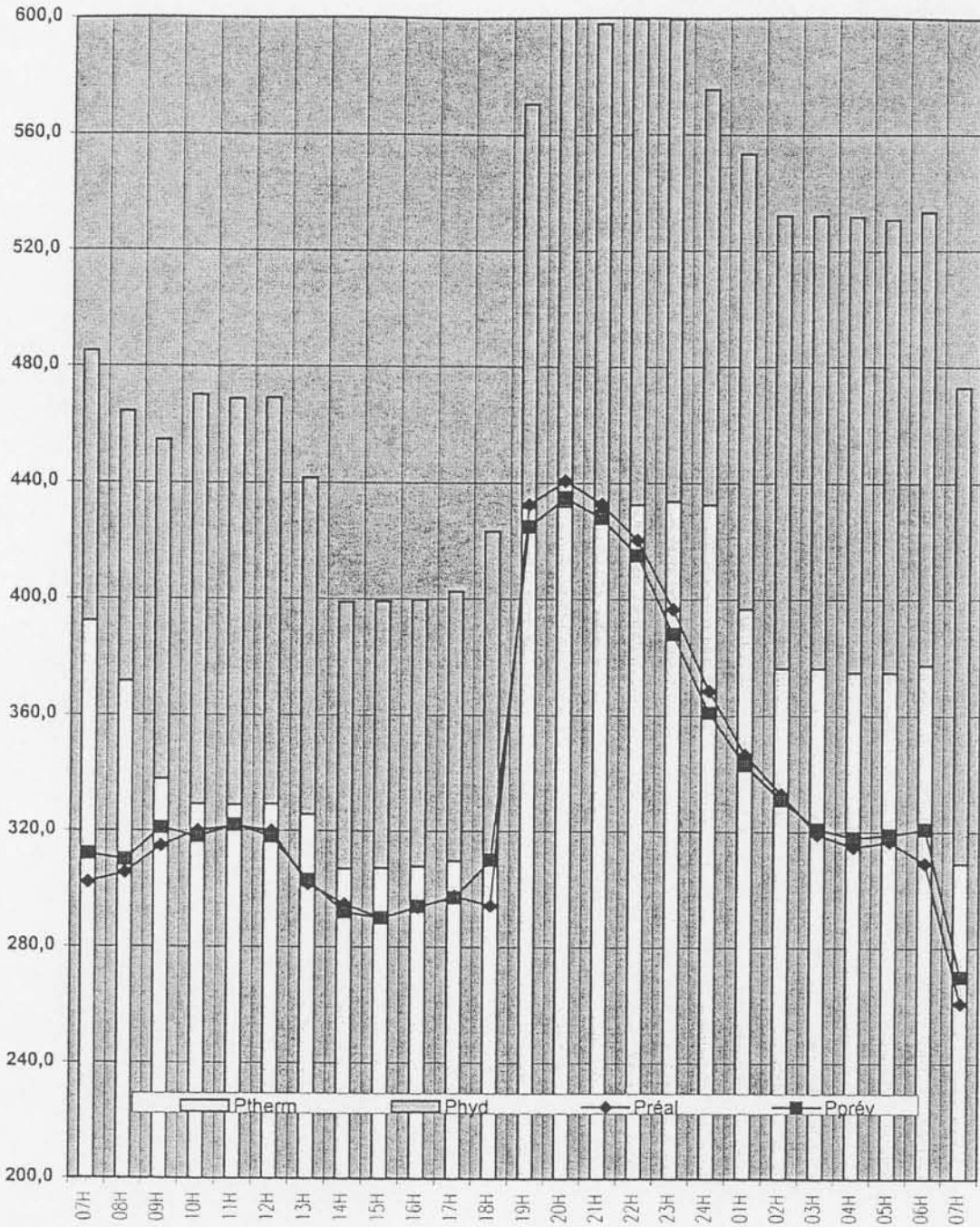


Table 3.8-7 Examples of Operation Records by Dispatching Center of CIE (11 pages)

PROGRAMME PREVISIONNEL DE MARCHÉ DES GROUPES DU SAMEDI 18 SEPTEMBRE 1999
ECART MOYEN ABSOLU= 5 MW

MW

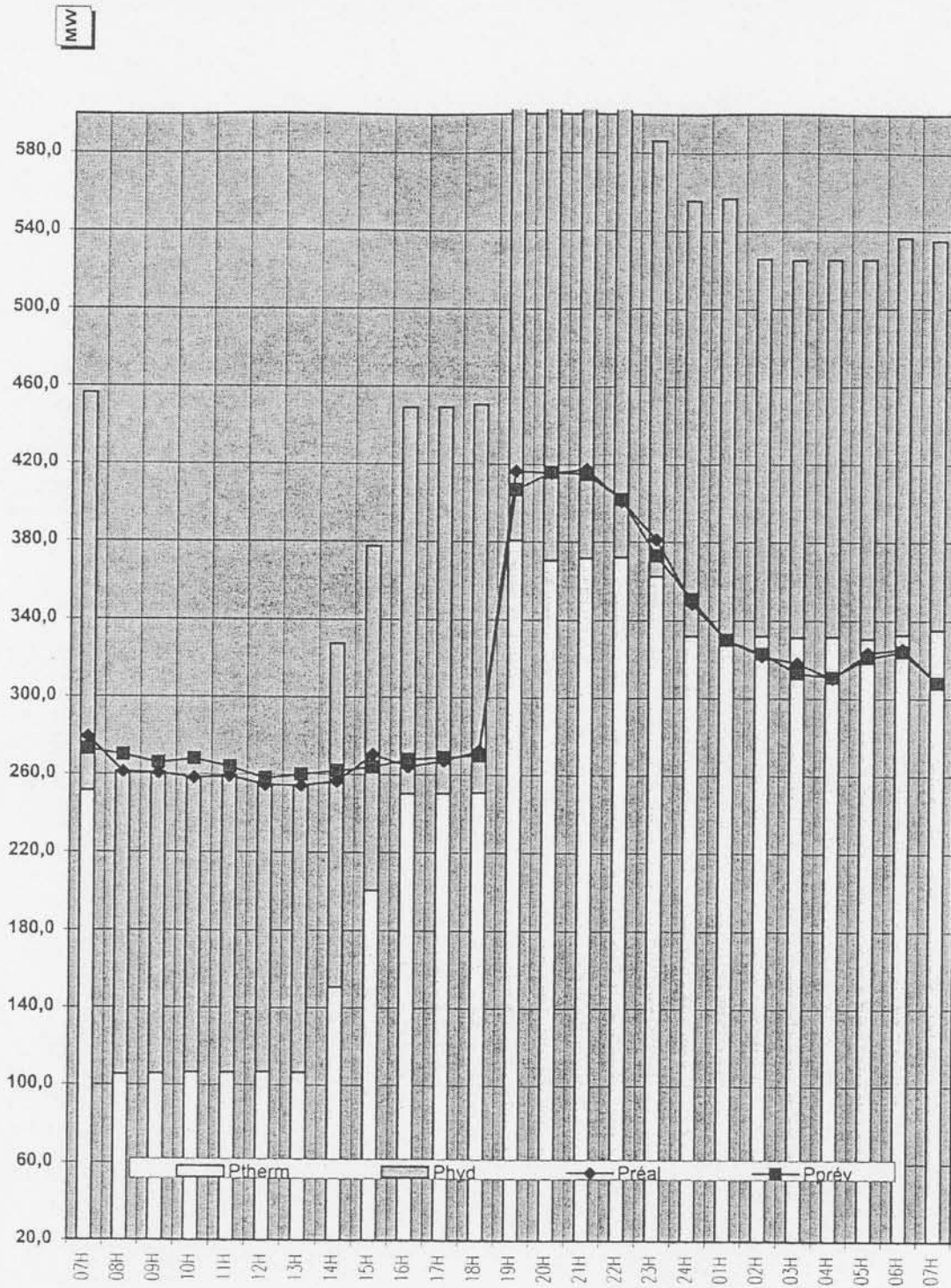
Saturday



DATE D'EDITION : 29/09/99 16:06

Table 3.8-7 Examples of Operation Records by Dispatching Center of CIE (11 pages)

PROGRAMME PREVISIONNEL DE MARCHÉ DES GROUPES DU DIMANCHE 26 SEPTEMBRE 1999
 ECART MOYEN ABSOLU= 4 MW

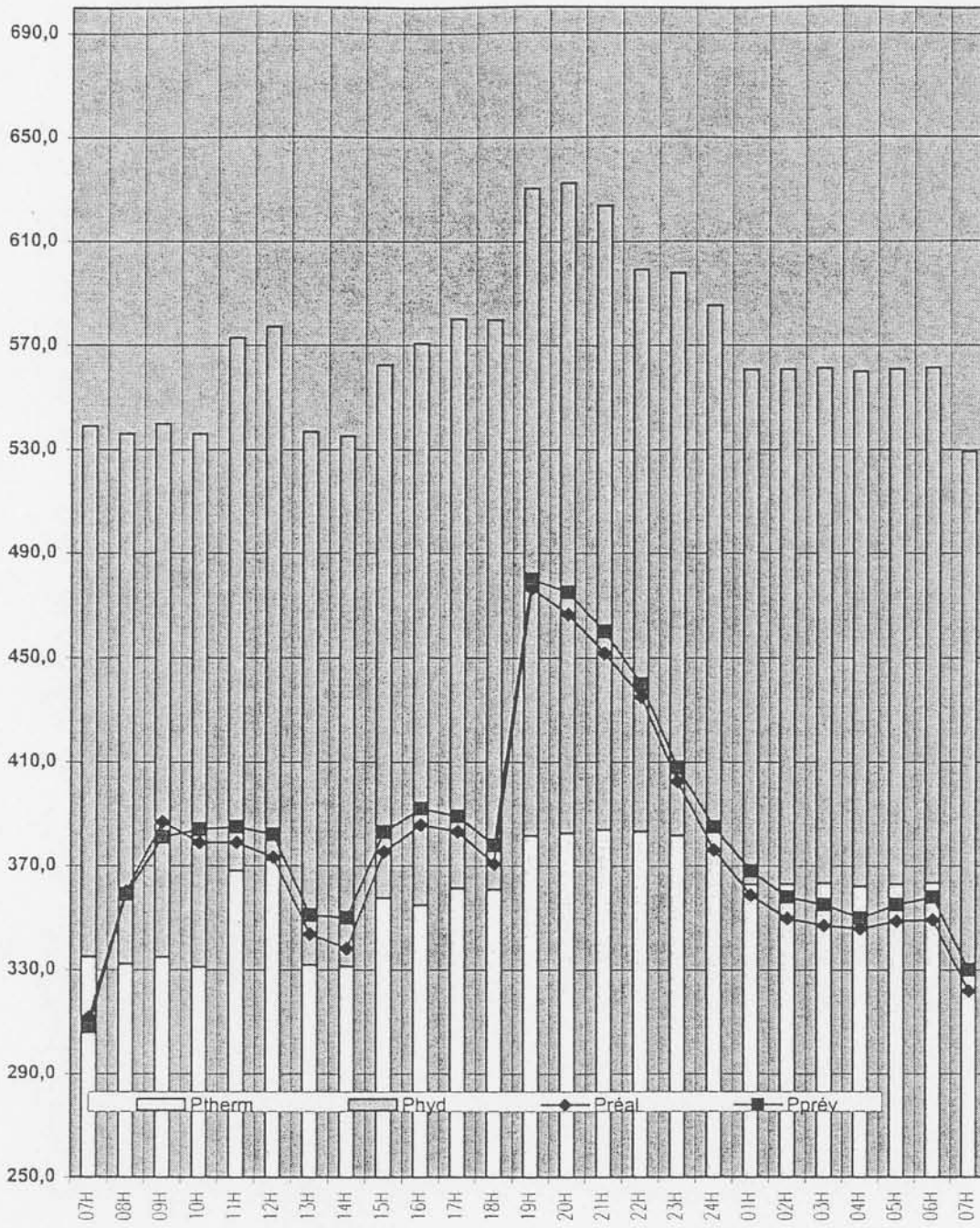


DATE D'EDITION: 29/09/99 16:05

Table 3.8-7 Examples of Operation Records by Dispatching Center of CIE (11 pages)

PROGRAMME PREVISIONNEL DE MARCHÉ DES GROUPES DU LUNDI 27 SEPTEMBRE 1999
ECART MOYEN ABSOLU= 7 MW

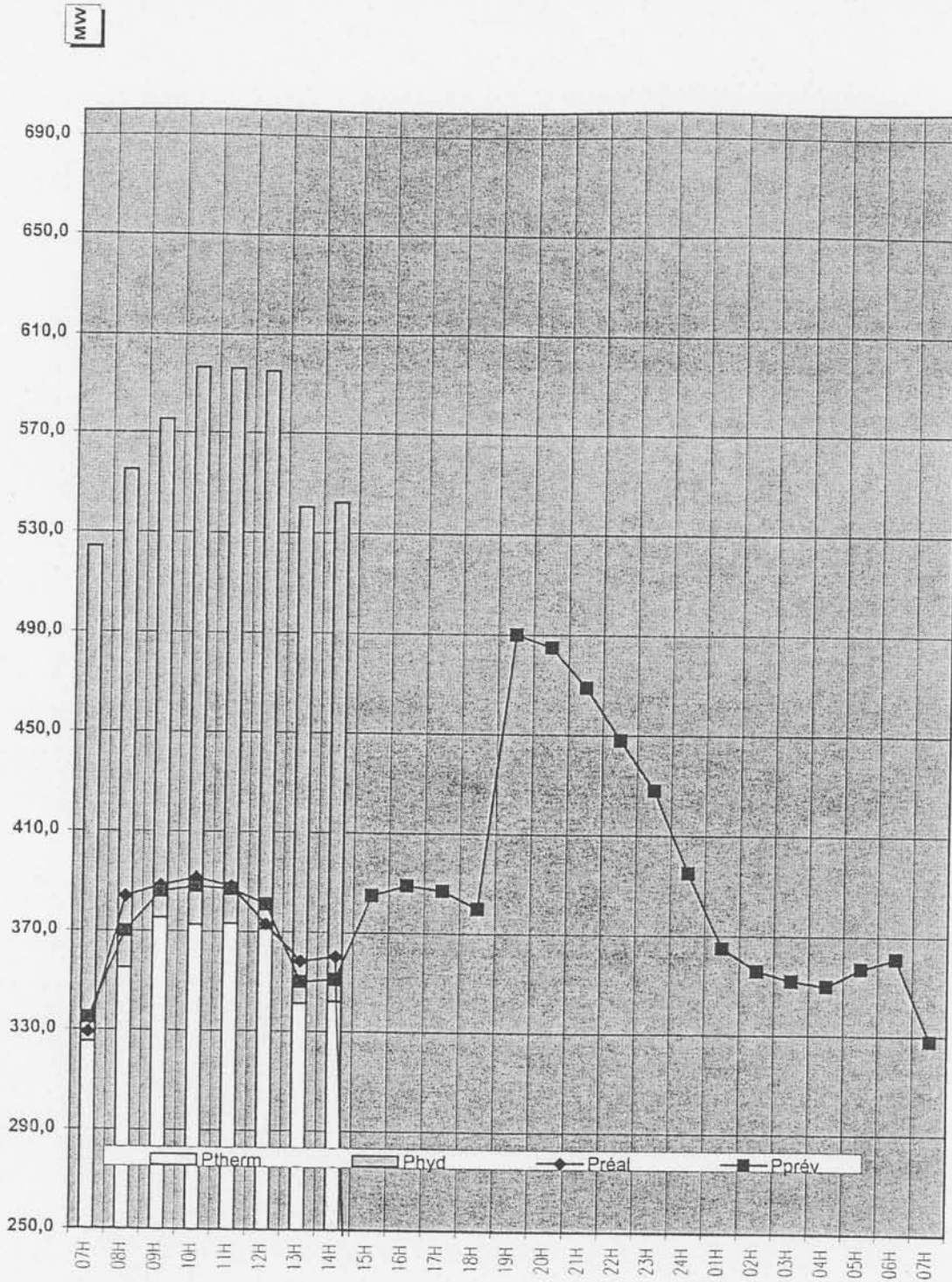
MW



DATE D'EDITION : 29/09/99 16:02

Table 3.8-7 Examples of Operation Records by Dispatching Center of CIE (11 pages)

PROGRAMME PREVISIONNEL DE MARCHÉ DES GROUPES DU MERCREDI 29 SEPTEMBRE 1999
 ECART MOYEN ABSOLU= 271 MW



207 207

207 207
 40 53

DATE D'EDITION : 29/09/99 15:55

Table 3.8-8 Features and Status of Power Generation/Transmission and Facilities (10 Pages)

