

SUMMARY: WATER OPERATIONS FOR EXISTING 11 RESERVOIRS

Item	Tiga	Challawa	Watari	Kafin Zaki	Bakolori	Goronyo	Zobe	Kontagora	Jakara	Tomas	Tungan Kawa
Reservoir Capacity (MCM - Total - Active - Dead	1,968 1,845 123	930 900 30	104.5 92.2 12.3	2,700 2,500 200	450 403 47	942 933 9	177 170 7	340 195 145	65.4 54.5 10.9	60.3 56.6 3.7	22 21 1
Catchment Area (km²) Mean Annual Inflow (MCN (mm)	1) 831	3,859 422 109	653 66 101	5,300 1,058 200	4,857 757 156	21,445 656 31	2,309 245 106	2,000 277 139	559 59 105	585 59 101	166 34 205
Nos. of Years Operated	16	19	19	16	16	15	17	20	19	19	20
Planned Irrigation Area (ba) Operated Irrigation Area (ba)	22,000 26,000	40,000 12,500	1,700 1,500	125,000 50,000	23,000 23,000	69,000 17,000	8,200 5,000	11,200 11,200	2,000 2,000	1,100 1,800	800 1,200
Water Demand and Loss (MCN - Irrigation - Water Supply - Downstream Release - Reservoir Loss - Total - Rainfall on Reservoir	278 146 276 272 972 79	132 72 124 126 454 36	16 3 32 51 9	546 - 312 401 1,259 116	222 - 104 139 465 42	203 13 128 342 686 57	48 34 22 76 180 20	178 - 11 36 225 21	21 3 26 50 6	19 6 25 50 6	17 - 1 4 22 3
Water Balance (MC) - Spillage - Shortage - Maximum Shortage Nos. of Years in Shortage	38 21 295 2	29 12 110 3	26 1 17 2	75 22 347 1	11 135 3 0	52 7 110 1	89 1 17 2	81 7 71 3	18 0 2 2	17 0 4 2	15 0 2 1
Hydro-Meteorological Data - Inflow - Rainfall	Tiga Rapid Kano×1.75	Challawa Gorge Kano×1.09	Gwarzo Road Kano×1.0	Bunga Bridge Ninge≕Kano ×0.9152 + 16.699	Gusou×1.0		Challwa Gusau×0.87	Komi and Ebba Konlagora	Challawa Gorge Kano×0.95	Challawa Gorge Kano X 0.91	Shiroro Gorge Ebba
Cropping Intensity (%) - Wet season - Dry Season	100 50	100 50	100 50	100 50	100 50	100 50	100 50	100 100	100 50	100 50	100 100
Mean Reservoir Area <i>l</i> Reservoir Area at FWI。(%)	63	54	68	68	69	65	67	65	66	71	69

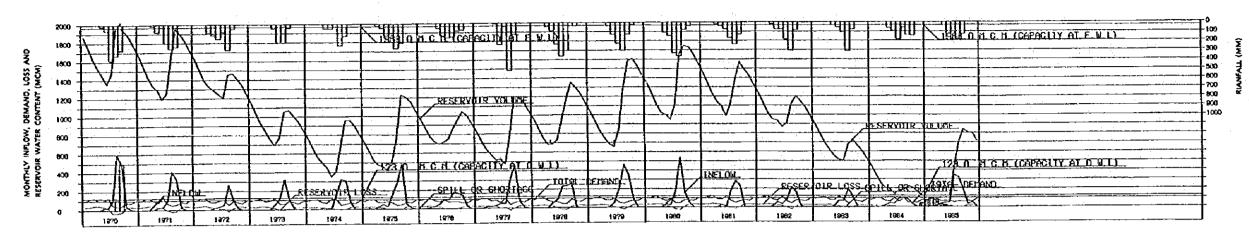
THE FEDERAL REPORTED OF PIGGRIA
FEGERAL HIBISTRY OF ACCICULTURE, WATER RESOURCES
AND RURAL GEVELOPMENT (FRANKE)

THE MATIGNAL WATER RESUGENCES MASTER PLAN (MYRAP)

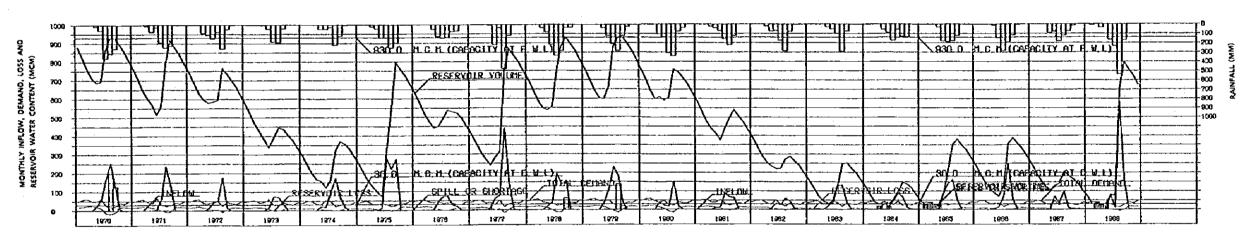
WATER OPERATIONS
FOR EXISTING 11 RESERVOIRS

JAPAN INTERNATIONAL COOPERATION AGENCY | BWG Po.

