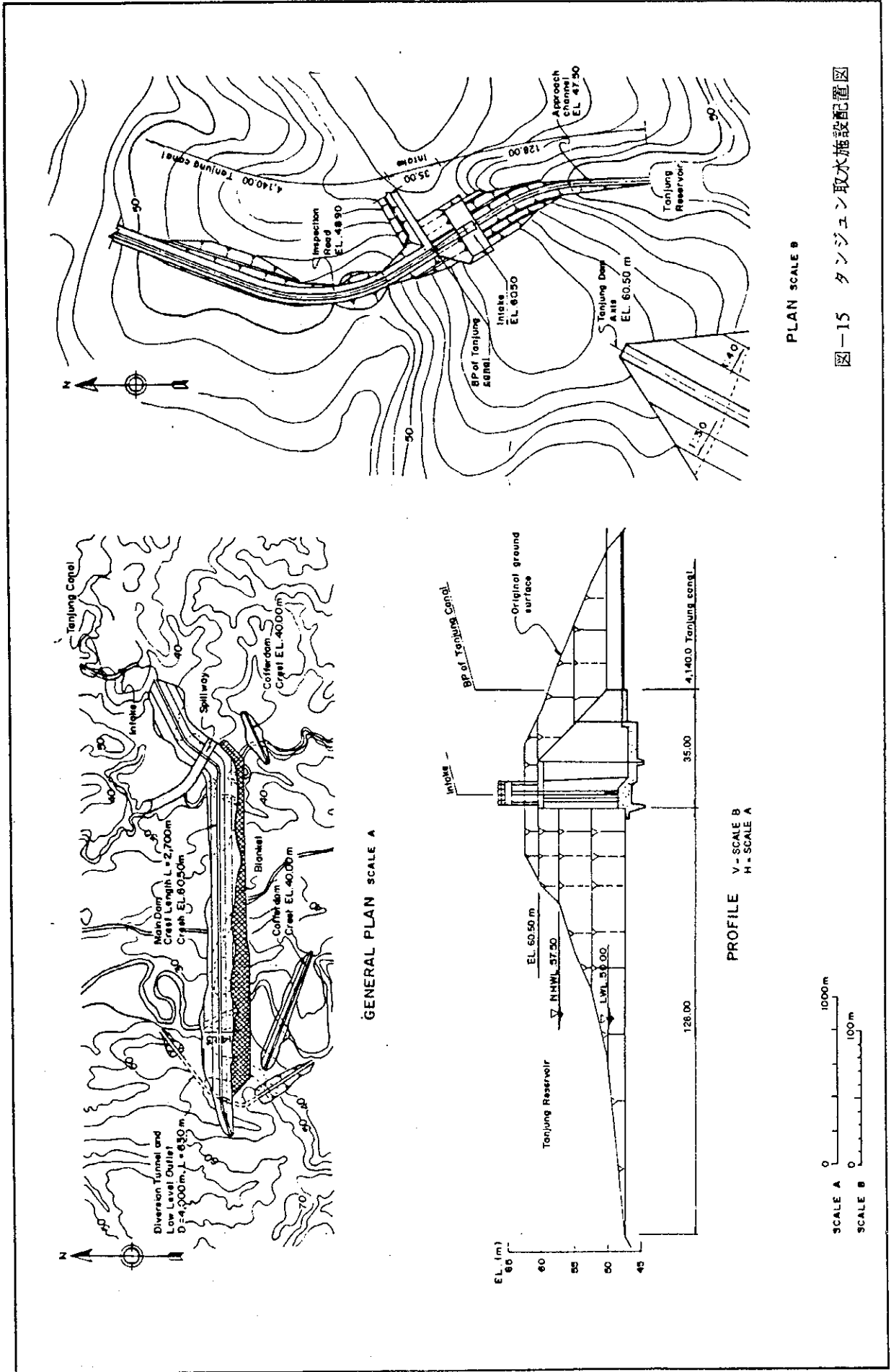


図-15 タンジュン取水施設配置図

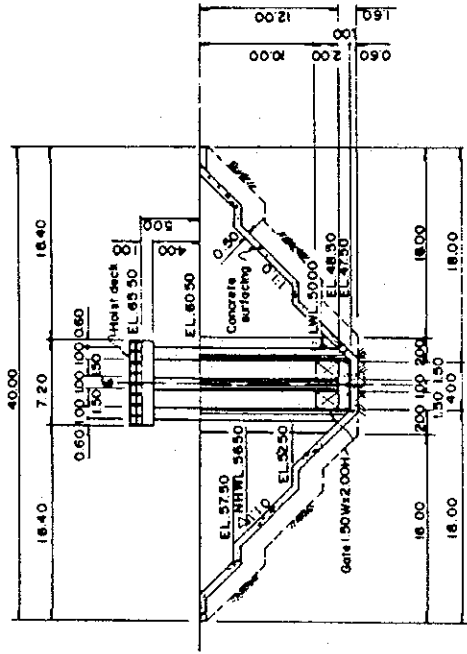
PLAN SCALE B

GENERAL PLAN SCALE A

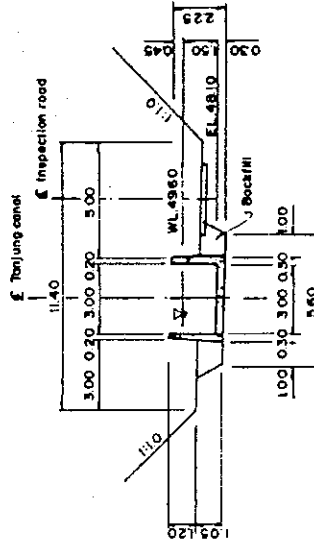
PROFILE V. SCALE B  
H. SCALE A

SCALE A 0 1000 m  
SCALE B 0 100 m

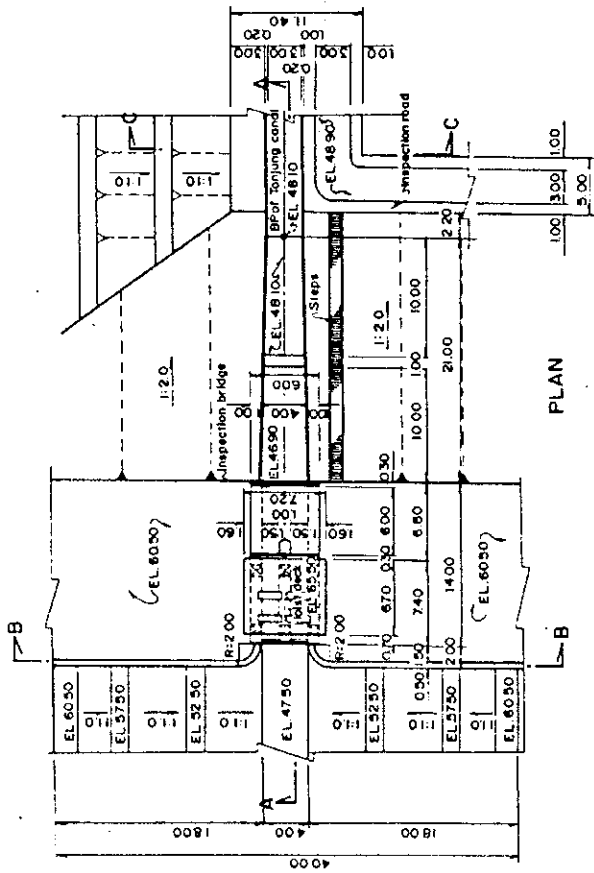
図-16 タンジュン取水施設 構造図



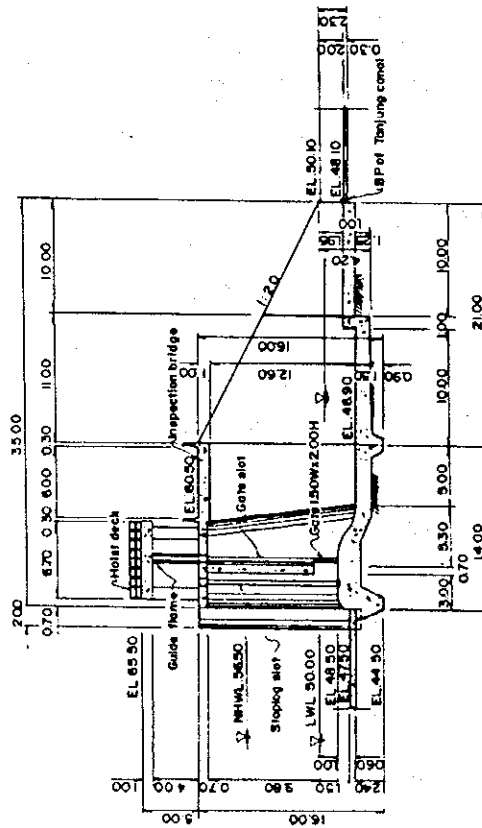