HYDROELECTRIC PLANTS IN COTE d'IVOIRE

ITEMS	UNITS	AYAME I	AYAME II	KOSSOU	TAABO	BUYO
GENERAL SPECIFICATIONS						
CATCHMENT BASIN	km ²	9320	9320	32400	57700	46250
AVERAGE YEAR MODULE	m ³ /s	71	71	151	92	398
DRY YEAR MODULE	m ³ /s	44	44	33	52	250
RAINY YEAR MODULE		176	176	308	222	580
AVERAGE YEAR SUPPLY	Mm ³ /an	2240	2240	4762	2900	12550
DRY YEAR SUPPLY	Mm ³ /an	1390	1390	1040	1840	7880
RAINY YEAR SUPPLY	Mm ³ /an	5550	5500	9713	7000	18290
RESERVOIR SPECIFICATIONS						
MAXIMUM NORMALE TIGHT LEVEL / SEA LEVEL	m	90,5	69	206	124	201
VOLUME AT LINE	Mm ³	900	69	28754	630	8300
SUPERFICIE AT LINE	km ²	180	1	1780	69	895
MINIMUM NORMALE TIGHT LEVEL / SEA LEVEL	m	83	60,5	184	118	200
VOLUME AT LINE	Mm ³	54	1	4110	290	186,5
TECHNICAL SPECIFICATIONS						
TOTAL POWER	MW	20	30	74	210	165
AVERAGE YEAR PRODUCTIBLE	GWh	80	120	450 to 50	960 to 380	900
WARRANTIED PRODUCTIBLE	GWh	60	90	450 to 45	8501	610
YEAR OF STARTING EXPLOITATION		1959	1965	1972	1979	1980
PLANT						
MAXIMUM RAW FALL HEIGHT	m	25	32,5	49,5	59	36,1
MINIMUM RAW FALL HEIGHT	m	17,5	24	27,5	54	22,6
AVERAGE ENERGY PROFIT	m ³ /kWh	21	13,7	12	7,7	13
MINIMUM ENERGY PROFIT	m ³ /kwh	19,6	13,7	9	6,9	11
MAXIMUM ENERGY PROFIT	m ³ /kwh	30,5	137	15	11,3	17,5
TOTAL FLOW	m ³ /s	114	104	152	154	555
TURBINE						
NUMBER		2	2	3	3	3
UNIT POWER	CV	15600	22190	93295	109510	82660
TYPE		Kaplan Vevey	axe vertical Vevey	Francis Riva calzoni	axe vertical Vevey	NEYRPC
MANUFACTURER						
GENERATORS						
NUMBER		2	2	3	3	3
UNIT POWER	CV	12	19	61,6-585	78-70	61-55
VOLTAGE OUTPUT	kV	5,5	15,2	-	-	10,5
MANUFACTURER		Sécheron	S.W.	Aagen	Westinghouse	Alsthom Atlantique
TRANSFORMERS						
NUMBER		2	2	3	3	3
UNIT POWER	KVA	12	19	72	82,5	61
TRANSFORMATION RATIO	IV	5,5/90	5,5/90	17/65	13,8/235	10,5/235
MANUFACTURER		S.W.	S.W.	Morelli OTE	ACEC	Jeumont Schneider
AUXILIARIES						
DIESEL						
TYPE		GVU 33		S.A.C.R.	D 348	
UNIT POWER	CV	215		-	-	
MANUFACTURER		S.G.C.M		Caterpillar		
TRANSFORMERS						
NUMBER		2	2	3	3	3
UNIT POWER	KVA	3x66,6	3x66,6	3x300	800	3x150
TRANSFORMATION RATIO	IV	5500/380	5500/380	17000/460	13800/380	10500/380
MANUFACTURER		S.W.	S.W.	Aagen	ACEC	Jeumont Schneider
GENERATOR						
UNIT POWER	KVA	150		210-262	400	250
VOLTAGE OUTPUT	V	380			380	380
MANUFACTURER		Oerlikon		Elect. SET		Alsthom Atlantique
DAMS & DYKES						
TOP FROM SEA LEVEL	m	92,5	70,5	209	127	204
LENGTH IN CREST	m	610	310	1800	8100	6290
WIDTH IN CREST	m	7,3	1	10	10	10
MAXIMUM HEIGHT ON FOUNDATION	m	30	35	58	34	37
TOTAL VOLUME	Mm ³	150	50	5,2	9,8	6,9
MATERIALS		C+S+R ¹	C	C+S+R	C+S+R	C+S+R

¹ Warrantied by Marahoue River

² C = concrete ; S = soil ; R = rocks

Table 3.8-8 Features and Status of Power Generation/Transmission and Facilities (10 Pages)

**TECHNICAL CHARACTERISTICS
OF KOSSOU
HYDROELECTRIC PLANT**

<p>GENERAL CHARACTERISTICS</p> <p>Puissance installée :175,5 MW Bassin versant Productible garanti : 505 GWH Apport. annuel. année moyenne du projet : 4762 10⁶ m³ Dates de mise en service - G1 :18/10/72 - G2 :01/12/72 - G3 : 28/02/73</p>	<p>DAM</p> <p>Type : terre et enrochement Cote de la crête : 209 m Hauteur maximale au dessus du lit : 58 m Longueur : 1500 m Volume total : 5263,4 m³</p>	<p>RESERVOIR</p> <p>Cote maximale : 206 m Cote minimale d'exploitation : 186m (183m en 1984 et 180m en 1994) Cap. retenue pleine : 28,8 x 10⁹ m³ Longueur à cette cote :150 Km Superficie à cette cote :1855 Km² Cote max. depuis mise en service :192,81 (16/11/80) Cote max. depuis mise en service :180,21 (14/07/94)</p>
<p>RISING OVERFLOW EVACUATOR</p> <p>Type : déversoir à vannes Capacité théorique sous 207m: 2160 m³ Vannes : 3 vannes segment 10 x 10,30 m Cote du seuil : 196 m / la mer Hauteur seuil : 11 m</p>	<p>PRISE D'EAU</p> <p>Type: inclinée, avec grilles Inclinaison : 14°02" par rapport à la verticale Nb de vannes: 3 vannes wagon Seuil entrée prise:176,80 m Batardeaux: jeu de 3 éléments de 5,70 x 10,07 m</p>	<p>CONDUITE FORCEE</p> <p>Type : Galerie en béton avec blindage en acier Nombre : 3 Longueurs : G1 :124,95 m G2: 120,45m G3: 115,95m Diamètre : de 7 m à 6,3 m à l'extrémité aval</p>
<p>TURBIN</p> <p>Type : Francis Vitesse :125 tr/ mn Puissance développée sous 43 m (cote 200 m) : 8,5 MWH Hauteur de chute : 49,5 m 40,5 m 35 m Débit: 152,28 m³/s 146,33 m³/s 136 m³/s Hauteur de chute nominale : 45,5 m Hauteur de chute maximale : 49,5 m Puissance nominale : 60 MW Constructeur : RIVA -CALZONI Débit max. :142,60 m³/s</p>	<p>ALTERNATOR</p> <p>Type : parapluie, à arbre vertical Puissance nominale : 61,6 MVA Constructeur : ANSALDO / M. Tension de sortie :17,5 KV I nominale : 2095 A Vitesse :125 tr/ mn Fréquence : 50 Hz</p>	<p>TRANSFORMER</p> <p>Type : OFAF Puissance : 72 MVA U nominale :240/17 KV (G2-G3) 95/17 KV (G1) I nominale :173/2445 A (G2-G3) 437/2445 A (G1) Constructeur : ERCOLE-MARELLI</p>
<p>CANAL DE FUITE</p> <p>Niveau maxi :164,00 m Niveau normal :156,00 m Niveau mini : 153,00 m</p>	<p>HDM DES GROUPES</p> <p>Jusqu'aux travaux d'automatisation de 79-82 G1 :21 542 h G2 : 20 100 h G3 :19 641 h Du 18/03/82 au 02/04/98 G1: 90 416 h G2:96 669 h G3:103 106 h</p>	

Table 3.8-8 Features and Status of Power Generation/Transmission and Facilities (10 Pages)

**CENTRALE HYDROELECTRIQUE
DE BUYO**

<p>CARACTERISTQUES GENERALES</p> <p>Puissance installée: 165 MW Productible garanti: 900 GWH Bassin versant: 46250 Km² Débit équipé : 3 x 185 m³/s Débit moyen annuel: 390 m³/s</p> <p>Date de mise en service (E. S.I) G1 :30/10/80 G2 :17/11/80 G3 :10/02/81</p>	<p>BARRAGE</p> <p>Type : terre et enrochement</p> <p>Barrage principal Hauteur : 37 m Longueur en crête : 3615 m</p> <p>Barrage secondaire Hauteur : 20 m Longueur en crête : 1985 m</p> <p>Couronnement digue Longueur : 8200 m Largeur : 7,5 m</p>	<p>RESERVOIR</p> <p>Cote des plus hautes eaux:200,20 m</p> <p>Cote de retenue normale : 200 m Capacité à 200 m :8,4 milliards m³</p> <p>Cote mini d'exploitation : 186,50 m Capacité à 186,50 m: 1,3 milliards m³</p> <p>Volume tranche utile: 7 milliards m³</p>
<p>PRISE D'EAU</p> <p>Nb de vannes : 3</p> <p>Type : wagon</p> <p>Dimension :</p> <p>Seuil entrée prise : 145,80</p> <p>Batardeaux: 1 jeu de 3 éléments 6,70m x 7,10 m</p>	<p>ALTERNATEUR</p> <p>Puissance : 61 MVA</p> <p>Tension de sortie :10,5 KV</p> <p>I nominale : 3354 A</p> <p>Vitesse : 166,67 t/mn</p> <p>Fréquence : 50 HZ</p> <p>Iexcit : 695 A</p>	<p>TRANSFORMATEURS</p> <p>GROUPE Puissance :3x61 MVA</p> <p>I nominal : 3354 A</p> <p>U nominal : 225 /10,5 KV</p> <p>SOUTIRAGE Puissance : 3x 150 KVA Fréquence : 50 HZ</p>
<p>CONDUITE FORCEE</p> <p>Nombre : 3</p> <p>Diamètre intérieur : 7,50 m Longueur :65 m Espacement entre conduite: 20m</p>	<p>DIESEL SECOURS</p> <p>Type :MOTERMIC</p> <p>Puissance : 500 KVA</p> <p>Tension : 400 V</p>	<p>EVACUATEUR DE CRUES</p> <p>Type :barrage piles masque en béton Nb de passes :5 Long :182m Larg:116m haut:45m Débit total évacuable :4500 m³/s</p> <p>Vannes de surface (clapet) Débit : 5 x50 m³/s Cote de seuil : 198 Dimension : 9 x 2,50 Temps de levage :12 mn Temps de fermeture : 12 mn</p> <p>Vannes de vidange (segment) Débit : 5 x 839 m³/s Cote de seuil : 167 Dimension : 9 x 6,50 Temps de levage :18,4 mn Temps de fermeture : 23 mn</p>
<p>TURBINE (NEYRPIC)</p> <p>Type : Kaplan Vitesse : 167 t/mn Chute brute nom.:26,50 à 40m Haut. de chute nominale:26,85 m Chute maxi possible :36,10 m Chute mini : 22,60 m Diamètre roue : 5 m Débit : 3x185 m³ Vitesse d'emballlement : 500 t/mn Puiss. unitaire sous 35m :57MW</p>	<p>AUXILIAIRES</p> <p>Motopompe régulation : 6</p> <p>Motopompe réfrigération : 6</p> <p>Compresseur air : 2</p> <p>Motoppe reprise fuites: 6</p> <p>Moteur ventilo-alternateur: 18</p> <p>Moteur filtre Brassert : 4</p>	

Table 3.8-8 Features and Status of Power Generation/Transmission
and Facilities (10 Pages)

**CENTRALE HYDROELECTRIQUE
DE GRAH-FAYE**

<p>CARACTERISTIQUES GENERALES</p> <p>Puissance installée: 2x 2,5 MW Productible garanti: 26,28 WH</p> <p>Débit: 30 à 60 m³/s</p> <p>Date de mise en service (E. S.D) G1 :26/09/83 G2 :13/09/83</p>	<p>BARRAGE</p> <p>Type : terre et enrochement</p> <p>Longueur digue : 3 Km</p>	<p>RESERVOIR</p> <p>Seuil deversant :20,80 m</p> <p>Niveau mini : 19,60 m</p> <p>Retenue: Superficie : 11 Km² Volume : 50 millions m³ à la cote 23</p>
<p>AVAL USINE</p> <p>Nb de vannes : 2 Marque :BOUSSANT Type :Wagon</p> <p>Dimension :3,80 X 3,25</p> <p>PRISE D'EAU</p> <p>Nb de Batardeaux: 2 Dimension : 3,60 x 3,60 m</p>	<p>ALTERNATEUR</p> <p>Puissance : 2,5 MVA</p> <p>Tension de sortie :5,5 KV</p> <p>I nominale : 349,6 A</p> <p>Vitesse : 275,5 tr/mn</p> <p>Fréquence : 50 HZ</p>	<p>TRANSFORMATEURS</p> <p>GROUPE</p> <p>Puissance : 6,5 MVA Type : THXE 36/6300 Marque: ALSTHOM SAVOISIENNE</p> <p>U nominal : 5,5 KV</p> <p>Fréquence : 50 HZ</p>
<p>CONDUITE FORCEE</p> <p>Nombre : 2 Diam. conduit aspirat. :3400mm Section : 9 m² Longueur : 40m Dimens. Grilles :6,70 x 4,50 m</p>	<p>DIESEL SECOURS</p> <p>Type :A 105 N Fabrication : Alsthom Atlantiq. Puissance : 55 KVA Vitesse :1500 tr/mn Tension : 400 V</p>	<p>EVACUATEUR DE CRUES</p> <p>Vannes de restitution : 2 m³/s</p> <p>Vannes de vidange : 12 m³/s</p>
<p>TURBINE</p> <p>Type :Bulbe Kaplan Vitesse :272,7 tr/mn Chute nette nom.: 10,30 m Chute nette maxi : 11,00 m Chute nette mini : 8,90m Débit nominal : 60 m³/s Débit maximal :66 m³/s Débit mini : 10 m³/s Vitesse d'emballlement : 690 tr/mn Nombre de pales : 4 Nombre directrices :12 Diamètre roue : 2050 mm Débit mini : 10 m³/s</p>	<p>AUXILIAIRES</p> <p>Motoventil. génératrice: 10 Kw Chauffage génératrice : 2 Kw Pompe de Cde : 11 Kw Pompe incendie : 3 Kw Pompe vanne aval: 11 Kw Pompe de vidange : 4,6 Kw Pompe exhaure : 2,5 Kw</p>	

General Figures of Electrical Status (1991 - 1998)

ITEMS	1998	1996-1997	1995-1996	1993-1994	1992-1993	1991-1992	1990-1991
Gross Production (MWh)	3,457,068	3,825,631	2,767,081	2,339,182	2,245,494	2,272,381	2,279,870
Hydraulic Production	1,376,536	2,443,720	1,785,971	971,439	1,045,883	667,518	1,288,015
Thermal Production	2,658,382	2,441,445	1,333,786	1,313,694	1,096,805	1,115,655	606,489
CIPREL	1,557,964	1,345,510	684				
AZITO							
Purchase	-577,850	-1,059,534	-352,676	20,249	102,806	489,208	385,366
Solide VRA	-592,779	1,059,926	-352,700	33,800	91,309	484,346	
SIR	14,929	392	24	20,249	11,497	4,862	
Sold Energy (MWh)	2,804,547	2,838,084	2,252,325	1,924,234	1,865,307	1,889,671	1,942,172
Low voltage	1,248,482	1,109,254	965,265	836,207	625,578	806,301	806,816
Domestic	858,437	759,922	659,866	560,141	540,327	542,705	540,838
Professional	252,707	225,458	201,001	178,555	173,360	181,448	185,422
Public light	137,338	123,874	104,398	97,511	85,251	82,148	80,556
Average voltage / High voltage and SIR	1,556,065	1,728,830	1,28,7060	1,088,027	1,066,369	1,083,370	1,135,356
Energy purchase (M ICFA)	18,013	16,519	10,114	1,620	1,802	6,344	
VRA	0	0	0	1,129	1,578	6,250	
SIR	433	11	1	491	224	94	
CIPREL (TTC)	17,580	16,508	10,113	0	0	0	
Sold energy (M ICFA)	167,473	193,058	135,632	98,364	85,474	86,933	90,520
Low voltage	75,677	81,829	64,531	53,659	45,201	47,280	47,814
Domestic	49,036	52,539	41,590	34,879	32,848		
Professional	20,847	22,956	17,414	13,756	12,353		
Public light	5,794	6,334	5,527	5,024	4,040		
Average voltage / High voltage and SIR	71,145	80,369	60,926	44,705	40,273	39,653	42,706
VRA + CEB	20,651	30,860	10,175				
Customers (number)	646,085	592,737	528,456	398,009	426,190	419,50	415,274
Low voltage	643,815	590,523	526,388	398,003	426,184	419,494	413,402
Domestic	578,896	531,128	472,797	398,003	378,678	371,317	
Professional	60,563	55,305	49,944	44,382	44,211	44,865	
Public light	4,356	4,090	3,647	3,366	3,295	3,312	30,977
Average voltage	2,266	2,210	2,064	1,900	1,870	1,860	1,868
High voltage							4
Installed Nominal power (kW)							
Inter-connected network	1,076,127	1,076,127	1,076,127	935,832	935,832	935,960	931,900
Isolated stations	1,069,000	1,069,000	1,069,000	931,900	931,900	931,900	931,900
Rush hours power on the inter-connected network (MW)	7,127	7,127	7,127	3,932	3,932	4,060	4,060
Network length (km)	542	511	433	360	347	368	368
Low voltage	28,855	28,115	25,543	24,339	24,036	23,635	23,455
Average voltage	10,704	10,156	9,022	8,430	8,229	8,015	7,862
High voltage	13,912	13,733	12,275	11,798	11,696	11,509	11,471
Transformation stations HTA/BTA HTA/HTA	4,239	4,246	4,246	4,111	4,111	4,111	4,122
Light focus	6,197	5,803	5,595	5,276	5,255	5,128	5,104
Legal staff	204,460	181,152	169,603	164,746	164,399	164,399	164,399
Worker		nd	nd	nd	3,318	3,376	1,778
Junior clerk		nd	nd	nd	1,266	1,298	1,331
Senior clerk		nd	nd	nd	1,611	1,635	1,650
Number of electrified localities		nd	nd	nd	441	443	447
		1,700	1,435	1,085	1,057	1,035	1,029

Table 3.8-8 Features and Status of Power Generation/Transmission and Facilities (10 Pages)

Table 3.8-8 Features and Status of Power Generation/Transmission and Facilities (10 Pages)

Annual Consumption of Electricity

(Unit: MWh)