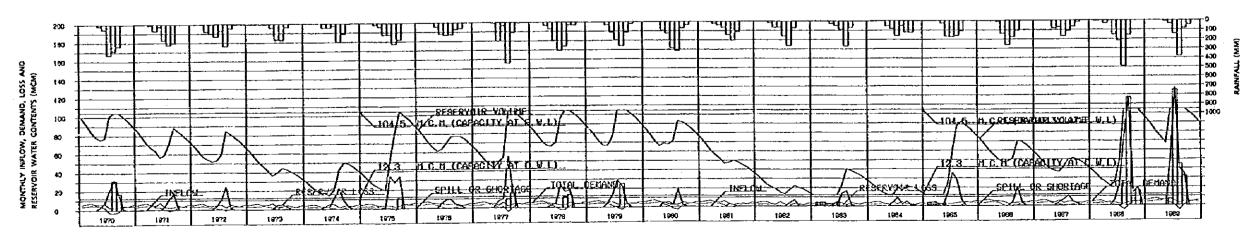
OPERATION OF TIGA RESERVOIR: IRRIGABLE AREA OF 26,000 HA



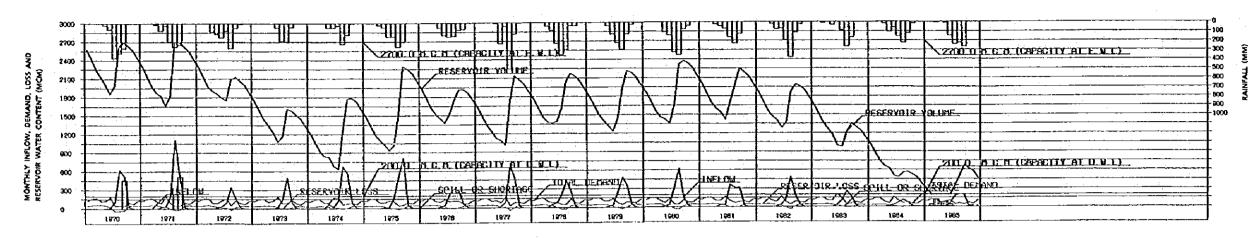
OPERATION OF CHALLAWA RESERVOIR: IRRIGABLE AREA OF 12,500 HA



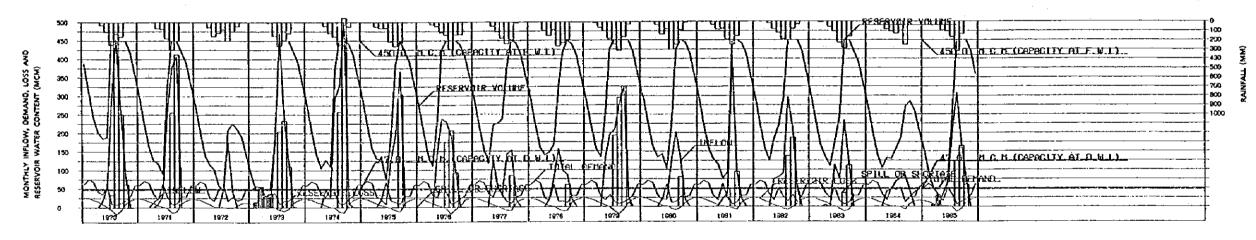
OPERATION OF WATARI RESERVOIR: IRRIGABLE AREA OF 1,500 HA



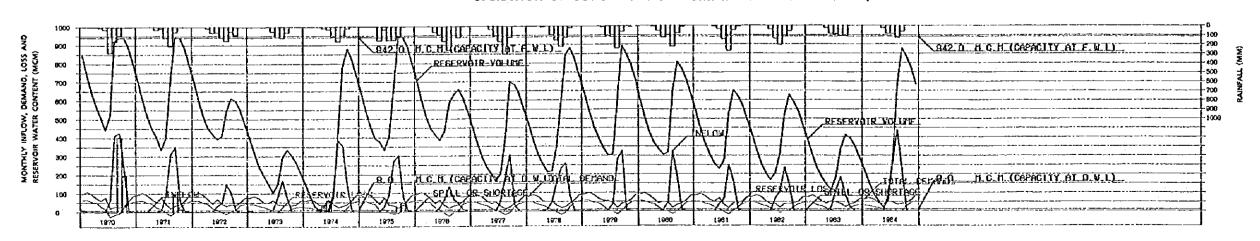
OPERATION OF KAFIN ZAKI RESERVOIR: IRRIGABLE AREA OF 50,000 HA



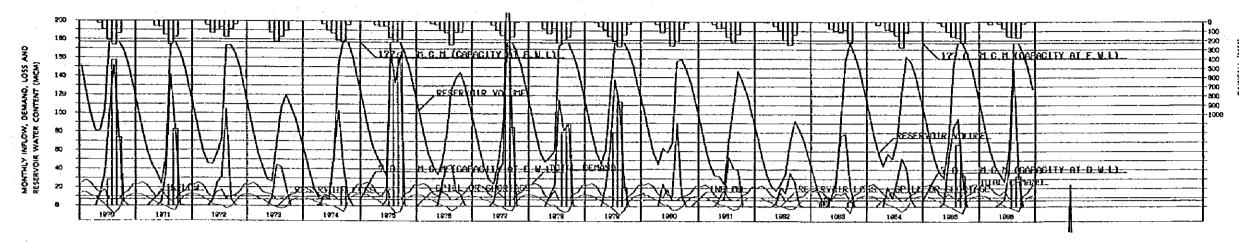