SECTION B-B



SECTION C-C



PLAN



SECTION A-A





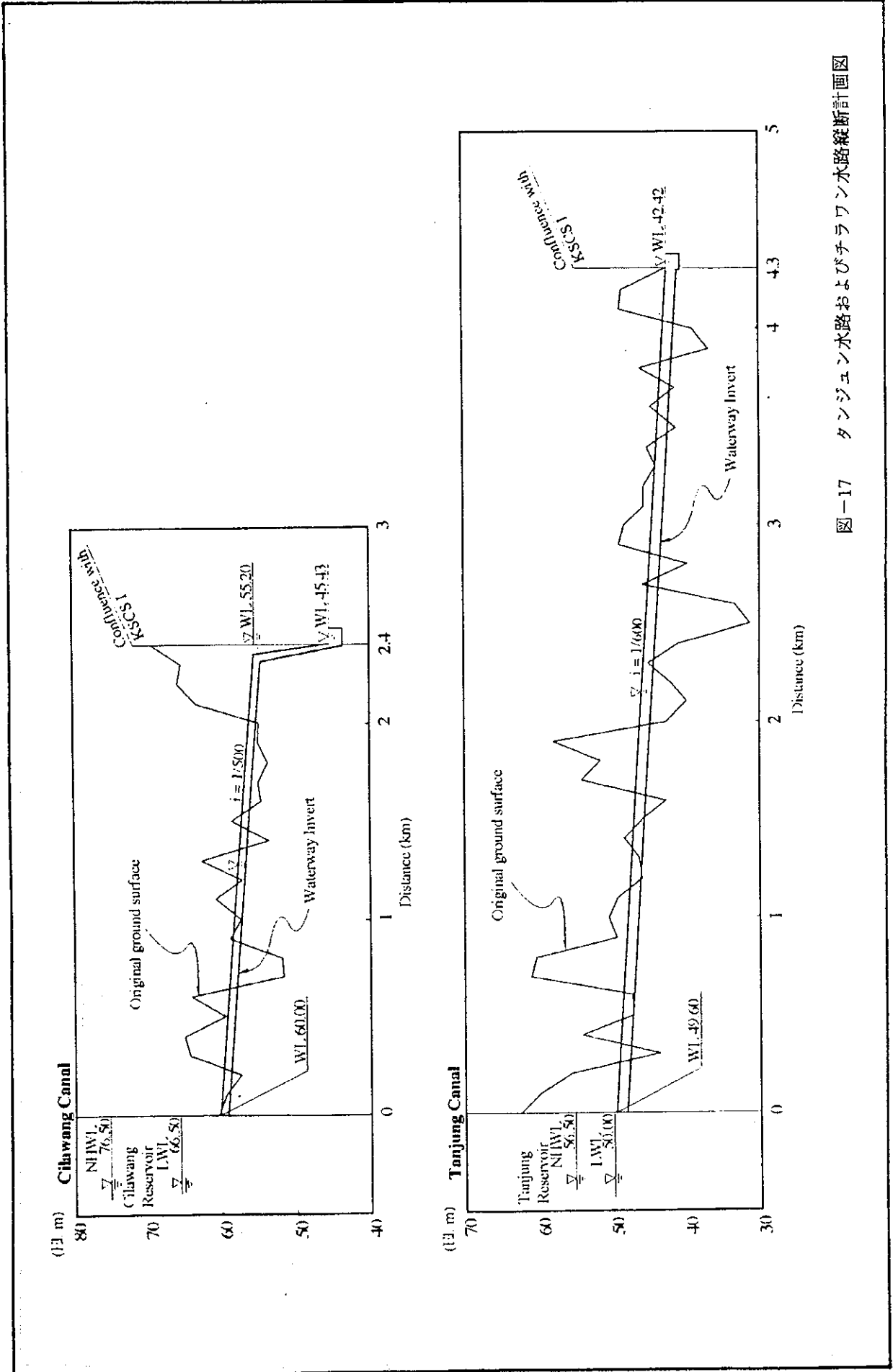


図-17 タンジュン水路およびピラワン水路縦断計画図

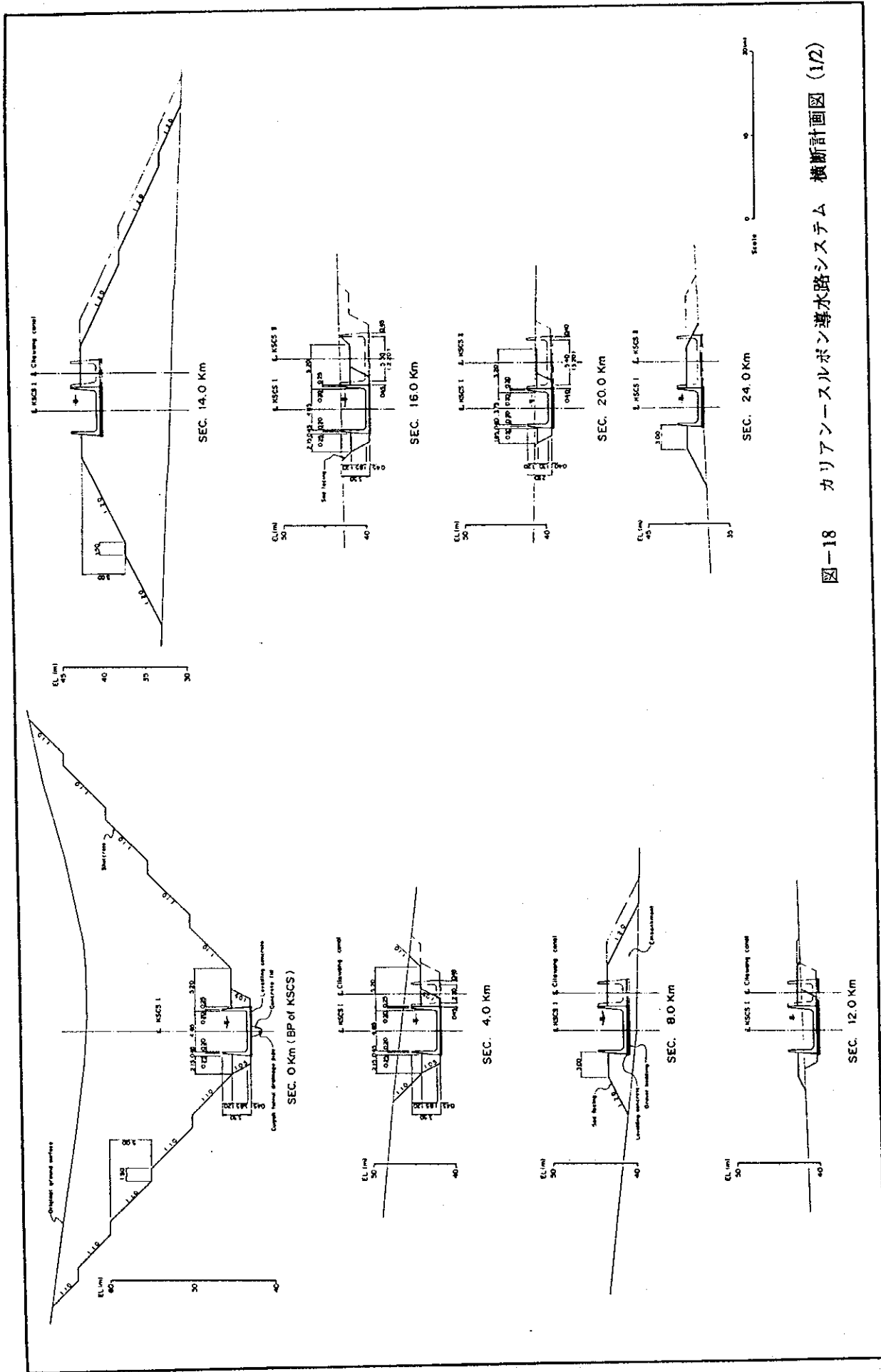


図-18 カリアーンスルボン導水路システム 横断計画図 (1/2)

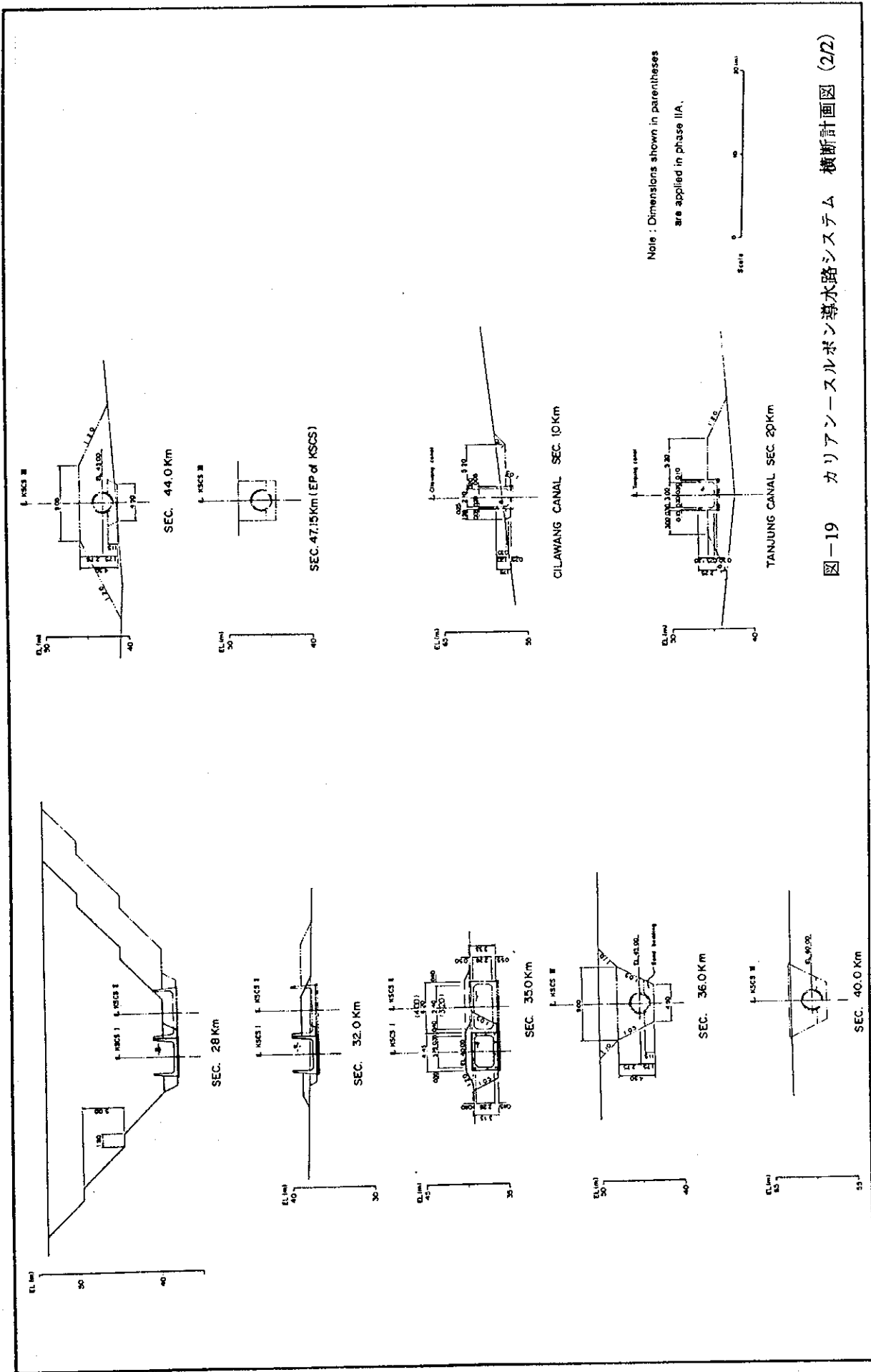


図-19 カリアン-スルボン導水路システム 横断計画図 (2/2)

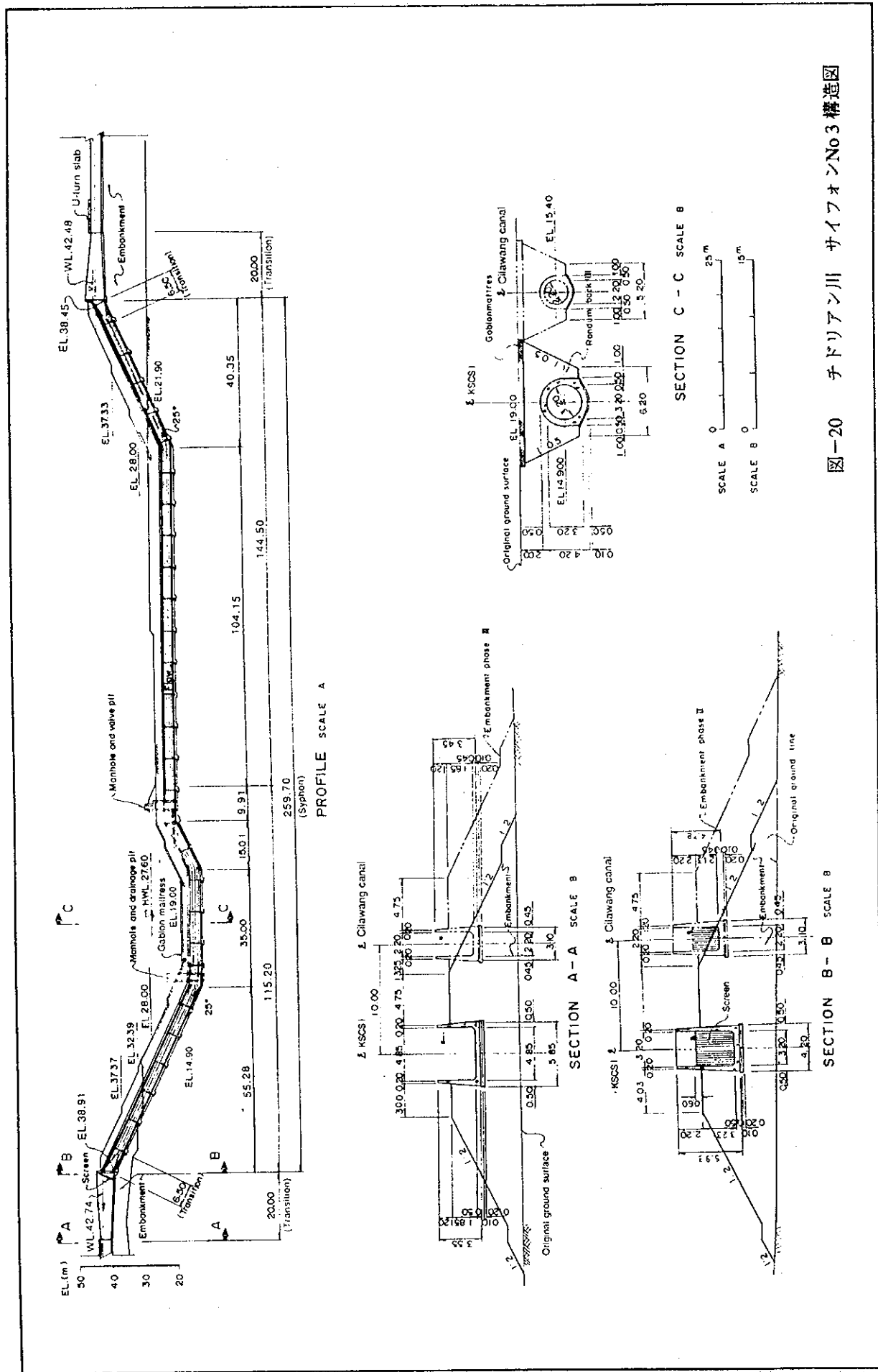
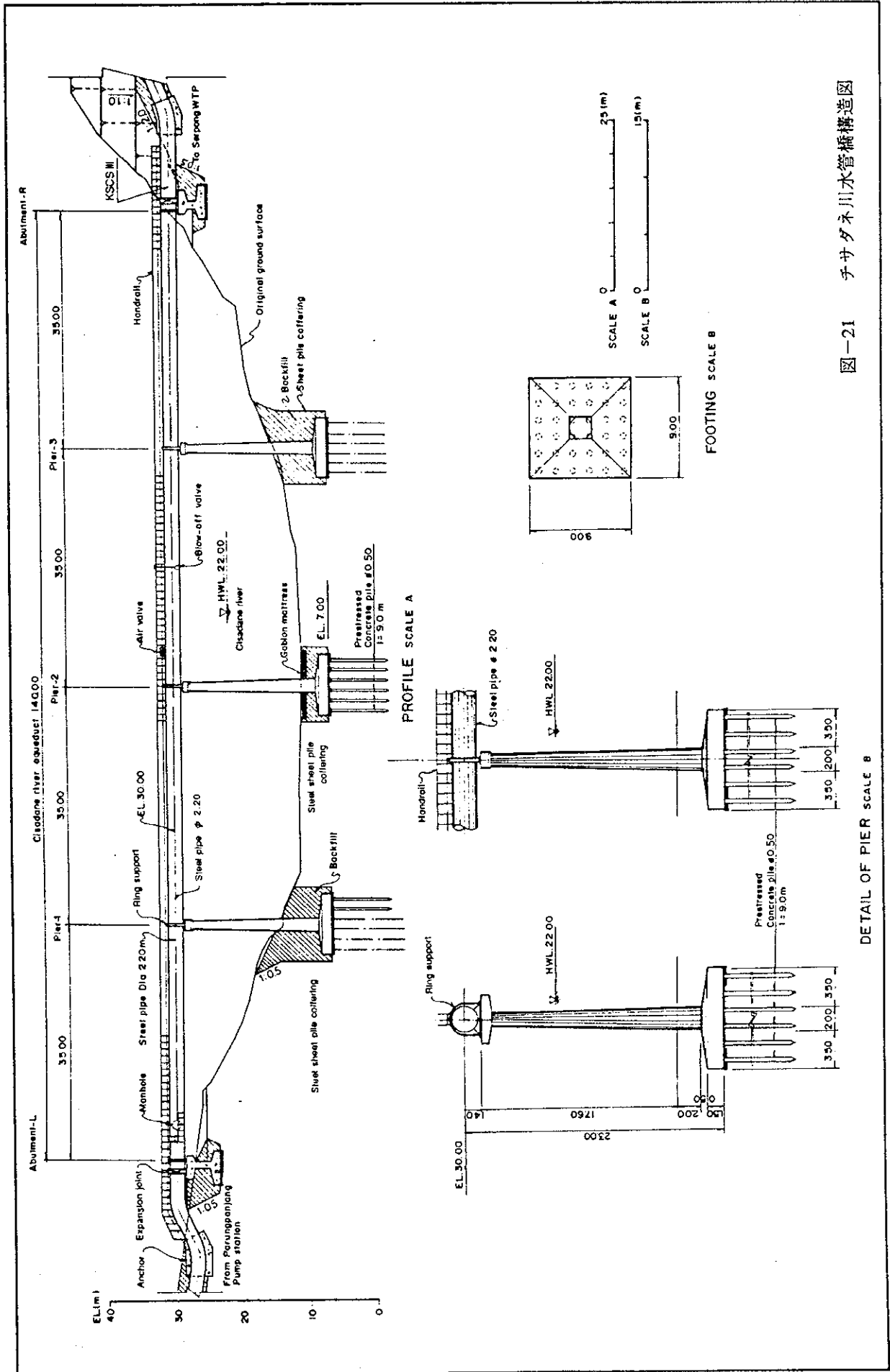