Year	Total Low Voltage	Medium & High Voltage	General Total	Variation %
1952	931	549	1 480	
1953	3,391	1,992	5,383	263.7
1954	4,544	4,422	9,466	75.8
1955	6,533	7,088	13,621	43.9
1956	9,346	10,166	19,512	43.2
1957	13,930	13,384	27,314	40.0
1958	17,991	16,617	34,606	26.7
1959	23,649	21,397	45,046	30.5
1960	30,144	27,030	57,174	26.9
1961	41,807	34,833	76,640	34.0
1962	56,988	44,599	101,587	32.6
1963	71,697	59,085	130,782	28.7
1964	83,200	74,775	157,975	20.8
1965	99,398	90,082	189,480	19.9
1966	119,748	128,803	248,551	31.2
1967	132,099	148,283	280,382	12.8
1968	156,240	160,835	317,075	13.1
1969	178,808	191,306	370,114	16.7
1970	203,584	224,941	428,525	15.8
1971	221,329	269,981	491,310	14.6
1972	252,996	310,823	563,819	14.8
1973	302,282	359,030	661,312	17.3
1974	295,746	382,192	677,938	2.5
1975	350,384	440,207	790,591	16.6
1976	286,712	376,067	662,779	-16.2
1976-77	417,967	557,351	975,318	47.2
1977-78	482,187	654,656	1 136 843	16.6
1978-79	587,311	735,545	1,322,856	16.4
1979-80	688,160	833,774	1,521,934	15.1
1980-81	732,646	856,181	1,588,827	4.4
1981-82	776,524	925,129	1,701,653	7.1
1982-83	853,699	940,047	1,793,746	5.4
1983-84	720,380	857,358	1,577,738	-12.0
1984-85	734,168	982,799	1,716,967	8.8
1985-86	768,722	1,021,292	1,790,014	4.3
1986-87	777,251	1,091,210	1,868,461	4.4
1987-88	822,625	1,111,588	1,934,213	3.5
1988-89	859,921	1,154,611	2,014,532	4.1
1989-90	825,710	1,113,944	1,939,654	-3.7
1990-91	806,816	1,135,356	1,942,172	0.1
1991-92	806,301	1,083,370	1,889,671	-2.7
1992-93	792,990	1,066,369	1,859,359	-1.6
1993-94	836,680	1,088,180	1,924,860	3.5
1994-95	893,100	1,177,280	2,070,380	7.6
1995-96	965,265	1,287,060	2,252,325	8.8
1996-97	1,081,360	1,387,340	2,468,700	9.6
1998	1,248,482	1,556,065	2,804,547	13.6

Numbers of Electrification in Côte d'Ivoire
(at the End of the Second Phase: 2000)

Regions	Total Population	Supplied population	Total number of localities	Number of electrified localities	Rate (%) of electrification (localities)	Rate (%) of electrification (population)
AGNEBY	440,995	403,493	149	107	71.81	91.5
BAS SASSANDRA	644,805	287,113	485	79	16.29	44.53
DENGUELE	169,433	87,171	244	49	20.08	51.45
HAUT SASSANDRA	1,001,665	536,144	510	132	25.88	53.53
LACS	368,343	275,409	373	161	43.16	74.77
LAGUNES	2,522,854	2 436 460	266	183	68.8	96.58
MARAHOUÉ	538,824	314,433	325	75	23.08	58.36
MONTAGNES	959,228	576,215	948	289	30.49	60.07
MOYEN COMOE	298,566	250,362	112	59	52.68	83.85
N'ZI COMOE	557,298	330,213	539	121	22.45	59.25
SAVANES	743,279	408,714	1,243	121	9.73	54.99
SUD BANDAMA	559,650	284,717	367	70	19.07	50.87
SUD COMOE	328,165	263,824	197	98	49.75	80.39
VALLÉE DU BANDAMA	822,739	576,245	948	187	19.73	70.04
WORODOUGOU	353,998	163,884	722	106	14.68	46.3
ZANZAN	513,220	180,875	1,080	92	8.52	35.24
Total (1988 population)	10,823,062	7,375,272	8,508	1,929	22.67	68.14
Total (2000 population)	15,431,098	7,375,272	8,508	1,929	22.67	47.79

Note: Population in 2000 was assumed (3% increase per year from 1988 to 2000)

Table 3.8-8 Features and Status of Power Generation/Transmission and Facilities (10 Pages)

Table 3.8-8 Features and Status of Power Generation/Transmission
and Facilities (10 Pages)

**HYDRAULIC SPECIFICATIONS
FOR
MAIN HYDROELECTRIC DAMS IN COTE d'IVOIRE**

DAMS	U	1979-1980	1980-1981	YEARLY AVERAGE
AYAME				
Supply / Bia river	10 ⁶ m ³	2530,4	1848,1	1924
Flow rate / Bia river	m ³ /s	80	58,6	61
Rain level	mm	1798,6	1941,5	
Evaporation height	mm	1104,5	1099,5	
Evaporation volume	10 ⁶ m ³	136,5	138,2	
KOSSOU				
Supply / Bandama river	10 ⁶ m ³	5321,3	3892,7	467,7
Flow rate / Bandama river	m ³ /s	168,3	123,4	147,4
Rain level	mm	1453	870,7	
Evaporation height	mm	1500	1500	
Evaporation volume	10 ⁶ m ³	1172	1116	
TAABO				
Supply / Bandama river	10 ⁶ m ³	6232,3	4132,8	3178,6
Flow rate / Bandama river	m ³ /s	197	131,1	100,8
Rain level	mm	907,5	1132,1	
Evaporation height	mm	1500	1500	
Evaporation volume	10 ⁶ m ³	92,8	94,4	
BUYO				
Supply / Sassandra river	10 ⁶ m ³	6787,3	9452,4	12302,8
Flow rate / Sassandra river	m ³ /s		299,7	390,1
Rain level	mm		801,3	
Evaporation height	mm	51,4	1419,3	
Evaporation volume	10 ⁶ m ³	251	976,3	

List of Existing Hydro-Electric Power Station

River No.	Unit	I	II	II	VIII	VIII	XI
Name of dam/reservoir		Buyo	Kossou	Taabo	Ayame I	Ayame II	Faye (Grah)
Name of river		Sassandra	Bandama	Bandama	Bia	Bia	San Pedro
Longitude	°'	6°14'	7°01'	6°12'	5°36'	5°35'	4°58'
Latitude	°'	7°01'	5°29'	5°05'	3°10'	3°10'	6°39'
Sub-prefecture (PS)		Soubre	Yamousoukro	Tiassalre	Aboisso	Aboisso	San Pedro
Main Purpose		Electricity	Electricity	Electricity	Electricity	Electricity	Electricity
Other Purpose		Fishery	Fishery	None	None	None	(Water supply?)
Office in charge of O & M		CIE	CIE	CIE	CIE	CIE	CIE
Basin area at dam site (total)	km ²	46 250	32 400	57 700	9 320	9 330	2 424
Reservoir HWL	El m	200	206	124	90,5	69	23,1
Reservoir LWL	El m	186,5	184(181)*	118	83	60,5	19,6
Tail WL (Max)	El m			67,4			15,8
Reservoir volume (HWL)	million m ³	8 300	30 211	630	900	69	25
Reservoir area (HWL)	km ²	895	1 780	69	180	1	
Type of power station		Dam type	Dam type	Dam type	Dam type	Dam type	Dam type
Power capacity (Installed)	MW	165	174	210	20	30	5
Annual production (average, planned)	GWH	900	450	960	80	120	22
Annual production (minimum, planned)	GWH	610	450	850	60	90	-
Annual production (actual,Max)	GWH	876,8	247,7	744,4	106,9	171,7	4,5
Annual production (actual,Mean)	GWH	172,1	2,3	112,0	15,3	47,5	0,4
Annual production (actual,Mini.)	GWH	611,6	107,6	439,5	64,2	111,3	2,8
Start Year of Operation		1980	1972	1979	1959	1975	1983?
Head (Max.)	m	36,1	49,5	59	25	32,5	11,0
Head (Mini.)	m	22,6	27,5	54	17,5	24	8,9
Discharge (Design) for power	m ³ /s	555	152	154	114	104	66
No. of Turbine		3	3	3	2	2	2
Type of turbine		Kaplan vertical	Francis vertical	Francis vertical	Kaplan, Vertical	Kaplan vertical	Bulb, Kaplan

* Revised during the operation period

Table 3.8-8 Features and Status of Power Generation/Transmission and Facilities (10 Pages)

Annual Hydro-Electric Power Generation

YEARS	AYAME I	AYAME II	KOSSOU	TAABO	BUYO	GRAH	(MWh) TOTAL
1952							.0
1953							.0
1954							.0
1955							.0
1956							.0
1957							.0
1958							.0
1959	4,581						4,581
1960	58,922						58,922
1961	73,40						73,40
1962	90,014						90,014
1963	106,945						106,945
1964	96,012						96,012
1965	53,377	88,020					141,397
1966	72,120	136,876					208,996
1967	70,204	122,507					192,711
1968	93,978	162,996					256,974
1969	101,535	152,435					253,970
1970	93,997	166,241					260,238
1971	47,274	91,806					139,080
1972	80,550	139,329	6,268				226,147
1973	43,139	80,932	44,011				168,082
1974	77,502	132,530	67,394				277,426
1975	82,957	142,934	156,780				382,671
1976	56,466	94,925	137,354				288,745
1976-77	48,038	87,644	69,832				1,211,427
1977-78	47,013	82,524	74,738				305,251
1978-79	48,172	85,690	19,885	301,056			1,544,163
1979-80	105,812	171,717	247,405	744,410			1,716,939
1980-81	77,912	134,317	157,267	552,010	738,018		1,844,079
1981-82	74,598	128,275	247,745	549,990	758,721		1,940,827
1982-83	35,683	72,726	120,957	268,870	699,726		1,987,925
1983-84	15,310	47,543	2,265	112,030	172,132	2,015	1,809,358
1984-85	66,779	108,793	60,796	385,097	552,876	1,190	2,011,982
1985-86	54,213	90,322	165,593	413,860	663,423	-	2,059,596
1986-87	29,248	58,518	78,167	312,660	399,085	-	2,230,880
1987-88	65,477	122,693	60,568	408,661	558,918	-	2,309,879
1988-89	67,958	117,517	90,645	520,844	716,586	4,585	2,352,837
1989-90	75,907	125,157	169,370	478,725	610,657	4,475	2,317,434
1990-91	58,720	102,669	186,172	536,769	399,442	4,243	2,279,870
1991-92	29,039	58,449	127,023	355,045	546,099	-	2,272,381
1992-93	50,421	98,386	86,139	312,996	497,941	-	2,250,689
1993-94	30,697	67,511	74,219	314,986	484,026	-	2,339,182
1994-95	70,406	144,530	90,149	575,324	846,367	-	2,593,134
1995-96	83,216	135,147	120,570	570,691	876,347	-	2,767,090
1996-97	67,958	122,167	189,344	636,602	876,836	359	3,009,249
Max.	106,945	171,717	247,745	744,410	876,836	4,585	3,009,249
Mini.	15,310	47,543	2,265	112,030	172,132	359	-
Mean	64,245	111,328	109,641	439,507	611,60	2,811	-

Table 3.8-8 Features and Status of Power Generation/Transmission and Facilities (10 Pages)

EXERCICE : 1998

RESULTATS D'EXPLOITATION

(Réseau interconnecté) *Interconnected Network*

(Unités : GWh)

Taux de croissance en %

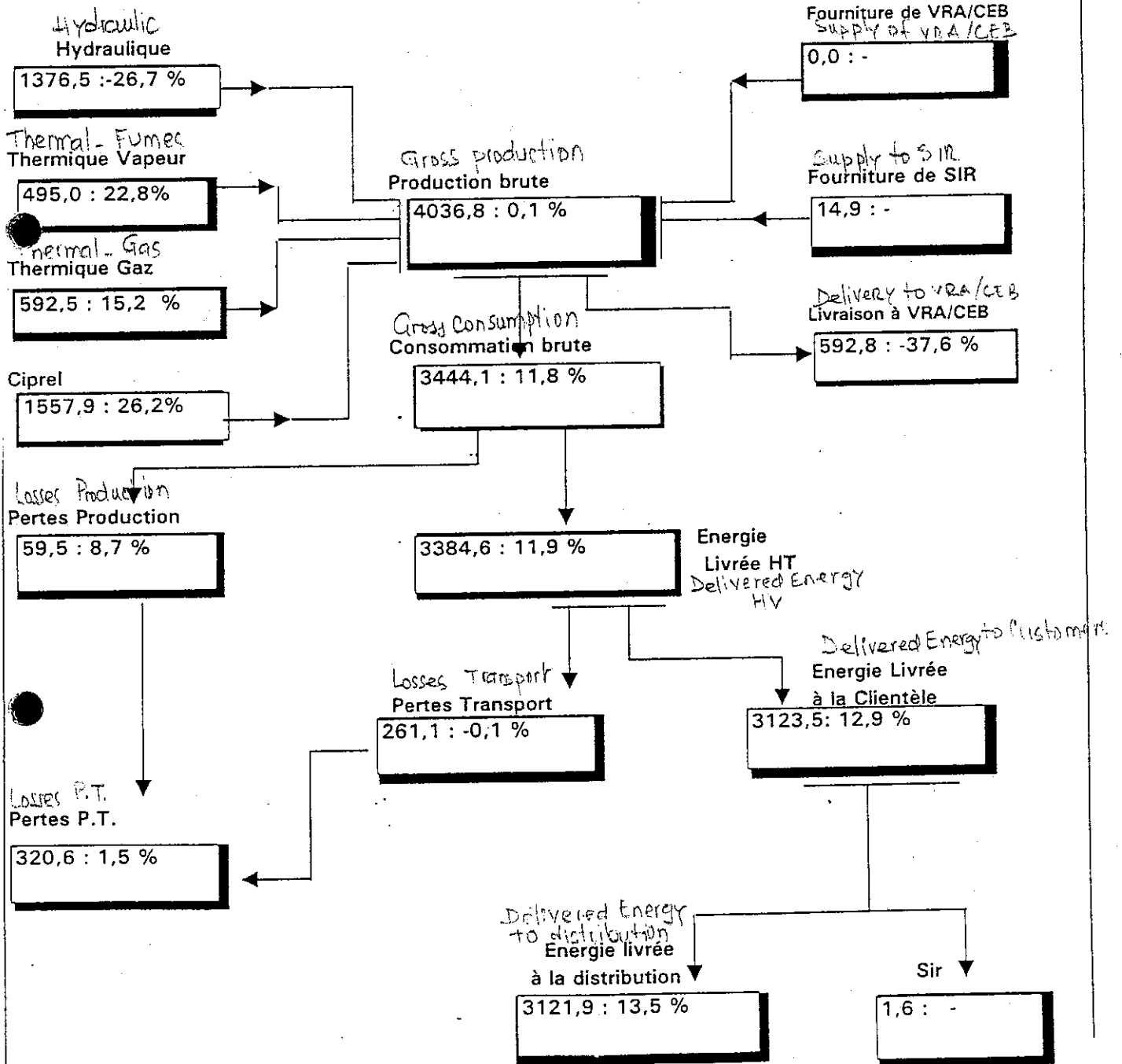
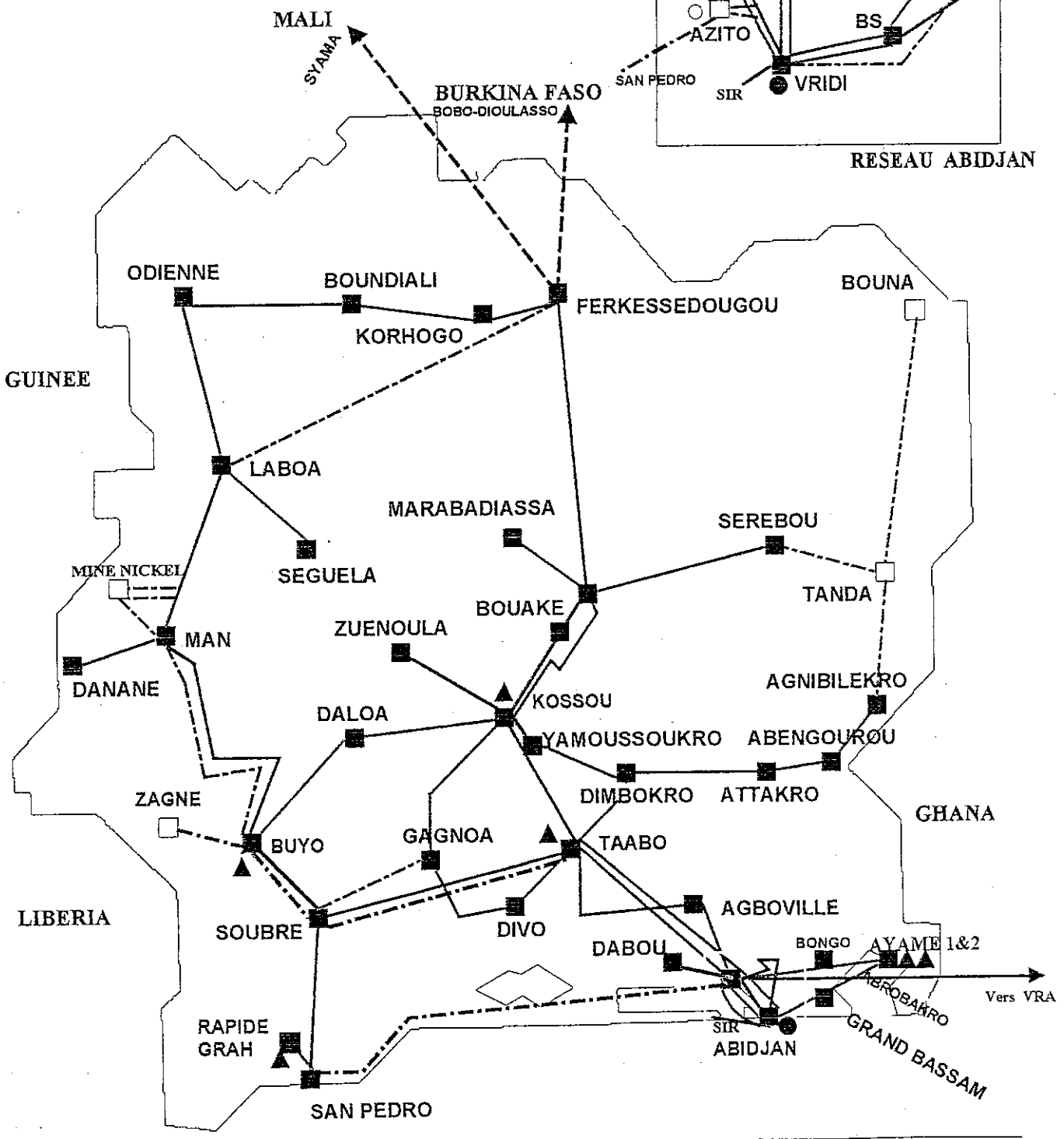
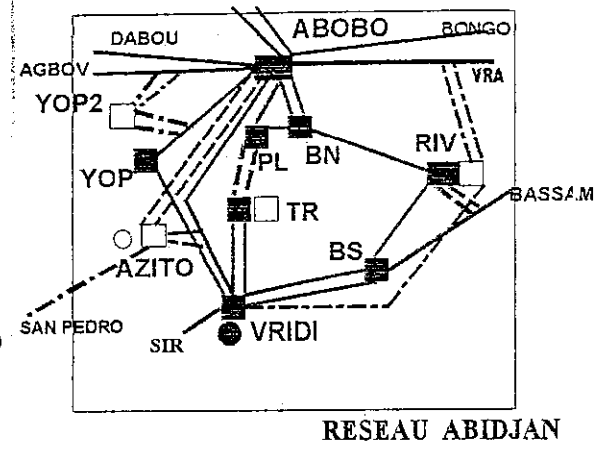


Figure 3.8-1 Status of Electric Power Supply Network

1999.7.30
M. Seka (SOPTE) & 7

RESEAU HT INTERCONNECTE
DE LA COTE D'IVOIRE
(MARS 1998)



LEGENDE

LIGNES	225 KV			90 KV		
	Existant	En cours	En projet	Existant	En cours	En projet
POSTES	■	□	□	■	□	□
CENTRALES	▲	○	○	●	○	○
		Hydroélectriques		3-201		
	●	Thermiques				

Figure 3.8-2 Transmission Line Network

CHAPTER 9 LAGOONS AND CANALS (with Supplementary explanation)

9.1 Lagoons and Canals

The development of lagoons is one of major distinguished topography in Cote d'Ivoire, which has coastal line of nearly 500 km long. The whole surface area of lagoons becomes approximately 1,400 km² with shoreline of longer than 1,500 km. On the western coast, between Sassandra and Fresco, comparatively small lagoons are seen at some locations. While on the eastern coast, a series of large lagoons extends along the coastal zone, which is nearly 300 km long in total. This 300 km-zone is connected as a continuous waterway, by natural lagoons and some canals.