OPERATION OF BAKOLORI RESERVOIR: IRRIGABLE AREA OF 23,000 HA



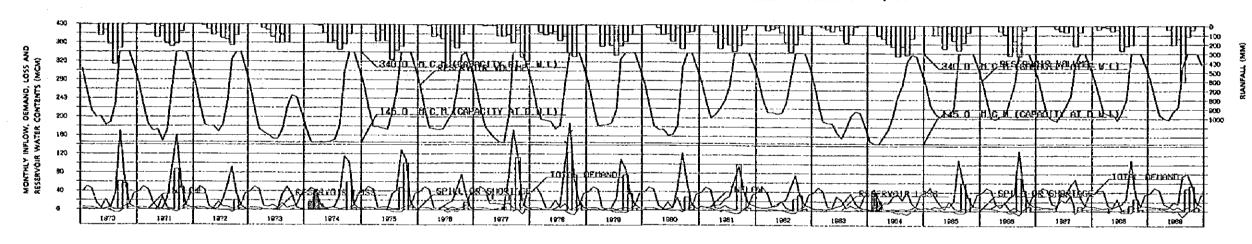
OPERATION OF GORONYO RESERVOIR: IRRIGABLE AREA OF 17,000 HA



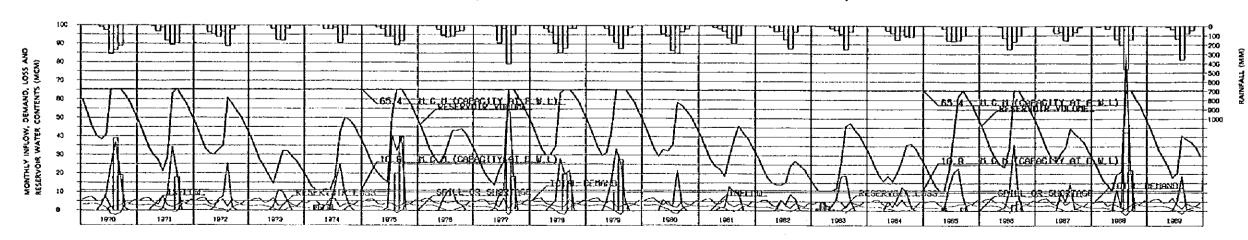




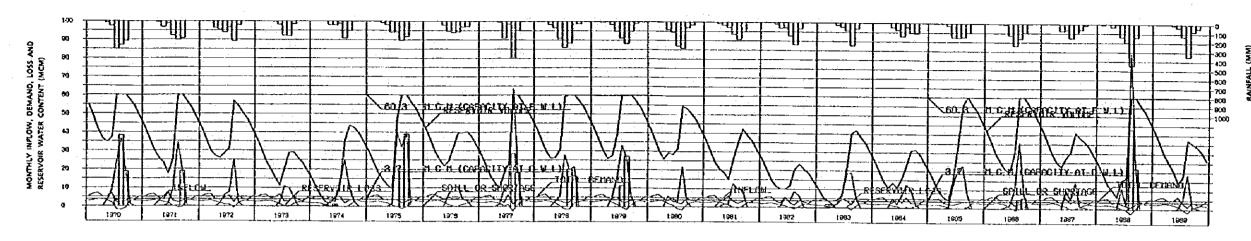
OPERATION OF KONTAGORA RESERVOIR: IRRIGABLE AREA OF 11,200 HA



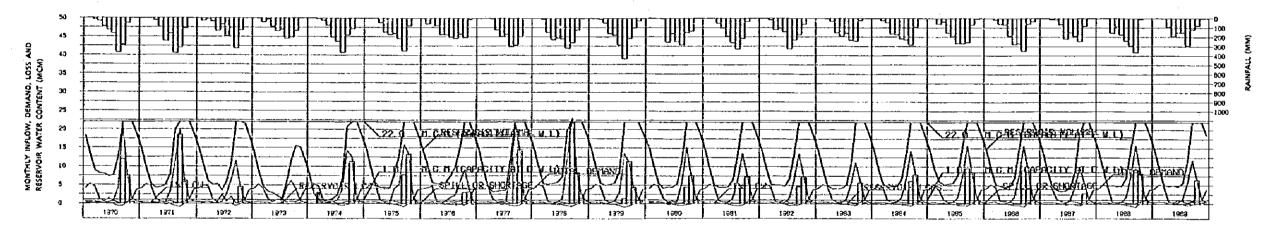
OPERATION OF JAKARA RESERVOIR: IRRIGABLE AREA OF 2,000 HA

