

6. 質問書と回答

Questionnaire
on
Hydropower Potential Study in Luzon

February 1985

Preliminary Survey Team of JICA

Answers filled up on Feb. 21, 1985

by O.E.Legados, Sr., NPC

Approved/Reviewed by :

E.P.Abesamis

Manager, PDD

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Abbr. --- A : Available

A* : Partly Available

N/A : Not Available

I. Electric Power Situations in Luzon

Item	Description	Availability	Notes
1. Existing Supply Facilities	<ul style="list-style-type: none"> - Power plants and substations (installed capacities), transmission lines - Schematic and single line diagram 	A	SOD & PDD*
2. Record Demand and Supply	<ul style="list-style-type: none"> - Record of peak kW, kWh including load curve (annual, monthly, daily). 	A	SOD, SPD & PDD*
3. Power Consumption	<ul style="list-style-type: none"> - Average power demand (kW), annual power consumption (kWh): <ul style="list-style-type: none"> (a) Household (b) Industries (c) Agriculture (d) Commercial (e) Others - Energy loss 	A	SOD, SPD & PDD*
4. Demand Forecast	<ul style="list-style-type: none"> - Long term demand (max, kW, kWh) forecast 	A	SOD, SPD & PDD*
5. Supply Planning	<ul style="list-style-type: none"> - Long term supply (max, kW, kWh) planning - Installed capacity, firm and secondary energy of each planning power plant 	A	PDD* & SPD

*Partly available

2. Economic Evaluation

Item	Description	Availability	Notes
1. Evaluation Principle	- Comparison with alternative power plants	A	PDD
2. Period of Analysis	- Hydraulic and alternative power plants	A	PDD
3. Service Life, Period of Replacement	- Service life, period of replacement of each item of hydraulic and alternative power plants	A	PDD
4. Operation and Maintenance	- Annual operation and maintenance fees or ratios such as personnel expenses, repair expenses and other in which lubricating oil, insurance of damage and so on are included for hydraulic and alternative power plants	A	PDD*
5. Administration	- Administration fee for hydraulic and alternative power plant's	A	PDD*
6. Other items of Alternative Power Plants	- Installed capacities, units, fuel cost and so on	A	PDD*
7. kW and kWh Benefits of Alternative Power Plants	- Including estimated basin	A	PDD*

*Partly available

Item	Description	Availability	Notes
8. Tariff	- Existing and in future	A	Economics Dept.
9. Delivery Cost	- Administration, transmission, substation, distribution, sales, interest, tax, etc.	A	- do -

3. Geological Data Please use, if needed, separate sheet of paper of with delineated table suited for the purpose.

Item	Discription	Availability	Notes
1. Published Map on Rock and Soil Classification	- Extensive geological maps, geological structures and their explanation	A	Geol., PDD*
2. Aerophotograph	- Scale : 1	A*	Surveys, PDD*
3. Project Sitos	- Plans, profiles and sections - Geological investigation reports	A	Geol., PDD*
a) Geological Drawings and Geological Report	- Expanded drawings of exploring tunnels or shafts - Drilling log diagrams	A	PDD*
b) Results of Geological Investigation Work	- Permeability tests and grounding tests - Elestic-wave researches - Rock tests (deformation and shearing)		
4. Reservoir Geological Drawings and Geological Reports	- Plans, profiles and sections - Geological investigation reports	A	PDD*

*Partly available for all those have been investigated.

Item	Description	Availability	Notes
5. Hydro-geology a) Observed Underground Water Level b) Springing Spots c) Water Examination	- Pumping tests, chemical analysis	A	PDD*
6. Construction Materials a) Locations b) Materials Tests	- Concrete aggregate, filling materials - Plans and nections	A	PDD*
7. Published Report on or Volcanic Activities		A	Geology, PDD

*Parthy available for all those have been investigated

4. Planning Data Please use, if needed, separate sheet of paper with delineated table suited for the purpose.

Item	Description	Availability	Notes
1. Reservoir Capacity Curve		A	CPD, PDD*
2. Rating Curve	- Near downstream of damsite, including location map	A	PDD*
3. Back Water Level of Reservoir		A	PDD*
4. Power Plant	- Available maximum head and discharge, and so on	A	CPD, PDD*
5. Transmission Line	- Passing route illustrated on 1:100,000, 1:50,000 topographical map	A	EPD, PDD*
6. Basinwide Development Plans of Rivers		A	CPD, PDD*
7. Name of Contractors /Consultants	- Recommendable contractors/consultants qualified for computerized joint work	A	EDD or PMD

*Partly available for all those have been investigated.

5. Topographical Map Please use, if needed, separate sheet of paper with delineated table suited for the purpose.

Item	Discription	Availability	Notes
1. Topographical Map in general in Luzon	- Seale 1:500.000 1:250.000 1:100.000 1:50.000	A	ESID, PDD*
2. Topographical Map covering Project Areas	- Seale 1:100.000, 1:50.000, including reservoir area	A	ESID, PDD*
3. Topographical Map near Project Sites	- Seale 1:25.000	A	ESID, PDD*
4. Topographical Map at Project Sites	- Seale 1:1.000, including quarry area and construction facilities	A	ESID, PDD*
5. Longitudieal Section of Rivers	- Vertical Seale : - Horizontal Seale :	A	ESID, PDD*
6. Cross Section of Damsites	- Seale :	A	ESID, PDD*

*Partly available for all those have been investigated.

6. Hydrological and Meteorological Data

Please use, if needed, separate sheet of paper with delineated table suited for the purpose.

Item	Description	Availability	Notes
1. Run-off	<ul style="list-style-type: none"> - All available data at water gaging stations including location map(s) - Converted run-off data at the dam site 	A	Hydrology, PDD*
2. Flood Flow	<ul style="list-style-type: none"> - By physical method such as probable maximum method - By statistical method - Record maximum flood 	A	Hydrology, PDD*
3. Sedimentation	<ul style="list-style-type: none"> - Suspended material and bed load material 	A	Hydrology, PDD*
4. Evaporation	<ul style="list-style-type: none"> - Monthly average observed or arranged evaporation 	A	Hydrology, PDD*
5. Precipitation	<ul style="list-style-type: none"> - All available precipitation data for wet and dry seasons 	A	Hydrology, PDD*
6. Weather	<ul style="list-style-type: none"> - Temperature, humidity and thunder (annual number of days per 10 km square), location map(s) of stations 	A	Hydrology, PDD*

*Partly available for all those have been investigated.

7. Electronic Computation

Item	Description
<p>1. Office Computer Now in use in NPC</p> <p>(1) Type</p> <p>(2) Capacity</p> <p>(3) Number</p> <p>(4) Place</p>	<p>UNIVAC 90/30</p> <p>256 KB</p> <p>One (1)</p> <p>Computer Services Department, NPC Head Office, Diliman, Quezon City</p>
<p>2. Work control</p> <p>(1) Name of Control Section/Devision</p> <p>(2) Number of Operators, Programmers, Punchers and others</p> <p>(3) Actual Operational Usage at Present (in suitable unit)</p> <p>(4) Possible Allowance for Further Projects (in suitable unit)</p>	<p>Computer Services Department</p> <p>8 Operators 13 Data Encoders 12 Data Controllers</p> <p>5 Programmers 6 Systems Specialists</p> <p>24 hours, 5 days a week during regular periods.</p> <p>24 hours, 7 days a week during peak loads.</p> <p>Utilization based on operating hours is 80%.</p> <p>The machine could hardly support additional requirements of users.</p>

Item	Description
<p>3. Supplementary Computers Available in NPC, such as terminal or personal computer</p>	<p>Two (2) WANG micro-computers used by Economics Dept. and OVP-Utility Operations. Two (2) TES/80 used by Budget Planning and System Operations Depts. One (1) HP 9830 used by the Nuclear Power Department. One (1) HARRIS computer for load Dispatch. One (1) HP 3000 used for PNPP-1.</p>
<p>4. Future Program</p>	<p>4.1 NPC's MIS plan calls for a complement of 17 computers of various sizes and power to support both business and technical applications. As an initial implementation of the plan, one (1) large-scale and one (1) medium-scale computers are being acquired, these computers are expected to be installed in the Head Office and the Sucat Plant by the middle of 1985.</p> <p>4.2 The present computer shall be utilized until all existing applications are converted to the new machine. The conversion and parallel runs are expected to be completed until the end of 1985.</p>

8. Cost Estimation Data

Item	Description	Availability	Notes
1. Construction Cost for Civil Work	<ul style="list-style-type: none"> - Labour - Materials (cement, steel, oil, etc.) - Unit cost of hydroelectric power plant constructed in recent years (per kW, per kWh) 	A	PMD*
2. Construction Cost for Electric Work	<ul style="list-style-type: none"> - Labour - Materials (cement, steel, oil, etc.) - Unit cost of oil-, coal-, geo-thermal power plant constructed in recent years (per kW, per kWh) - Unit cost of transmission line. 	A	PMD*
3. Operation and Maintenance Yearly Cost	<ul style="list-style-type: none"> - Hydroelectric power station - Thermal power station (including fuel) - Transmission line - Substation 	A	SOD, PMD & PDD
4. Interest lists		A	COREPLAN
5. Escalation Ratio		A	COREPLAN
6. Import duties	<ul style="list-style-type: none"> - Machinery and material per construction 	A	COREPLAN

*Partly available

9. Human Resource

Please use, if needed, separate sheet of paper with delineated table suited for the purpose.

Item	Description	Availability	Notes
1. Number of NPC Employees (1) By Expertise - Engineers and technician - Clerical - Others - Total (2) By Organizational Subdivisions - - - - - - - - -		* A * A	Can be Partly available after the final NPC Reorganization which is on-going as of 21 February 1985. Existing organization can be supplied promptly.

Item	Description	Notes
<p>3. Number of Specialists, in Total and Those Available for the Study</p> <ul style="list-style-type: none"> (1) Co-team Leader (2) Sr. Civil Engineer (3) Civil Engineer (4) Hydro-Elect. Engineer (5) Electrical Engineer (6) Project Economist (7) Hydrologist (8) Geologist (9) Sr. System Engineer (C/E) (10) System Engineer (C/E) (11) System Engineer (C/E) (12) Puncher (13) Programmer (14) Assistant (15) Typist 	<p>A[*]</p>	<p>Can be Partly available after the final NPC Reorganization which is on-going as of 21 February 1985. Existing organization can be supplied promptly.</p>

10. Other Requests

Item	Discription	Availability	Notes
1. Organization in Charge of and/or concerned to the Study	<ul style="list-style-type: none"> - Ministerial, Regional, Provincial organization - Responsible agency 	A	MOE, NPC, NEDA, NIA, MPWH, MA, MNR & Local Government NPC
2. Published Statistics	<ul style="list-style-type: none"> - Statistics of economy, industry, trade, etc. in Manila and the Project area (Annual Electric Report, Statistical Yearbook, etc.) 	A	NEDA & NPC
3. Labour	<ul style="list-style-type: none"> - Labour law or regulations and unions (if any) - Public or official holidays - Daily working hour - Premium payment for holiday and overtime working 	A	Legal Office, NPC
4. Recettlement	<ul style="list-style-type: none"> - Number of houses, population, farm, land, etc. necessary to be resettled - Unit prices of each item 	N/A	Indicated in most calendars 8 hours/day COMBEN, NPC
5. Land, Forent	<ul style="list-style-type: none"> - Schemes of land use, forest, etc. 	A*	MFD, MA*
6. Game Preserve	<ul style="list-style-type: none"> - Kinds of wildlife to be received (if any) - Area of game preserve 	N/A	