The general locations of lagoons and canals are shown in Figure. 3.9-1. A series of lagoons and connected canals in the 300 km waterway is briefly explained as follows:

(A) Grand-Lahou lagoon

Grand-lahou lagoon is the smallest one of all, with a total length of 50 km and an area of 190 km², oriented from east to west. It consists of 4 small lagoons including the following:

- Mackey lagoon with 28 km², is the less deep one (2 m maximum)
- Tagba lagoon located at the eastern end of Grand-Lahou lagoon, with 57 km² and maximum depth of 8 m. It flows into the sea through Bandama river mouth.

(B) Ebrie lagoon

Ebrie lagoon, with 566 km², an average width of 7 km and a length of 150 km has its average depth of 4 m. This lagoon is divided into 6 sectors:

- Sector 1 includes two lagoons of Abjin and Potou lagoon with the area of 42 km²; Adjin lagoon with a depth of 10m; but Potou lagoon less than 2 m in depth.
- Sector 2 covers 87 km² from Assinie canal up to the eastern part of Abidjan
- Sector 3 includes all Abidjan and Vridi canal zones. The deepest bottom is from 20 to 25.
- Sector 4 covers the western part of Abidjan (Yopougon) and the Agneby with 107 km².
- Sectors 5 and 6, located in the western parts, cover 289 km².

(C) Aby lagoon

With a total area of 427 km², Aby lagoon complex is 56 km wide from east to west and 24 km long from north to south, then spreading over along the coastline.

The complex can be divided into 3 sectors:

- Aby lagoon, with 307 km², with an average depth of 4.5m. Bia River flows into this lagoon from the north.
- Tendo lagoon covers 74 km², with an average depth of 2 m.
- Ehy lagoon is very homogenous and essentially consists of high bottoms with an average depth of only 1.5m.

There are four canals connecting lagoons and mainly used for navigation system.

(A) Agneby canal

The Agneby canal has constructed between 1912 and 1918. The length is about 17 km. The canal has been enlarged in 1922 and connected to Ebrie lagoon and Grand-Lahou lagoon.

(B) Groguida canal

This small canal (1 km) connects two elements of Grand-Lahou lagoon. It is the most recent one and deeper (2.5 m) than Agneby canal.

(C) Assinie canal

It connects Ebrie lagoon and Aby Lagoon. It has been opened in 1957. It is 48 km long and between 1.5 and 7 m deep.

(D) Fresco canal

It connects Fresco lagoon and Grand-Lahou canal.

In addition to the above, it is noted that there is one canal constructed for the outlet of Ebrie lagoon at Abidjan: Vridi Canal, which was opened in 1950. The canal is significant as an only large port in Cote d'Ivoire, Abidjan port, is located in the Ebrie lagoon. The Virdi canal is 2.7 km long, 230 m wide, and 12 m deep on an average.

9.2 Navigation Services

The navigation routes are shown in Figures 3.9 – 2 to 3.9 – 4. The navigation is developed in lagoons located along the coast. The major lagoons spread over 300 km covering 12,000 km², i.e., 0.37% of the national territory. This navigation network connects the following three lagoons from the west to the east:

- Grand-Lahou lagoon
- Ebrie lagoon
- Aby lagoon

a) Grand-lahou lagoon complex is the smallest one of all, with a total length of 50 km and an area of 190 km², oriented from east to west. It consists of 4 small lagoons from west to east namely:

- MACKEY lagoon with 28 km², is the less deep one (2 m maximum)
- TAGBA lagoon located at the eastern end of Grand-Lahou lagoon, with 57 km² and a maximum depth of 8 m. it flows into the sea through Bandama river mouth.

b) Ebrie lagoon complex, with 566 km², an average width of 7 km and a length of 150 km. its average depth is 4 m with some holes near Abidjan city overreaching 20m. this lagoon is divided into 6 sectors:

- the sector 1 includes Abidjan and Potou lagoon on an area of 42 km²; Adjin lagoon with a depth of 10m; Potou lagoon doesn't overreache 2 m depth.
- The sector 2 covers a 87 km² from Assinie canal up to the eastern part of Abidjan
- The sector 3 includes all Abidjan and Vridi canal zones. The deepest bottoms are from 20 to 25.
- The sector 4 covers the western part of Abidjan (Yopougon) and the Agneby with 107 km².
- The sectors 5 and 6 cover 289 km².

c) Aby lagoon complex

With a total area of 427 km², Aby lagoon presents two main axes 56 km wide from east to west and 24 km wide from north to south, then spreading over 30 km along the coastline.

The complex can be divided into 3 sectors:

- Aby lagoon, with 307 km², its depth being an average of 4.5m and it is supply by BIA river.
- Tendo lagoon covers 74 km², with an average depth of 2 m.
- Eby lagoon is very homogenous and essentially consists of high bottoms with an average depth of 1.5m.

This important network receives the main rivers of the country, which are all at least navigable along 50 km from their mouth. This whole river-lagoon constitutes with the interior of the country of the Cavally, Sassandra, Bandama Agneby and Comoe rivers, the river-lagoon network.

It was informed from the Ministry of Transportation that all major rivers are navigable at least 50 km from their mouth. They are the Cavally, Sassandra, Bandama, Agneby and Comoe rivers. However, the river navigation is not carried out at present. The navigation network connecting lagoons and rivers are considered as a future plan.

There are four canals connecting lagoons and used as a part of navigation system.

- Agneby (Assagni) canal:17 km long, Connect Ebrie lagoon and Grand-Lahou lagoon, Opened between 1912-1918
- Groguida canal:1 km long, Connect two parts of Grand-Lahou lagoon
- Assinie canal:48 km long, Connect Ebrie lagoon and Aby Lagoon, Opened in 1957 (The most important traffic has been recorded during the construction of Ayama I and II dams.)
- Fresco canal:Connect Fresco lagoon and Grand-Lahou lagoon, Opened in 1930's

There are mainly three long and middle distance services of navigation as follows:

- Abidjan-Grand Lahou route: Between Asagny and Tiebissou, One passenger boat a day to each direction and tens of ships for carrying goods (fish, logs, etc.) a week.
- Abidjan-Ghana route: Served by 2 ships. Between Abidjan in Ebrie lagoon and Frambo in Aby lagoon (through Bingerville, Grand-Bassam, Moossou, Assinie, Assouinde, Adiake), where Ghana boundary is located closely. This traffic was very important until 1990. Transportation of goods and passengers.
- Frambo-Tiapoum-Adiake route: Midium distance in Aby lagoon, 2 ships , a part of Abidjan-Ghana route

Beside the long and middle distance services, local short distance routes in Abidjan (Abidjan urban routes) are comparatively used actively. Abidjan urban routes have been created to solve the matters of movement of the workers from their living areas to their working places. The major routes are listed as follows:

- Treichville – Vridi where is located an industrial zone (From Vridi 385 passengers a day)
- Petit Cocody – Plateau which is the Administrative and affairs center of the capital (250 – 300 passengers a day from each side)
- Tbobou-Doume – Plateau
- Locodjro – Treichville
- Locodjro – Plateau – Trechville

It is important to notice that these routes are used by the workers to drop at their working places,

but also by the traders to connect all the different markets to their selling places.

The urban routes in Abidjan are categorized by classification of owners as follows:

- The private small scale owners
- SOTRA and other companies

The private small-scale owners are in charge of tens of routes and are the main competitors of SOTRA. They own thirties of ships in total. Each of them has between one and four ships and their service routes are as follows:

- Blockhauss – Biaffra (Treichville)
- Biaffra – Vridi – Ile Boulay
- Abobo-Doume – Treichville – Plateau
- Vridi – Ako
- Blohorn – Zimbabwe
- Locodjro – Carena
- Koumassi – Mbadon
- Koumassi – Ile Desiree

SOTRA Company has 19 ships and operates 3 routes (Abobo-Doume – Plateau – Trecheville) and carries approximately 4.48 million passengers a year (1997).

Banco Lagoon Transportation Company so-called STLB has 8 ships using the routes as follows:

- Locodjro – Carena
- Locodjro – Treichville
- Abobo-Doume – Treichville
- Abobo-Doume – Plateau

STLB carries approximately 830 passengers a day.

The navigation through lagoons has been more active in the past due to the reasons as follows:

- The roads network was not well-developed
- The lagoons are very wide, calm, and navigable at any time
- Transportation of heavy or large things is appropriate.

However due to mainly the development of road network, the navigation of these long-medium distance is not active at present.

9.3 Ferry Service

There are 16 public ferry services by road department of Ministry of Infrastructure and Economics as listed as follows:

No.	Name of Ferry Sevice	Name of Water way
Ferry with Motor		
A1	Akrou	Ebrie lagoon
A2	Jacqueville	Ebrie lagoon
A3	Grand lahou	Tagba lagoon
A4	Mo blohoua	Bandama River
A5	Bettie	Comoe River
A6	No.5	Ebrie lagoon
Ferry without motor		
B1	Prollo	Cavally River
B2	Bin Houye	Nipoue Rver
B3	Bafing	Baffing River
B4	Kanebly	Sssandra River
B5	Marahoue	Marahoue River
B6	Serebou	Comoe River
B7	Toupe	Comoe River
B8	Vonkoro	Black Volta
B9	Kokonou	(No more operation)
B10	Mbaso	Comoe River

The crossing sections of public ferry services are considered as an extension of road. Accordingly, the use of ferry is free of charge.

There are private ferry services in small streams. However, the data for private sector are not available. The private ferry service needs fare, except for the local inhabitants.

9.4 Present Issues of Navigation and Ferry Services

The issues concerning the navigation and ferry services in Cote d'Ivoire are presented as follows:

(A) Water Depth

The depth of lagoons and canals are generally 1.2 m to 3.5 m. Some locations are shallow and difficult to keep required draft for larger boats with more capacity. The sedimentation in lagoons and canals will be increased continuously due to rivers flow into these lagoons.

(B) Water Quality

Each lagoon has only one outlet to the sea and the mouth is mostly narrow. The development of surrounding area causes the increase of waste-water to lagoons. The deterioration of water quality in lagoons is a serious concern. Especially, that of Ebrie lagoon is the location with

high priority concerning the water quality conservation and improvement. For example, the sewage from some areas in Abidjan is directly discharged into the lagoon without treatment.

(C) Decrease of Passengers

The number of passengers for a long-and-mid distance has been decreasing. The development of road network caused less necessity of navigation services. However, the navigation in short distance in Abidjan area is still active. And ferry services also takes important roles at every location.

(D) Non-Operational Period During Rainy Season

Some ferry services are not operational during rainy season. The non-operational period happens usually for four or five months a year at some locations of large rivers.

(E) Maintenance of Ferry Service

Public ferry services seem to have more or less poor maintenance of facilities and boat at some locations. For example, ferry service at Cavally River is not operational at present. A private company now provides the services instead of public one, but with expensive fare. It is not sure why the public services can not maintain the services continuously.

(F) Capacity of Ferry Service

The capacity of ferry service is not enough at some locations. For example, it is usual at Jacqueville that many cars and passengers have to wait for their riding to a boat for a long time. There is only one boat and the speed is very slow to cross the lagoon.

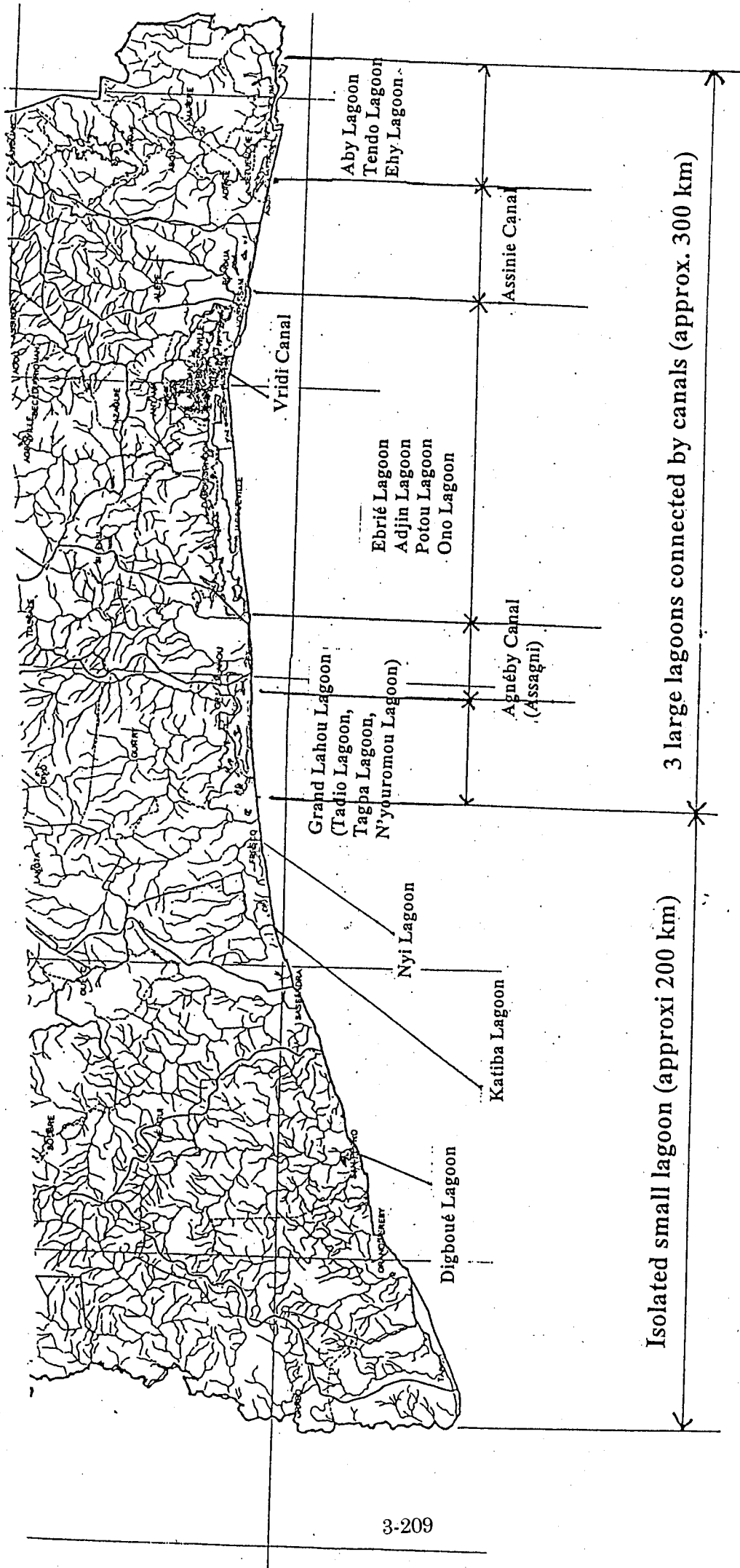


Figure 3.9 – 1 General Locations of Lagoons and Canals



Figure 3.9 – 2 Navigation Routes (1/3)

3-210



Figure 3.9 – 3 Navigation Routes (2/3)

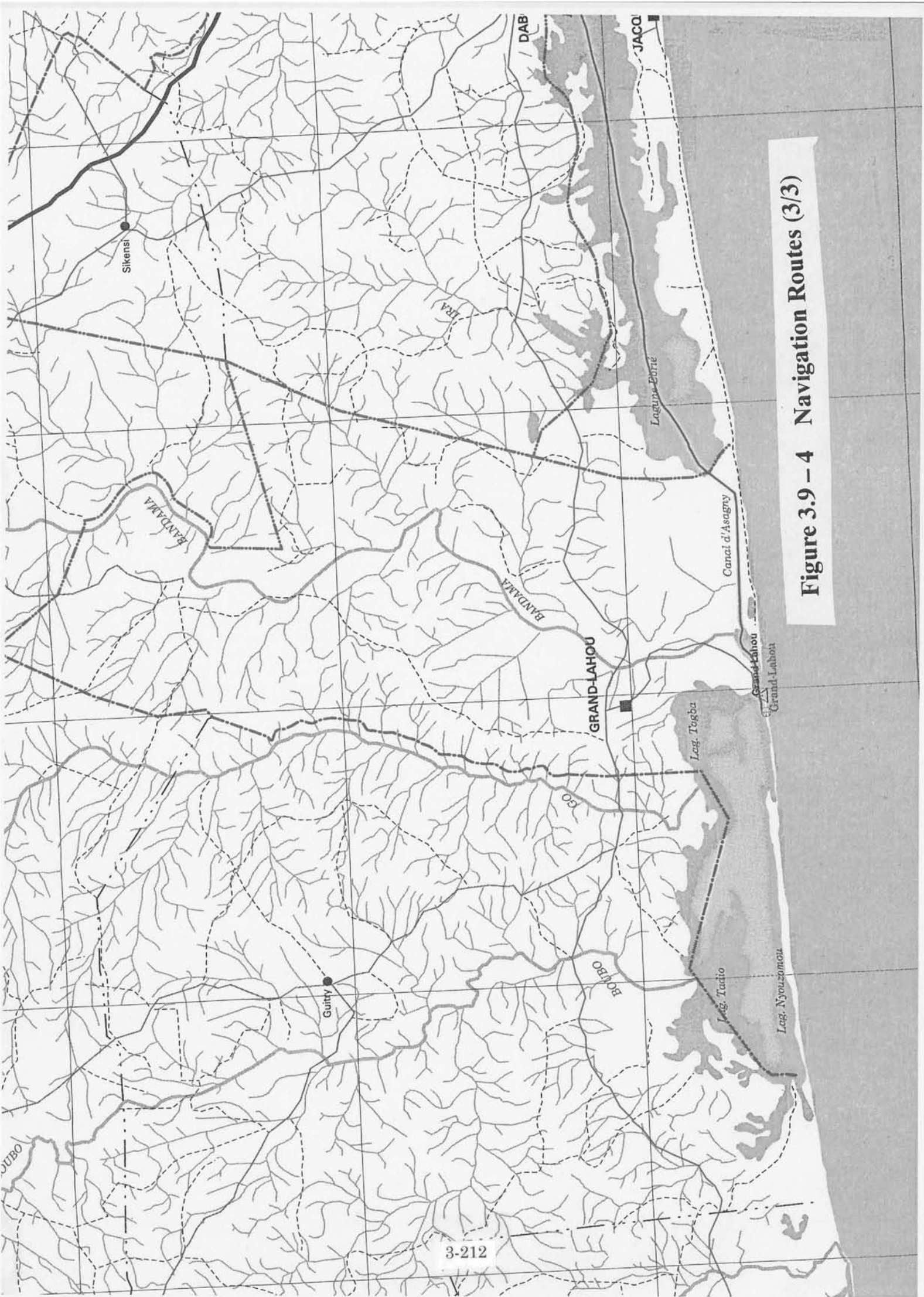


Figure 3.9 – 4 Navigation Routes (3/3)

CHAPTER 10 POPULATION IN BASINS

The population in respective basin is calculated in the following manners:

- (a) The population of respective basin is calculated based on the population of respective Department by 1998 census.
- (b) The population in a Department is converted to the population in a basin in proportion to the area of Department in the basin.
- (c) The area of Department in a basin is obtained from GIS map prepared by JICA Study Team.