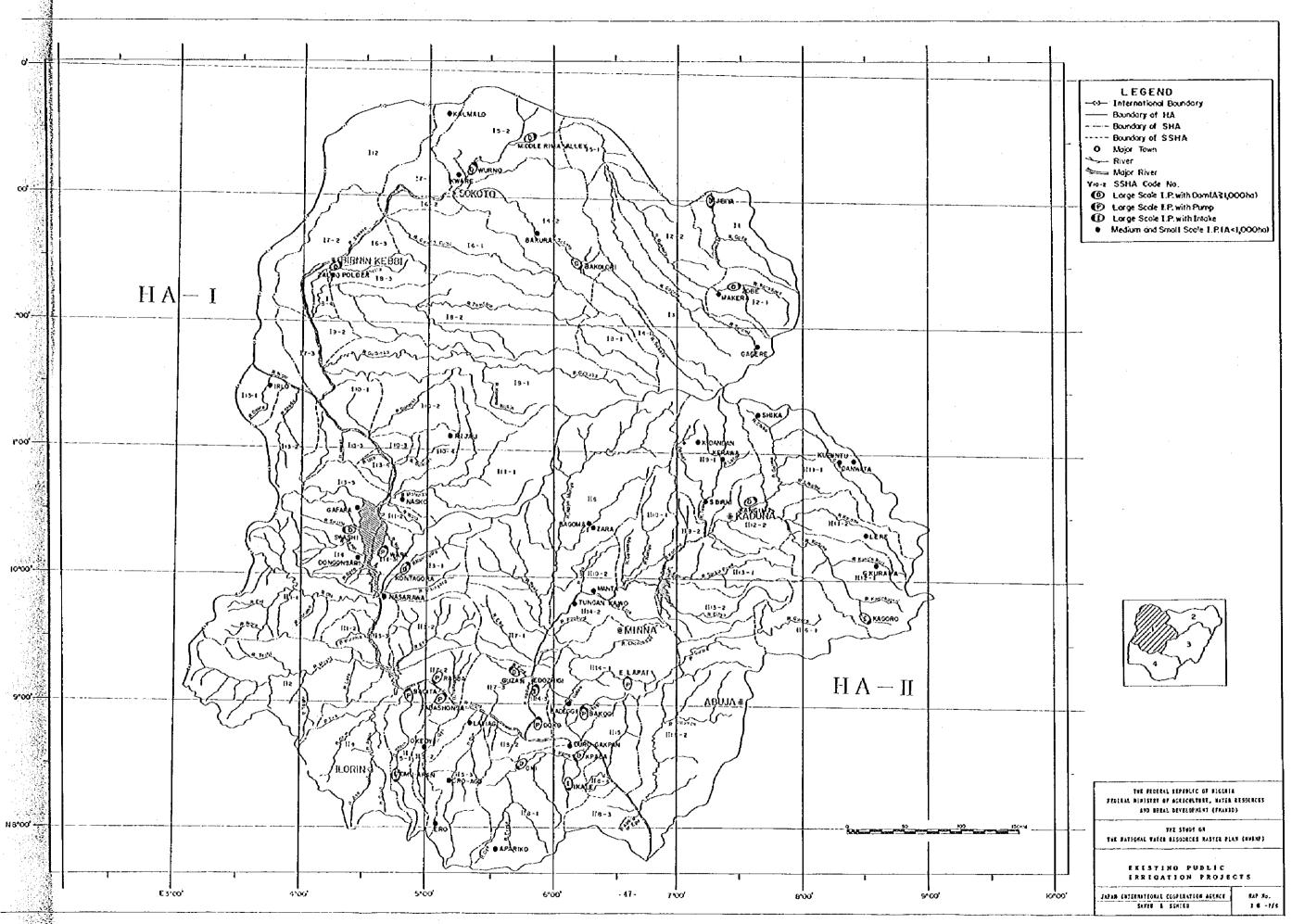


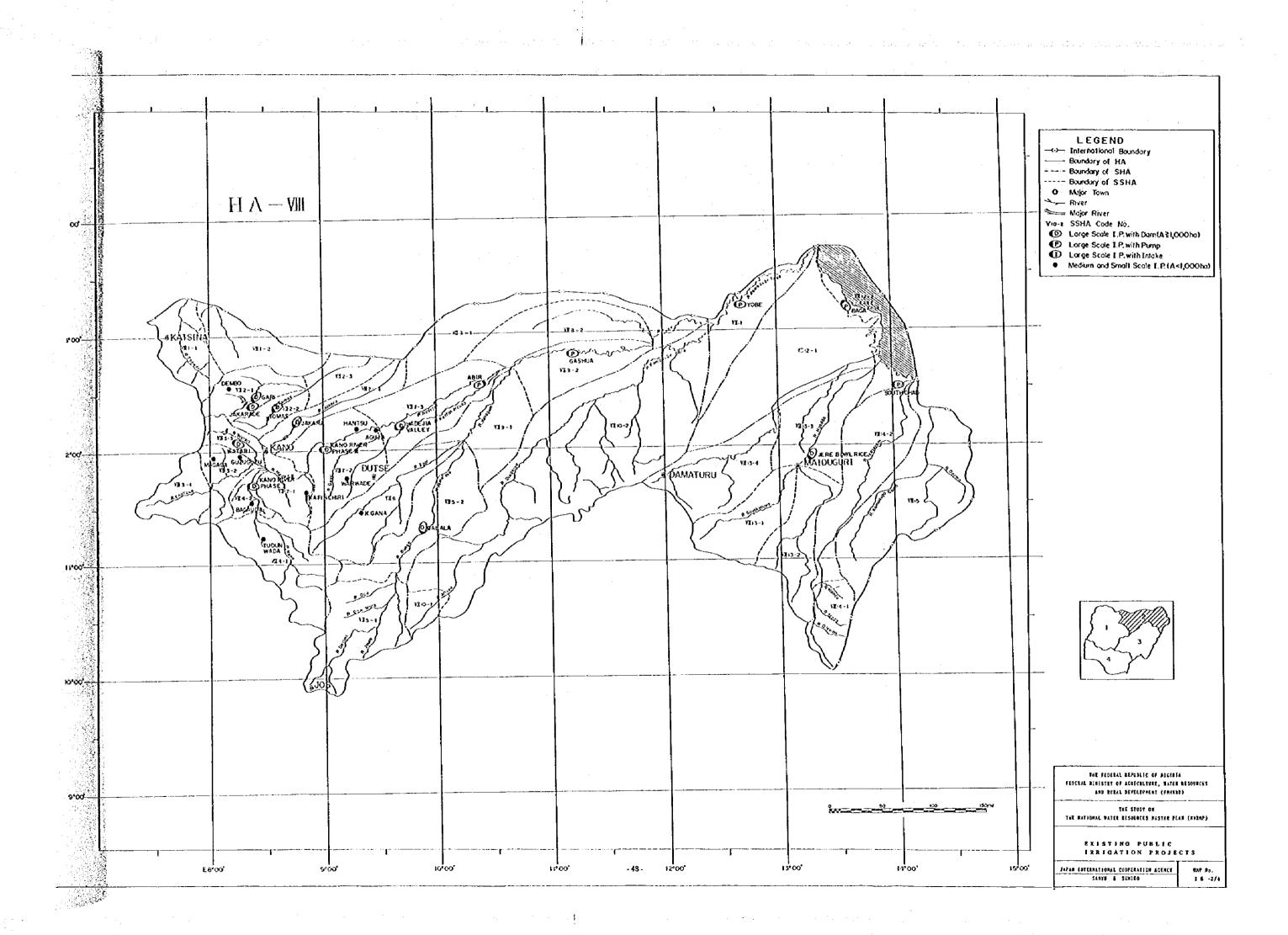
OPERATION OF TOMAS RESERVOIR: IRRIGABLE AREA OF 1,800 HA