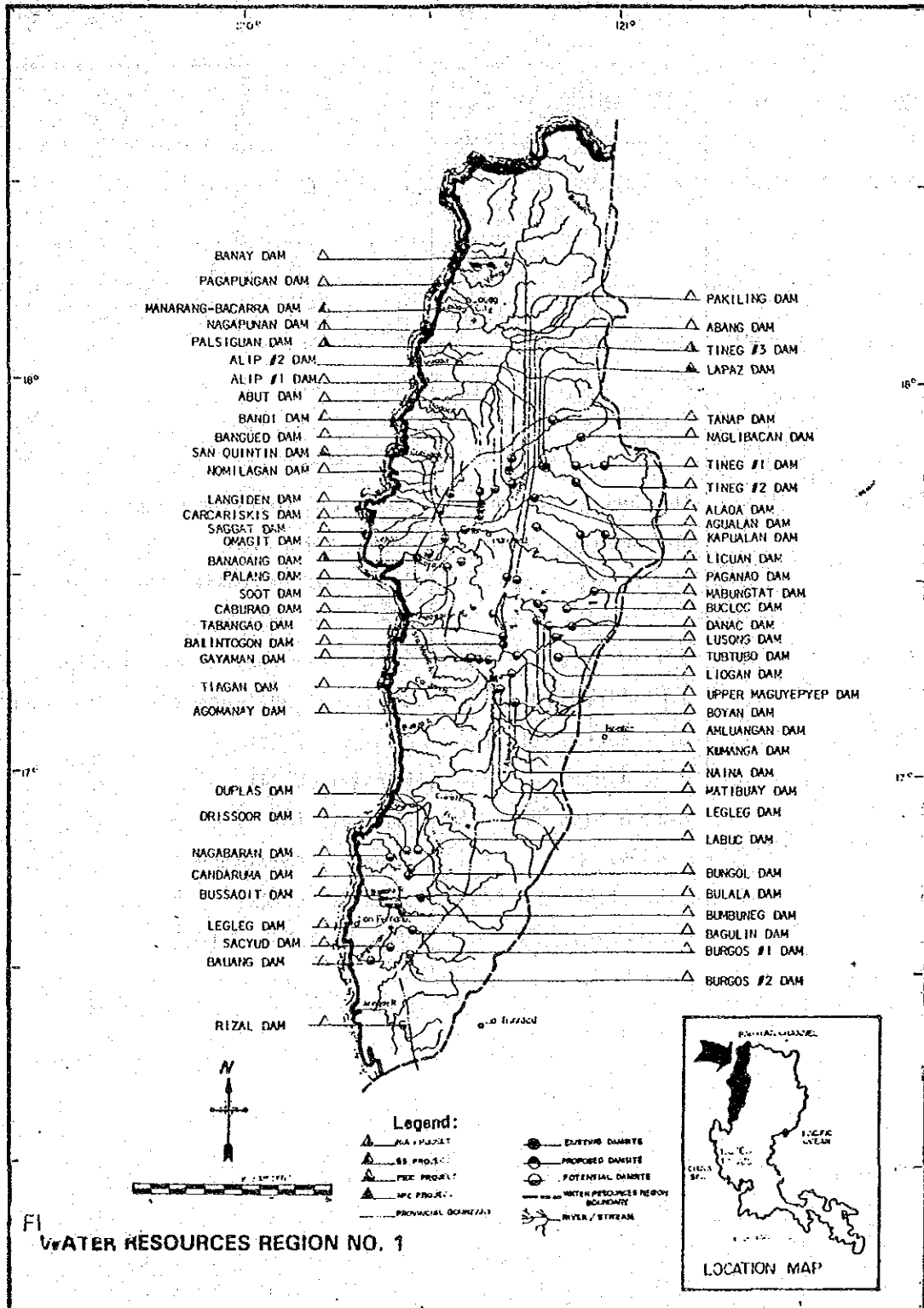
*Partly available

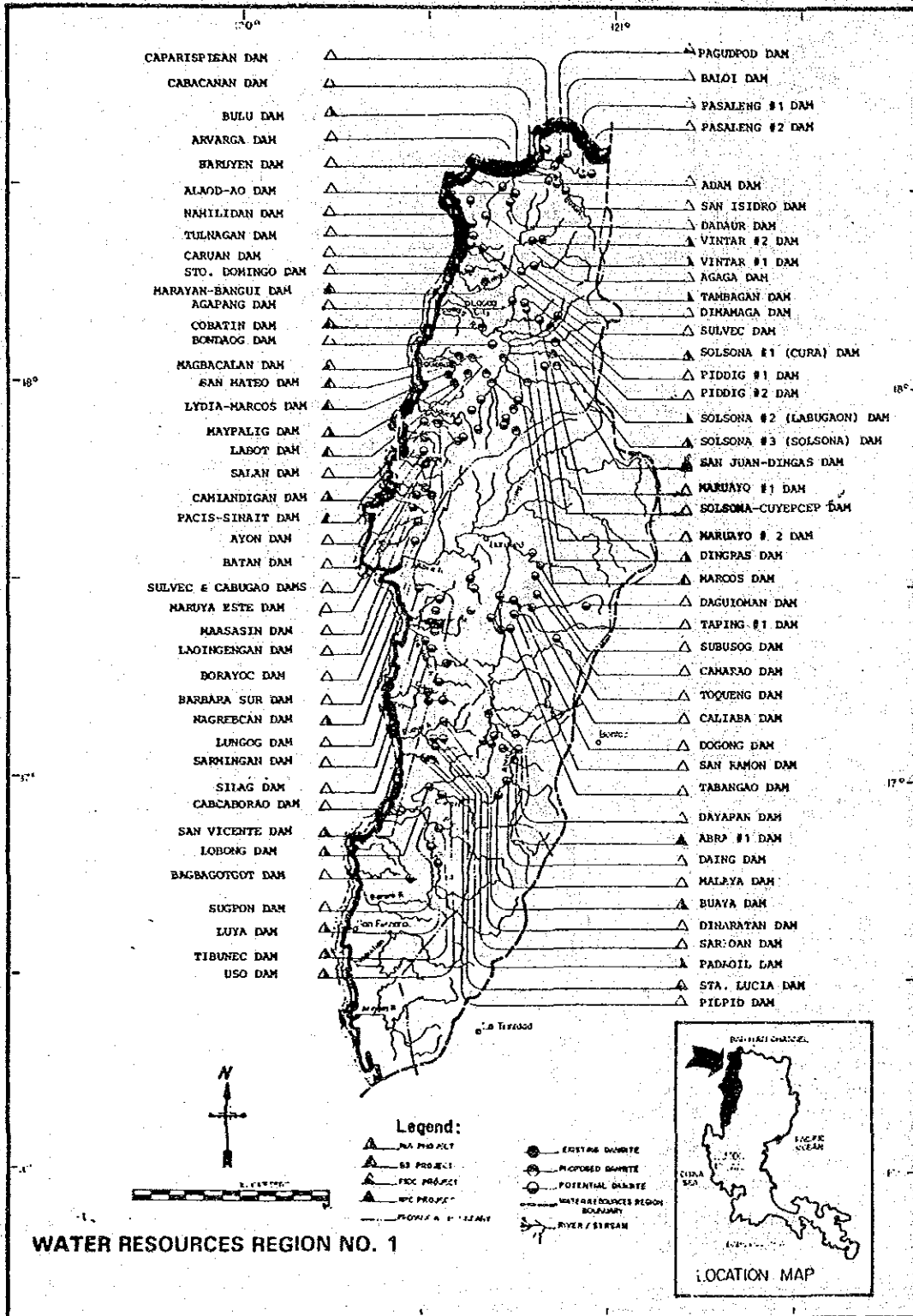
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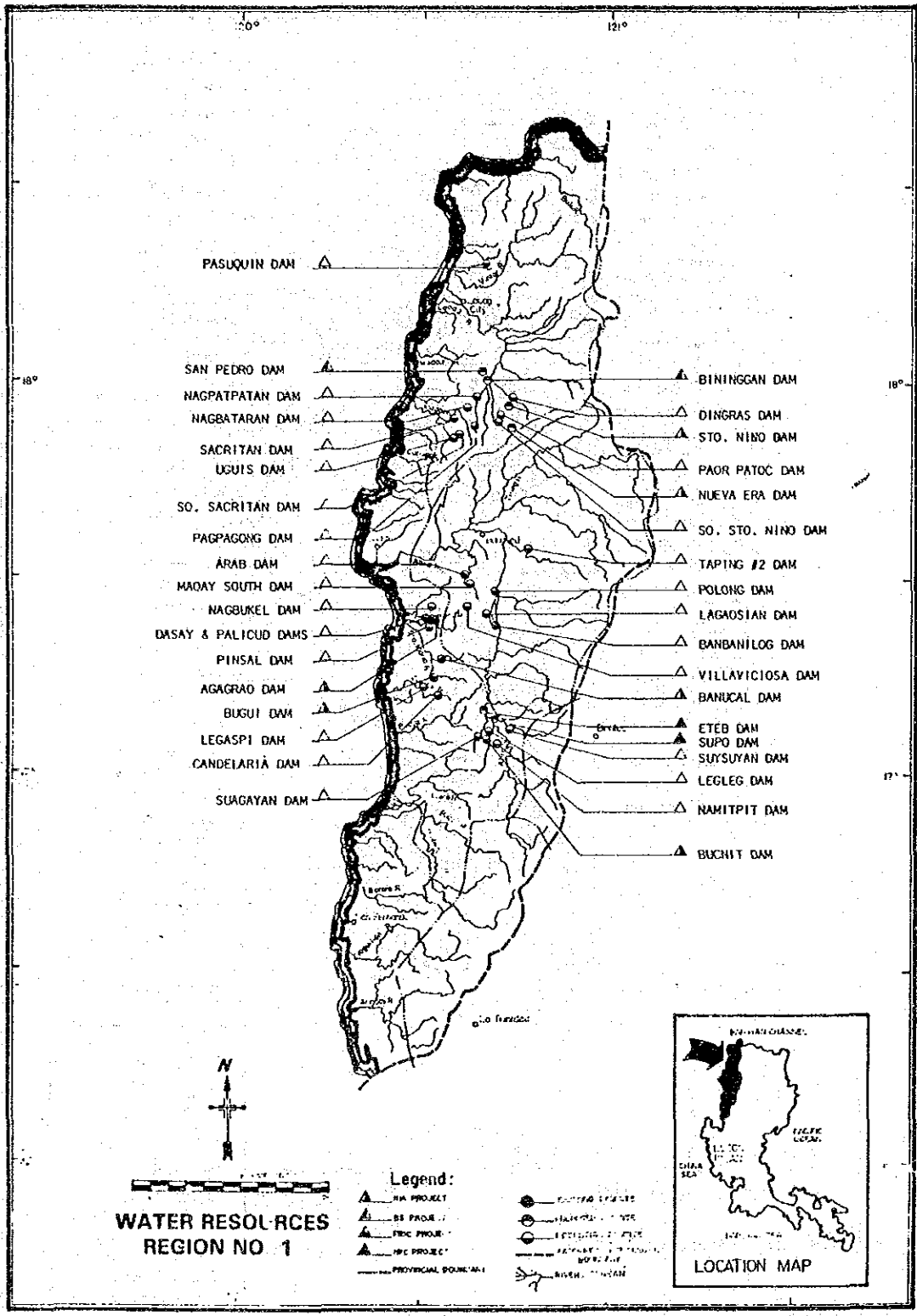
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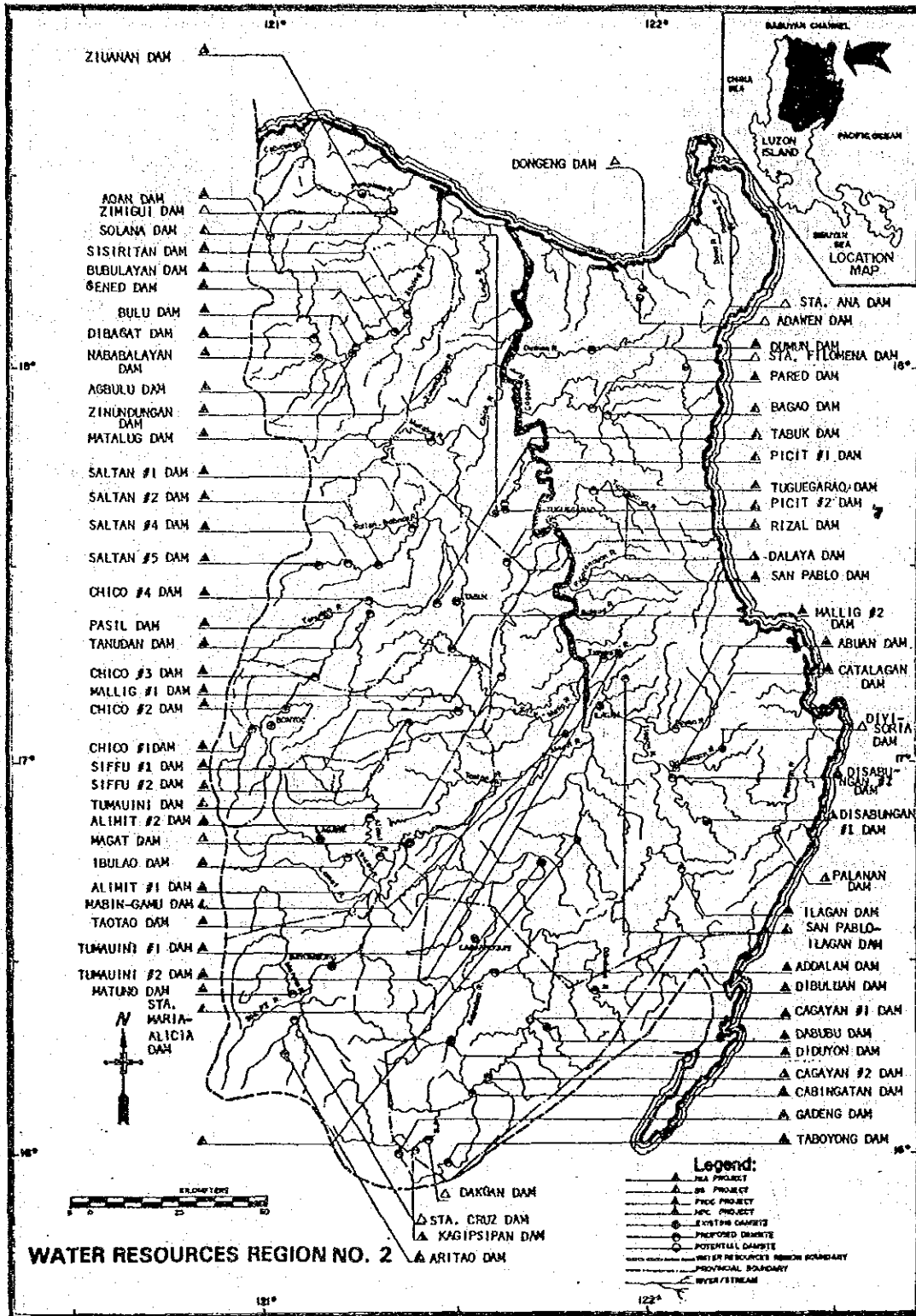
機 関 名	氏 名	職 位
在マニラ日本大使館	寺 坂 信 昭	書 記 官
JICAマニラ事務所	御手洗 章 弘 岡 崎 有 二	所 長 所 員
NEDA	Mr. Eduardo Corpuz Mr. Marichu Suarez Mr. J. M. Sunga	Assistant Director General Head, Asian Div. Director, Infrastructure Staff
NPC本部 (ケソン市)	J.T. RAMAS J.U. JOVELLANOS E.P. ABESAMIS R.A. Almero Z.P. Santos G.A. Wi J.C. Claveria O.E. Legados, Sr.	Vice-President for Engineering, NPC Technical Advisor (Ex. Vice-President) Manager. PDD Manager. GGD Manager. ESID Manager. Hydrology Manager. CPD PE II CPD/PDD