The areas and population in respective basin are calculated as summarized in following tables:

- (a) Area of Department divided by Division based on Control Points (Table 3.10-1)
- (b) Area of Division based on Major River Basins, with Area of Department (Table 3.10-2)
- (c) Area of Division based on Major River Basins, Summary (Table 3.10 -3)
- (d) Area and Population Estimate in Major River Basins, Detail (Table 3.10-4)

Table 3.10-1 Area of Department divided by Division based on Control Points

CP Code	Area Code	New_Dept_Name	Area (Km ²)	Sub-Division Area (Km ²)	Division Area (Km ²)	CP No.	Area (Km ²)
	I-A0	SASSANDRA	428.10				
	I-A0			428.10			
I-C1	I-A1	GAGNOA	220.65				
I-C1	I-A1	SAN-PEDRO	149.48				
I-C1	I-A1	SASSANDRA	1,955.61				
I-C1	I-A1	SOUBRE	2,903.68				
	I-A1			5,229.41			
I-C2	I-A2	GUIGLO	179.68				
I-C2	I-A2	ISSIA	63.81				
I-C2	I-A2	SOUBRE	2,158.66				
	I-A2			2,402.14			
I-C3	I-A3	BANGOLO	1,155.50				
I-C3	I-A3	DALOA	837.21				
I-C3	I-A3	DUEKOUÉ	3,004.44				
I-C3	I-A3	GUIGLO	2,942.00				
I-C3	I-A3	ISSIA	487.36				
I-C3	I-A3	MAN	372.97				
I-C3	I-A3	SOUBRE	528.69				
I-C3	I-A3	VAVOUA	320.23				
	I-A3			9,648.40			
I-C4	I-A4	BIANKOUMA	3,004.49				
I-C4	I-A4	MAN	1,658.69				
I-C4	I-A4	SEGUELA	2,546.03				
I-C4	I-A4	TOUBA	2,308.68				
I-C4	I-A4	VAVOUA	1,152.66				
	I-A4			10,670.57			
I-C5	I-A5	ODIENNE	3,513.29				
I-C5	I-A5	SEGUELA	1,078.25				
I-C5	I-A5	TOUBA	5,163.90				
	I-A5			9,755.44			
I-C6	I-A6	BOUAFLE	353.52				
I-C6	I-A6	DALOA	62.32				
I-C6	I-A6	GAGNOA	3,980.73				
I-C6	I-A6	ISSIA	641.76				
I-C6	I-A6	LAKOTA	269.02				
I-C6	I-A6	OUME	93.07				
I-C6	I-A6	SASSANDRA	877.15				
I-C6	I-A6	SINFRA	431.10				
I-C6	I-A6	SOUBRE	107.33				
	I-A6			6,815.99			
I-C7	I-A7	BOUAFLE	269.82				
I-C7	I-A7	DALOA	3,876.31				
I-C7	I-A7	GAGNOA	91.45				
I-C7	I-A7	ISSIA	2,529.06				
I-C7	I-A7	SEGUELA	286.22				
I-C7	I-A7	SOUBRE	933.24				
I-C7	I-A7	VAVOUA	4,338.44				
I-C7	I-A7	ZUENOULA	420.29				
	I-A7			12,744.82			
I-C8	I-A8	BANGOLO	715.63				
I-C8	I-A8	BIANKOUMA	682.61				
I-C8	I-A8	DANANE	342.29				
I-C8	I-A8	DUEKOUÉ	12.70				
I-C8	I-A8	MAN	2,654.90				
	I-A8			4,408.14			
I-C9	I-A9	BIANKOUMA	1,333.14				
I-C9	I-A9	DANANE	515.77				
I-C9	I-A9	TOUBA	1,235.39				
	I-A9			3,084.30			
I-C10	I-A10	ODIENNE	2,423.21				
	I-A10			2423.21			
	I				67,610.49		
	II-A0	GRAND-LAHOU	104.07				
	II-A0			104.07			
II-C1	II-A1	AGBOVILLE	4.07				
II-C1	II-A1	DABOU	435.68				
II-C1	II-A1	DIVO	81.64				
II-C1	II-A1	GRAND-LAHOU	1,194.63				
II-C1	II-A1	JACQUEVILLE	7.39				
II-C1	II-A1	TIASSALE	893.72				
	II-A1			2,617.13			
II-C2	II-A2	DIVO	441.63				
II-C2	II-A2	TIASSALE	917.82				
	II-A2			1,359.45			
II-C3	II-A3	BOUAFLE	1,035.19				
II-C3	II-A3	DIVO	96.09				
II-C3	II-A3	GAGNOA	138.11				
II-C3	II-A3	OUME	1,806.72				
II-C3	II-A3	SINFRA	1,211.63				
II-C3	II-A3	TIASSALE	277.91				
II-C3	II-A3	TOUMODI	424.76				
II-C3	II-A3	YAMOISSOUKRO	977.41				
	II-A3			5,967.81			
II-C4	II-A4	BEOUMI	2,378.45				
II-C4	II-A4	BOUAFLE	863.26				
II-C4	II-A4	BOUAKE	1,106.90				
II-C4	II-A4	KATIOLA	27.35				

I	67,610.49
I-C1	67,182.40
I-C2	55,137.00
I-C3	39,990.04
I-C4	25,933.51
I-C5	15,262.94
I-C6	6,815.99
I-C7	12,744.82
I-C8	4,408.14
I-C9	3,084.30
I-C10	2,423.21

II	99,716.78
II-C1	99,288.68
II-C2	62,531.78
II-C3	61,172.33
II-C4	37,864.06
II-C5	29,316.25
II-C6	19,560.81
II-C7	6,095.05
II-C8	35,397.46
II-C9	24,754.68
II-C10	16,028.75
II-C11	6,766.10
II-C12	24,724.35
II-C13	21,539.45
II-C14	6,786.43
II-C15	4,810.02
II-C16	3,753.95

II-C4	II-A4	MANKONO	1,342.26		
II-C4	II-A4	SAKASSOU	1,498.15		
II-C4	II-A4	TIEBISSOU	629.10		
II-C4	II-A4	YAMOUSSOUKRO	154.21		
II-C4	II-A4	ZUENOULA	548.15		
	II-A4			8,547.82	
II-C5	II-A5	BEOUMI	230.66		
II-C5	II-A5	BOUAKE	79.15		
II-C5	II-A5	KATIOLA	2,783.07		
II-C5	II-A5	KORHOGO	1,295.62		
II-C5	II-A5	MANKONO	1,634.71		
	II-A5			6,023.21	
II-C6	II-A6	FERKESSEDOUGOU	3,047.65		
II-C6	II-A6	KATIOLA	2,172.28		
II-C6	II-A6	KORHOGO	3,660.52		
	II-A6			8,880.44	
II-C7	II-A7	BOUNDIALI	686.89		
II-C7	II-A7	FERKESSEDOUGOU	759.58		
II-C7	II-A7	KORHOGO	4,648.58		
	II-A7			6,095.05	
II-C8	II-A8	AGBOVILLE	12.97		
II-C8	II-A8	BOCANDA	93.25		
II-C8	II-A8	BONGOUANOU	1,025.70		
II-C8	II-A8	BOUAKE	631.49		
II-C8	II-A8	DIMBOKRO	1,035.31		
II-C8	II-A8	SAKASSOU	375.96		
II-C8	II-A8	TIASSALE	1,246.64		
II-C8	II-A8	TIEBISSOU	1,678.26		
II-C8	II-A8	TOUMODI	2,275.94		
II-C8	II-A8	YAMOUSSOUKRO	976.31		
II-C8	II-A8	YAMOUSSOUKRO	1,290.96		
	II-A8			10,642.78	
II-C9	II-A9	BOCANDA	3,117.21		
II-C9	II-A9	BONGOUANOU	1,219.55		
II-C9	II-A9	DAOUKRO	1,938.34		
II-C9	II-A9	DIMBOKRO	529.27		
II-C9	II-A9	MBAHIKRO	1,750.33		
II-C9	II-A9	YAMOUSSOUKRO	171.23		
	II-A9			8,725.92	
II-C10	II-A10	BOCANDA	52.36		
II-C10	II-A10	BOUAKE	2,892.28		
II-C10	II-A10	DABAKALA	3,268.85		
II-C10	II-A10	KATIOLA	1,122.71		
II-C10	II-A10	MBAHIKRO	1,691.83		
II-C10	II-A10	YAMOUSSOUKRO	234.63		
	II-A10			9,262.65	
II-C11	II-A11	DABAKALA	2,264.18		
II-C11	II-A11	FERKESSEDOUGOU	1,167.07		
II-C11	II-A11	KATIOLA	3,334.85		
	II-A11			6,766.10	
II-C12	II-A12	BOUAFLE	1,663.44		
II-C12	II-A12	DALOA	612.10		
II-C12	II-A12	ZUENOULA	909.36		
	II-A12			3,184.90	
II-C13	II-A13	KORHOGO	4.06		
II-C13	II-A13	MANKONO	4,021.57		
II-C13	II-A13	SEGUELA	685.14		
II-C13	II-A13	VAVOUA	417.46		
II-C13	II-A13	ZUENOULA	1,060.83		
	II-A13			6,189.06	
II-C14	II-A14	BOUNDIALI	903.17		
II-C14	II-A14	MANKONO	3,016.02		
II-C14	II-A14	ODIENNE	424.43		
II-C14	II-A14	SEGUELA	2,442.80		
	II-A14			6,786.43	
II-C15	II-A15	ODIENNE	388.14		
II-C15	II-A15	SEGUELA	4,421.88		
	II-A15			4,810.018	
II-C16	II-A16	BOUNDIALI	492.65		
II-C16	II-A16	KORHOGO	2,592.66		
II-C16	II-A16	MANKONO	668.64		
	II-A16			3,753.95	
	II				99,716.78
III-C1	III-A1	ABENGOUROU	572.64		
III-C1	III-A1	ABOISSO	40.87		
III-C1	III-A1	ADIAKE	0.66		
III-C1	III-A1	ADZOPE	436.29		
III-C1	III-A1	ALEPE	1,195.93		
III-C1	III-A1	GRAND-BASSAM	1,090.55		
	III-A1			3,336.93	
III-C2	III-A2	ABENGOUROU	4,115.47		
III-C2	III-A2	ADZOPE	978.23		
III-C2	III-A2	AGNIBILEKROU	1,047.72		
III-C2	III-A2	BONGOUANOU	1,008.80		
III-C2	III-A2	DAOUKRO	1,800.80		
III-C2	III-A2	TANDA	301.37		
	III-A2			9,252.39	
III-C3	III-A3	BONDOUKOU	4,617.51		
III-C3	III-A3	BOUNA	1,576.00		
III-C3	III-A3	DABAKALA	2,337.69		
III-C3	III-A3	DAOUKRO	219.26		
III-C3	III-A3	MBAHIKRO	1,778.34		

III	57,281.20
III-C1	57,281.20
III-C2	53,944.27
III-C3	38,826.89
III-C4	26,264.45
III-C5	5,667.98
III-C6	5,864.99

III-C3	III-A3	TANDA	2,033.66		
	III-A3			12,562.45	
III-C4	III-A4	BONDOUKOU	332.97		
III-C4	III-A4	BOUNA	11,463.42		
III-C4	III-A4	DABAKALA	1,890.09		
III-C4	III-A4	FERKESSEDOUGOU	6,909.99		
	III-A4			20,596.47	
III-C5	III-A5	BOUNA	146.89		
III-C5	III-A5	FERKESSEDOUGOU	5,341.14		
III-C5	III-A5	KORHOGO	179.95		
	III-A5			5,667.98	
III-C6	III-A6	AGNIBILEKROU	805.32		
III-C6	III-A6	BONDOUKOU	1,004.89		
III-C6	III-A6	TANDA	4,054.77		
	III-A6			5,864.99	
	III				57,281.20
	IV-A0	TABOU	1,509.80		
	IV-A0			1,509.80	
IV-C1	IV-A1	GUIGLO	6,737.90		
IV-C1	IV-A1	SAN-PEDRO	209.06		
IV-C1	IV-A1	SOUBRE	1,576.87		
IV-C1	IV-A1	TABOU	3,542.07		
IV-C1	IV-A1	TOULEPLEU	402.77		
	IV-A1			12,468.68	
IV-C2	IV-A2	BANGOLO	256.34		
IV-C2	IV-A2	DANANE	1,732.86		
IV-C2	IV-A2	GUIGLO	698.34		
IV-C2	IV-A2	MAN	121.61		
IV-C2	IV-A2	TOULEPLEU	87.27		
	IV-A2			2,896.42	
					16,874.90
	V-A0	DANANE	2,010.30		
	V-A0	TOULEPLEU	321.66		
	V-A0			2,331.96	
	V				2,331.96
	VI-A01	TENGRELA	469.35		
	VI-A01			469.35	
	VI-A02	ODIENNE	4,665.96		
	VI-A02			4,665.96	
VI-C1	VI-A1	BOUNDIALI	131.96		
VI-C1	VI-A1	KORHOGO	205.99		
VI-C1	VI-A1	TENGRELA	1,225.94		
	VI-A1			1,563.89	
VI-C2	VI-A2	BOUNDIALI	4,227.80		
VI-C2	VI-A2	KORHOGO	109.91		
VI-C2	VI-A2	ODIENNE	1,452.53		
	VI-A2			5,790.24	
VI-C3	VI-A3	BOUNDIALI	1,511.83		
VI-C3	VI-A3	ODIENNE	2,295.04		
VI-C3	VI-A3	TENGRELA	574.57		
	VI-A3			4,381.43	
VI-C4	VI-A4	ODIENNE	4,242.55		
	VI-A4			4,242.55	
VI-C5	VI-A5	ODIENNE	1,490.30		
	VI-A5			1,490.30	
	VI				22,603.73
	VII-A01	BONDOUKOU	3,889.51		
	VII-A01	BOUNA	1,091.66		
	VII-A01			4,981.17	
	VII-A02	BOUNA	125.88		
	VII-A02			125.88	
	VII-A03	BOUNA	3,863.70		
	VII-A03			3,863.70	
VII-C1	VII-A1	BOUNA	2,096.67		
	VII-A1			2,096.67	
VII-C2	VII-A2	BOUNA	1,482.45		
	VII-A2			1,482.45	
	VII				12,549.87
	VIII-A01	ABOISSO	862.75		
	VIII-A01	ADIAKE	360.67		
	VIII-A01			1,223.41	
	VIII-A02	ADIAKE	174.53		
	VIII-A02	GRAND-BASSAM	168.76		
	VIII-A02			343.28	
VIII-C1	VIII-A1	ABOISSO	924.23		
VIII-C1	VIII-A1	ADIAKE	1,178.53		
VIII-C1	VIII-A1	GRAND-BASSAM	13.23		
	VIII-A1			2,115.99	
VIII-C2	VIII-A2	ABOISSO	651.43		
VIII-C2	VIII-A2	GRAND-BASSAM	51.47		
	VIII-A2			702.90	
VIII-C3	VIII-A3	ABENGOUROU	454.68		
VIII-C3	VIII-A3	ABOISSO	1,759.70		
VIII-C3	VIII-A3	GRAND-BASSAM	1.85		
	VIII-A3			2,216.22	
VIII-C4	VIII-A4	ABOISSO	235.93		
	VIII-A4			235.93	
	VIII				6,837.73
	IX-A0	ABIDJAN	1,368.32		
	IX-A0	AGBOVILLE	3.38		
	IX-A0	ALEPE	163.35		
	IX-A0	DABOU	1,180.92		
					15,988.42

	IX-A0	GRAND-BASSAM	99.01				
	IX-A0	GRAND-LAHOU	217.53				
	IX-A0	JACQUEVILLE	737.61				
	IX-A0			3,770.12			
IX-C1	IX-A1	ABIDJAN	423.17				
IX-C1	IX-A1	AGBOVILLE	94.56				
IX-C1	IX-A1	ALEPE	74.80				
	IX-A1			592.53			
IX-C2	IX-A2	ABIDJAN	114.84				
IX-C2	IX-A2	ADZOPE	1,160.26				
IX-C2	IX-A2	AGBOVILLE	533.61				
IX-C2	IX-A2	ALEPE	649.18				
	IX-A2			2,457.89			
IX-C3	IX-A3	ADZOPE	1,270.62				
IX-C3	IX-A3	ALEPE	92.42				
	IX-A3			1,363.04			
IX-C4	IX-A4	ABIDJAN	170.12				
IX-C4	IX-A4	AGBOVILLE	2,085.98				
IX-C4	IX-A4	DABOU	134.67				
IX-C4	IX-A4	TIASSALE	92.03				
	IX-A4			2,482.80			
IX-C5	IX-A5	ADZOPE	1,372.38				
IX-C5	IX-A5	AGBOVILLE	1,152.28				
IX-C5	IX-A5	BONGOUANOU	2,339.35				
IX-C5	IX-A5	TIASSALE	13.93				
	IX-A5			4,877.94			
IX-C6	IX-A6	DABOU	444.10				
	IX-A6			444.10			
	IX				15,988.42		
	X-A01	DIVO	1,167.20				
	X-A01	GRAND-LAHOU	329.47				
	X-A01			1,496.67			
	X-A02	DIVO	114.97				
	X-A02	SASSANDRA	493.43				
	X-A02			608.39			
X-C1	X-A1	DIVO	2,002.01				
X-C1	X-A1	GRAND-LAHOU	190.08				
	X-A1			2,192.09			
X-C2	X-A2	DIVO	2,848.14				
X-C2	X-A2	GAGNOA	49.34				
X-C2	X-A2	LAKOTA	1,346.36				
X-C2	X-A2	OUME	457.76				
	X-A2			4,701.60			
X-C3	X-A3	DIVO	833.46				
X-C3	X-A3	GAGNOA	65.95				
X-C3	X-A3	LAKOTA	1,118.98				
X-C3	X-A3	SASSANDRA	93.86				
	X-A3			2,112.24			
X-C4	X-A4	DIVO	555.19				
X-C4	X-A4	SASSANDRA	775.24				
	X-A4			1,330.43			
	X				12,441.43		
	XI-A01	SAN-PEDRO	1,552.64				
	XI-A01	SASSANDRA	342.61				
	XI-A01			1,895.26			
	XI-A02	SAN-PEDRO	562.75				
	XI-A02	TABOU	269.40				
	XI-A02			832.15			
XI-C1	XI-A1	SAN-PEDRO	2,988.74				
XI-C1	XI-A1	SOUBRE	331.96				
	XI-A1			3,320.70			
XI-C2	XI-A2	SAN-PEDRO	1,050.06				
XI-C2	XI-A2	TABOU	216.36				
	XI-A2			1,266.42			
XI-C3	XI-A3	SAN-PEDRO	335.39				
XI-C3	XI-A3	TABOU	313.69				
	XI-A3			649.07			
	XI				7,963.59		
	Grand Total		322,200.11	322,200.11		322,200.11	

Area: Based on GIS Map prepared by JICA Study Team.