図-20 チドリアン川 サイフォンNo3 構造図



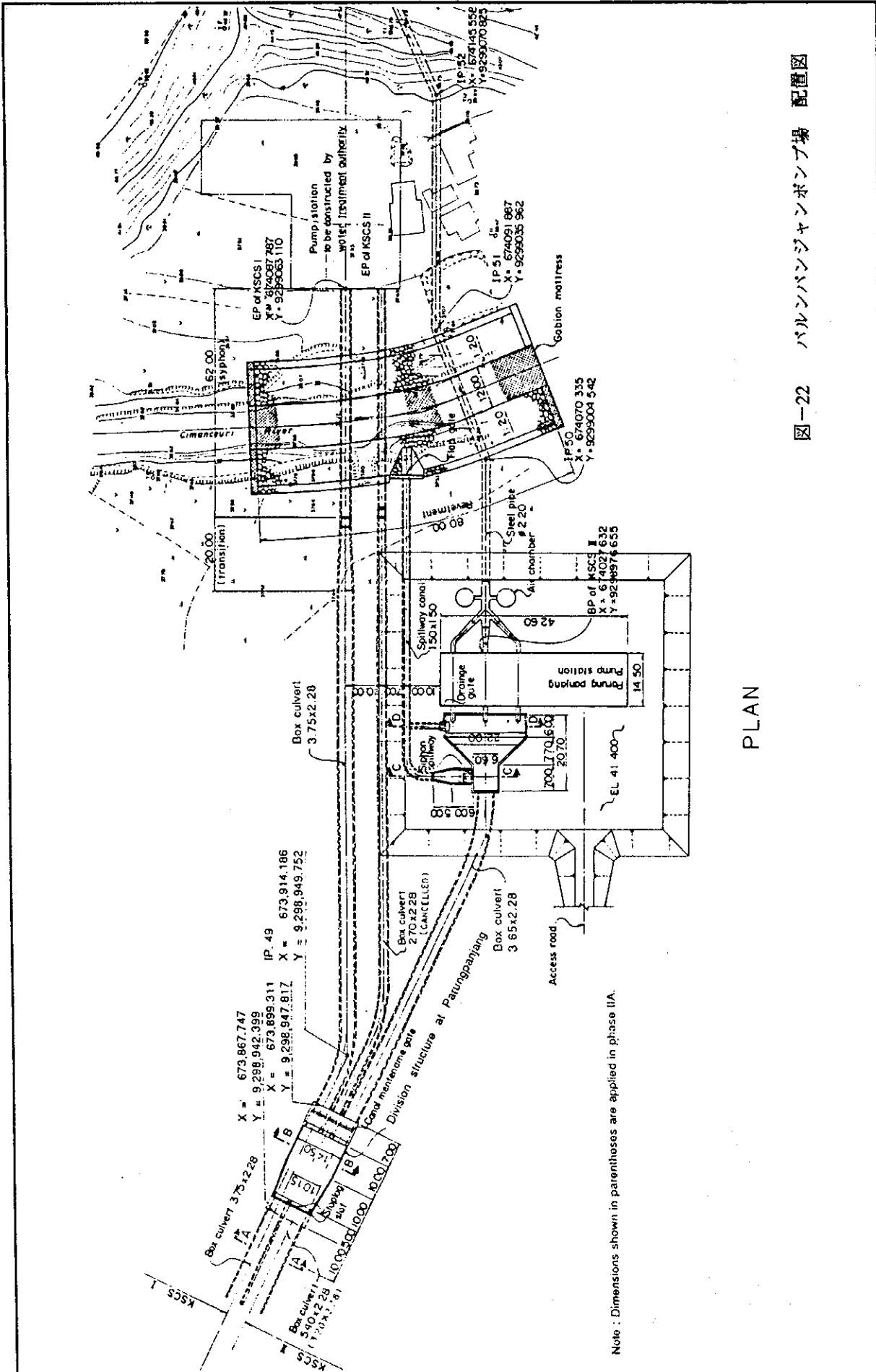


図-22 バランバンジャンポンプ場 配置図

Note : Dimensions shown in parentheses are applied in phase IIA.

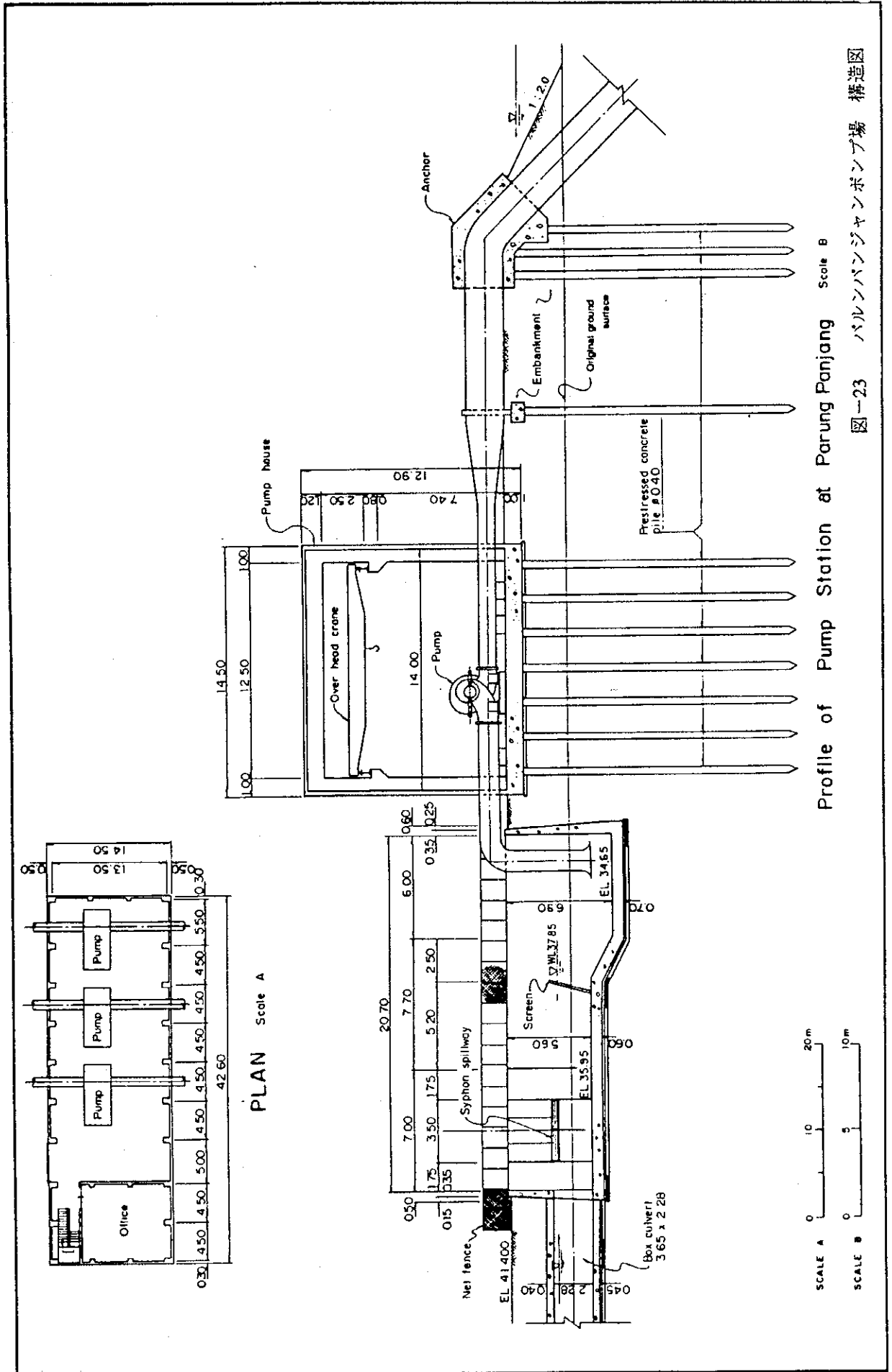


図-23 バルバンジャンポンプ場 構造図

Profile of Pump Station at Parung Panjang Scale B

SCALE A 0 10 20 m  
SCALE B 0 5 10 m

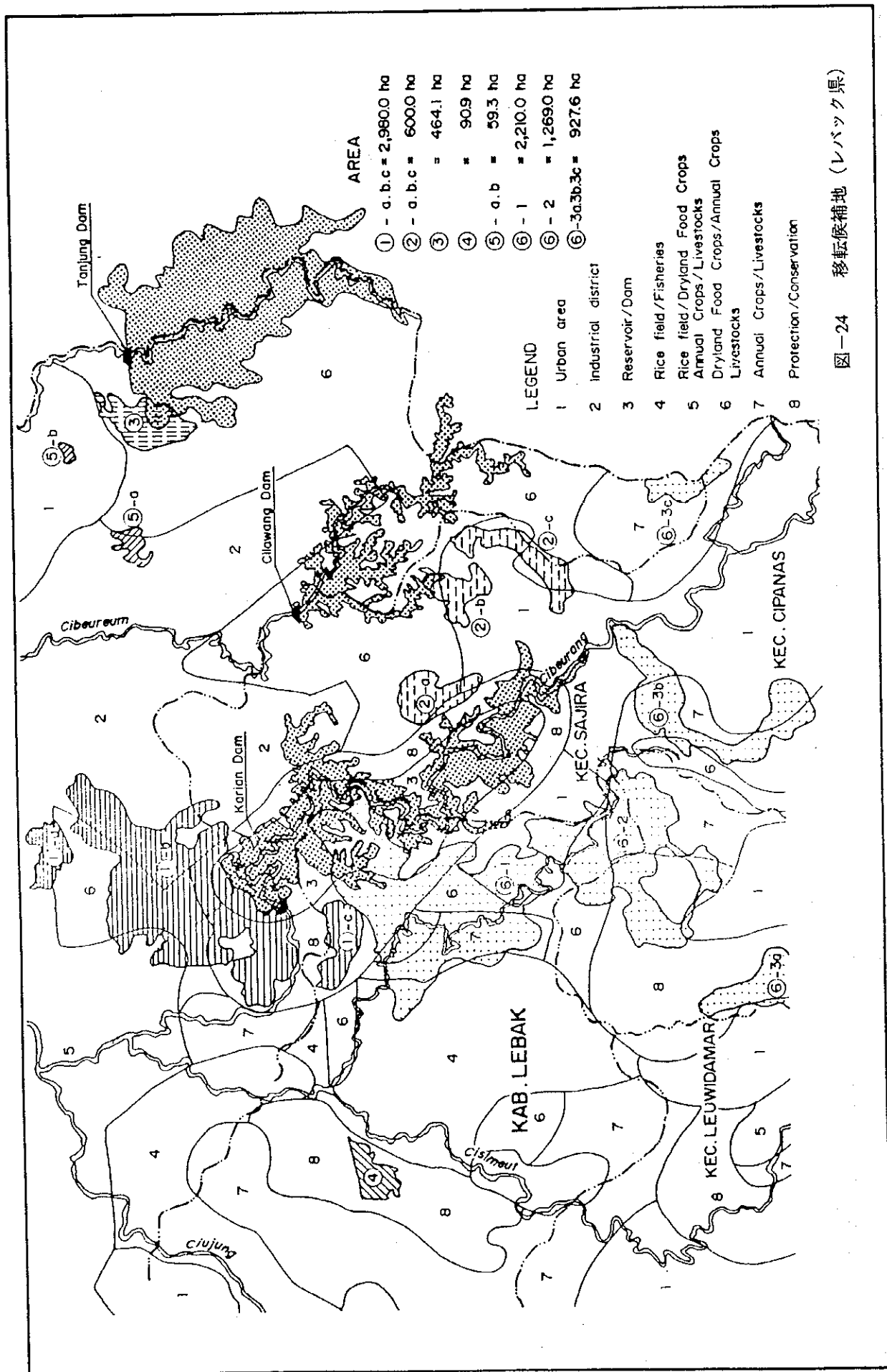


図-24 移転候補地 (レバック県)