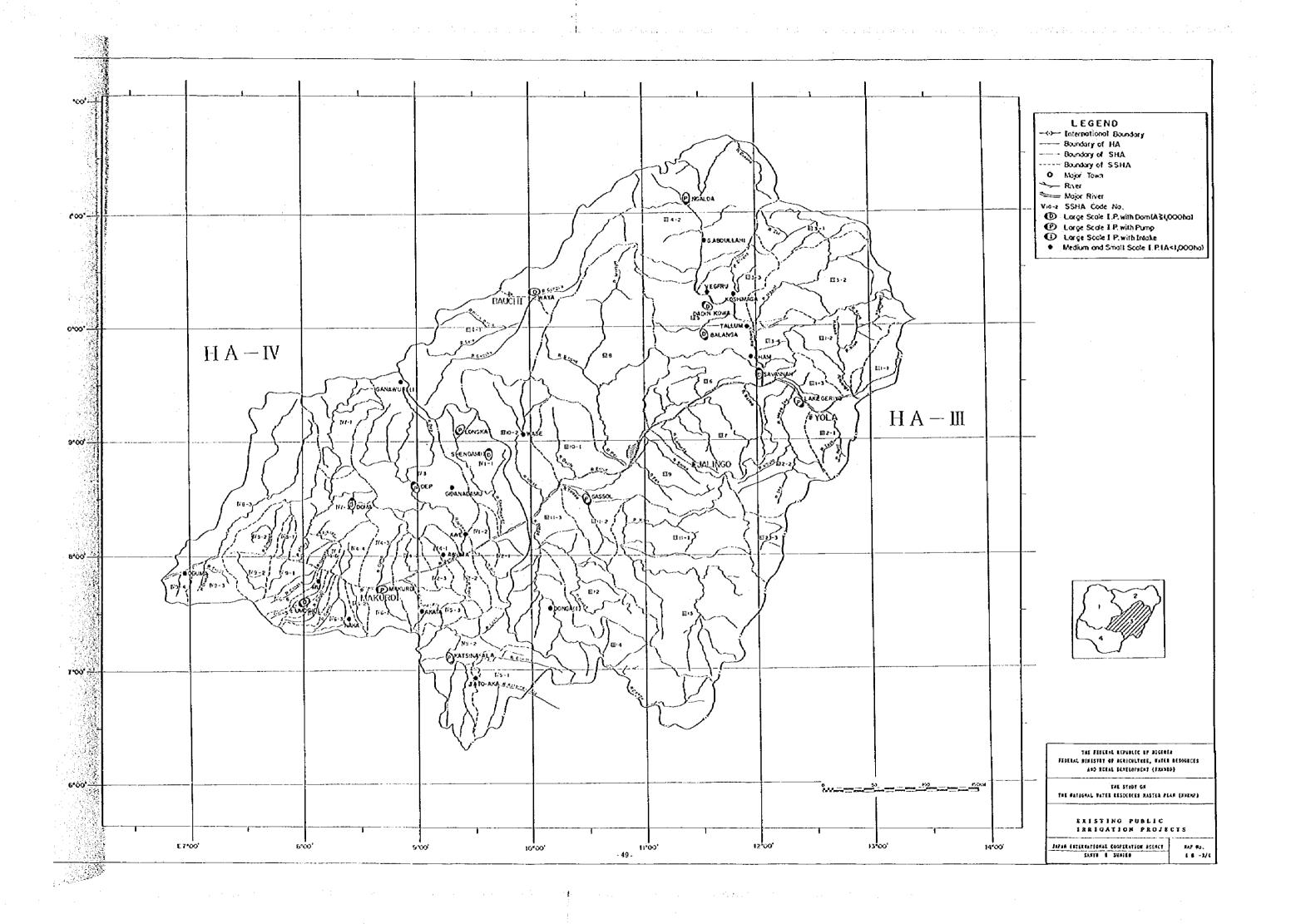


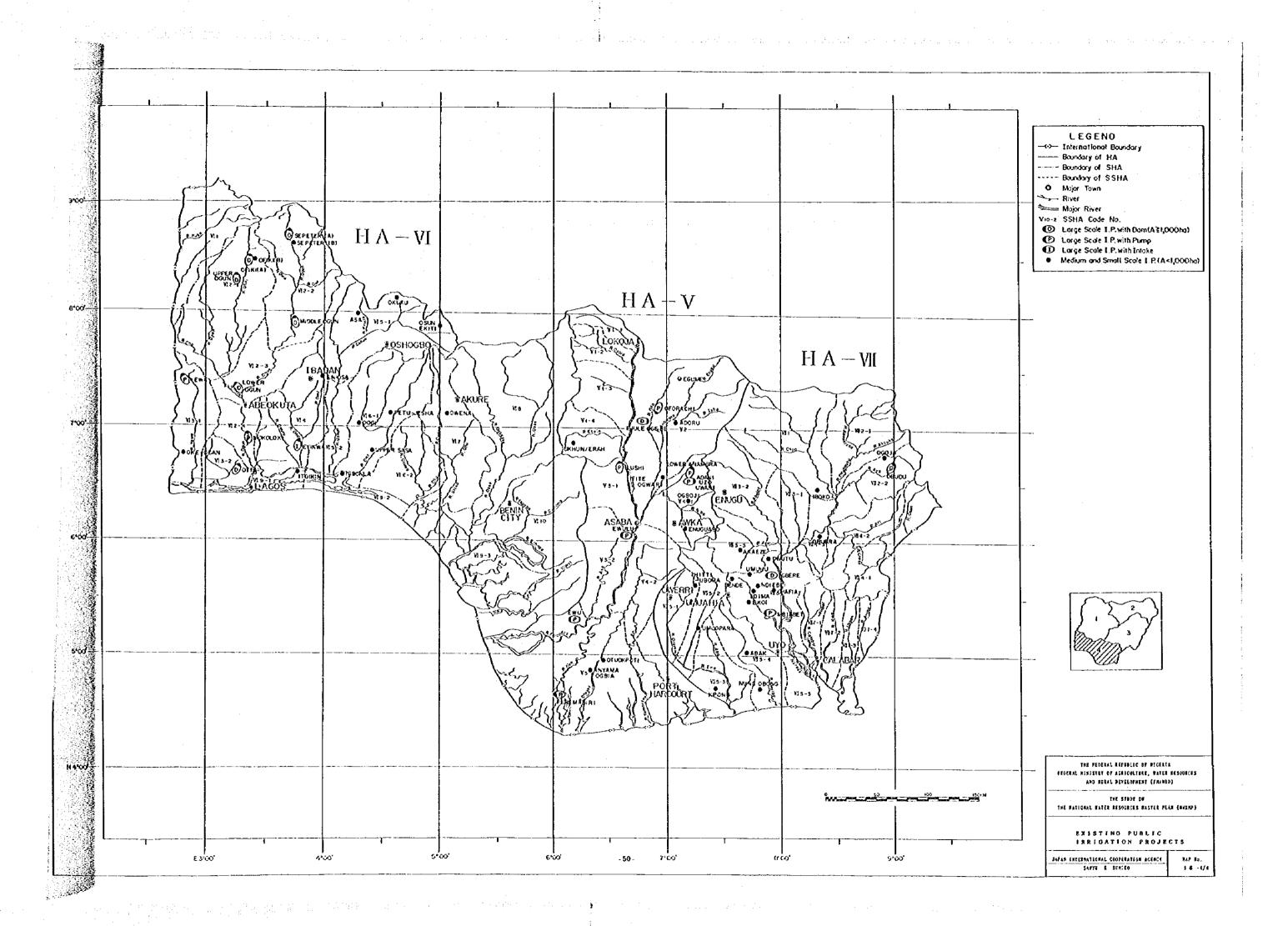
OPERATION OF TUNGAN KAWA RESERVOIR: IRRIGABLE AREA OF 1,200 HA

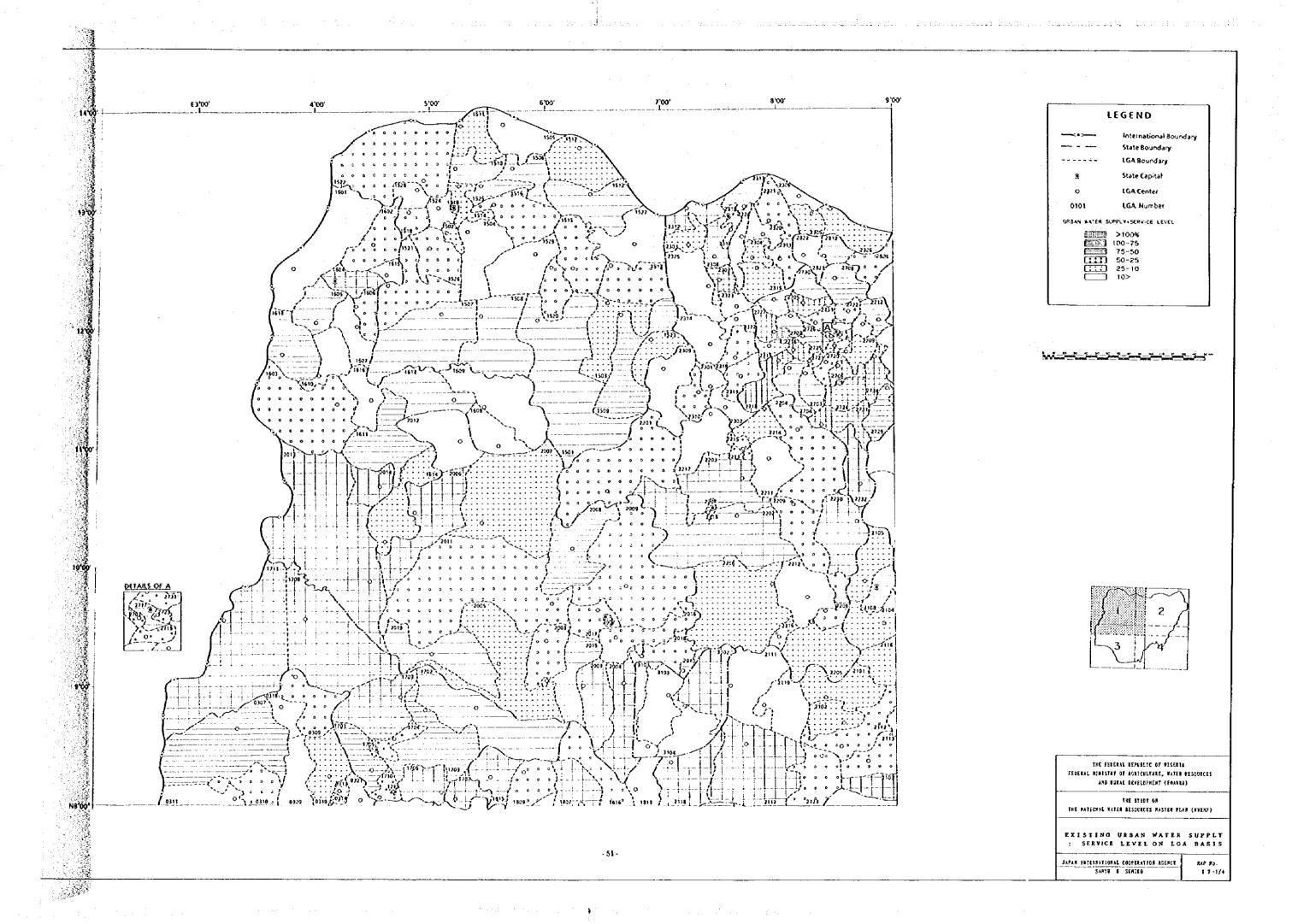


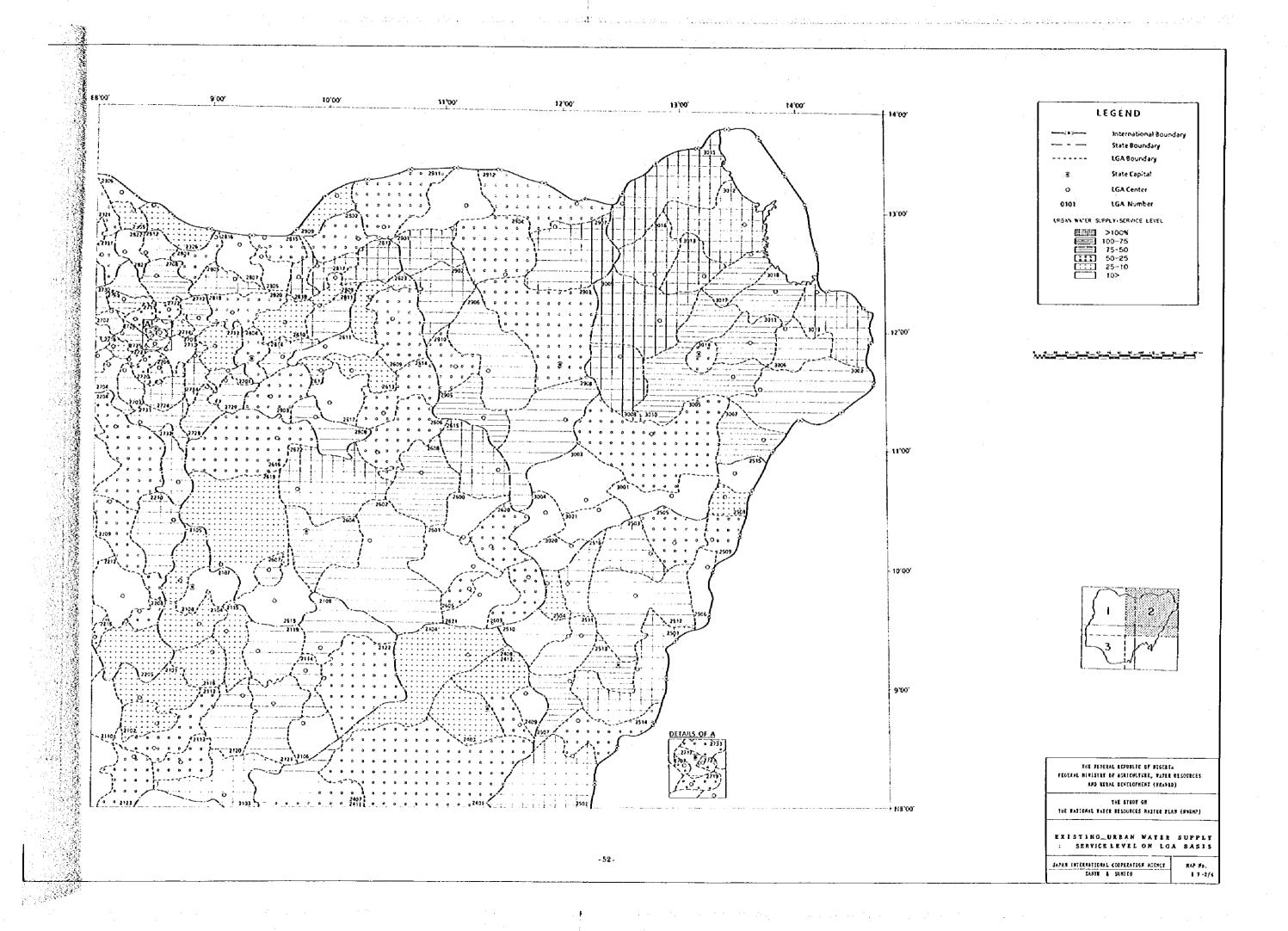