Table 3.10-2 Area of Division based on Major River Basins, with Area of Department

Ref. No.	Sub-basin Code	New Department Code	Department Name	Area (km ²)
10	I-MR	9	BANGOLO	848.50
10	I-MR	11	BIANKOUMA	324.15
10	I-MR	21	DALOA	837.21
10	I-MR	26	DUEKOUÉ	2,295.66
10	I-MR	28	GAGNOA	220.65
10	I-MR	31	GUIGLO	1,091.32
10	I-MR	32	ISSIA	564.09
10	I-MR	37	MAN	866.56
10	I-MR	43	SAN-PEDRO	149.48
10	I-MR	44	SASSANDRA	2,244.51
10	I-MR	45	SEGUELA	2,571.11
10	I-MR	47	SOUBRE	5,631.06
10	I-MR	53	TOUBA	4,266.57
10	I-MR	56	VAVOUA	1,472.89
Sub-total	I-MR			23,383.75
11	I-T1	15	BOUAFLE	353.51
11	I-T1	21	DALOA	62.32
11	I-T1	28	GAGNOA	3,980.73
11	I-T1	32	ISSIA	641.76
11	I-T1	36	LAKOTA	269.02
11	I-T1	41	OUME	93.07
11	I-T1	44	SASSANDRA	1,016.34
11	I-T1	46	SINFRA	431.10
11	I-T1	47	SOUBRE	156.10
Sub-total	I-T1			7,003.94
12	I-T2	15	BOUAFLE	269.82
12	I-T2	21	DALOA	3,876.31
12	I-T2	28	GAGNOA	91.45
12	I-T2	32	ISSIA	2,516.13
12	I-T2	45	SEGUELA	286.22
12	I-T2	47	SOUBRE	844.43
12	I-T2	56	VAVOUA	4,338.54
12	I-T2	58	ZUENOULA	420.29
Sub-total	I-T2			12,643.18
13	I-T3	9	BANGOLO	1,022.64
13	I-T3	11	BIANKOUMA	682.64
13	I-T3	22	DANANE	342.41
13	I-T3	26	DUEKOUÉ	721.48
13	I-T3	31	GUIGLO	2,030.35
13	I-T3	37	MAN	2,654.90
Sub-total	I-T3			7,454.42
14	I-T4	11	BIANKOUMA	891.18
14	I-T4	37	MAN	1,165.11
Sub-total	I-T4			2,056.29
15	I-T5	11	BIANKOUMA	3,053.40
15	I-T5	22	DANANE	6.01
15	I-T5	53	TOUBA	2,232.81
Sub-total	I-T5			5,292.23
16	I-T6	40	ODIENNE	5,936.49
16	I-T6	45	SEGUELA	1,053.17
16	I-T6	53	TOUBA	2,208.60
Sub-total	I-T6			9,198.26
Total	I			67,032.07
20	II-MR	6	AGBOVILLE	4.07
20	II-MR	10	BEOUMI	2,609.11
20	II-MR	15	BOUAFLE	1,255.31

20	II-MR	16	BOUAKE	1,186.04
20	II-MR	18	BOUNDIALI	331.35
20	II-MR	20	DABOU	435.64
20	II-MR	25	DIVO	619.37
20	II-MR	27	FERKESSEDOUGOU	3,807.24
20	II-MR	28	GAGNOA	138.11
20	II-MR	30	GRAND-LAHOU	1,298.69
20	II-MR	33	JACQUEVILLE	7.39
20	II-MR	34	KATIOLA	4,699.90
20	II-MR	35	KORHOGO	5,078.83
20	II-MR	38	MANKONO	2,905.89
20	II-MR	41	OUME	1,806.72
20	II-MR	42	SAKASSOU	1,498.15
20	II-MR	46	SINFRA	1,182.06
20	II-MR	51	TIASSALE	1,951.14
20	II-MR	52	TIEBISSOU	629.10
20	II-MR	55	TOUMODI	424.76
20	II-MR	58	ZUENOULA	548.15
20	II-MR	571	YAMOOUSSOUKRO	1,131.62
Sub-total	II-MR			33,548.62
21	II-T1	6	AGBOVILLE	12.97
21	II-T1	12	BOCANDA	3,262.82
21	II-T1	14	BONGOUANOU	2,245.25
21	II-T1	16	BOUAKE	3,523.78
21	II-T1	19	DABAKALA	5,532.99
21	II-T1	23	DAOUKRO	1,938.40
21	II-T1	24	DIMBOKRO	1,564.58
21	II-T1	27	FERKESSEDOUGOU	1,167.07
21	II-T1	34	KATIOLA	4,457.56
21	II-T1	39	MBAHIKRO	3,442.13
21	II-T1	42	SAKASSOU	375.96
21	II-T1	51	TIASSALE	1,384.98
21	II-T1	52	TIEBISSOU	1,678.26
21	II-T1	55	TOUMODI	2,275.94
21	II-T1	571	YAMOOUSSOUKRO	976.31
21	II-T1	572	YAMOOUSSOUKRO	1,696.87
Sub-total	II-T1			35,535.87
22	II-T2	15	BOUAFLE	2,306.57
22	II-T2	18	BOUNDIALI	903.17
22	II-T2	21	DALOA	612.10
22	II-T2	35	KORHOGO	4.06
22	II-T2	38	MANKONO	7,037.72
22	II-T2	40	ODIENNE	812.57
22	II-T2	45	SEGUELA	7,549.82
22	II-T2	46	SINFRA	29.57
22	II-T2	56	VAVOUA	417.46
22	II-T2	58	ZUENOULA	1,970.19
Sub-total	II-T2			21,643.24
23	II-T3	18	BOUNDIALI	413.39
23	II-T3	34	KATIOLA	282.78
23	II-T3	35	KORHOGO	3,621.20
23	II-T3	38	MANKONO	739.72
Sub-total	II-T3			5,057.09
24	II-T4	35	KORHOGO	1,561.14
Sub-total	II-T4			1,561.14
25	II-T5	18	BOUNDIALI	434.80
25	II-T5	35	KORHOGO	1,936.20
Sub-total	II-T5			2,371.00
Total	II			99,716.96

30	III-MR	1	ABENGOUROU	2,288.34
30	III-MR	3	ABOISSO	40.87
30	III-MR	4	ADIAKE	0.66
30	III-MR	5	ADZOPE	1,409.66
30	III-MR	7	AGNIBILEKROU	691.93
30	III-MR	8	ALEPE	1,195.93
30	III-MR	13	BONDOUKOU	1,484.38
30	III-MR	14	BONGOUANOU	1,008.80
30	III-MR	17	BOUNA	3,921.01
30	III-MR	19	DABAKALA	1,199.39
30	III-MR	23	DAOUKRO	2,020.06
30	III-MR	27	FERKESSEDOUGOU	4,345.38
30	III-MR	29	GRAND-BASSAM	1,090.55
30	III-MR	39	MBAHIAKRO	1,778.31
30	III-MR	49	TANDA	774.02
Sub-total	III-MR			23,249.27
31	III-T1	1	ABENGOUROU	1,684.98
31	III-T1	7	AGNIBILEKROU	313.27
Sub-total	III-T1			1,998.25
32	III-T2	1	ABENGOUROU	714.80
32	III-T2	5	ADZOPE	4.87
Sub-total	III-T2			719.66
33	III-T3	7	AGNIBILEKROU	847.84
33	III-T3	13	BONDOUKOU	1,004.90
33	III-T3	49	TANDA	4,258.45
Sub-total	III-T3			6,111.19
34	III-T4	13	BONDOUKOU	3,133.13
34	III-T4	17	BOUNA	539.25
34	III-T4	49	TANDA	1,357.33
Sub-total	III-T4			5,029.71
35	III-T5	19	DABAKALA	1,224.82
Sub-total	III-T5			1,224.82
36	III-T6	19	DABAKALA	1,803.61
36	III-T6	27	FERKESSEDOUGOU	1,387.00
Sub-total	III-T6			3,190.60
37	III-T7	13	BONDOUKOU	332.97
37	III-T7	17	BOUNA	2,070.54
37	III-T7	27	FERKESSEDOUGOU	8.58
Sub-total	III-T7			2,412.10
38	III-T8	17	BOUNA	5,646.48
38	III-T8	27	FERKESSEDOUGOU	3.27
Sub-total	III-T8			5,649.74
39	III-T9	17	BOUNA	0.46
39	III-T9	27	FERKESSEDOUGOU	1,775.98
Sub-total	III-T9			1,776.45
39A	III-T10	17	BOUNA	1,008.55
39A	III-T10	27	FERKESSEDOUGOU	0.92
Sub-total	III-T10			1,009.46
39B	III-T11	27	FERKESSEDOUGOU	4,730.04
39B	III-T11	35	KORHOGO	179.95
Sub-total	III-T11			4,909.98
Total	III			57,281.22
40	IV-MR	9	BANGOLO	256.34
40	IV-MR	11	BIANKOUMA	68.88
40	IV-MR	22	DANANE	2,242.50
40	IV-MR	31	GUIGLO	5,064.90
40	IV-MR	37	MAN	121.61
40	IV-MR	48	TABOU	2,756.77
40	IV-MR	54	TOULEPLEU	490.04

Sub-total	IV-MR			11,001.04
41	IV-T1	31	GUIGLO	1,148.98
41	IV-T1	43	SAN-PEDRO	209.06
41	IV-T1	47	SOUBRE	1,576.87
41	IV-T1	48	TABOU	1,486.24
Sub-total	IV-T1			4,421.16
42	IV-T2	31	GUIGLO	1,222.36
Sub-total	IV-T2			1,222.36
Total	IV			16,644.56
50	V-MR	22	DANANE	1,036.48
50	V-MR	54	TOULEPLEU	321.66
Sub-total	V-MR			1,358.14
51	V-T1	22	DANANE	973.82
Sub-total	V-T1			973.82
Total	V			2,331.96
60	VI-BA	40	ODIENNE	1,355.54
60	VI-BA	50	TENGRELA	275.40
Sub-total	VI-BA			1,630.94
61	VI-T1	18	BOUNDIALI	4,359.76
61	VI-T1	35	KORHOGO	315.89
61	VI-T1	40	ODIENNE	1,452.53
61	VI-T1	50	TENGRELA	1,419.89
Sub-total	VI-T1			7,548.08
62	VI-T2	18	BOUNDIALI	1,511.83
62	VI-T2	40	ODIENNE	1,782.37
62	VI-T2	50	TENGRELA	574.57
Sub-total	VI-T2			3,868.76
63	VI-T3	40	ODIENNE	1,121.61
Sub-total	VI-T3			1,121.61
64	VI-T4	40	ODIENNE	5,765.46
Sub-total	VI-T4			5,765.46
65	VI-T5	40	ODIENNE	2,668.90
Sub-total	VI-T5			2,668.90
Total	VI			22,603.75
70	VII-BA	13	BONDOUKOU	1,511.65
70	VII-BA	17	BOUNA	3,304.21
Sub-total	VII-BA			4,815.86
71	VII-T1	17	BOUNA	1,511.38
Sub-total	VII-T1			1,511.38
72	VII-T2	17	BOUNA	1,482.45
Sub-total	VII-T2			1,482.45
73	VII-T3	17	BOUNA	2,096.66
Sub-total	VII-T3			2,096.66
74	VII-T4	13	BONDOUKOU	2,377.86
74	VII-T4	17	BOUNA	265.65
Sub-total	VII-T4			2,643.50
Total	VII			12,549.85
80	VIII-CA	3	ABOISSO	924.13
80	VIII-CA	4	ADIAKE	1,353.05
80	VIII-CA	29	GRAND-BASSAM	181.89
Sub-total	VIII-CA			2,459.07
81	VIII-M1	1	ABENGOUROU	454.68
81	VIII-M1	3	ABOISSO	2,647.06
81	VIII-M1	29	GRAND-BASSAM	53.31
Sub-total	VIII-M1			3,155.05
82	VIII-M2	3	ABOISSO	862.61
82	VIII-M2	4	ADIAKE	360.67
Sub-total	VIII-M2			1,223.27

Total	VIII			6,837.38
90	IX-CA	2	ABIDJAN	1,400.85
90	IX-CA	6	AGBOVILLE	33.85
90	IX-CA	8	ALEPE	208.16
90	IX-CA	20	DABOU	816.60
90	IX-CA	29	GRAND-BASSAM	99.01
90	IX-CA	30	GRAND-LAHOUE	217.53
90	IX-CA	33	JACQUEVILLE	737.61
Sub-total	IX-CA			3,513.60
91	IX-M1	2	ABIDJAN	528.91
91	IX-M1	5	ADZOPE	1,343.16
91	IX-M1	6	AGBOVILLE	3,212.75
91	IX-M1	14	BONGOUANOU	2,339.36
91	IX-M1	20	DABOU	943.15
91	IX-M1	51	TIASSALE	105.92
Sub-total	IX-M1			8,473.24
92	IX-M2	2	ABIDJAN	146.69
92	IX-M2	5	ADZOPE	2,460.09
92	IX-M2	6	AGBOVILLE	623.21
92	IX-M2	8	ALEPE	771.60
Sub-total	IX-M2			4,001.59
Total	IX			15,988.43
A10	X-CA	25	DIVO	1,095.66
A10	X-CA	30	GRAND-LAHOUE	311.49
A10	X-CA	44	SASSANDRA	493.43
Sub-total	X-CA			1,900.59
A11	X-M1	25	DIVO	3,015.24
A11	X-M1	28	GAGNOA	49.34
A11	X-M1	36	LAKOTA	1,346.36
A11	X-M1	41	OUME	457.80
Sub-total	X-M1			4,868.74
A12	X-M2	25	DIVO	2,021.42
A12	X-M2	30	GRAND-LAHOUE	208.05
Sub-total	X-M2			2,229.48
A13	X-M3	25	DIVO	833.46
A13	X-M3	28	GAGNOA	65.92
A13	X-M3	36	LAKOTA	1,118.97
A13	X-M3	44	SASSANDRA	93.86
Sub-total	X-M3			2,112.20
A14	X-M4	25	DIVO	555.19
A14	X-M4	44	SASSANDRA	775.24
Sub-total	X-M4			1,330.43
Total	X			12,441.43
A20	XI-CA	43	SAN-PEDRO	890.36
A20	XI-CA	44	SASSANDRA	192.43
A20	XI-CA	48	TABOU	272.04
Sub-total	XI-CA			1,354.83
A21	XI-M1	43	SAN-PEDRO	3,060.97
A21	XI-M1	47	SOUBRE	331.96
Sub-total	XI-M1			3,392.93
A22	XI-M2	43	SAN-PEDRO	1,010.88
A22	XI-M2	44	SASSANDRA	150.18
Sub-total	XI-M2			1,161.06
A23	XI-M3	43	SAN-PEDRO	1,050.06
A23	XI-M3	48	TABOU	217.28
Sub-total	XI-M3			1,267.34
A24	XI-M4	43	SAN-PEDRO	477.47
A24	XI-M4	48	TABOU	312.76

Sub-total	XI-M4			790.23
A25	XI-M5	48	TABOU	806.11
Sub-total	XI-M5			806.11
Total	XI			8,772.50
			Grand Total	322,200.11

Note: The Area (km²) is based on the division of GIS Map prepared by the JICA Study Team.