7-2. ルソン島のダム（貯水池）地点



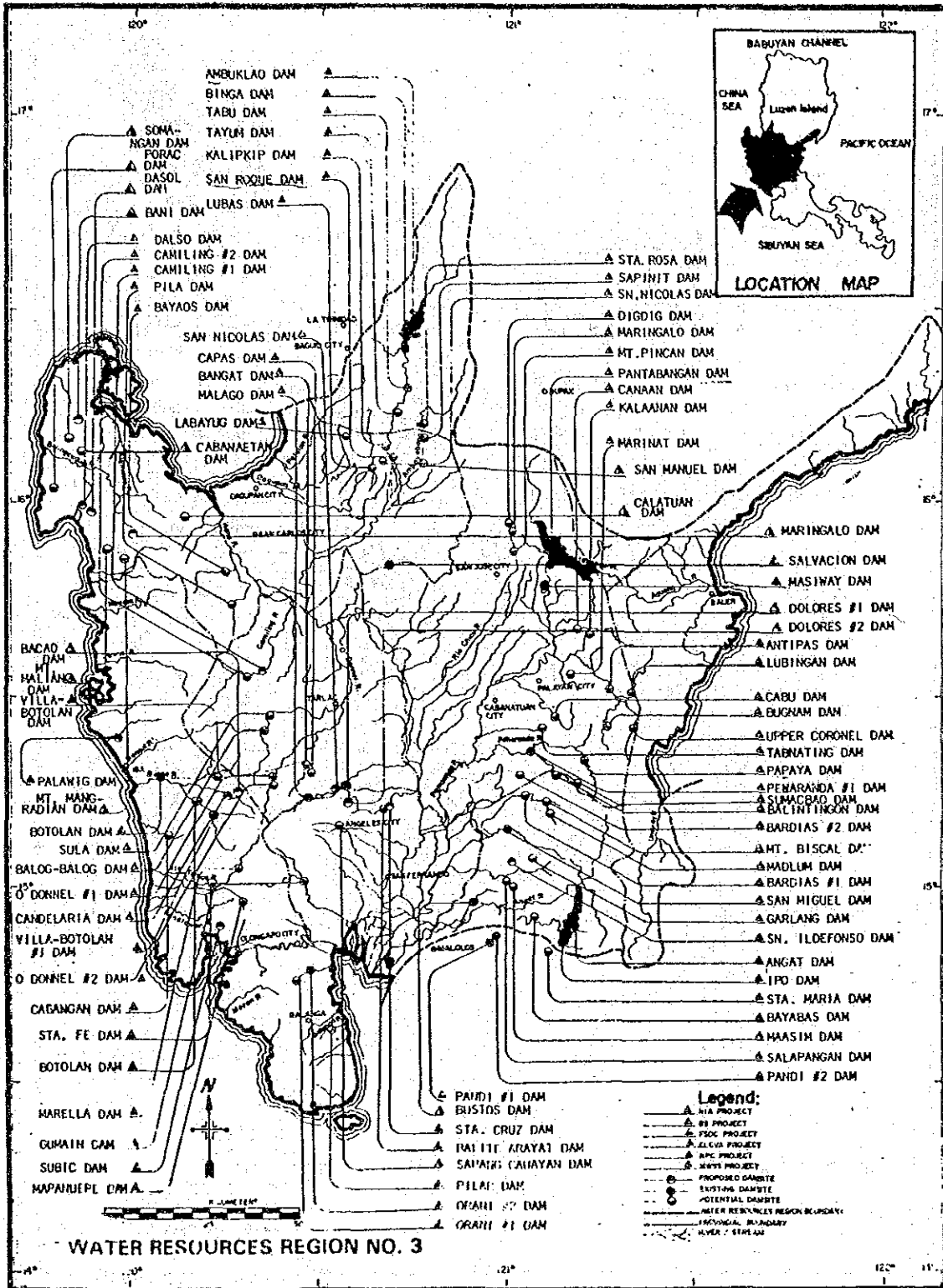






WATER RESOURCES REGION NO. 2

- Legend:**
- ▲ JEA PROJECT
 - ▲ DR PROJECT
 - ▲ PRCO PROJECT
 - ▲ NPC PROJECT
 - SYSTEM DAMSITE
 - PROPOSED DAMSITE
 - POTENTIAL DAMSITE
 - WATER RESOURCES REGION BOUNDARY
 - PROVINCIAL BOUNDARY
 - RIVER/STREAM