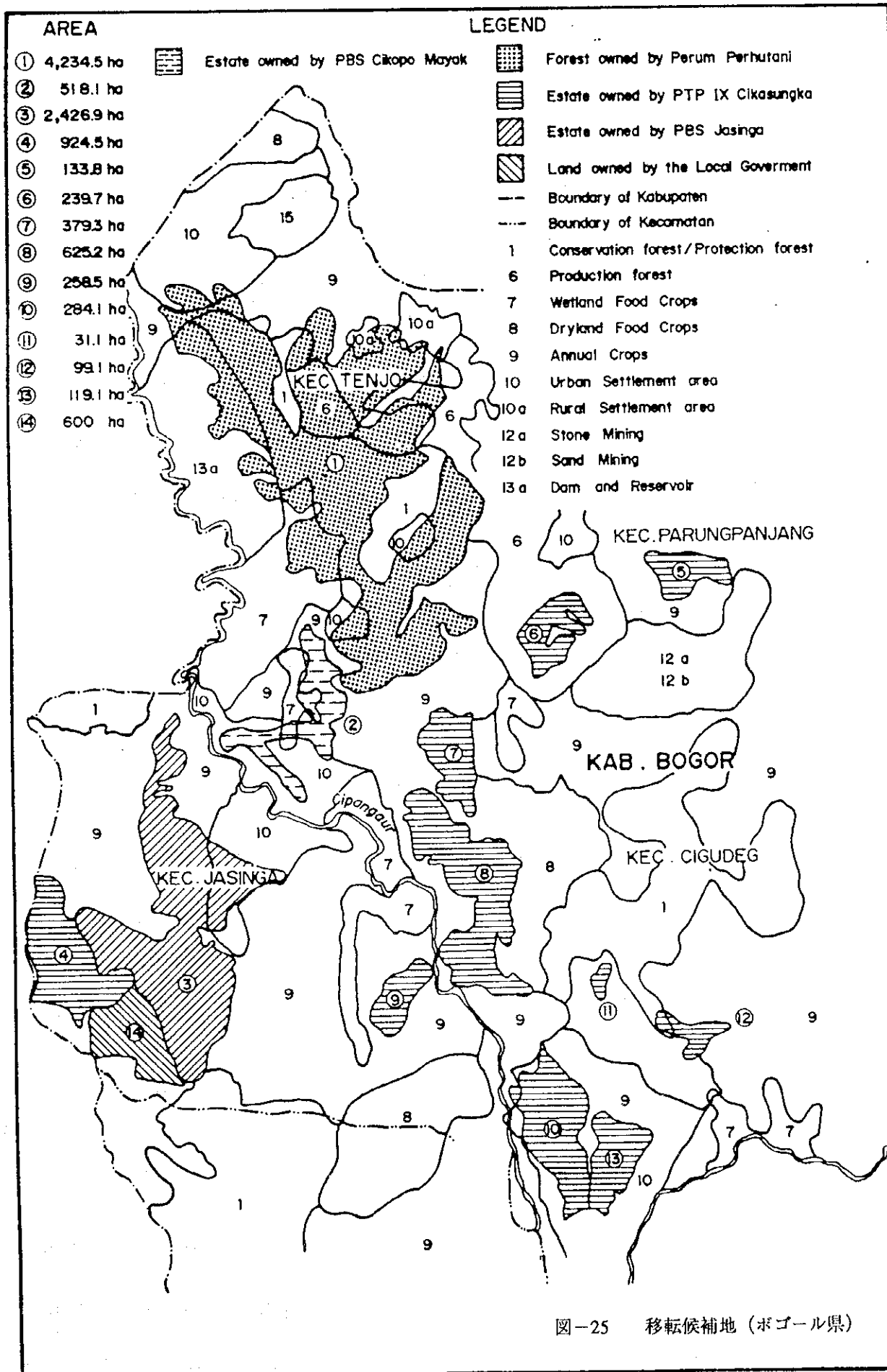


図-25 移転候補地 (ボゴール県)

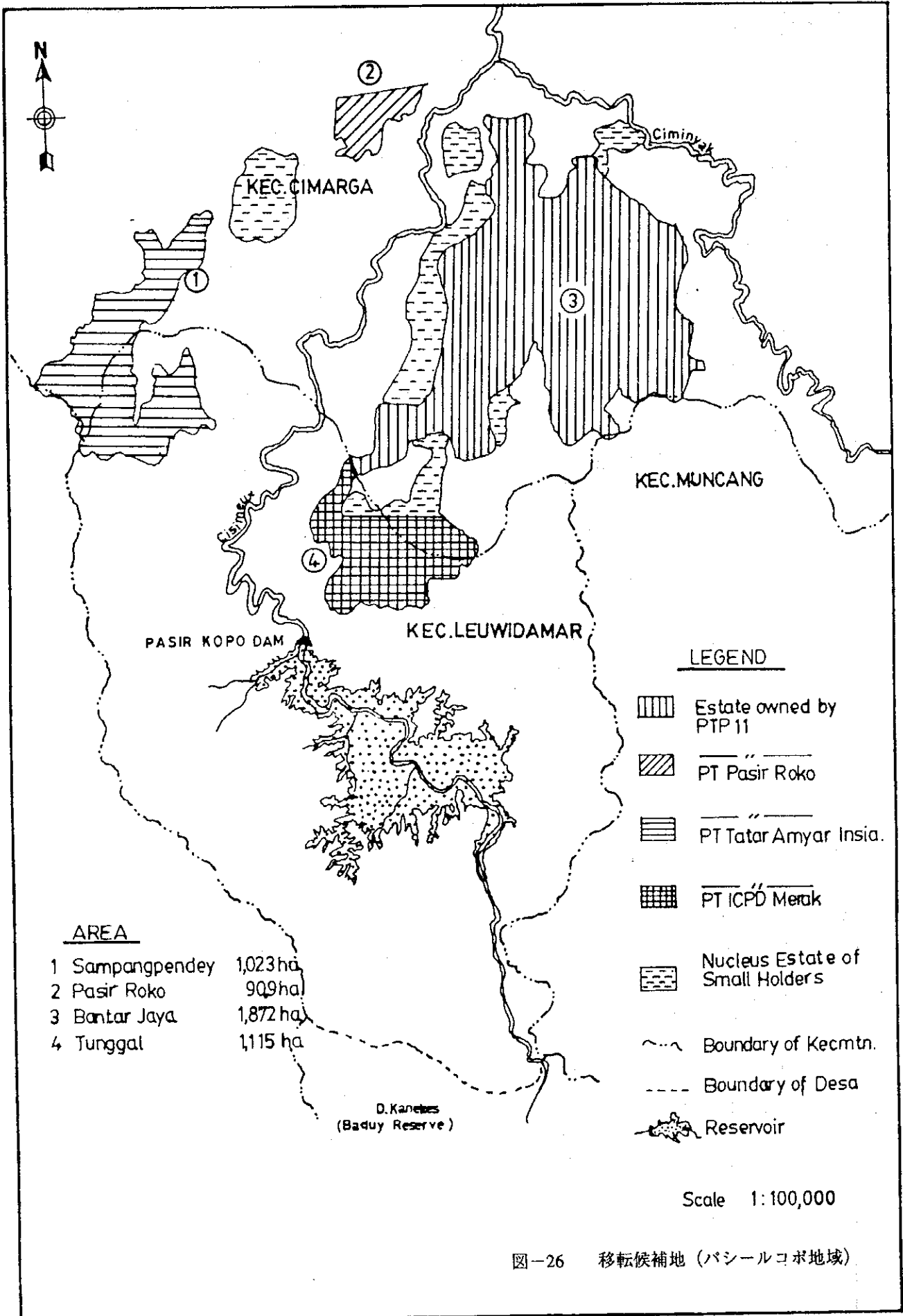


図-26 移転候補地 (パシールコポ地域)