Table 3.10-3 Area of Division based on Major River Basins

Ref. No.	Division Code	Basin/Division Name	Sub-basin/Sub-division Name	Area (km ²)
1	I-MR	Sassandra*	Main Stream Remaining Area	23,383.75
2	I-T1	Sassandra*	Davo	7,003.94
3	I-T2	Sassandra*	Lobo	12,643.18
4	I-T3	Sassandra*	Nzo	7,454.42
5	I-T4	Sassandra*	Kouin	2,056.29
6	I-T5	Sassandra*	Bafing	5,292.23
7	I-T6	Sassandra*	Boa	9,198.26
	I	Sassandra*		67,032.07
8	II-MR	Bandama	Main Stream Remaining Area	33,548.62
9	II-T1	Bandama	N'zi	35,535.87
10	II-T2	Bandama	Marahoue	21,643.24
11	II-T3	Bandama	Bou	5,057.09
12	II-T4	Bandama	Solomougou	1,561.14
13	II-T5	Bandama	Badenou	2,371.00
	II	Bandama		99,716.96
14	III-MR	Comoe	Main Stream Remaining Area	23,249.27
15	III-T1	Comoe	Manzan	1,998.25
16	III-T2	Comoe	Beki	719.66
17	III-T3	Comoe	Ba	6,111.19
18	III-T4	Comoe	Diore	5,029.71
19	III-T5	Comoe	Segbono	1,224.82
20	III-T6	Comoe	Kinkene	3,190.60
21	III-T7	Comoe	Kongo	2,412.10
22	III-T8	Comoe	Iringou	5,649.74
23	III-T9	Comoe	Kolonkoko	1,776.45
24	III-T10	Comoe	Bawe	1,009.46
25	III-T11	Comoe	Leraba	4,909.98
	III	Comoe		57,281.22
26	IV-MR	Cavally	Main Stream Remaining Area	11,001.04
27	IV-T1	Cavally	Hane	4,421.16
28	IV-T2	Cavally	N'ce	1,222.36
	IV	Cavally		16,644.56
29	V-MR	Nuon**	Main Stream Remaining Area	1,358.14
30	V-T1	Nuon**	Boang	973.82
	V	Nuon**		2,331.96
31	VI-BA	Niger	Boundary Areas	1,630.94
32	VI-T1	Niger	Bagoe	7,548.08
33	VI-T2	Niger	Kankelaba/Mahandiabani	3,868.76
34	VI-T3	Niger	Degou	1,121.61
35	VI-T4	Niger	Baoule	5,765.46
36	VI-T5	Niger	Sankarani/Kourou Kele	2,668.90
	VI	Niger		22,603.75
37	VII-BA	Black Volta	Boundary Areas	4,815.86
38	VII-T1	Black Volta	Koulda	1,511.38
39	VII-T2	Black Volta	Kolodio	1,482.45
40	VII-T3	Black Volta	Bineda	2,096.66
41	VII-T4	Black Volta	Kohodio	2,643.50
	VII	Black Volta		12,549.85
42	VIII-CA	Bia and Others	Coastal Area	2,459.07
43	VIII-M1	Bia and Others	Bia	3,155.05
44	VIII-M2	Bia and Others	Tano	1,223.27
	VIII	Bia and Others		6,837.38
45	IX-CA	Agneby and Others	Coastal Area	3,513.60
46	IX-M1	Agneby and Others	Agneby	8,473.24
47	IX-M2	Agneby and Others	Me	4,001.59
	IX	Agneby and Others		15,988.43
48	X-CA	Boubo and Others	Coastal Area	1,900.59
49	X-M1	Boubo and Others	Boubo	4,868.74
50	X-M2	Boubo and Others	Go	2,229.48
51	X-M3	Boubo and Others	Niouniourou	2,112.20
52	X-M4	Boubo and Others	Bolo	1,330.43
	X	Boubo and Others		12,441.43
53	XI-CA	San Pedro and Others	Coastal Area	1,354.83
54	XI-M1	San Pedro and Others	San Pedro	3,392.93
55	XI-M2	San Pedro and Others	Brime	1,161.06
56	XI-M3	San Pedro and Others	Niero/Nero	1,267.34
57	XI-M4	San Pedro and Others	Dodo	790.23
58	XI-M5	San Pedro and Others	Tabou	806.11
	XI	San Pedro and Others		8,772.50
	Total			322,200.11

Note

* : Sassandra River is called Feredougouba River in the upper reach.

** : Nuon River is also called Cestos River or Nipoue River.

The Area (km²) is based on the division of GIS Map prepared by the JICA Study Team.

Table 3.10-4 Area and Population Estimate in Major River Basins, Detail

Ref. No.	Sub-basin Code	New Department Code	Department Name	Area (km ²)	Total Area of Department (km ²)	Ratio of Dept. Area in Basin	Total Population in Department	Population in Basin
10	I-MR	9	BANGOLO	848.50	2,127	0.399	133,711	53,340
10	I-MR	11	BIANKOUMA	324.15	5,020	0.065	122,626	7,918
10	I-MR	21	DALOA	837.21	5,388	0.155	522,430	81,178
10	I-MR	26	DUEKOUÉ	2,295.66	3,017	0.761	192,995	146,851
10	I-MR	28	GAGNOA	220.65	4,545	0.049	369,091	17,918
10	I-MR	31	GUIGLO	1,091.32	10,557	0.103	255,883	26,452
10	I-MR	32	ISSIA	564.09	3,722	0.152	263,799	39,980
10	I-MR	37	MAN	866.56	4,808	0.180	361,505	65,155
10	I-MR	43	SAN-PEDRO	149.48	6,848	0.022	417,554	9,114
10	I-MR	44	SASSANDRA	2,244.51	4,966	0.452	206,346	93,263
10	I-MR	45	SEQUELA	2,571.11	11,460	0.224	170,924	38,348
10	I-MR	47	SOUBRE	5,631.06	8,540	0.659	635,266	418,878
10	I-MR	53	TOUBA	4,266.57	8,707	0.490	137,815	67,532
10	I-MR	56	VAVOUA	1,472.89	6,228	0.236	287,655	68,029
Sub-total	I-MR			23,383.75				1,133,956.09
11	I-T1	15	BOUAFLE	353.51	4,185	0.084	232,429	19,633
11	I-T1	21	DALOA	62.32	5,388	0.012	522,430	6,043
11	I-T1	28	GAGNOA	3,980.73	4,545	0.876	369,091	323,268
11	I-T1	32	ISSIA	641.76	3,722	0.172	263,799	45,485
11	I-T1	36	LAKOTA	269.02	2,734	0.098	148,087	14,571
11	I-T1	41	OUME	93.07	2,358	0.039	177,703	7,014
11	I-T1	44	SASSANDRA	1,016.34	4,966	0.205	206,346	42,231
11	I-T1	46	SINFRA	431.10	1,643	0.262	169,588	44,497
11	I-T1	47	SOUBRE	156.10	8,540	0.018	635,266	11,612
Sub-total	I-T1			7,003.94				514,353.38
12	I-T2	15	BOUAFLE	269.82	4,185	0.064	232,429	14,985
12	I-T2	21	DALOA	3,876.31	5,388	0.719	522,430	375,853
12	I-T2	28	GAGNOA	91.45	4,545	0.020	369,091	7,426
12	I-T2	32	ISSIA	2,516.13	3,722	0.676	263,799	178,332
12	I-T2	45	SEQUELA	286.22	11,460	0.025	170,924	4,269
12	I-T2	47	SOUBRE	844.43	8,540	0.099	635,266	62,815
12	I-T2	56	VAVOUA	4,338.54	6,228	0.697	287,655	200,386
12	I-T2	58	ZUENOULA	420.29	2,938	0.143	150,160	21,481
Sub-total	I-T2			12,643.18				865,547.65
13	I-T3	9	BANGOLO	1,022.64	2,127	0.481	133,711	64,287
13	I-T3	11	BIANKOUMA	682.64	5,020	0.136	122,626	16,675
13	I-T3	22	DANANE	342.41	4,601	0.074	309,725	23,050
13	I-T3	26	DUEKOUÉ	721.48	3,017	0.239	192,995	46,152
13	I-T3	31	GUIGLO	2,030.35	10,557	0.192	255,883	49,212
13	I-T3	37	MAN	2,654.90	4,808	0.552	361,505	199,618
Sub-total	I-T3			7,454.42				398,993.75
14	I-T4	11	BIANKOUMA	891.18	5,020	0.178	122,626	21,769
14	I-T4	37	MAN	1,165.11	4,808	0.242	361,505	87,602
Sub-total	I-T4			2,056.29				109,371.79
15	I-T5	11	BIANKOUMA	3,053.40	5,020	0.608	122,626	74,587
15	I-T5	22	DANANE	6.01	4,601	0.001	309,725	405
15	I-T5	53	TOUBA	2,232.81	8,707	0.256	137,815	35,341
Sub-total	I-T5			5,292.23				110,332.79
16	I-T6	40	ODIENNE	5,936.49	20,892	0.284	219,429	62,351
16	I-T6	45	SEQUELA	1,053.17	11,460	0.092	170,924	15,708
16	I-T6	53	TOUBA	2,208.60	8,707	0.254	137,815	34,958
Sub-total	I-T6			9,198.26				113,016.79
Total	I			67,032.07				3,245,572.25
20	II-MR	6	AGBOVILLE	4.07	3,887	0.001	244,756	256
20	II-MR	10	BEOUMI	2,609.11	2,609	1.000	120,854	120,859
20	II-MR	15	BOUAFLE	1,255.31	4,185	0.300	232,429	69,718
20	II-MR	16	BOUAKE	1,186.04	4,709	0.252	613,019	154,399
20	II-MR	18	BOUNDIALI	331.35	7,956	0.042	163,282	6,800
20	II-MR	20	DABOU	435.64	2,195	0.198	194,093	38,521
20	II-MR	25	DIVO	619.37	8,139	0.076	534,645	40,686
20	II-MR	27	FERKESSEDOUGOU	3,807.24	17,224	0.221	248,666	54,966
20	II-MR	28	GAGNOA	138.11	4,545	0.030	369,091	11,216
20	II-MR	30	GRAND-LAHOUE	1,298.69	2,036	0.638	86,497	55,173
20	II-MR	33	JACQUEVILLE	7.39	745	0.010	52,963	525
20	II-MR	34	KATIOLA	4,699.90	9,440	0.498	164,260	81,780
20	II-MR	35	KORHOGO	5,078.83	12,696	0.400	447,492	179,012
20	II-MR	38	MANKONO	2,905.89	10,603	0.274	205,369	56,284
20	II-MR	41	OUME	1,806.72	2,358	0.766	177,290	135,841
20	II-MR	42	SAKASSOU	1,498.15	1,874	0.799	65,706	52,528
20	II-MR	46	SINFRA	1,182.06	1,643	0.719	169,588	122,011
20	II-MR	51	TIASSALE	1,951.14	3,442	0.567	177,703	100,733
20	II-MR	52	TIEBISSOU	629.10	2,307	0.273	70,711	19,282
20	II-MR	55	TOUMODI	424.76	2,698	0.157	106,121	16,707
20	II-MR	58	ZUENOULA	548.15	2,938	0.187	150,160	28,016

Ref. No.	Sub-basin Code	New Department Code	Department Name	Area (km ²)	Total Area of Department (km ²)	Ratio of Dept. Area in Basin	Total Population in Department	Population in Basin
20	II-MR	571	YAMO USSOUKRO	1,131.62	3,806	0.297	300,322	89,294
Sub-total	II-MR			33,548.62				1,434,607.17
21	II-T1	6	AGBOVILLE	12.97	3,887	0.003	244,756	816
21	II-T1	12	BOCANDA	3,262.82	3,262	1.000	84,330	84,351
21	II-T1	14	BONGOUANOU	2,245.25	5,593	0.401	246,264	98,860
21	II-T1	16	BOUAKE	3,523.78	4,709	0.748	613,019	458,727
21	II-T1	19	DABAKALA	5,532.99	9,761	0.567	102,866	58,309
21	II-T1	23	DAOUKRO	1,938.40	3,958	0.490	122,970	60,224
21	II-T1	24	DIMBOKRO	1,564.58	1,564	1.000	80,416	80,446
21	II-T1	27	FERKESSEDOUGOU	1,167.07	17,224	0.068	248,666	16,849
21	II-T1	34	KATIOLA	4,457.56	9,440	0.472	164,260	77,563
21	II-T1	39	MBAHIKRO	3,442.13	5,220	0.659	109,595	72,268
21	II-T1	42	SAKASSOU	375.96	1,874	0.201	65,706	13,182
21	II-T1	51	TIASSALE	1,384.98	3,442	0.402	177,703	71,504
21	II-T1	52	TIEBISSOU	1,678.26	2,307	0.727	70,711	51,440
21	II-T1	55	TOUMODI	2,275.94	2,698	0.844	106,121	89,520
21	II-T1	571	YAMO USSOUKRO	976.31	3,806	0.257	300,322	77,038
21	II-T1	572	YAMO USSOUKRO	1,696.87	3,806	0.446	300,322	133,896
Sub-total	II-T1			35,535.87				1,444,993.36
22	II-T2	15	BOUAFLE	2,306.57	4,185	0.551	232,429	128,104
22	II-T2	18	BOUNDIALI	903.17	7,956	0.114	163,282	18,536
22	II-T2	21	DALOA	612.10	5,388	0.114	522,430	59,350
22	II-T2	35	KORHOGO	4.06	12,696	0.000	447,492	143
22	II-T2	38	MANKONO	7,037.72	10,603	0.664	205,369	136,313
22	II-T2	40	ODIENNE	812.57	20,892	0.039	219,429	8,534
22	II-T2	45	SEGUELA	7,549.82	11,460	0.659	170,924	112,604
22	II-T2	46	SINFRA	29.57	1,643	0.018	169,588	3,052
22	II-T2	56	VAVOUA	417.46	6,228	0.067	287,655	19,281
22	II-T2	58	ZUENOULA	1,970.19	2,938	0.671	150,160	100,696
Sub-total	II-T2			21,643.24				586,614.19
23	II-T3	18	BOUNDIALI	413.39	7,956	0.052	163,282	8,484
23	II-T3	34	KATIOLA	282.78	9,440	0.030	164,260	4,920
23	II-T3	35	KORHOGO	3,621.20	12,696	0.285	447,492	127,635
23	II-T3	38	MANKONO	739.72	10,603	0.070	205,369	14,328
Sub-total	II-T3			5,057.09				155,367.54
24	II-T4	35	KORHOGO	1,561.14	12,696	0.123	447,492	55,025
Sub-total	II-T4			1,561.14				55,024.95
25	II-T5	18	BOUNDIALI	434.80	7,956	0.055	163,282	8,923
25	II-T5	35	KORHOGO	1,936.20	12,696	0.153	447,492	68,245
Sub-total	II-T5			2,371.00				77,168.21
Total	II			99,716.96				3,753,775.42
30	III-MR	1	ABENGOUROU	2,288.34	5,143	0.445	289,581	128,847
30	III-MR	3	ABOISSO	40.87	4,474	0.009	224,775	2,053
30	III-MR	4	ADIAKE	0.66	1,714	0.000	102,349	39
30	III-MR	5	ADZOPE	1,409.66	5,218	0.270	282,263	76,254
30	III-MR	7	AGNIBILEKROU	691.93	1,853	0.373	106,946	39,935
30	III-MR	8	ALEPE	1,195.93	2,176	0.550	96,923	53,269
30	III-MR	13	BONDOUKOU	1,484.38	9,844	0.151	250,133	37,718
30	III-MR	14	BONGOUANOU	1,008.80	5,593	0.180	246,264	44,418
30	III-MR	17	BOUNA	3,921.01	21,846	0.179	177,157	31,797
30	III-MR	19	DABAKALA	1,199.39	9,761	0.123	102,866	12,640
30	III-MR	23	DAOUKRO	2,020.06	3,958	0.510	122,970	62,761
30	III-MR	27	FERKESSEDOUGOU	4,345.38	17,224	0.252	248,666	62,735
30	III-MR	29	GRAND-BASSAM	1,090.55	1,426	0.765	137,761	105,354
30	III-MR	39	MBAHIKRO	1,778.31	5,220	0.341	109,595	37,336
30	III-MR	49	TANDA	774.02	6,390	0.121	231,784	28,076
Sub-total	III-MR			23,249.27				723,231.10
31	III-T1	1	ABENGOUROU	1,684.98	5,143	0.328	289,581	94,874
31	III-T1	7	AGNIBILEKROU	313.27	1,853	0.169	106,946	18,081
Sub-total	III-T1			1,998.25				112,954.52
32	III-T2	1	ABENGOUROU	714.80	5,143	0.139	289,581	40,247
32	III-T2	5	ADZOPE	4.87	5,218	0.001	282,263	263
Sub-total	III-T2			719.66				40,510.31
33	III-T3	7	AGNIBILEKROU	847.84	1,853	0.458	106,946	48,933
33	III-T3	13	BONDOUKOU	1,004.90	9,844	0.102	250,133	25,534
33	III-T3	49	TANDA	4,258.45	6,390	0.666	231,784	154,466
Sub-total	III-T3			6,111.19				228,933.62
34	III-T4	13	BONDOUKOU	3,133.13	9,844	0.318	250,133	79,612
34	III-T4	17	BOUNA	539.25	21,846	0.025	177,157	4,373
34	III-T4	49	TANDA	1,357.33	6,390	0.212	231,784	49,234
Sub-total	III-T4			5,029.71				133,219.25
35	III-T5	19	DABAKALA	1,224.82	9,761	0.125	102,866	12,908
Sub-total	III-T5			1,224.82				12,907.70
36	III-T6	19	DABAKALA	1,803.61	9,761	0.185	102,866	19,007
36	III-T6	27	FERKESSEDOUGOU	1,387.00	17,224	0.081	248,666	20,024
Sub-total	III-T6			3,190.60				39,031.56