WATER RESOURCES REGION NO. 3

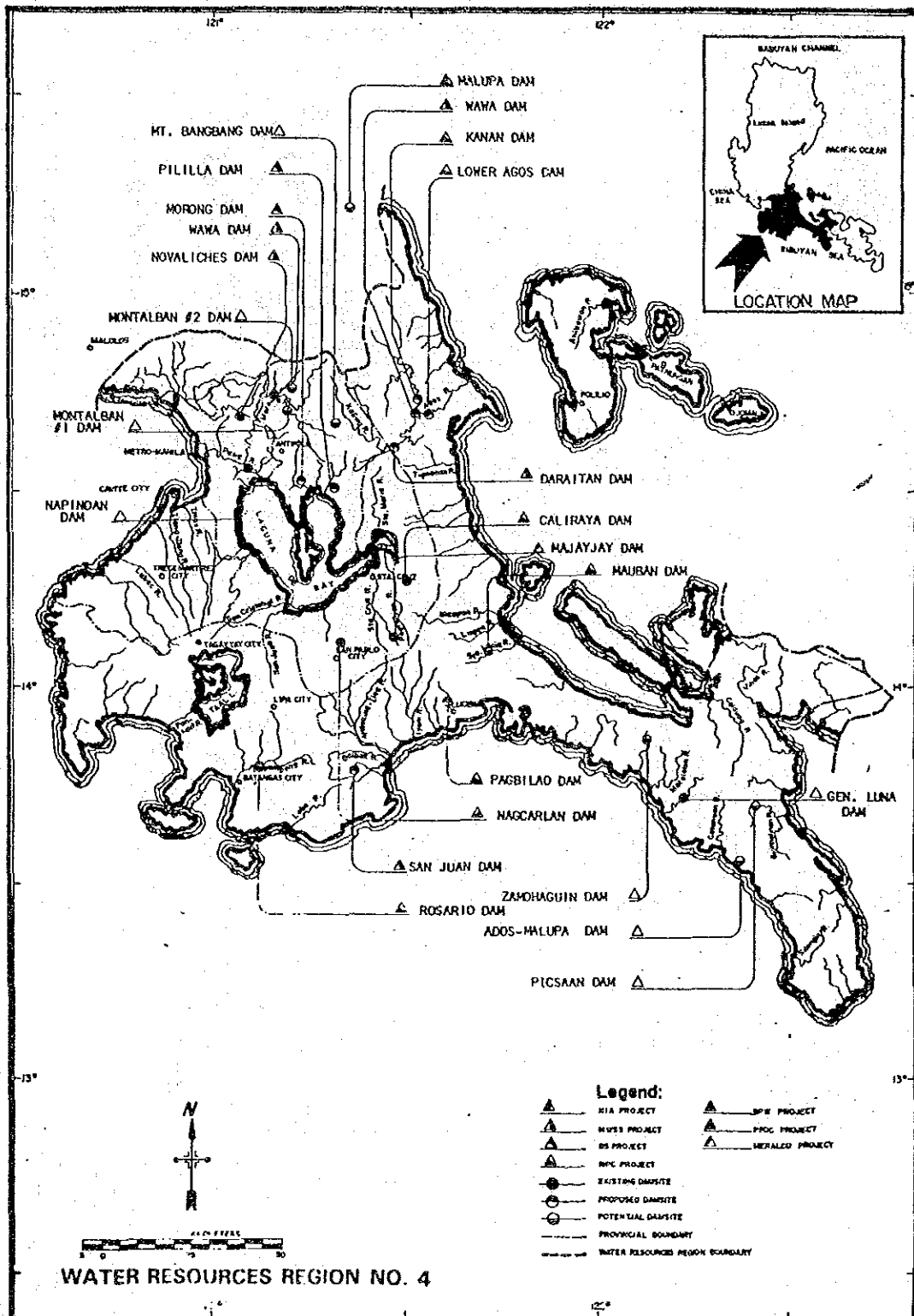
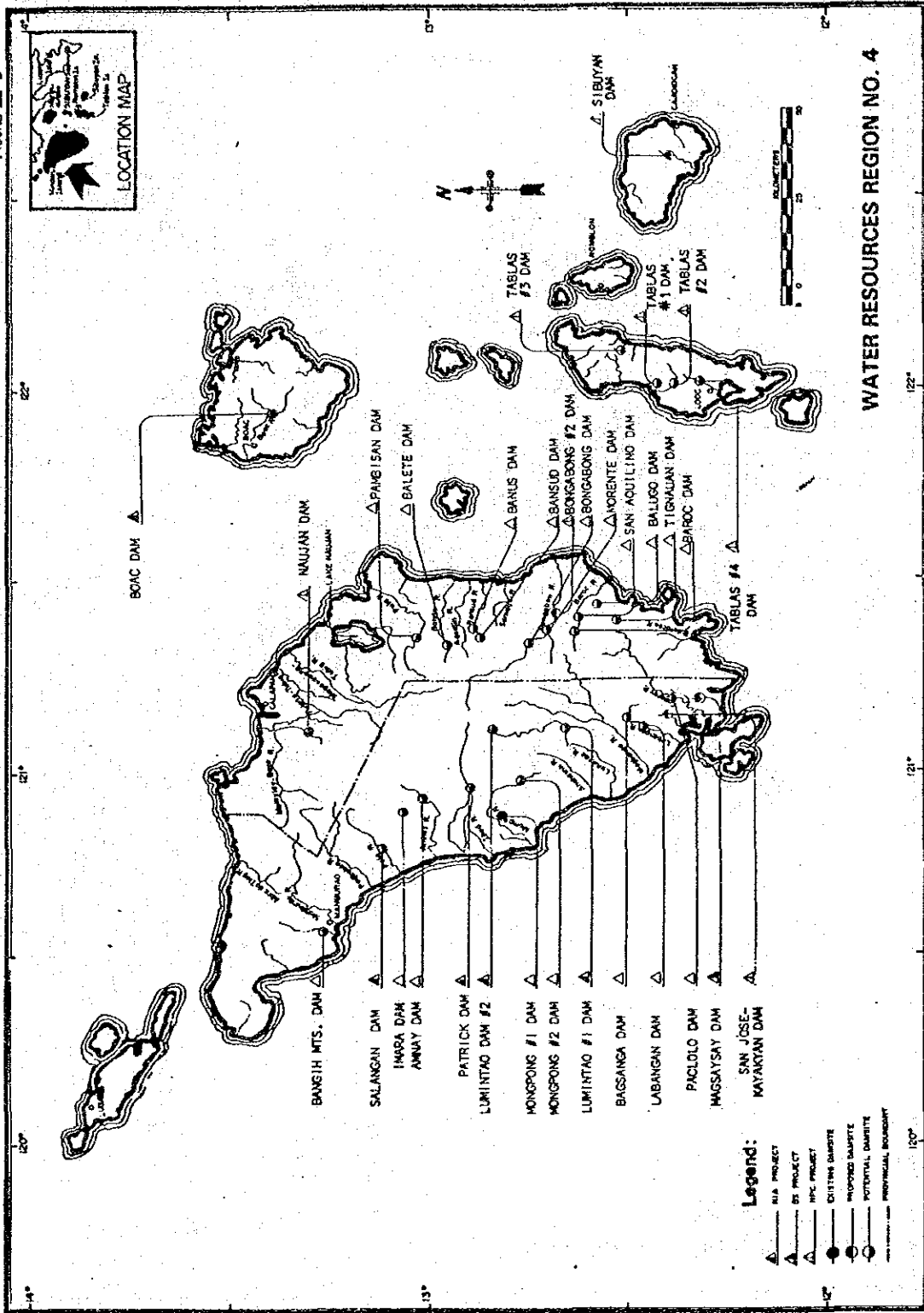
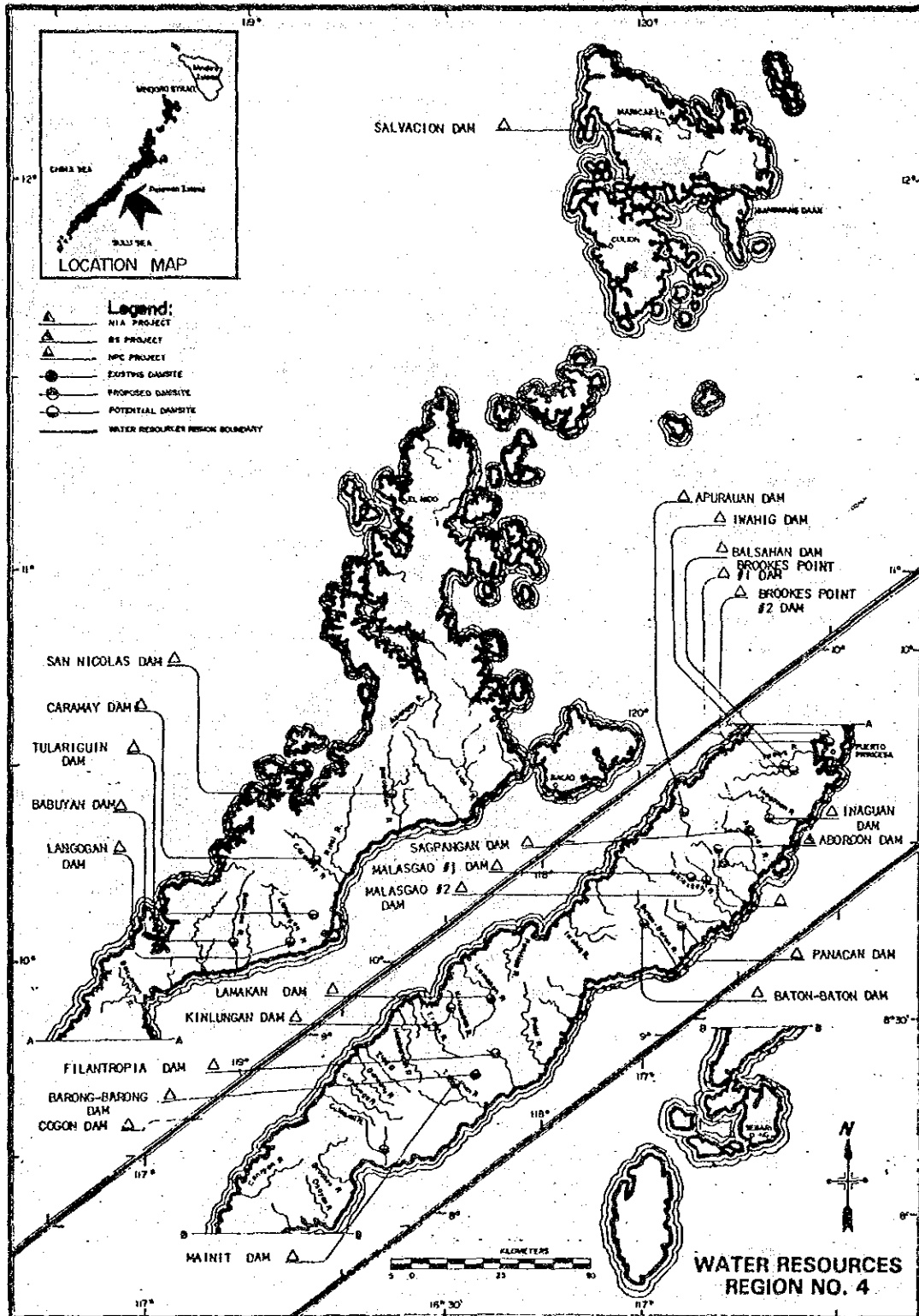
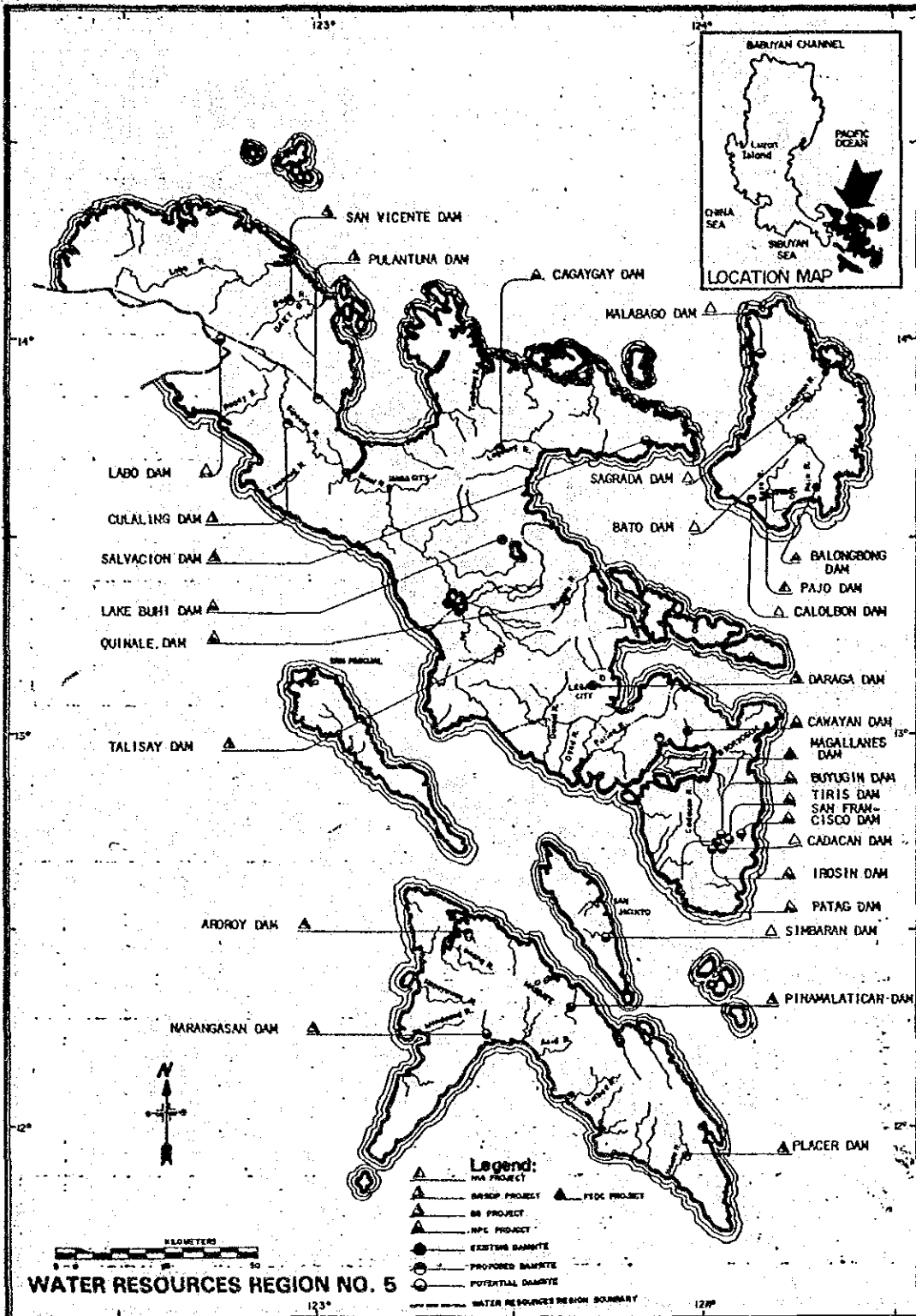


FIGURE II-B



WATER RESOURCES REGION NO. 4





7-3. 気象観測所の諸元・流量観測所の主要諸元

RIVER GAGING STATIONS IN LUZON
IN ALPHABETIC ORDER OF RIVER NAMES

Name Location	Station No. *	Drainage Area ² km	No. of Compl. Record Years *	Mean Discharge ³ m ³ /s	Standard Deviation ³ m ³ /s
Abra - Banaoang	120	4813	14	391.5	127.0
Abra - Atoc	118	2575	12	136.0	36.4
Abulog - Atoc	107	2066	12	231.7	58.2
Abulog - Putdol	108	1883	2	148.3	8.3
Addalam - Guinalbin	154	721	8	58.6	28.5
Agno - Adaoay	161	246	13	27.8	10.2
Agno - Ambuklao	163	660	4	40.6	9.7
Agno - Binga	166	910	3	57.4	19.7
Agno - Binga	366	910	13	81.7	22.7
Agno - Loakan	162	413	6	28.2	18.6
Agno - San Roque	168	1225	7	90.4	21.6
Agno - San roque	268	1225	19	90.6	36.6
Agno - San Roque	368	1225	12	105.0	34.4
Agno - Tabu	267	1180	8	97.3	38.0
Agno - Tabu	367	1130	7	88.8	32.5
Agus - Banugao	189	879	26	120.4	25.9
Agus - Bayokan	191	811	3	119.9	5.1
Ambayoan - Sta. Maria	169	281	16	25.0	17.7
Inflow Ambuklao Reservoir	263	-	17	56.2	20.5
Angat - Angat	175	552	20	70.2	14.1
Angat - Angat	375	552	27	69.6	16.5