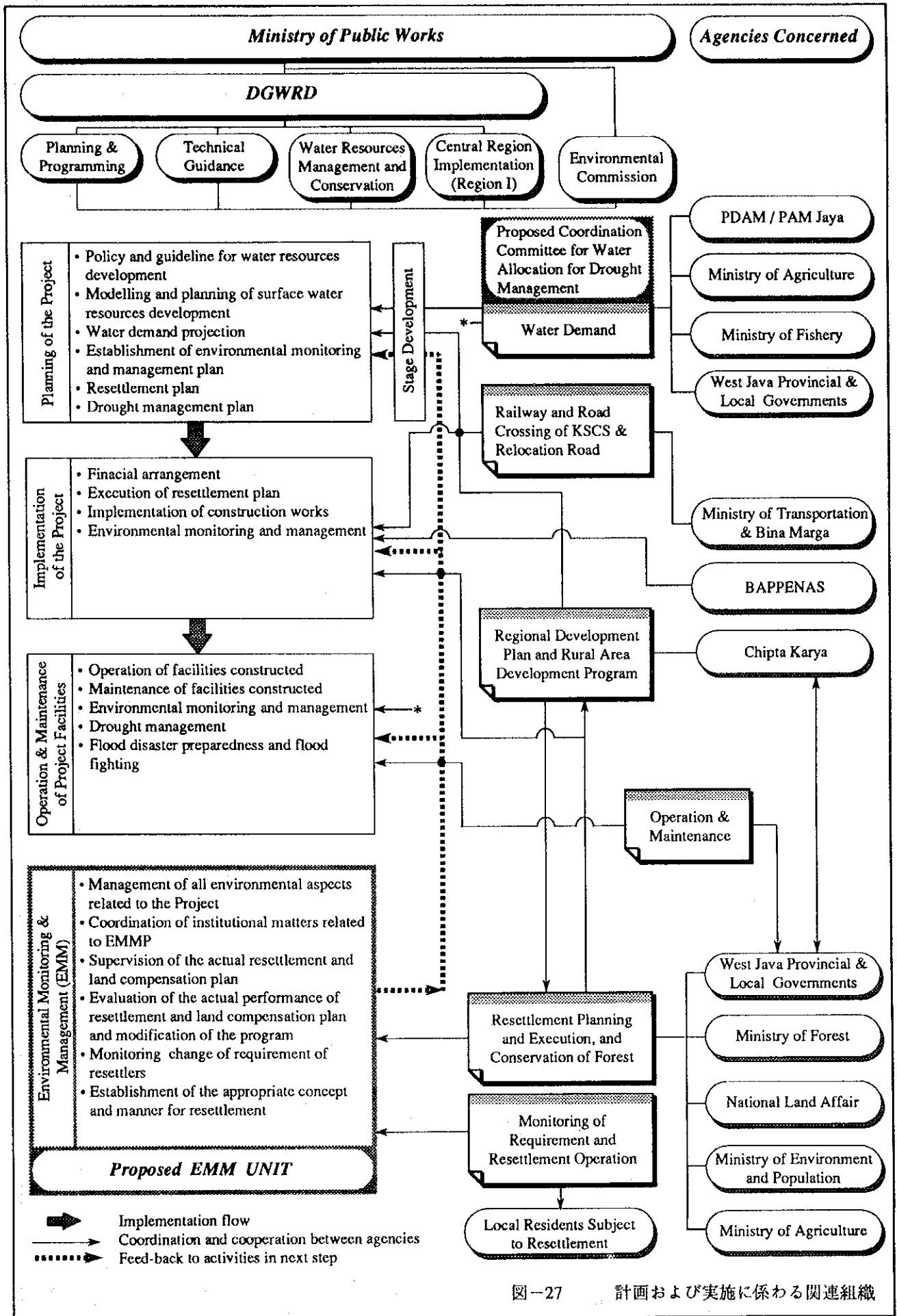


図-27 計画および実施に係わる関連組織

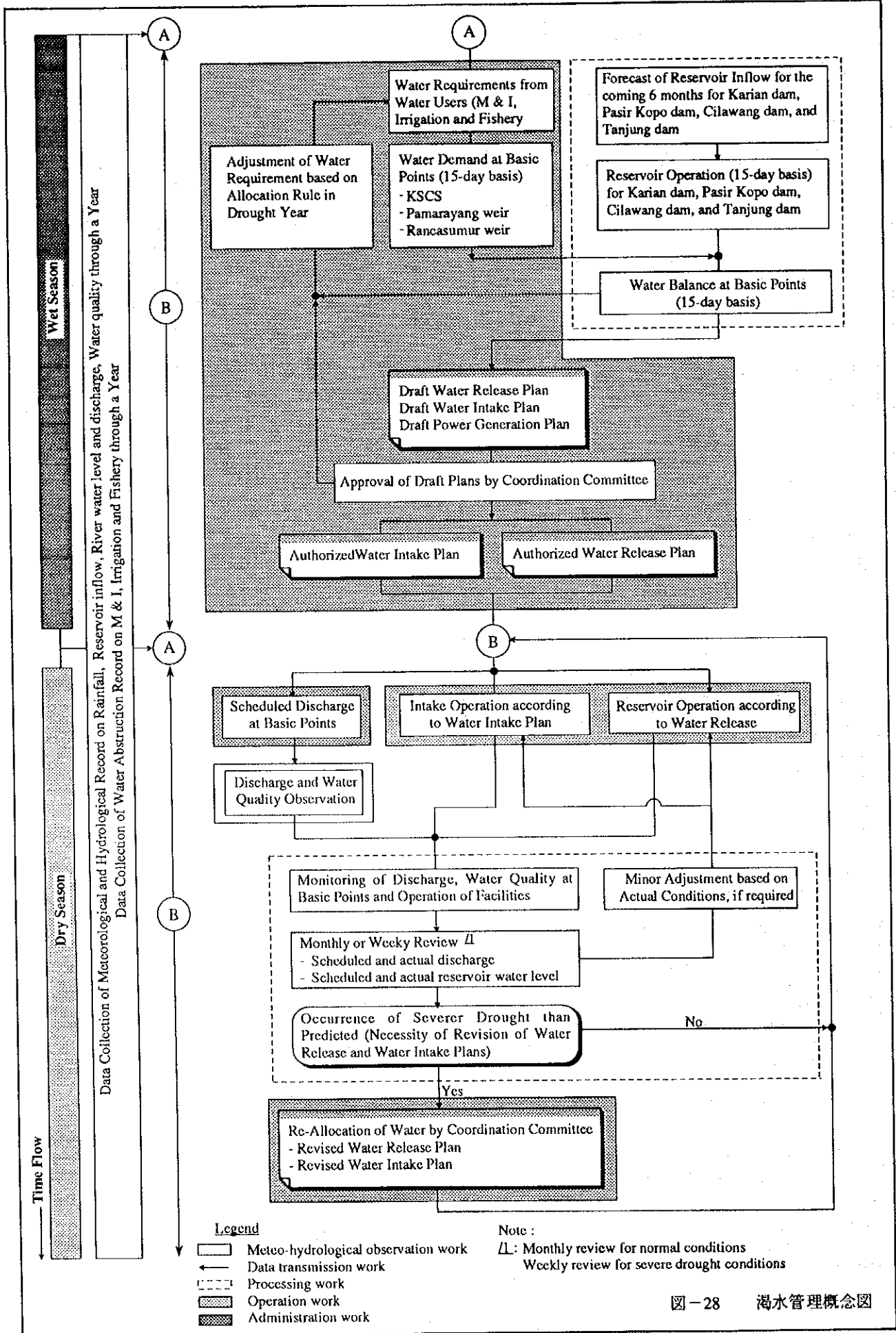


図-28 洪水管理概念図



図-29 カリアンダム 施設配置図

Source : Feasibility Study on Karian Multipurpose Dam Construction Project in 1985

LOCATION MAP

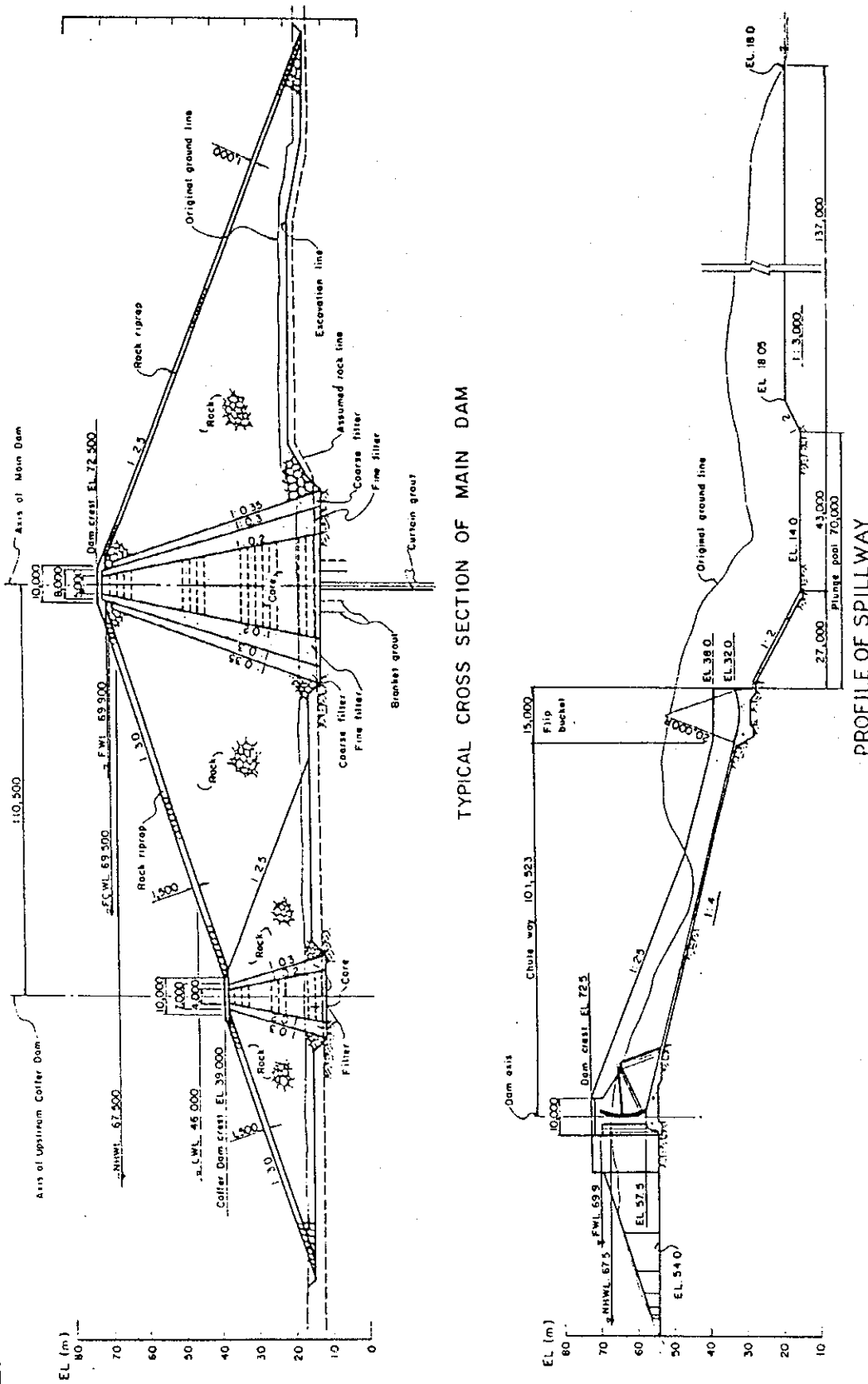


図-30 カリアンダム堤体および洪水吐

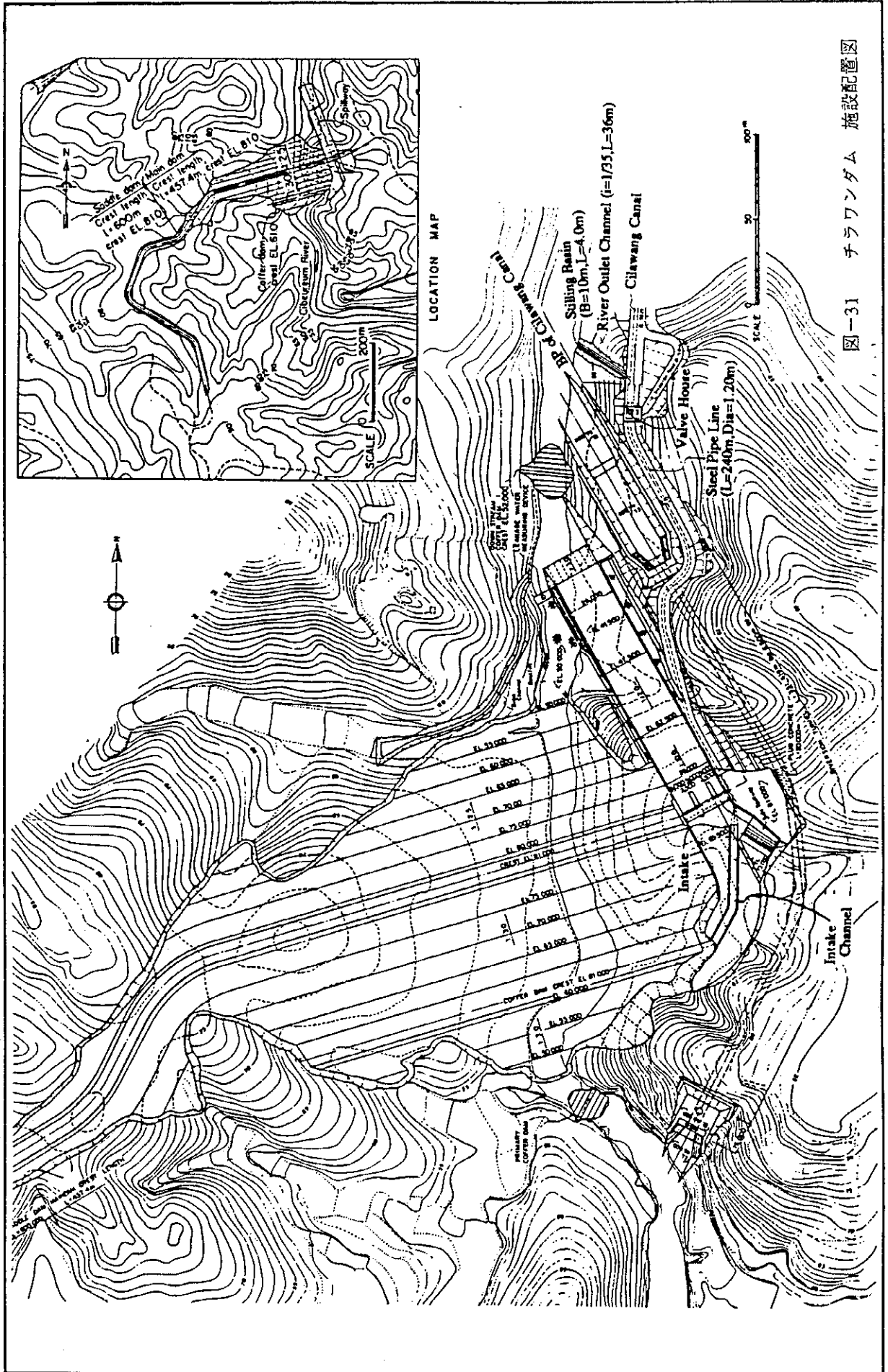
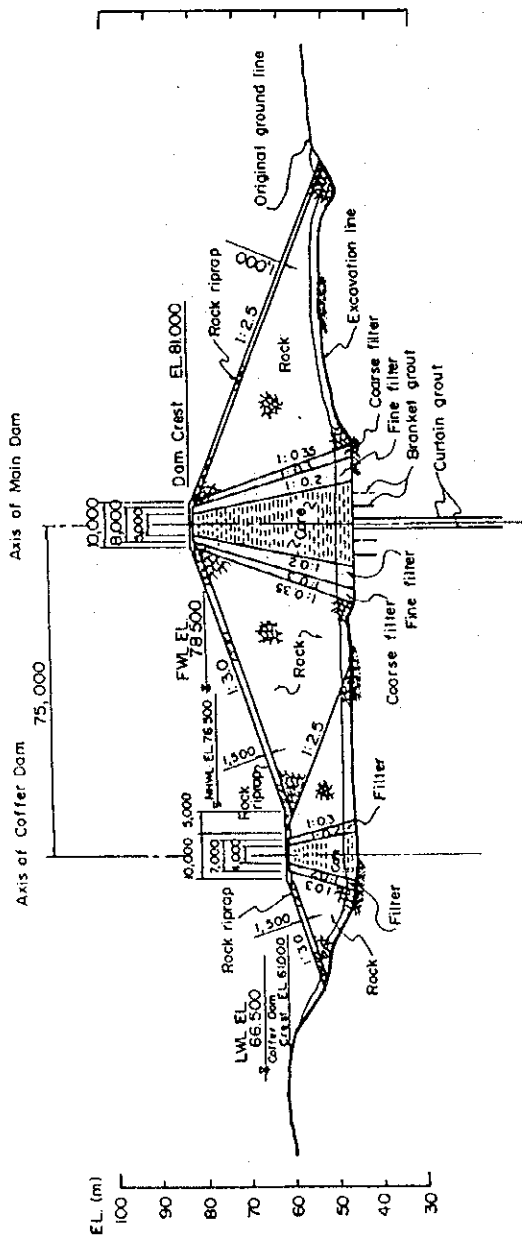
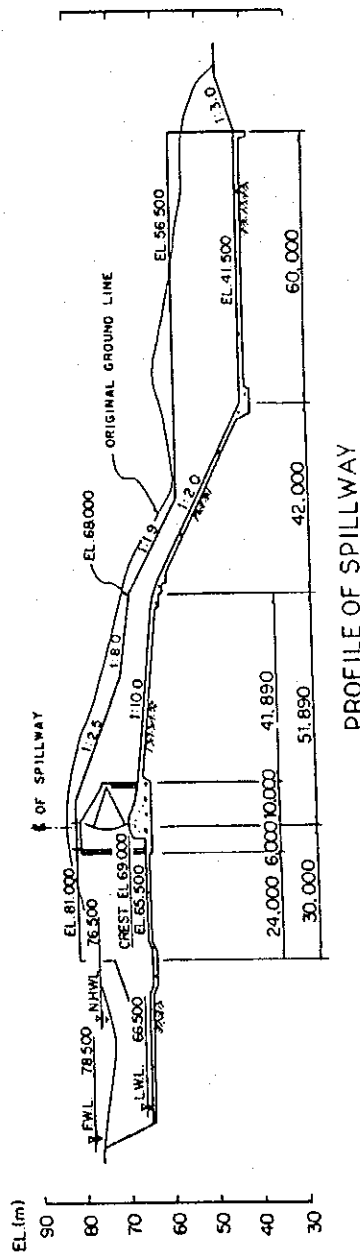