Ref. No.	Sub-basin Code	New Department Code	Department Name	Area (km ²)	Total Area of Department (km ²)	Ratio of Dept. Area in Basin	Total Population in Department	Population in Basin
37	III-T7	13	BONDOUKOU	332.97	9,844	0.034	250,133	8,461
37	III-T7	17	BOUNA	2,070.54	21,846	0.095	177,157	16,791
37	III-T7	27	FERKESSEDOUGOU	8.58	17,224	0.000	248,666	124
Sub-total	III-T7			2,412.10				25,375.33
38	III-T8	17	BOUNA	5,646.48	21,846	0.258	177,157	45,789
38	III-T8	27	FERKESSEDOUGOU	3.27	17,224	0.000	248,666	47
Sub-total	III-T8			5,649.74				45,836.44
39	III-T9	17	BOUNA	0.46	21,846	0.000	177,157	4
39	III-T9	27	FERKESSEDOUGOU	1,775.98	17,224	0.103	248,666	25,640
Sub-total	III-T9			1,776.45				25,643.94
39A	III-T10	17	BOUNA	1,008.55	21,846	0.046	177,157	8,179
39A	III-T10	27	FERKESSEDOUGOU	0.92	17,224	0.000	248,666	13
Sub-total	III-T10			1,009.46				8,191.87
39B	III-T11	27	FERKESSEDOUGOU	4,730.04	17,224	0.275	248,666	68,288
39B	III-T11	35	KORHOGO	179.95	12,696	0.014	447,492	6,343
Sub-total	III-T11			4,909.98				74,630.94
Total	III			57,281.22				1,470,466.58
40	IV-MR	9	BANGOLO	256.34	2,127	0.121	133,711	16,114
40	IV-MR	11	BLANKOUMA	68.88	5,020	0.014	122,626	1,682
40	IV-MR	22	DANANE	2,242.50	4,601	0.487	309,725	150,958
40	IV-MR	31	GUIGLO	5,064.90	10,557	0.480	255,883	122,764
40	IV-MR	37	MAN	121.61	4,808	0.025	361,505	9,144
40	IV-MR	48	TABOU	2,756.77	5,851	0.471	128,041	60,328
40	IV-MR	54	TOULEPLEU	490.04	811	0.604	49,446	29,877
Sub-total	IV-MR			11,001.04				390,868.60
41	IV-T1	31	GUIGLO	1,148.98	10,557	0.109	255,883	27,849
41	IV-T1	43	SAN-PEDRO	209.06	6,848	0.031	417,554	12,748
41	IV-T1	47	SOUBRE	1,576.87	8,540	0.185	635,266	117,299
41	IV-T1	48	TABOU	1,486.24	5,851	0.254	128,041	32,524
Sub-total	IV-T1			4,421.16				190,420.20
42	IV-T2	31	GUIGLO	1,222.36	10,557	0.116	255,883	29,628
Sub-total	IV-T2			1,222.36				29,627.94
Total	IV			16,644.56				610,916.75
50	V-MR	22	DANANE	1,036.48	4,601	0.225	309,725	69,772
50	V-MR	54	TOULEPLEU	321.66	811	0.397	49,446	19,612
Sub-total	V-MR			1,358.14				89,383.87
51	V-T1	22	DANANE	973.82	4,601	0.212	309,725	65,555
Sub-total	V-T1			973.82				65,554.60
Total	V			2,331.96				154,938.46
60	VI-BA	40	ODIENNE	1,355.54	20,892	0.065	219,429	14,237
60	VI-BA	50	TENGRELA	275.40	2,270	0.121	63,577	7,713
Sub-total	VI-BA			1,630.94				21,950.60
61	VI-T1	18	BOUNDIALI	4,359.76	7,956	0.548	163,282	89,476
61	VI-T1	35	KORHOGO	315.89	12,696	0.025	447,492	11,134
61	VI-T1	40	ODIENNE	1,452.53	20,892	0.070	219,429	15,256
61	VI-T1	50	TENGRELA	1,419.89	2,270	0.626	63,577	39,768
Sub-total	VI-T1			7,548.08				155,633.71
62	VI-T2	18	BOUNDIALI	1,511.83	7,956	0.190	163,282	31,027
62	VI-T2	40	ODIENNE	1,782.37	20,892	0.085	219,429	18,720
62	VI-T2	50	TENGRELA	574.57	2,270	0.253	63,577	16,092
Sub-total	VI-T2			3,868.76				65,839.79
63	VI-T3	40	ODIENNE	1,121.61	20,892	0.054	219,429	11,780
Sub-total	VI-T3			1,121.61				11,780.28
64	VI-T4	40	ODIENNE	5,765.46	20,892	0.276	219,429	60,555
Sub-total	VI-T4			5,765.46				60,554.71
65	VI-T5	40	ODIENNE	2,668.90	20,892	0.128	219,429	28,031
Sub-total	VI-T5			2,668.90				28,031.49
Total	VI			22,603.75				343,790.58
70	VII-BA	13	BONDOUKOU	1,511.65	9,844	0.154	250,133	38,411
70	VII-BA	17	BOUNA	3,304.21	21,846	0.151	177,157	26,795
Sub-total	VII-BA			4,815.86				65,205.54
71	VII-T1	17	BOUNA	1,511.38	21,846	0.069	177,157	12,256
Sub-total	VII-T1			1,511.38				12,256.28
72	VII-T2	17	BOUNA	1,482.45	21,846	0.068	177,157	12,022
Sub-total	VII-T2			1,482.45				12,021.72
73	VII-T3	17	BOUNA	2,096.66	21,846	0.096	177,157	17,003
Sub-total	VII-T3			2,096.66				17,002.60
74	VII-T4	13	BONDOUKOU	2,377.86	9,844	0.242	250,133	60,421
74	VII-T4	17	BOUNA	265.65	21,846	0.012	177,157	2,154
Sub-total	VII-T4			2,643.50				62,574.77
Total	VII			12,549.85				169,060.90
80	VIII-CA	3	ABOISSO	924.13	4,474	0.207	224,775	46,428
80	VIII-CA	4	ADIAKE	1,353.05	1,714	0.789	102,349	80,795
80	VIII-CA	29	GRAND-BASSAM	181.89	1,426	0.128	137,761	17,572

Ref. No.	Sub-basin Code	New Department Code	Department Name	Area (km ²)	Total Area of Department (km ²)	Ratio of Dept. Area in Basin	Total Population in Department	Population in Basin
Sub-total	VIII-CA			2,459.07				144,795.42
81	VIII-M1	1	ABENGOUROU	454.68	5,143	0.088	289,581	25,601
81	VIII-M1	3	ABOISSO	2,647.06	4,474	0.592	224,775	132,989
81	VIII-M1	29	GRAND-BASSAM	53.31	1,426	0.037	137,761	5,150
Sub-total	VIII-M1			3,155.05				163,740.14
82	VIII-M2	3	ABOISSO	862.61	4,474	0.193	224,775	43,338
82	VIII-M2	4	ADIAKE	360.67	1,714	0.210	102,349	21,537
Sub-total	VIII-M2			1,223.27		0.40		64,874.26
Total	VIII			6,837.38				373,409.81
90	IX-CA	2	ABIDJAN	1,400.85	2,702	0.518	3,200,658	1,659,374
90	IX-CA	6	AGBOVILLE	33.85	3,887	0.009	244,756	2,132
90	IX-CA	8	ALEPE	208.16	2,176	0.096	96,923	9,272
90	IX-CA	20	DABOU	816.60	2,195	0.372	194,093	72,207
90	IX-CA	29	GRAND-BASSAM	99.01	1,426	0.069	137,761	9,565
90	IX-CA	30	GRAND-LAHOU	217.53	2,036	0.107	86,497	9,241
90	IX-CA	33	JACQUEVILLE	737.61	745	0.990	52,963	52,437
Sub-total	IX-CA			3,513.60				1,814,228.51
91	IX-M1	2	ABIDJAN	528.91	2,702	0.196	3,200,658	626,519
91	IX-M1	5	ADZOPE	1,343.16	5,218	0.257	282,263	72,657
91	IX-M1	6	AGBOVILLE	3,212.75	3,887	0.827	244,756	202,300
91	IX-M1	14	BONGOUANOU	2,339.36	5,593	0.418	246,264	103,004
91	IX-M1	20	DABOU	943.15	2,195	0.430	194,093	83,398
91	IX-M1	51	TIASSALE	105.92	3,442	0.031	177,703	5,468
Sub-total	IX-M1			8,473.24				1,093,345.74
92	IX-M2	2	ABIDJAN	146.69	2,702	0.054	3,200,658	173,764
92	IX-M2	5	ADZOPE	2,460.09	5,218	0.471	282,263	133,076
92	IX-M2	6	AGBOVILLE	623.21	3,887	0.160	244,756	39,242
92	IX-M2	8	ALEPE	771.60	2,176	0.355	96,923	34,368
Sub-total	IX-M2			4,001.59				380,450.93
Total	IX			15,988.43				3,288,025.17
A10	X-CA	25	DIVO	1,095.66	8,139	0.135	534,645	71,973
A10	X-CA	30	GRAND-LAHOU	311.49	2,036	0.153	86,497	13,233
A10	X-CA	44	SASSANDRA	493.43	4,966	0.099	206,346	20,503
Sub-total	X-CA			1,900.59				105,709.48
A11	X-M1	25	DIVO	3,015.24	8,139	0.370	534,645	198,069
A11	X-M1	28	GAGNOA	49.34	4,545	0.011	369,091	4,007
A11	X-M1	36	LAKOTA	1,346.36	2,734	0.492	148,087	72,925
A11	X-M1	41	OUME	457.80	2,358	0.194	177,290	34,421
Sub-total	X-M1			4,868.74				309,421.51
A12	X-M2	25	DIVO	2,021.42	8,139	0.248	534,645	132,786
A12	X-M2	30	GRAND-LAHOU	208.05	2,036	0.102	86,497	8,839
Sub-total	X-M2			2,229.48				141,624.80
A13	X-M3	25	DIVO	833.46	8,139	0.102	534,645	54,749
A13	X-M3	28	GAGNOA	65.92	4,545	0.015	369,091	5,353
A13	X-M3	36	LAKOTA	1,118.97	2,734	0.409	148,087	60,609
A13	X-M3	44	SASSANDRA	93.86	4,966	0.019	206,346	3,900
Sub-total	X-M3			2,112.20				124,611.29
A14	X-M4	25	DIVO	555.19	8,139	0.068	534,645	36,470
A14	X-M4	44	SASSANDRA	775.24	4,966	0.156	206,346	32,213
Sub-total	X-M4			1,330.43				68,682.65
Total	X			12,441.43				750,049.73
A20	XI-CA	43	SAN-PEDRO	890.36	6,848	0.130	417,554	54,289
A20	XI-CA	44	SASSANDRA	192.43	4,966	0.039	206,346	7,996
A20	XI-CA	48	TABOU	272.04	5,851	0.046	128,041	5,953
Sub-total	XI-CA			1,354.83				68,238.20
A21	XI-M1	43	SAN-PEDRO	3,060.97	6,848	0.447	417,554	186,641
A21	XI-M1	47	SOUBRE	331.96	8,540	0.039	635,266	24,693
Sub-total	XI-M1			3,392.93				211,334.71
A22	XI-M2	43	SAN-PEDRO	1,010.88	6,848	0.148	417,554	61,638
A22	XI-M2	44	SASSANDRA	150.18	4,966	0.030	206,346	6,240
Sub-total	XI-M2			1,161.06				67,878.36
A23	XI-M3	43	SAN-PEDRO	1,050.06	6,848	0.153	417,554	64,027
A23	XI-M3	48	TABOU	217.28	5,851	0.037	128,041	4,755
Sub-total	XI-M3			1,267.34				68,781.97
A24	XI-M4	43	SAN-PEDRO	477.47	6,848	0.070	417,554	29,114
A24	XI-M4	48	TABOU	312.76	5,851	0.053	128,041	6,844
Sub-total	XI-M4			790.23				35,958.02
A25	XI-M5	48	TABOU	806.11	5,851	0.138	128,041	17,641

Ref. No.	Sub-basin Code	New Department Code	Department Name	Area (km ²)	Total Area of Department (km ²)	Ratio of Dept. Area in Basin	Total Population in Department	Population in Basin
Sub-total	XI-M5			806.11				17,640.57
Total	XI			8,772.50				469,831.83
			Grand Total	322,200.11				14,629,837.49

Note: The Area (km²) is based on the division of GIS Map prepared by the JICA Study Team.

CHAPTER 11 REGULATIONS FOR OPERATION OF DAM (EXAMPLE)

I: GENERAL RULES

Article 1 General rules

The operation of _____ Dam shall be carried out in compliance with these regulations.

Article 2 Use of dam

_____ Dam will be used for the purposes of flood control, irrigation , domestic and municipal water supply and power generation

II: WATER LEVEL, ETC., OF RESERVOIR

Article 3 Measurement of reservoir water level

The water level of the reservoir shall be measured by means of the water level gauge installed at the intake of the waterway.

Article 4 Measurement of inflow

The running water into the reservoir (hereinafter called “inflow”) shall be calculated from the values of fluctuation of water level provided under Article 3.

Article 5 Flood

When the inflow exceeds _____ m³/sec, that running water is regarded as a flood.

Article 6 Flood season and non-flood season

The flood season and non-flood season are stipulated below.

(1) Flood season: _____ to _____

(2) Non-flood season: _____ to _____.

Article 7 Irrigation period

(1)First stage: _____ to _____

(2)Second stage: _____ to _____

Article 8 High water level

The high water level of the reservoir is El. _____m, and the water level shall not be raised beyond this limit except for the purpose of flood control

Article 9 Proposed water level for irrigation

The reservoir water level shall not be lowered beyond the proposed water level for the supply of irrigation water required as given in Table of Appendix 1(to be prepared) attached hereto, except when the release of water is done in the case stipulated in Article 19. The proposed water level on the standard days is as mentioned below, and the proposed water level on the other days is as indicated in Figure of Appendix 2(to be prepared).

<u>Standard days</u>	<u>Proposed water level on standard days</u>
(1) _____	EL. _____ m

- (2) _____ EL. _____ m
- (3) _____ EL. _____ m
- (4) _____ EL. _____ m

Article 10 Low water level

The low water level of the reservoir is EL. _____m.

III : UTILISATION OF RESERVOIR FOR EACH PURPOSES

Article 11 Use for flood control

Flood control is to be carried out by using the reservoir capacity of _____ m³ between the water level of EL. _____ m and EL. _____ m.

Article 12 Use for irrigation, domestic and municipal water supply and power generation

The irrigation water supply, domestic and municipal water supply and power generation shall be carried out by using the reservoir capacity of _____ m³ between the water level of EL _____m and EL. _____m

IV: FLOOD CONTROL

Article 13 Flood control

Flood control is to be carried out by using the spillway (open type and /or gated type) spillway. The spillway gate operation shall be used only when the reservoir water

Level is above EL. _____m and in accordance with the gate operation rules (to be prepared as Appendix 3).

Article 14 Precaution at the time of flood.

Precaution at the time of flood shall be made based on the separate regulations (to be prepared as Appendix 4).

V: DISCHARGE STORED WATER

Article 15 Cases of discharging stored water

The water kept in the reservoir may be released in any of cases,

- (1) When the reservoir water level exceeds the high water level,
- (2) When it is used for the purposes of water use stipulated in Article 13 in compliance with the provisions of Article 17 and 18.

- (3) When it is necessary to release the river maintenance flow
- (4) When it is necessary to inspect the conditions of intake facilities and /or the other structures / facilities located generally under the water.
- (5) When it is under unavoidable circumstances(such as abnormal leakage and structural destruction).

Article 16 Quantity of water to be released

The quantity of water to be released from the dam is as mentioned below:

- (1) Quantity equivalent to inflow discharge in case of Clause 1 of Article 15
- (2) Quantity stipulated under Article 18 in case of Clause 2 of Article 15
- (3) Quantity in accordance with the River Maintenance Flow (to be decided as shown as Appendix 5)
- (4) Quantity limited within maximum _____m³/sec in case of Clause 4 or 5 of Article 15

Article 17 Discharge for supplying irrigation water and domestic and municipal water

The discharge for the purpose of supplying irrigation water and domestic and municipal water shall be within _____m³/sec, and the water shall be released through the (name of facility) . The discharge shall not be smaller than the figures shown in attached Table of Appendix 1, except when such a discharge is subject to restriction under the provision of Article 19. When it is anticipated that the discharge would be lower than the figures mentioned in attached Table of Appendix1 superintendent of _____Dam Management Office or Association /Group(hereinafter called “superintendent”) shall notify the related agencies in advance.

Article 18 Discharge for power station

For the power generation, the flow shall be regulated most effectively in accordance with the load fluctuation and within the limits provided under Article 9 and 17.

Article 19 Special cases of releasing

The superintendent shall not release, in case the water level gets lower than the secure water level stipulated under Article 9 or the discharge gets smaller than the discharge stipulated under Article 17, due to an abnormal drought or the maintenance work. And inspection of the structures and facilities must get the consent of the persons or groups having the right of water use.

VI: INSPECTION AND MAINTENANCE

Article 20 Inspection and Maintenance

In order to keep good condition of all the machines and utensils for the operation of the dam and spillways, the equipment for warning, communication and observation, the boats for the vigilance, the vehicles for warning, and the materials for their operation, the superintendent must make inspections and adjustments, and must carry out timely the test running of power source in accordance with the Inspection and Maintenance Guide/Manual (to be prepared as Appendix 6)

VII: RECORDS, ETC.

Article 21 Records at the time of releasing

The superintendent is required to keep the records of all the matters mentioned in the following clauses whenever the water has been released in compliance with the provisions of Clause 1 of Article 15, by filling in the recording forms (to be prepared as Appendix 7).

- (1) Meteorological and hydrological conditions
- (2) Discharge from the spillways and the water level fluctuation of the reservoir.
- (3) Condition of damages done to the dam, related facilities of the dam, related facilities of the dam, the reservoir and the areas upstream and downstream of the reservoir.
- (4) Matters relative to warnings issued and directions made following the releasing
- (5) Other matters which require to be recorded specially.

Article 22 Records of investigations

The superintendent is required to keep records on the results of inspections and adjustments made in compliance with the provision of Article 20, and also the results of investigations or measurements made in compliance with

the provision of Article 21.

Article 23 Monthly report and annual report

The superintendent is required to prepare the monthly report and the annual report on the management of the dam in compliance with the regulations (to be prepared).

VIII: MISCELLANEOUS RULES

Article 24 Bylaws

The superintendent shall prepare bylaws for the purpose of enforcement of these regulations, obtain the approval for the same from the Water Authority/National Water Agency in charge (to be established) and report the same to the related offices / agencies / associations. The same shall apply for the revision of these regulations.

IX: APPENDIXES

APPENDIX 1: Table for proposed Water Level for irrigation water supply

APPENDIX 2: Figure for restriction of Reservoir Water Level

APPENDIX 3: Gate Operation Rules

APPENDIX 4: Flood Precaution / Warning

APPENDIX 5: River Maintenance Flow

APPENDIX 6: Inspection and Maintenance Guide/Manual

APPENDIX 7: Recording Forms

APPENDIX 8: Regulations and Forms for Monthly Report and Annual Report

The appendixes are necessary to be prepared individually and definitely. The engineering studies based on the relevant data will be required to prepare them. The contents may be different remarkably by the different conditions of facilities and surrounding circumstances.