Name Location	Station No. *	Drainage Area km ²	Compl. Record Years *	Mean Discharge m ³ /s	Standard Deviation m ³ /s
Arangilan - Calamias	188	84	17	0.5	0.5
Aringay - Masalep	151	273	28	19.9	4.4
Balanac - Bukal	184	116	8	8.8	2.3
Banurbor - Maddalero	103	112	14	4.9	2.3
Baua - Baua	102	103	12	12.9	2.8
Baroro - Cabaruan	149	129	13	10.5	3.5
Inflow Binga Reservoir	266	-	16	74.5	27.3
Bokod - Bokod	164	48	11	5.0	1.8
Buaya - Palali Sur	128	195	17	13.4	5.9
Buong - Salvador	127	49	22	2.12	1.23
Bued - Dungon	159	141	26	13.4	4.7
Cadaclan - Omambong	146	261	3	19.7	8.5
Cagayan - Dippaddiw	158	2323	2	82.9	22.8
Cagayan - Palattao	140	6266	5	427.6	177.1
Cagayan - Panang	157	2335	3	144.1	24.7
Cagayan - Pangal	147	4244	14	292.9	87.4
Caliraya - Lumban	182	92	2	7.9	1.1
Caliraya and - Lumot	383	129	21	9.7	2.9
Carranglan - Baluarte	170	258	15	8.3	2.9
Casfile Creed - Mailig	136	195	17	2.7	1.1
Chico - Abbot	113	3349	8	203.5	38.4
Chico - Ambato	129	1087	-	-	-
Chico - Ampawilen	131	751.1	9	64.5	13.1

Name Location	Station No. *	Drainage Area km ²	No. of Compl. Record Years *	Mean Discharge m ³ /s	Standard Deviation m ³ /s
Chico - Anabel	132	605.4	7	28.2	7.0
Chico - Basao	130	891.4	8	47.2	19.0
Chico - Pasonglao	123	1987	3	174.0	45.6
Chico - Taed	133	391.9	5	34.8	11.8
Chico - Tomiangan	122	1409.5	3	95.8	23.2
Dabubu - Dabubu-Pequinno	156	162	7	8.3	4.2
Diadi - Cabulay	145	196	15	2.3	1.1
Dibuluan - Minuri	155	272	5	20.4	8.3
Digmala - Labi	174	52	12	4.9	1.5
Dummon - Calaoagan	110	308	5	12.1	3.3
Gasgas - Manalpac	106	73	27	6.2	2.5
Gatu Creed - Gatu	101	14	9	2.6	1.3
Ibulao - Hapid	144	606	4	45.9	3.9
Kaliwa - Daraitan	190	440	8	32.7	7.1
Laoag - Laoag	104	1355	11	126.0	41.5
Mabacan - Calauan	187	46	18	1.1	0.7
Magat - Bato	153	1784	12	70.6	32.0
Magat - Oscaris	142	4150	8	191.8	44.1
Magat - Talictic	143	4062	4	264.9	109.5
Mallig - Munoz	137	563	14	18.1	7.4
Maragayap - Bitalag	148	36	27	2.9	0.9
Marikina - Montalban	176	282	31	18.8	5.6
Marikina - Sto. Nino	177	499	10	27.0	5.8

Name Location	Station No. *	Drainage Area ² km	No. of Compl. Record Years *	Mean Discharge ³ m / s	Standard Deviation ³ m / s
Mata - Coralan	180	85	13	0.76	0.54
Natalag - Escolta	112	655	7	34.3	12.5
Matuno - Bante	152	558	10	35.7	10.6
Mayor - Bagumbayan	181	45	17	1.68	0.59
Mayor - Bagumbayan	178	45	19	1.7	0.6
Naguilan - Namating	150	304	26	30.2	6.9
Pampanga - Pialuan	173	838	12	42.9	9.4
Pangul - Pangul	114	312	11	8.0	5.1
Pantabangan - Poblacion	172	253	9	14.6	5.0
Paputok - Mabacan	186	9	11	0.9	0.2
Paret - Calantac	111	907	9	58.8	16.9
Pinacanauan - Larion	115	655	14	49.7	19.6
Pin. de Ilagan - Minanga	141	1565	3	87.3	56.8
Pin. de Tumauni - Antagan	135	170	5	28.1	12.5
Sabangan - Sipang	134	57	8	4.7	1.2
Saltan - Liglig	121	255	-	-	-
Saltan - Pinukpuk	116	846	5	42.8	7.6
Santa Cruz - Calumpang	185	103	26	4.6	2.3
Santa Maria No. 1 - Sabangan	125	67	11	1.9	2.2
Santa Maria No. 2 - Sabangan	126	123	13	2.3	1.2
Santa Maria - Makasipak	179	25	7	0.73	0.40
Siffu - Munoz	138	686	9	28.4	6.4
Sinalang - Lingsad	119	120	15	10.0	5.1

Name Location	Station No. *	Drainage Area ² km	No. of Compl. Record Years *	Mean Discharge ³ m ³ /s	Standard Deviation ³ m ³ /s
Sinundangan - Simay	109	189	11	16.2	5.3
Tagamusing - San Felipe	160	53	16	3.81	1.81
Talavera - Lomboy	171	261	16	15.3	6.1
Tanudan - Baba-alan	124	365	-	-	-
Taotao - Caipilan	139	430	2	5.2	1.1
Tineg - Pangob.	117	664	11	76.0	11.8
Twin - Baloy	165	87	6	3.1	2.6

NO.	STATION	LOCATION		DRAINAGE AREA KM ²	AVERAGE STREAMFLOW		PERIOD OF RECORD	(NO. OF COMPLETE YRS)
		LAT.	LONG.		M ³ /S	L/S.SOKM		
101	GATU CREEK AT GATU	18-28-15	121-18-15	14	2.6	187.7	1952-1964	(9)
102	BAUA RIVER AT BAUA	18-21-15	122-05-30	103	12.0	124.8	1956-1974	(12)
103	BANURBOR RIVER AT MAODALERQ	18-15-30	121-49-30	112	4.9	43.8	1952-1975	(14)
104	LAOAG DIVER AT LADAG	18-12-12	120-35-18	1355	126.0	93.0	1958-1974	(11)
105	BONGA RIVER AT BANGAY	18-05-00	120-42-30	534	26.0	48.8	1946-1974	(29)
104	GASGAS RIVER AT MANALPAC	18-04-47	120-50-04	73	6.2	84.9	1946-1974	(27)
107	ABULOG RIVER AT ATOC	18-12-15	121-49-30	2066	231.7	112.2	1952-1970	(12)
108	ABULOG RIVER AT PUTOOL	18-09-33	121-21-18	1883	148.3	78.7	1966-1975	(2)
109	SINUNDANGAN RIVER AT STLAY	18-03-31	121-35-07	199	16.2	85.8	1959-1971	(11)
110	DUMON RIVER AT CALAAGAN	18-02-35	121-43-00	308	12.1	39.2	1964-1973	(5)
111	PARET RIVER AT CALANTIAC	17-54-46	121-41-06	907	58.8	64.8	1958-1973	(9)
112	MATALAG RIVER AT ESCOLTA	17-49-40	121-25-28	655	34.3	52.4	1964-1974	(7)
113	CHICO RIVER AT ABBOT	17-41-30	121-26-15	3349	203.5	60.8	1956-1964	(8)
114	PANGUL RIVER AT PANGUL	17-39-45	121-37-30	312	8.0	25.7	1955-1971	(11)
115	PINACANAUAN RIVER AT LARTON ALTO	17-37-30	121-46-15	655	49.7	75.9	1956-1973	(14)
116	SALTAN RIVER AT PINUKPUK	17-37-00	121-24-00	846	42.8	50.5	1965-1970	(5)
117	TINEG RIVER AT PANG-OT	17-45-10	120-44-20	664	76.0	114.5	1959-1970	(11)
118	ABRA RIVER AT BUMAGCAT	17-37-40	120-42-40	2575	136.0	52.8	1958-1974	(12)
119	SINALANG RIVER AT LINGSAD	17-32-20	120-39-20	120	10.0	83.1	1958-1974	(15)
120	ABRA RIVER AT BANADANG	17-33-25	120-28-30	4813	391.5	81.3	1958-1974	(14)

NO.	STATION	LOCATION		DRAINAGE AREA KM ²	AVERAGE STREAMFLOW		PERIOD OF RECORD	(NO. OF COMPLETE YRS)
		LAT.	LONG.		M ³ /S	L/S.SORKM		
				MM				
121	SALTAN RIVER AT LIGLIC	17-30-46	121-12-17	255	-	-	1967-1970	(0)
122	CHICO RIVER AT TOMIANGAN	17-23-45	121-14-00	1410	95.8	67.9	1965-1975	(3)
123	CHICO RIVER AT PASONGLAO	17-24-00	121-25-00	1987	174.0	87.6	1963-1969	(3)
124	TANUDAN RIVER AT BABA-ALAN	17-23-10	121-15-42	365	-	-	1965-1965	(0)
125	STA MARIA RIVER NO.1 AT SABANGAN	17-16-27	120-31-14	67	1.9	27.7	1957-1973	(11)
126	SANTA MARIA RIVER NO.2 AT SABANGAN	17-16-27	120-31-14	123	2.3	19.0	1957-1973	(13)
127	BUCONG RIVER AT SALVADOR	17-13-50	120-28-50	49	2.1	43.3	1950-1974	(22)
128	BUAYA RIVER AT PALALI SUR	17-06-42	120-30-18	195	13.4	68.8	1948-1974	(17)
129	CHICO RIVER AT AMBATO	17-14-12	121-09-09	1087	-	-	1967-1968	(0)
130	CHICO RIVER AT BASAO	17-14-18	121-07-21	891	47.2	52.9	1963-1975	(8)
131	CHICO RIVER AT AMPAWLEN	17-10-12	121-02-45	751	64.5	85.9	1963-1975	(9)
132	CHICO RIVER AT ANABEL	17-07-21	121-02-36	605	28.2	46.7	1965-1974	(7)
133	CHICO RIVER AT TAED	17-05-00	120-58-12	392	34.8	88.7	1964-1975	(5)
134	SABANGAN RIVER AT SIPANG	17-00-28	120-54-21	57	4.7	82.2	1965-1974	(8)
135	PIN.DE TUMAUNI AT ANTAGAM	17-17-04	121-55-48	170	28.1	165.0	1964-1973	(5)
136	CASILE CREEK AT MALLIG	17-12-45	121-35-42	195	2.7	13.9	1949-1972	(17)
137	MALLIG RIVER AT MUNOZ	17-10-54	121-35-42	563	18.1	32.2	1948-1972	(14)
138	SIFFU RIVER AT MUNOZ	17-08-42	121-34-12	686	28.4	41.5	1948-1940	(9)
139	TACTAO RIVER AT CAIPILAN	16-57-00	121-32-56	430	5.2	12.0	1955-1969	(2)
140	CAGAYAN RIVER AT CAIPILAN	17-00-45	121-59-00	6266	427.6	68.2	1961-1972	(5)