図-31 チラワンダム 施設配置図



TYPICAL CROSS SECTION OF MAIN DAM



PROFILE OF SPILLWAY

Scale A 0 1/1,000 50 m

図-32 チャワンダム堤体および洪水吐

Source : Feasibility Study on Karian Multipurpose Dam Construction Project in 1985



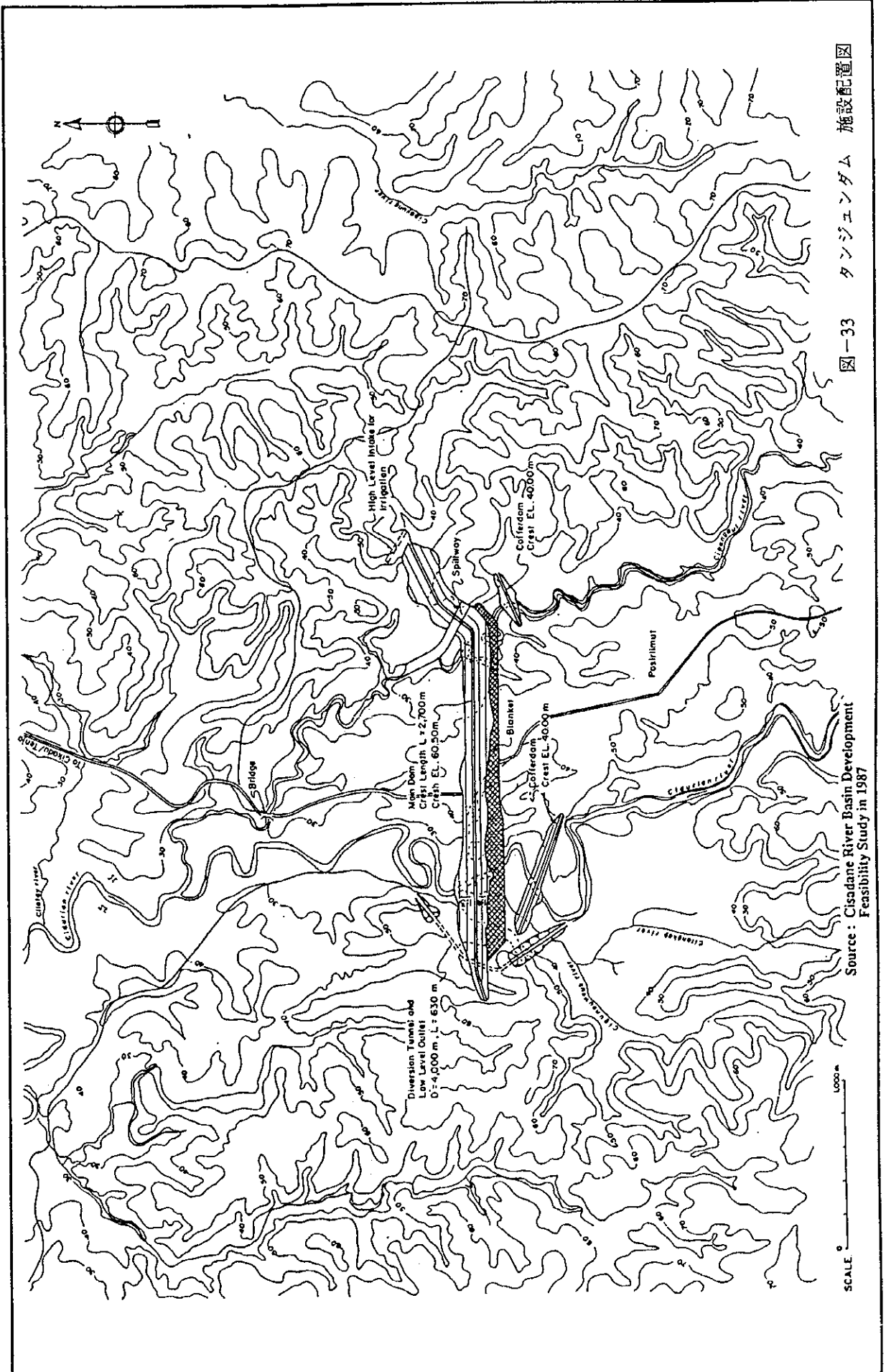
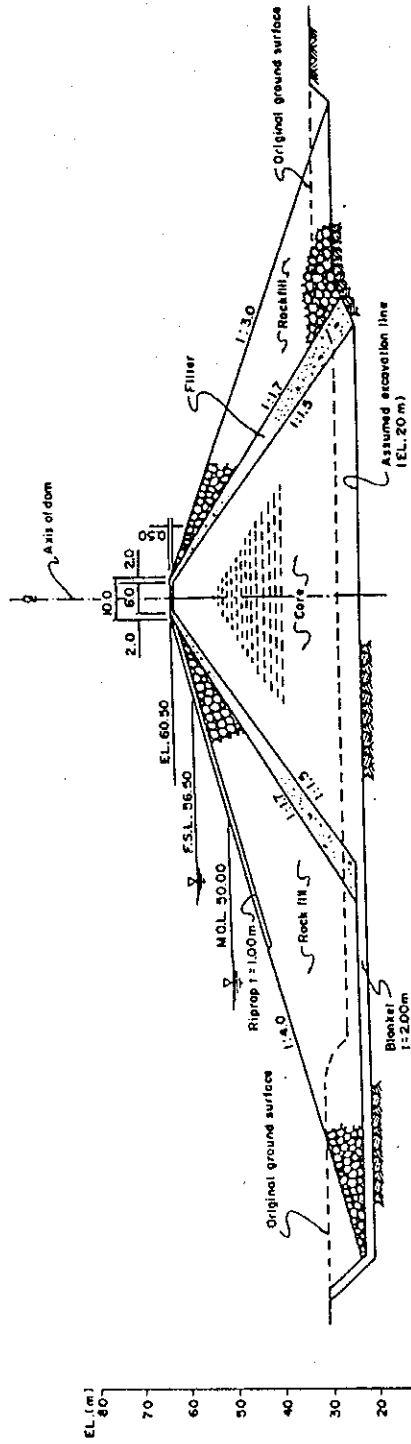
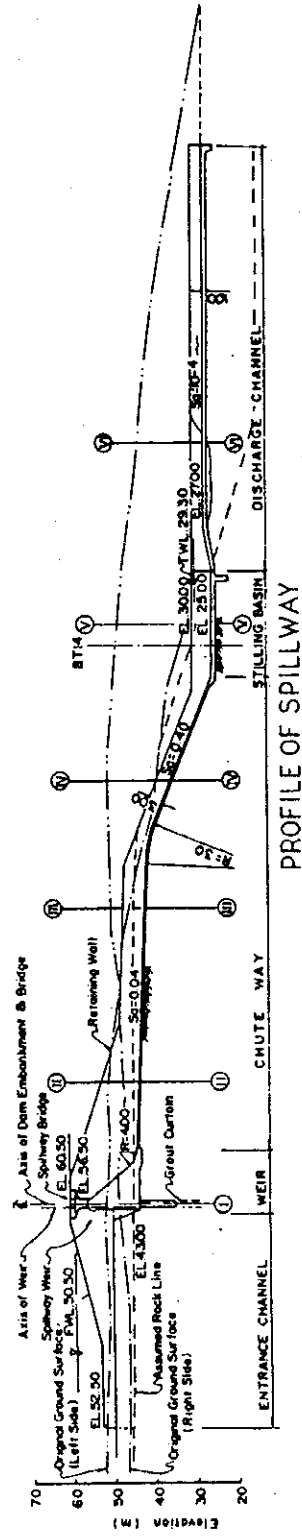


図-33 タンジュンダム 施設配置図



TYPICAL CROSS SECTION OF MAIN DAM



PROFILE OF SPILLWAY

SCALE 0 50 m

図-34 タンジュンダム堤体および洪水吐

Source: Cisadane River Basin Development Feasibility Study in 1987

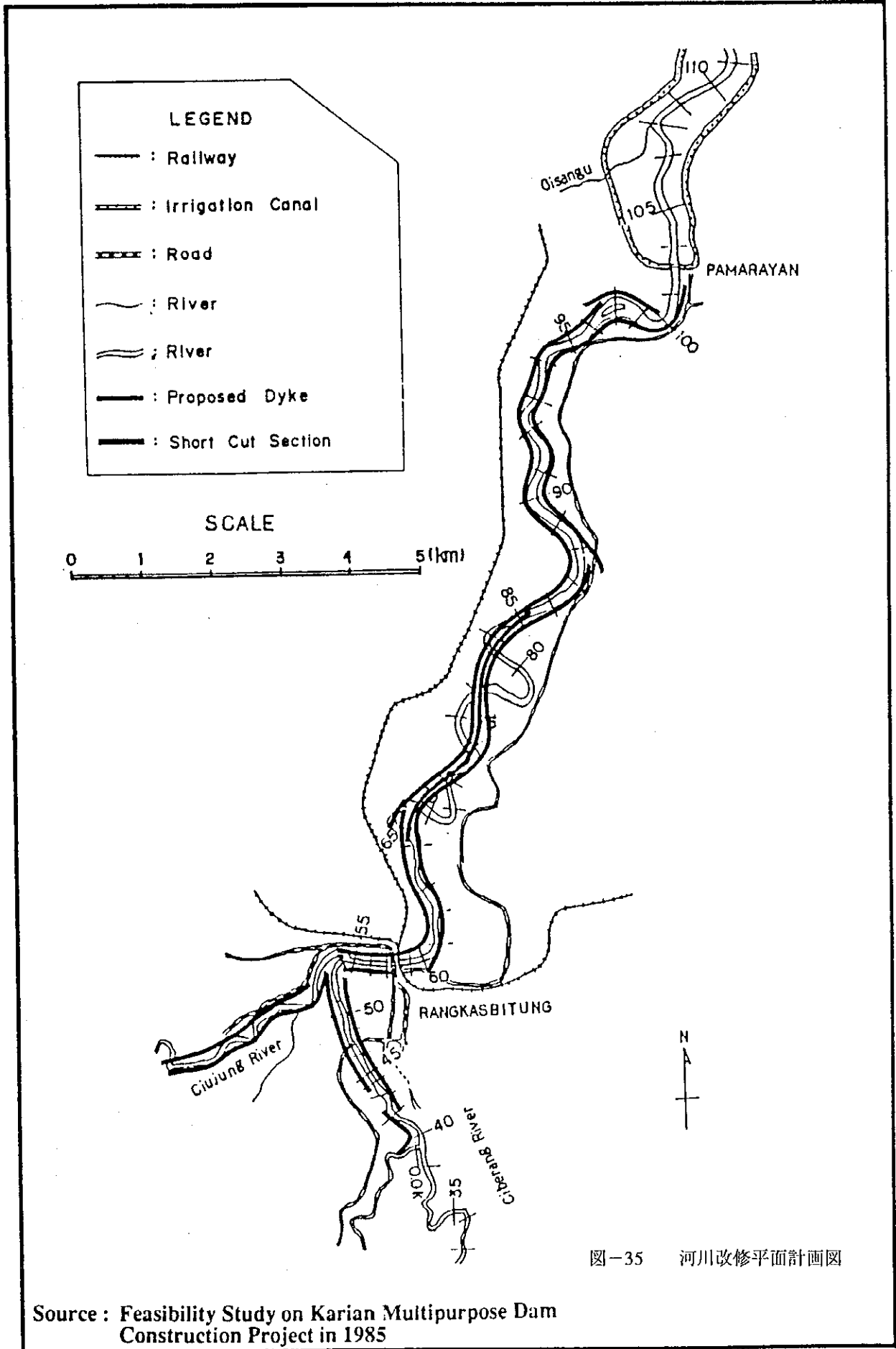
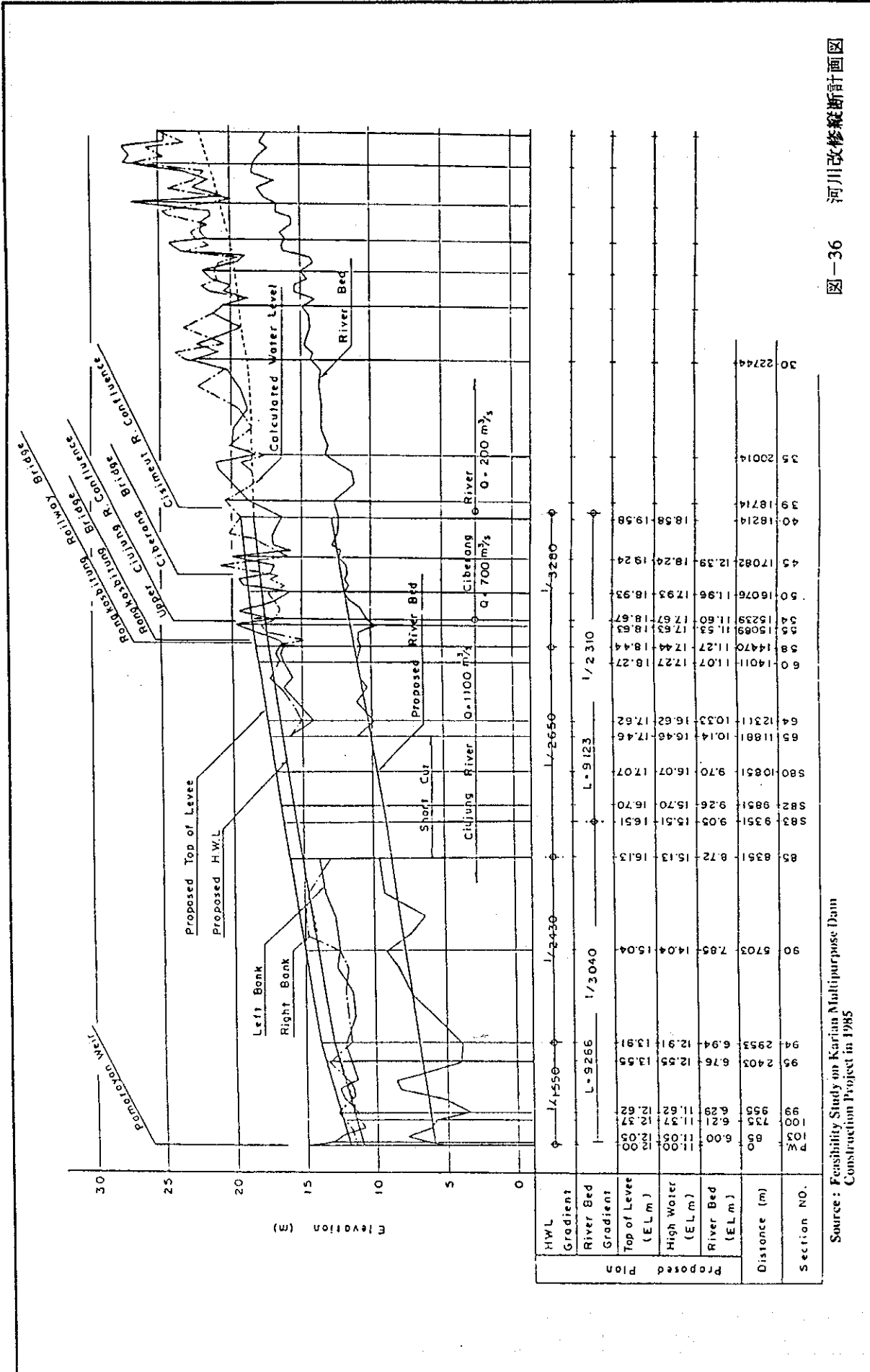