NO.	STATION	LOCATION		DRAINAGE AREA KM ²	AVERAGE STREAMFLOW		PERIOD OF RECORD	(NO. OF) (COMPLETE YRS)
		LAT.	LONG.		M ³ /S	L/S.SOROM		
141	PINACANAAN DE ILAGAN RIVER AT MINANGA	16-59-36	122-01-00	1565	87.3	55.8	1759	1964-1971 (3)
142	MAGAT RIVER AT OSCARIZ	16-46-44	121-29-37	4150	191.8	46.2	1458	1948-1957 (8)
143	MAGAT RIVER AT TALICTIC	16-47-55	121-22-45	4062	264.9	65.2	2057	1967-1972 (4)
144	IBULAO RIVER AT HAPIO	16-42-41	121-14-40	406	45.9	75.7	2389	1964-1972 (4)
145	DIADI RIVER AT CABULAY	16-43-42	121-28-58	196	2.3	11.7	370	1955-1972 (15)
146	CADACLAN RIVER AT ORAMBONG	16-36-29	121-02-40	261	19.7	75.6	2385	1968-1972 (3)
147	CAGAYAN RIVER AT PANGAL	16-36-12	121-41-00	4244	292.9	69.0	2177	1959-1972 (14)
148	MARAGAYAP RIVER AT BITALAG	16-46-20	120-22-42	36	2.9	80.9	2554	1946-1974 (27)
149	BARORO RIVER AT CABARUAN	16-40-50	120-22-50	129	10.5	81.8	2580	1959-1974 (13)
150	NAGUILAN RIVER AT NAMAT-ING	16-35-16	120-24-60	304	30.2	99.4	3138	1946-1972 (26)
151	ARINGAY RIVER AT MASALEP	16-25-40	120-19-30	273	19.9	72.9	2301	1946-1974 (28)
152	MATUNO RIVER AT RANTE	16-25-30	120-03-30	558	35.7	64.0	2020	1956-1971 (10)
153	MAGAT RIVER AT RATO	16-25-55	121-07-01	1784	70.6	39.6	1248	1959-1972 (12)
154	ADDALAM RIVER AT GUINALBIN	16-26-02	124-39-00	721	58.6	81.3	2565	1964-1973 (8)
155	DIBULUAN RIVER AT MINURI	16-26-40	121-46-31	272	20.4	74.9	2368	1964-1971 (5)
156	DABUBU RIVER AT DABUBU-PEQUINNO	16-26-40	121-46-31	162	8.3	51.2	1616	1964-1973 (7)
157	CAGAYAN RIVER AT PANANG	16-24-30	121-44-44	2335	144.1	61.7	1947	1959-1964 (3)
158	CAGAYAN RIVER AT OIPEADOIN	16-23-08	121-44-26	2323	82.9	35.7	1126	1965-1970 (2)
159	BUED RIVER AT DUNGON	16-14-50	120-30-50	141	13.4	95.1	2999	1946-1973 (26)
160	TAGAMUSING RIVER AT SAN FELIPE	16-02-50	120-30-40	53	3.8	71.9	2268	1958-1975 (16)

NO.	STATION	LOCATION		DRAINAGE AREA KM ²	AVERAGE STREAMFLOW		PERIOD OF RECORD	(NO. OF) (COMPLETE YRS)
		LAT.	LONG.		M ³ /S	L/S.SOKM		
161	AGNO RIVER AT ADAAY	16-35-00	120-49-00	246	27.8	112.8	1959-1973	(13)
162	AGNO RIVER AT LOAKAN	16-33-10	120-47-40	413	28.2	68.3	1959-1966	(6)
163	AGNO RIVER AT AMBUKLAO	16-28-22	120-44-34	660	40.6	61.6	1949-1952	(4)
263	INFLOW AMBUKLAO RESERVOIR	16-28-22	120-44-34	660	56.2	85.1	1957-1974	(17)
164	BOKOD RIVER AT BOKOD	16-29-00	120-50-00	48	5.0	104.9	1959-1973	(11)
165	TWIN RIVER AT BALOY	16-23-08	120-43-22	87	3.1	35.7	1967-1974	(6)
166	AGNO RIVER AT BINGA	16-23-08	120-43-22	910	57.4	63.1	1950-1952	(3)
266	INFLOW TO BINGA RESERVOIR	16-23-08	120-43-27	910	74.5	81.8	1953-1974	(16)
366	AGNO RIVER AT BINGA	16-23-08	120-43-22	910	81.7	89.8	1960-1974	(13)
267	AGNO RIVER AT TABU	16-17-15	120-44-26	1130	97.3	86.1	1959/60-1969/70	(8)
367	AGNO RIVER AT TABU	16-17-15	120-44-26	1130	38.8	78.5	1960-1969	(7)
168	AGNO RIVER AT SAN BOQUF	16-08-07	120-41-45	1225	90.4	73.8	1945-1952	(7)
268	AGNO RIVER AT SAN ROQUF	16-08-07	120-41-45	1-25	90.4	74.0	1953-1974	(19)
368	AGNO RIVER AT SAN BOOUF	16-08-07	120-41-45	1225	105.0	85.8	1960-1974	(12)
169	AMBAYOAN RIVER AT STA. MARIA	16-07-10	122-46-50	281	25.0	89.1	1958-1974	(16)
170	CARRANGLAN RIVER AT BALUARTE	15-58-00	121-03-14	258	8.3	32.3	1959-1974	(15)
171	TALAVERA RIVER AT LOMBOY	15-51-30	121-00-45	261	15.3	58.6	1956-1972	(16)
172	PANTABANGAN RIVER AT POBLACION	15-51-31	121-08-04	253	14.6	57.7	1960-1971	(9)
173	PAMPANGA RIVER AT PIALUAN	15-49-39	121-06-51	838	42.9	51.2	1959-1971	(12)
174	DIGMALA RIVER AT LABI	15-38-52	121-18-48	52	4.9	94.5	1959-1971	(12)

NO.	STATION	LOCATION		DRAINAGE AREA KM ²	AVERAGE STREAMFLOW		PERIOD OF RECORD	(NO. OF COMPLETE YRS)
		LAT.	LONG.		M ³ /S	L/S.SQ.KM		
175	ANGAT RIVER AT ANGAT DAMSITF	14-56-00	121-10-30	552	70.2	127.2	1945-1965	(27)
375	ANGAT RIVER AT ANGAT DAMSITF	14-56-00	121-10-30	552	69.6	126.1	1945-1973	(25)
176	MARIKINA RIVER AT MONTALBAN	14-44-00	121-10-20	282	18.8	66.7	1913-1961	(32)
177	MARIKINA RIVER AT STO NINO	14-38-15	121-05-30	499	27.0	54.0	1958-1974	(10)
178	MAYOR RIVER AT BAGUNGRAYAN	14-28-00	121-27-40	45	1.7	37.1	1949-1975	(19)
179	STA. MARIA RIVER AT MAKASIPAK	14-28-45	121-25-40	25	0.7	29.2	1954-1968	(7)
180	MATA RIVER AT CORALAN	14-30-00	121-26-15	85	0.8	9.0	1954-1968	(13)
181	MAYOR RIVER AT BAGUMBAYAN	14-28-00	121-27-40	45	1.7	37.3	1949-1973	(17)
182	CALIRAYA RIVER AT LUMBAN	14-16-05	121-30-30	92	7.9	86.1	1938-1941	(2)
383	CALIRAYA AND LUMOT RIVERS AT HE PROJECT	14-16-05	121-30-30	129	9.7	75.5	1952-1972	(21)
184	BALANAC RIVER	14-12-24	121-26-33	116	8.8	75.5	1958-1974	(8)
185	STA. CRUZ RIVER AT CALUMFANG	14-11-55	121-24-30	103	4.6	44.6	1945-1972	(26)
186	PAPUTOR RIVER AT MABACAN	14-08-12	121-21-03	9	0.9	102.7	1955-1974	(11)
187	MABACAN RIVER AT CALAUAN	14-09-52	121-17-29	46	1.1	24.1	1955-1973	(18)
188	ARANGILAN RIVER AT CALAMIAS	14-14-10	121-07-30	84	0.5	6.1	1956-1974	(17)
189	AGUS RIVER AT BANUGAO	14-45-15	121-36-45	879	120.4	136.9	1947-1972	(26)
190	KALIWA RIVER AT DARAITAN	14-44-00	121-38-00	440	32.7	74.4	1936-1949	(8)
191	AGUS RIVER AT BAYOKAN	14-42-00	121-32-00	811	119.8	147.8	1947-1950	(3)

NO.	STATION	LOCATION		DRAINAGE AREA KM ²	AVERAGE STREAMFLOW		PERIOD OF RECORD (COMPLETE YRS)
		LAT.	LONG.		M ³ /S	L/S.SQKM	
		N	E			MM	
407	ABULOG RIVER AT ATOC	18-12-15	121-49-30	2066	234.3	113.4	3579
408	ABULOG RIVER AT PUTDOL	18-09-33	121-21-18	1883	184.2	97.8	3086
413	CHICO RIVER AT ABBOT	17-41-30	121-26-15	3349	219.4	65.5	2066
415	PINACANAUN RIVER AT LARTION ALTO	17-37-30	121-46-15	655	50.4	77.0	2429
416	SALTAN RIVER AT PINUKPUK	17-37-00	121-24-00	846	45.4	53.7	1693
422	CHICO RIVER AT TOMIANGAN	17-23-45	121-14-00	1410	81.7	58.0	1828
431	CHICO RIVER AT AMPAWILLEN	17-10-12	121-02-45	751	60.3	80.3	2532
433	CHICO RIVER AT JAED	17-05-00	120-58-12	392	43.6	111.2	3507
435	PIN. DE TUMAUNNI AT ANTACAN	17-17-04	121-55-48	170	23.3	136.9	4321
441	PINACANAUN DE ILAGAN RIVER AT MINANGA	16-59-36	122-01-00	1565	91.1	58.2	1837
442	MAGAT RIVER AT OSCARIZ	16-46-44	121-29-37	4150	198.8	47.9	1511
447	CAGAYAN RIVER AT PANGAL	16-36-12	121-41-00	4244	274.9	64.8	2043
448	MARAGAYAP RIVER AT BITALAG	16-46-20	120-22-42	36	2.9	80.1	2526
449	BARORO RIVER AT CABARUAN	16-40-50	120-22-50	129	8.5	65.8	2076
450	MAGUILAN RIVER AT NAMAT-ING	16-35-16	120-24-60	304	30.4	100.1	3157
454	ADDALAM RIVER AT GUINALBIN	16-29-02	124-39-00	721	51.8	71.9	2268
455	DIBULUAN RIVER AT MINURI	16-26-40	121-46-31	272	22.8	83.7	2641
456	DABUBU RIVER AT DABUBU-PEQUINNO	16-26-40	121-46-31	162	7.9	49.1	1547
457	CAGAYAN RIVER AT PANANG	16-24-30	121-44-44	2335	148.9	63.8	2012
461	AGNO RIVER AT ADAOAY	16-35-00	120-49-00	246	25.7	104.3	3292

NO.	STATION	LOCATION		DRAINAGE AREA	AVERAGE STREAMFLOW		PERIOD OF RECORD	(NO. OF COMPLETE YRS)
		LAT.	LONG.		M ³ /S	L/S. SQKM		
		N	E	KM ²	M ³ /S	L/S. SQKM	MM	
463	AGNO RIVER AT AMBUKLAO	16-28-22	120-44-34	660	40.5	61.4	1937	
468	AGNO RIVER AT SAN ROQUE	16-08-07	120-41-45	1225	77.6	63.4	1999	
473	PAMPANGA RIVER AT PIALUAN	18-12-15	121-49-30	838	40.1	47.8	1509	
475	ANGAI RIVER AT ANGAI DAMSITE	14-56-00	121-10-30	552	71.8	130.0	4102	
476	MARIKINA RIVER AT MONTALBAN	14-44-00	121-10-20	282	16.6	58.8	1855	
483	CALIRAYA AND LUMOT RIVERS AT HE PROJECT	14-16-05	121-30-30	129	9.8	76.2	2403	
489	AGUS RIVER AT BANUGAO	14-45-15	121-36-45	879	119.4	135.8	4286	
490	KALIWA RIVER AT DARAITAN	14-44-00	121-38-00	440	22.4	50.9	1605	
491	AGUS RIVER AT BAYOKAN	14-42-00	121-32-00	811	110.5	136.2	4298	

RAINFALL STATIONS, NPC LUZON								
NO.	STATION	LOCATION		ELEVATION	AVERAGE ANNUAL PRECIPITATION (MM)	PERIOD OF RECORD	(NO. OF COMPLETE YRS)	SOURCE
		LAT. (N)	LONG. (E)					
501	CLAYERIAL, CAGAYAN	(18-37-00N, 121-04-00E)		40	4112.1	1947-1975	(22)	WB
502	BAGCO, RAMPLONA, CAGAYAN	(18-28-00N, 121-17-00E)		* 5	-	1973-1975	(0)	WB
503	APARRI	(18-22-00N, 121-38-00E)		4	2263.9	1947-1975	(29)	WB
504	CALAYAN, CAGAYAN	(18-16-00N, 121-28-00E)		13	2835.3	1949-1975	(17)	WB
505	LAI-LO, CAGAYAN	(18-12-00N, 121-39-00E)		1	2179.1	1973-1975	(2)	WB
506	AGUNETAN, CAGAYAN	(18-02-15N, 121-37-00E)		* 5	1876.8	1947-1975	(25)	WB
507	NASSIPING, CAGAYAN	(17-58-00N, 121-36-00E)		* 5	2053.4	1948-1975	(13)	WB
508	BAYAG, KALINGA APAYAS	(18-15-31N, 121-02-15E)		* 500	4202.4	1966-1975	(7)	NPC
509	RALIWANAN, KABUCAI	(18-08-08N, 121-08-00E)		* 500	6332.3	1966-1975	(9)	NPC
510	MATAGULSI, PUDTOL	(18-06-13N, 121-20-00E)		* 50	4648.8	1966-1975	(9)	NPC
511	KABUGAO, KALINGA APAYAS	(18-01-35N, 121-11-00E)		* 300	4916.9	1966-1975	(7)	NPC
512	LENENG, KALINGS APAYAS	(17-55-21N, 121-12-49E)		* 200	3285.5	1966-1975	(7)	NPC
513	LAOAG CITY	(18-11-00N, 120-32-00E)		4	1979.1	1949-1975	(15)	WB
514	BONGA RGS, BANGAY	(18-05-00N, 120-40-00E)		* 70	2419.6	1948-1966	(10)	BPW
515	BONGA, DINGPAS,	(18-05-00N, 120-42-00E)		* 70	5406.0	1948-1975	(19)	WB
516	ALABAAN, ILOCOS MONTE	(18-01-00N, 120-40-00E)		* 50	2476.8	1946-1961	(6)	BPW
517	VIGAN, TLOCOS SUR	(17-34-00N, 120-23-00E)		33	2455.8	1949-1975	(13)	WB
518	IAGANGILANG, ARCA	(17-36-48N, 120-44-00E)		539	3228.2	1948-1974	(23)	WB
519	CAGUMITAN, TUAO, CAGAYAN	(17-44-00N, 121-27-00E)		* 20	1763.4	1947-1975	(28)	WB
520	TUCUEGARAO	(17-36-00N, 121-43-00E)		22	1772.8	1947-1975	(27)	WB

NO.	STATION	LOCATION		ELEVATION	AVERAGE ANNUAL PRECIPITATION (MM)	PERIOD OF RECORD	(NO. OF COMPLETE YRS)	SOURCE
		LAT. (N)	LONG. (E)					
541	BUGUIAS	(16-43-22N, 120-50-00E)		1500	2183.2	1950-1975	(25)	NFC
542	MAGAT REF PROJ., BAGABAG	(16-38-00N, 121-14-00E)		* 250	1945.4	1948-1969	(16)	-
543	AIKOK, SAYANGAN, BENGUET	(16-33-30N, 120-35-45E)		2250	4931.0	1950-1975	(25)	NFC
544	ADAQAY, KABAYAN, BENGUET	(16-38-00N, 120-50-00E)		870	2458.3	1950-1975	(25)	NFC
545	AMBUKLAO	(16-29-00N, 120-45-00E)		735	2176.9	1950-1975	(26)	NFC
546	KARAO, BENGUET	(16-30-00N, 120-50-00E)		*1000	2336.2	1968-1975	(6)	NFC
547	KM 21 ATOK, TUMLAY.	(16-31-00N, 120-34-00)		1700	3493.8	1950-1975	(25)	NFC
548	BOBOK, BOKOD, BENGUET	(16-26-25N, 120-49-39E)		1525	2532.2	1950-1975	(25)	NFC
549	BINGA, ITOGON, BENGUET	(16-24-00N, 120-44-00E)		587	2546.4	1957-1975	(6)	NFC
550	AMBUBAYAN, LA UNION	(16-54-00N, 120-30-00E)		* 200	2567.3	1946-1964	(17)	BFW
551	TAGUDIN, ILOCOS SUR	(16-58-00N, 120-32-00E)		* 20	2599.6	1946-1968	(17)	BFW
552	NAGUILIAN-MAMATING	(16-35-16N, 120-24-40E)		* 100	2426.6	1948-1975	(24)	WB
553	TURAO, MASALEP, LA UNION	(16-21-00N, 120-25-00E)		* 50	1814.0	1947-1974	(24)	WB
554	RAGUIO CITY	(16-25-00N, 120-36-00E)		1481	3766.3	1949-1975	(23)	WB
555	OLAMANTINA, CABATUAN	(16-56-00N, 121-39-00E)		* 110	1643.3	1958-1964	(3)	BFW
556	CABULAY, SANTIAGO, ISABELA	(16-43-00N, 121-28-58E)		* 100	-	1958-1960	(0)	BFW
557	SOLAND, ISABELA	(16-31-05N, 121-10-01E)		* 300	5060.4	1967-1975	(7)	NFC
558	SALINAS REF PROJ, N.V.	(16-22-00N, 121-01-00E)		* 600	1747.1	1948-1969	(19)	-
559	BABRAT, BAMBANG, N.V.	(16-22-50N, 121-03-03)		* 550	1967.6	1967-1974	(7)	NFC
560	CONSUFLO, STA FE, N.V.	(16-11-00N, 120-57-00E)		560	2248.8	1948-1975	(24)	WB
561	CASIGUPAN, QUIZON	(16-17-00N, 122-07-00E)		3	3405.4	1949-1975	(24)	WB

NO.	STATION	LOCATION		ELEVATION	AVERAGE ANNUAL PRECIPITATION (MM)	PERIOD OF RECORD	(NO. OF) (COMPLETE YRS)	SOURCE
		LAT. (N)	LONG. (E)					
562	CAGPAN CITY	(16-03-00N, 120-20-00E)		1	2436.8	1949-1975	(20)	WB
563	DUPAX, NUFVA VIZCAYA	(16-06-42N, 121-06-00E)		* 540	1407.6	1967-1975	(8)	NFC
564	PON ACTION, CAPANGLAN, N.F.	(15-58-00N, 121-03-14E)		* 250	1354.3	1957-1960	(1)	BPW
565	TALAVERA, SAN JOSE	(15-58-00N, 121-03-14E)		* 200	2174.3	1946-1960	(14)	BPW
566	CABANATUAN CITY	(15-29-00N, 120-58-00E)		30	1883.7	1949-1975	(15)	WB
567	BAIEM, QUEZON	(15-46-00N, 121-34-00E)		4	3251.6	1949-1975	(26)	WB
568	ANGAT DAM, SAN LORENZO	(14-56-00N, 121-10-30E)		40	3274.5	1961-1975	(13)	NFC
569	IPODAM, NOBZACARAY	(14-52-25N, 121-09-18E)		147	2970.0	1948-1971	(23)	WB
570	MINUYAN, SANJUSE, RULACAM	(14-53-30N, 121-03-48E)		132	2795.5	1966-1975	(7)	WB
571	MATATIO, QUEZON	(14-46-45N, 121-31-15E)		* 350	6310.4	1937-1949	(5)	-
572	TNFANTA, QUEZON	(14-45-36N, 121-38-45E)		5	3887.4	1949-1974	(25)	-
573	LA MESA DAM, NOVALICUES	(14-43-09N, 121-04-24E)		61	2241.8	1946-1975	(25)	-
574	MONTALHAN, RIZAI	(14-43-30N, 121-11-20E)		21	3307.7	1948-1962	(3)	-
575	PUBT ABEA, MANILA	(14-35-42N, 120-58-00E)		17	2358.1	1946-1973	(28)	WB
576	ANTIFOLO, PIZAL	(14-35-00N, 121-10-36E)		201	2431.2	1948-1957	(2)	WB
577	CLOF, TANAY, PIZAL	(14-30-15N, 121-17-18E)		10	1830.3	1966-1974	(1)	WB
578	CALIBAYA, LIMDAN, LAGUNA	(14-18-18N, 121-28-31E)		266	2833.5	1949-1970	(17)	WB
579	STA CEUZ, LABUNA	(14-17-00N, 121-24-30E)		5	2039.0	1948-1975	(24)	BPW
580	LUMOT, CAVINTI, LASINA	(14-15-18N, 121-30-00E)		240	3271.5	1949-1975	(20)	WB
581	DABAITAN, QUFZON	(14-34-56N, 121-25-54E)		* 420	3257.9	1937-1949	(4)	-
582	BAYOKAN, QUEZON	(14-44-12N, 121-32-12E)		* 750	4368.3	1947-1950	(4)	-

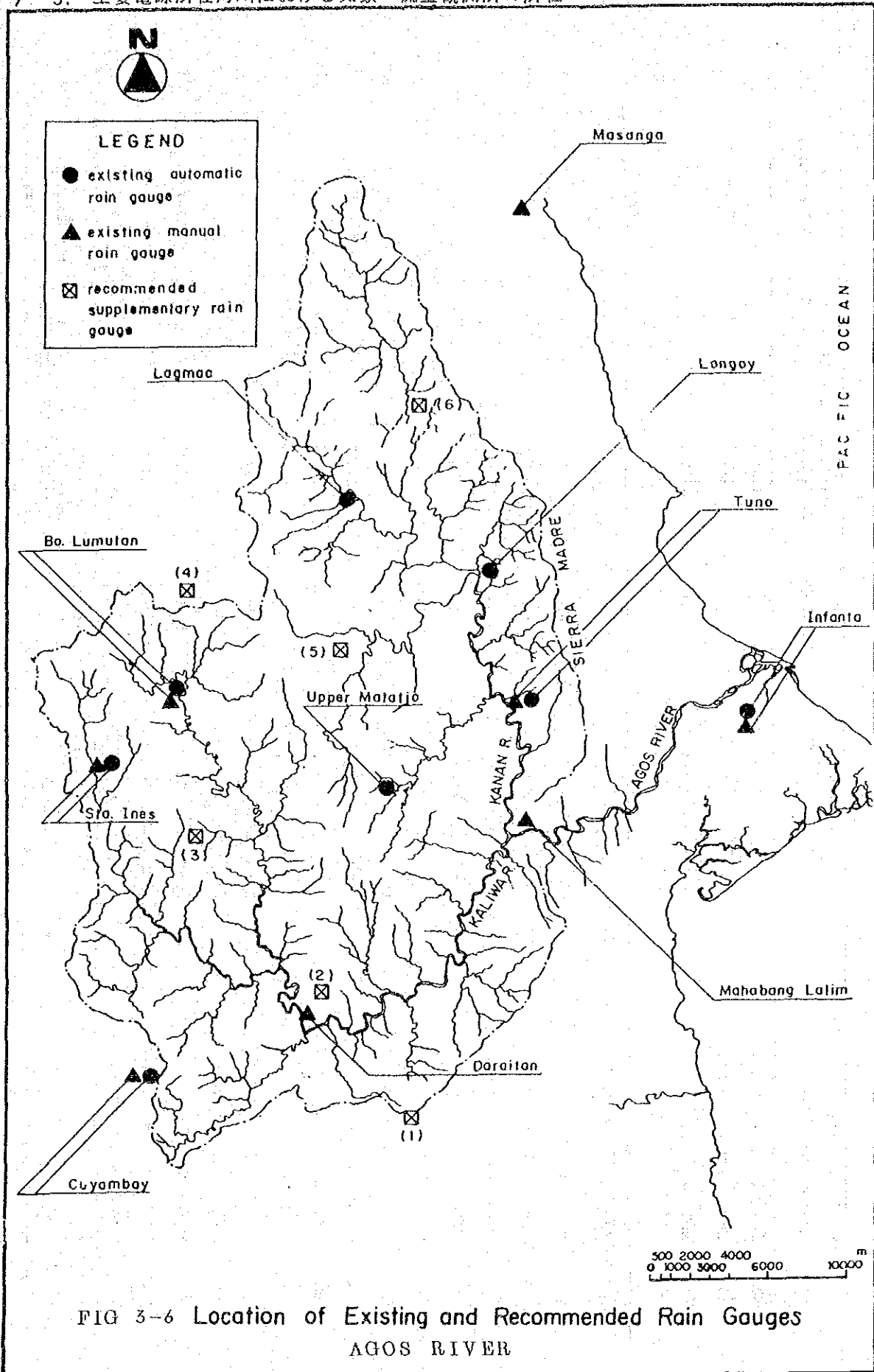
* - ELEVATION ESTIMATED ON MAP - SCALE 1:250,000.