图-35 河川改修平面計画图

Source : Feasibility Study on Karian Multipurpose Dam Construction Project in 1985



Section NO.	Distance (m)	River Bed (E.L.m)	High Water (E.L.m)	Top of Levee (E.L.m)	Gradient	River Bed Gradient	HWL
7	100	11.00	11.00	11.00	1/2430		14550
103	101	11.00	11.00	11.00			
96	2403	6.76	12.55	13.95		L=9266	1/3040
94	2953	6.94	12.91	13.91			
90	5703	7.85	14.04	15.04			1/2650
85	8351	8.72	15.13	16.13			
83	9351	9.05	15.51	16.51			
82	9851	9.26	15.70	16.70			
80	10851	9.70	16.07	17.07			1/2310
65	11881	10.14	16.46	17.46			
64	12311	10.33	16.62	17.62			
60	14011	11.07	17.27	18.27			
58	14470	11.27	17.44	18.44			
55	15089	11.53	17.63	18.63			
54	15239	11.60	17.67	18.67			
50	16076	11.96	17.93	18.93			
45	17082	12.39	18.24	19.24			
40	18214	12.58	18.58	19.58			
39	18714						
35	20014						
30	22744						

図-36 河川改修縦断計画図

Source: Feasibility Study on Karian Multipurpose Dam Construction Project in 1985

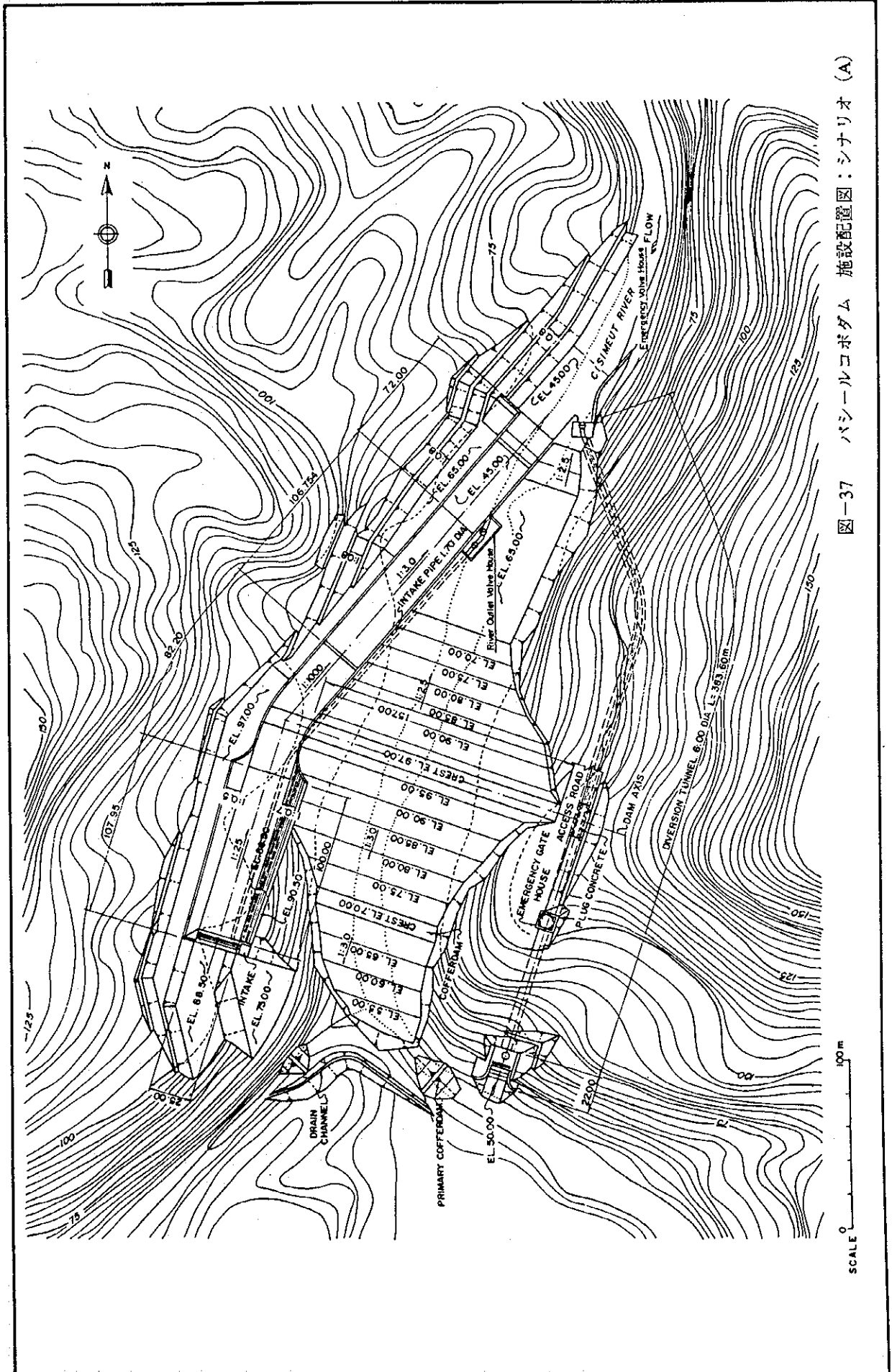


図-37 バシールコボダム 施設配置図：シナリオ (A)

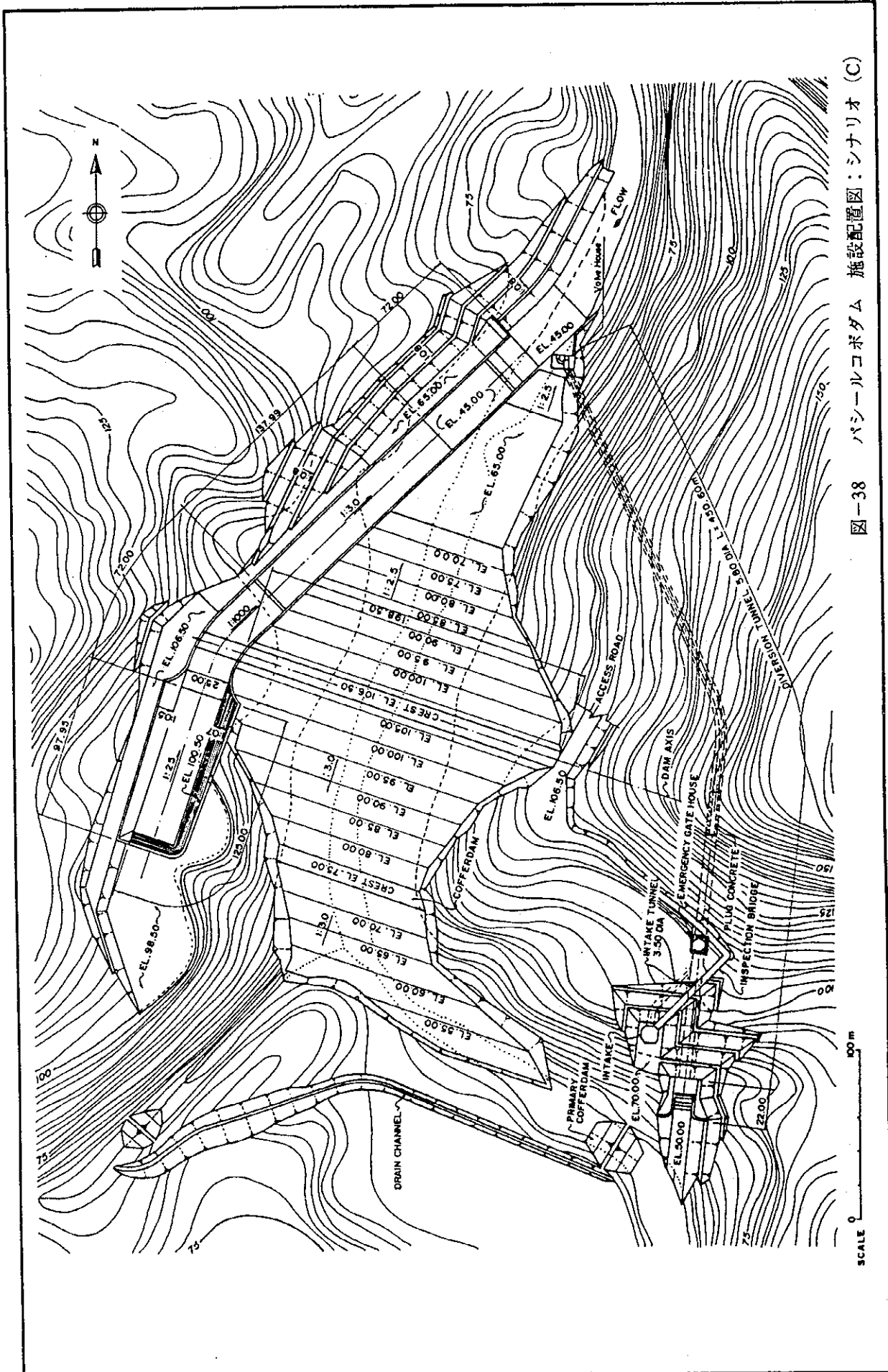


図-38 パシールコロボダム 施設配置図: シナリオ (C)

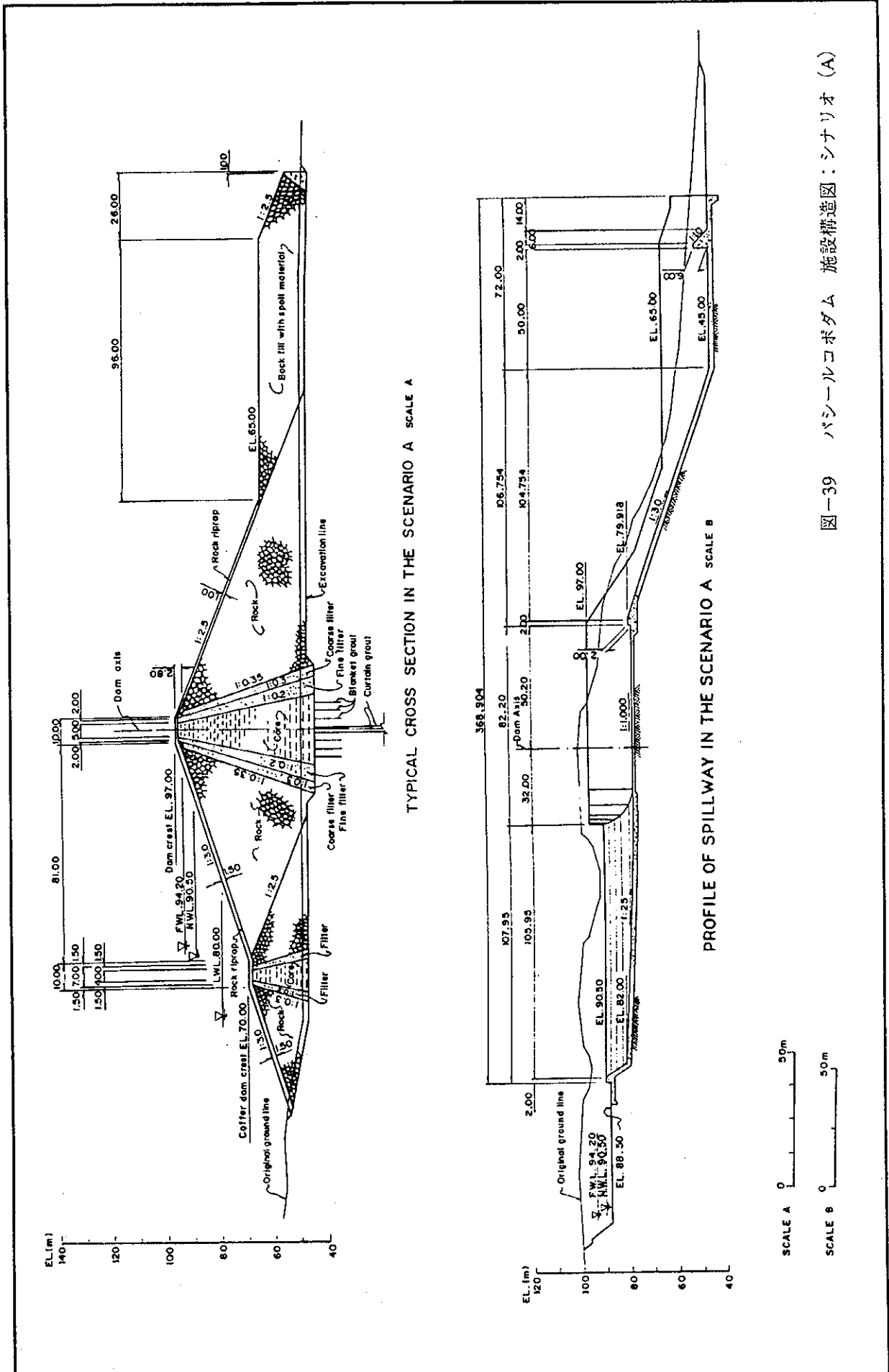


図-39 パシールコボダム 施設構造図：シナリオ (A)

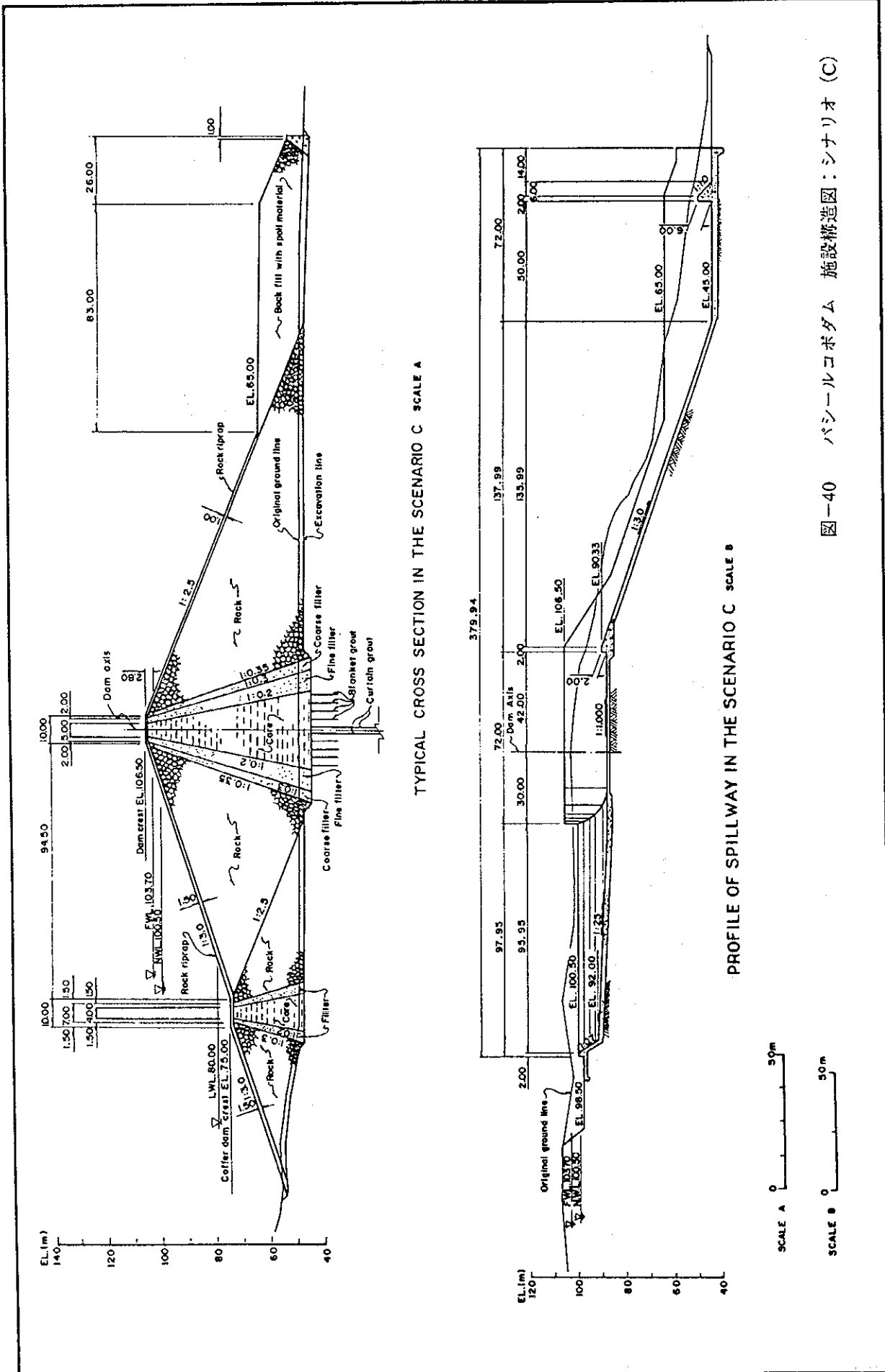


図-40 パシールコボダム 施設構造図：シナリオ (C)



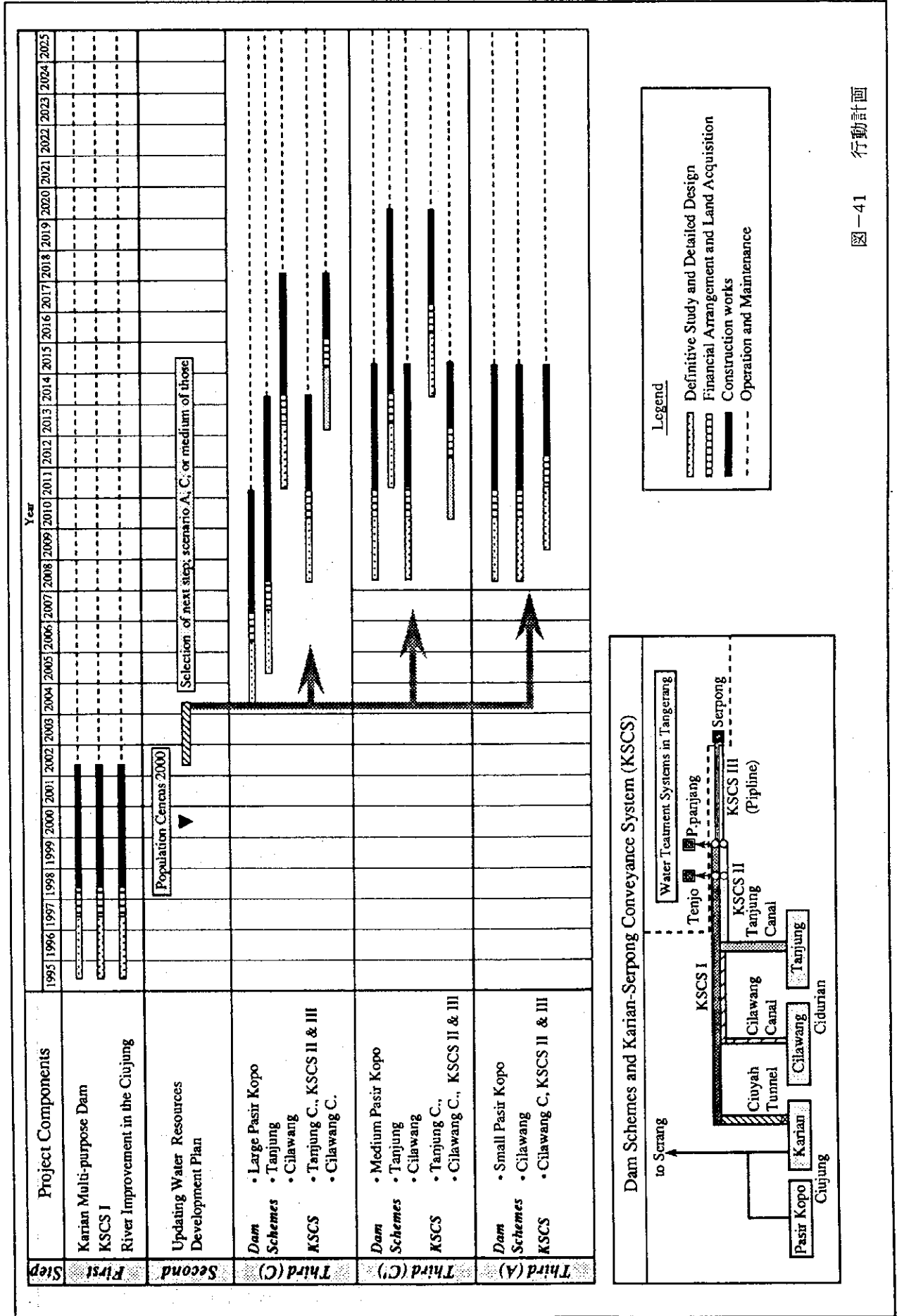


図-41 行動計画

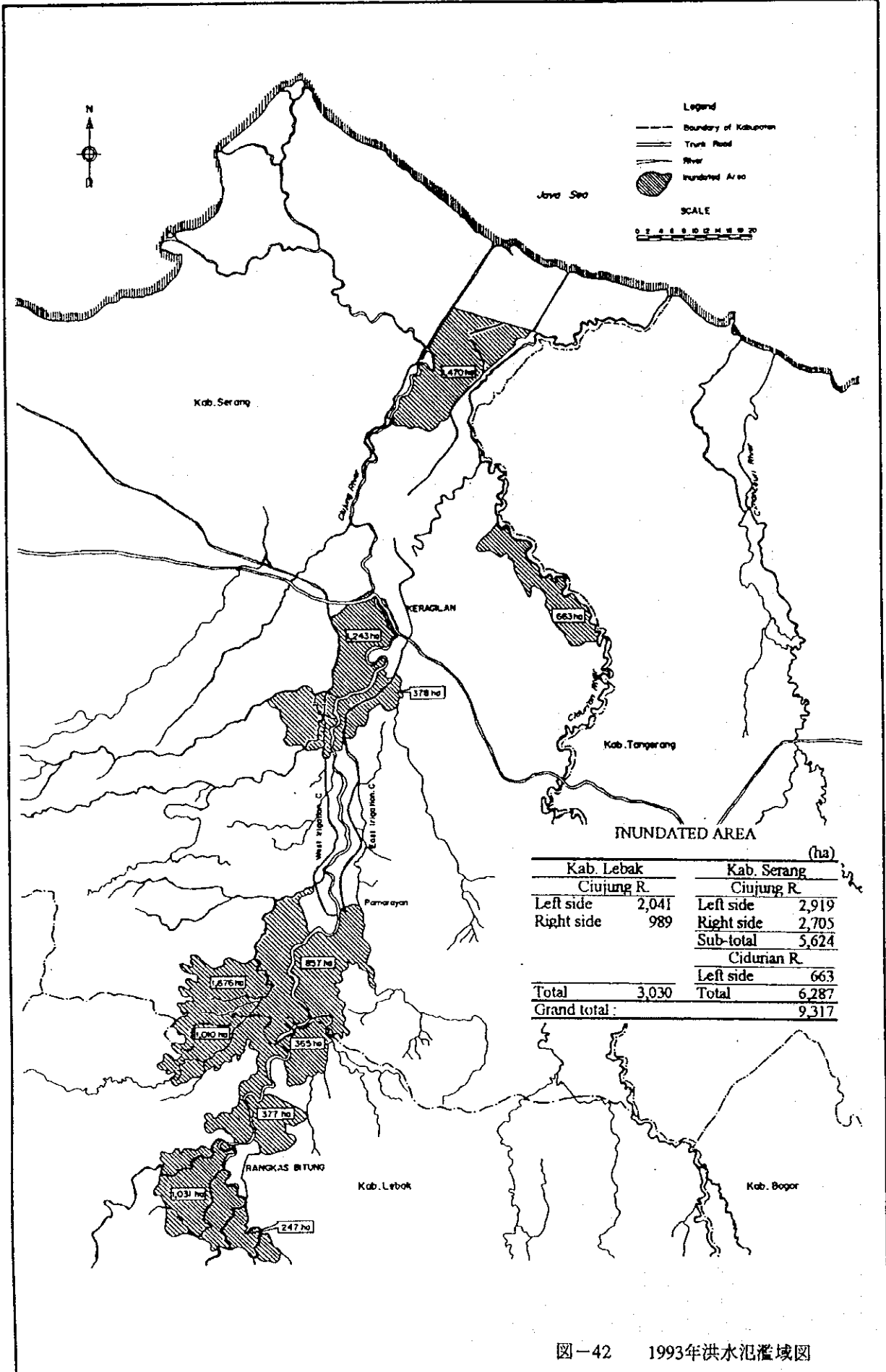


図-42 1993年洪水氾濫域図