NO.	STATION	LOCATION		ELEVATION	AVERAGE ANNUAL PRECIPITATION (MM)	PERIOD OF RECORD	(NO. OF COMPLETE YRS)	SOURCE
		LAT. (N)	LONG. (E)					
608	BAYAG, KALINGA-APAYAO	18-15-31	121-02-15	* 500	3792.6			NFC
609	BALIMANAN, KABUGAO	18-08-08	121-08-08	* 500	5920.4			NFC
610	MATAGULSI, PUDTOL	18-06-13	121-20-00	* 50	4489.6			NFC
611	KABUGAO, KALINGA APAYAO	18-01-35	121-11-00	* 300	4477.9			NFC
612	LENENG, KALINGA APAYAO	17-55-21	121-12-49	* 200	3201.9			NFC
620	TUGUEGARAO	17-36-00	121-43-00	22	1790.5			WB
623	SALEGSEG II	17-30-13	121-12-16	700	2369.5			NFC
625	NANENG	17-24-48	121-17-36	420	2110.8			WB
629	ILAGAN, ISABELA	17-09-00	121-53-00	47	1914.3			WB
636	MOUNT POLIS	16-58-02	121-01-03	1900	4322.2			NFC
641	BUGULAS	16-58-22	120-50-00	1500	2216.6			NFC
642	MAGAT REF PROJ., BAGABAG	16-36-00	121-14-00	* 250	2137.1			-
643	ATOK, SAYANGAN, BENGUET	16-33-30	120-35-45	2250	5077.1			NFC
647	KM 21 ATOK, TUELAY	16-31-00	120-34-00	1700	3778.9			NFC
648	BOBOK, BOXOD, BENGUET	16-26-25	120-49-39	1525	2547.7			NFC
654	BAGUIO CITY	16-25-00	120-36-00	1481	3753.9			WB
658	SALINAS REF PROJ., N.V.	16-22-00	121-01-00	* 600	1900.7			-
660	CONSUELO, STA FE, N.V.	16-11-00	120-57-00	560	2273.3			WB
661	CASIGURAN, QUEZON	16-17-00	122-07-00	3	3490.4			WB
669	IPO DAM, NOKZARAY	14-52-25	121-09-18	147	3021.7			WB
671	MATATIO, QUEZON	14-46-45	121-31-15	* 350	6076.6			-
672	INFANTA, QUEZON	14-45-36	121-38-45	5	3846.6			-

NO.	STATION	LOCATION			ELEVATION	AVERAGE ANNUAL PRECIPITATION (MM)	PERIOD OF RECORD	(NO. OF) (COMPLETE YRS)	SOURCE
		LAT. (N)	LONG. (E)						
673	LA MESA DAM, NOVALICHES	14-43-09	121-04-24	61	2282.4			-	
680	LUMOT, CAVINTI, LAGUNA	14-15-18	121-30-00	240	3380.8			WB	
682	BAYOKAN, QUEZON	14-44-12	121-32-12	* 750	4293.6			-	

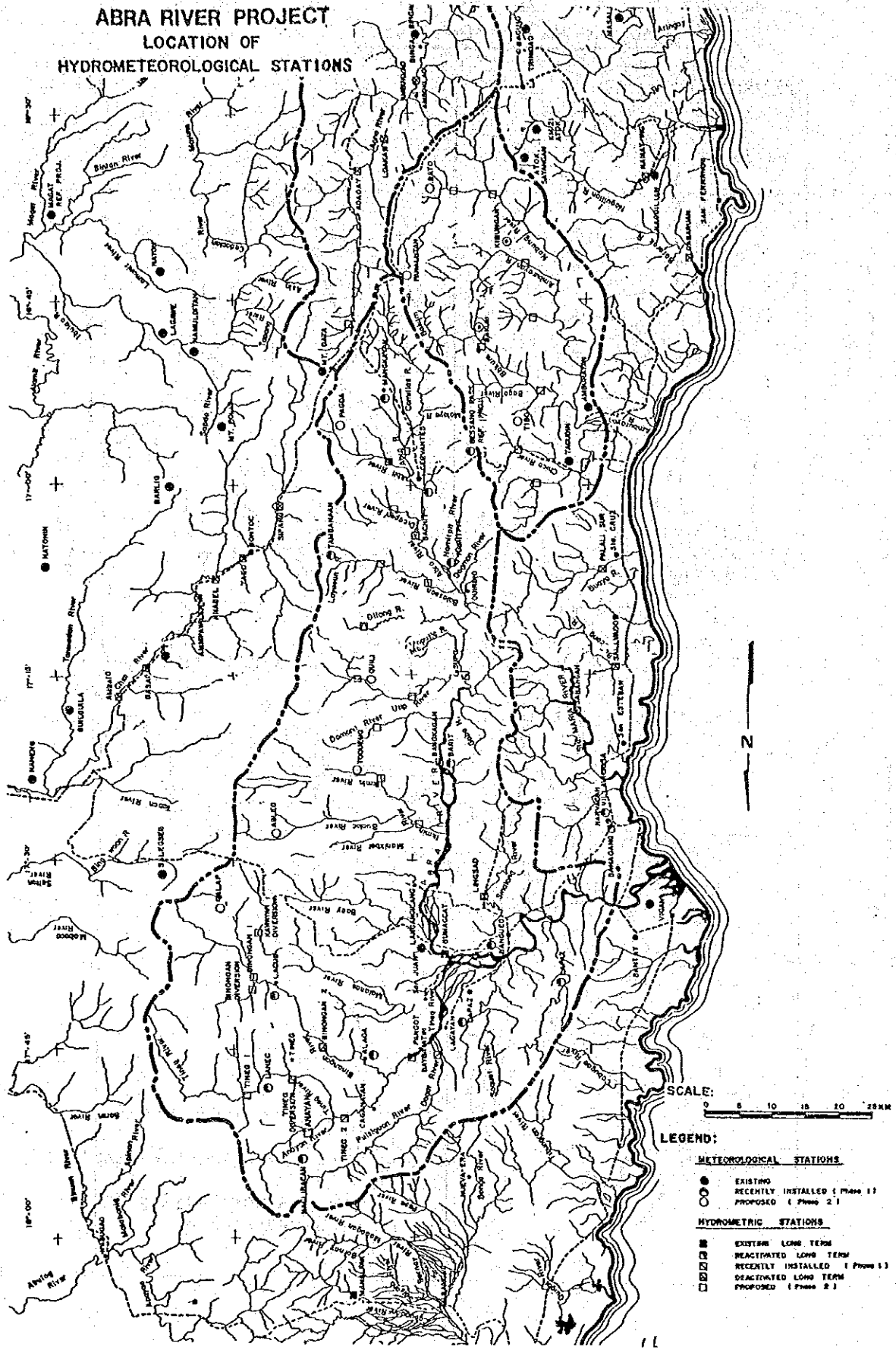
* - ELEVATION ESTIMATED ON MAP - SCALE 1:250,000.

7-5. 主要電源所在河川における気象・流量観測所の所在



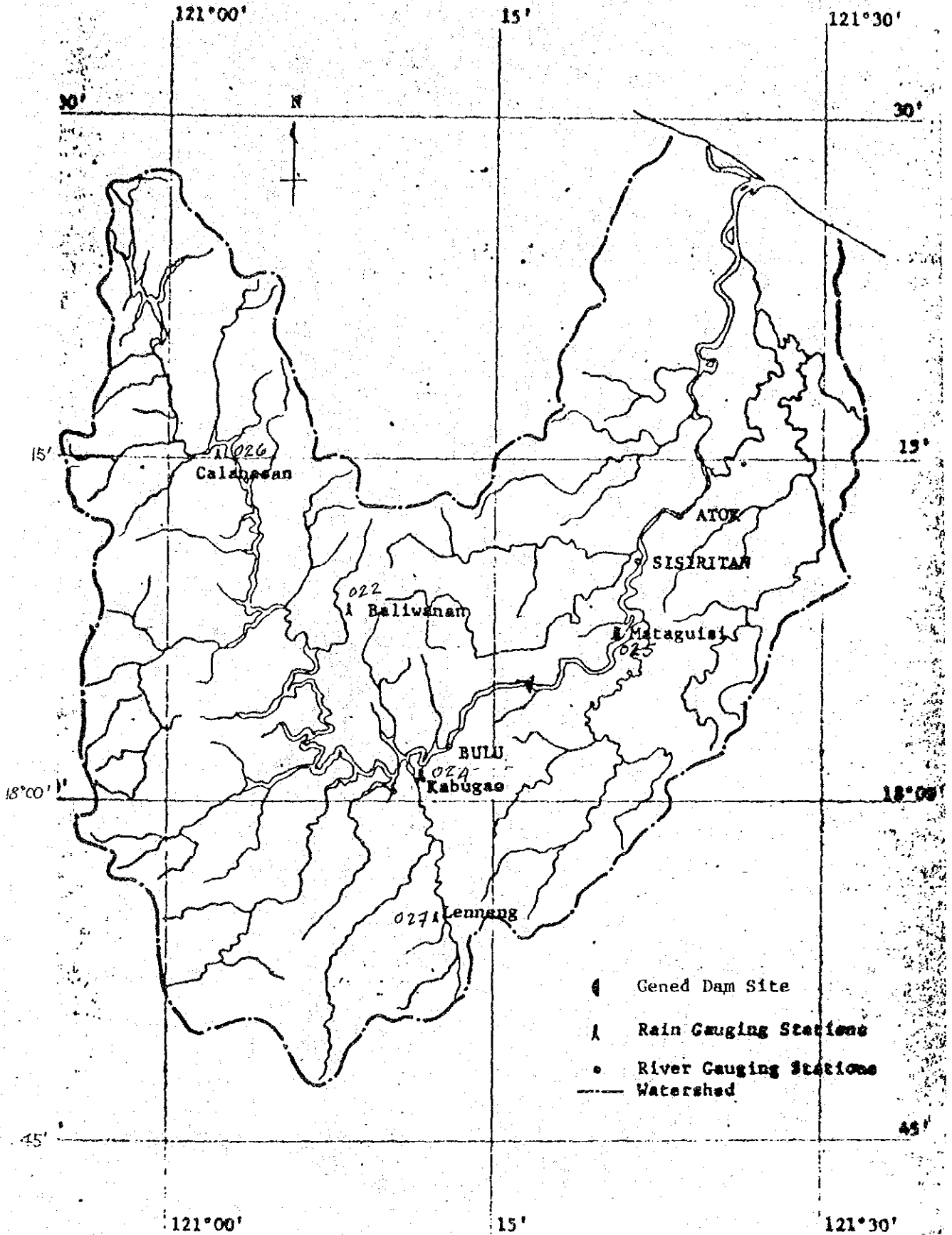
ABRA RIVER PROJECT

LOCATION OF HYDROMETEOROLOGICAL STATIONS



Location of Hydrological Gauging Stations

in
Apayao-Abulug River Basin



JICA