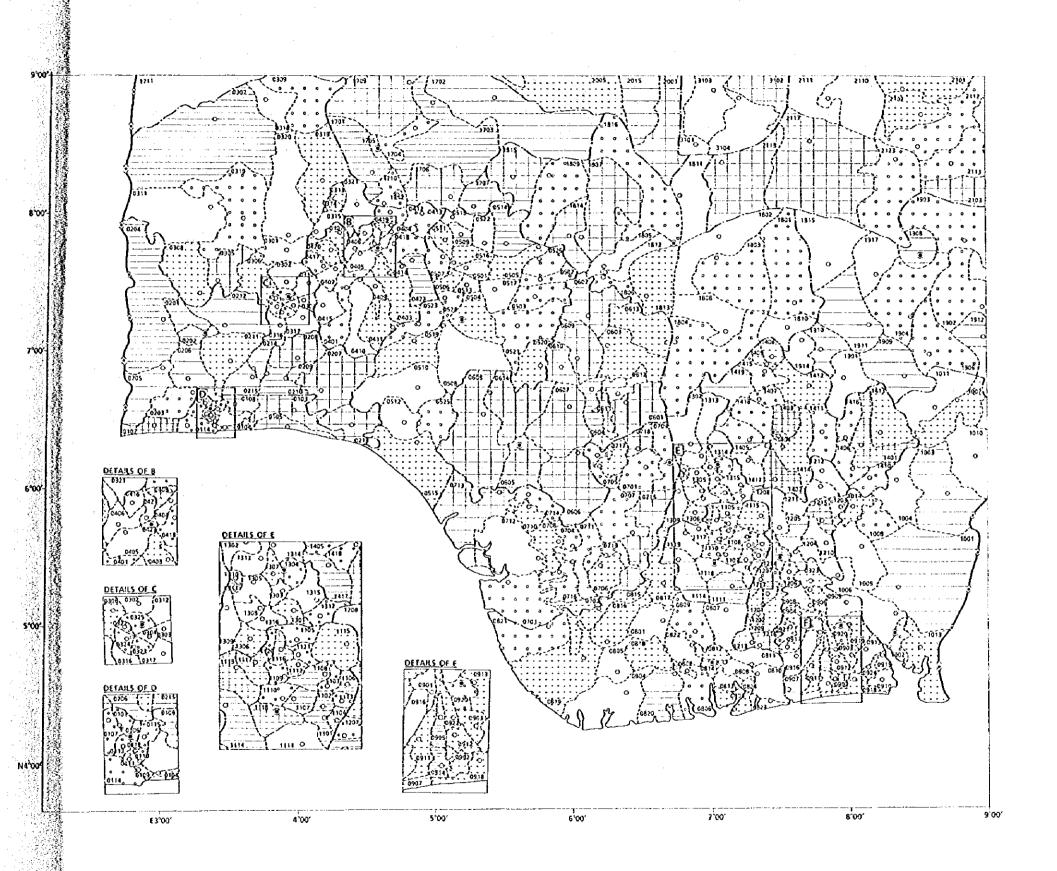












LEGEND

State Boundary

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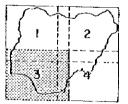
State Capital

LGA Center

LGA Number

URBAN MATER SUPPLY SERVICE LEVEL

>100%
100-75
75-50
111 50-25
111 10>



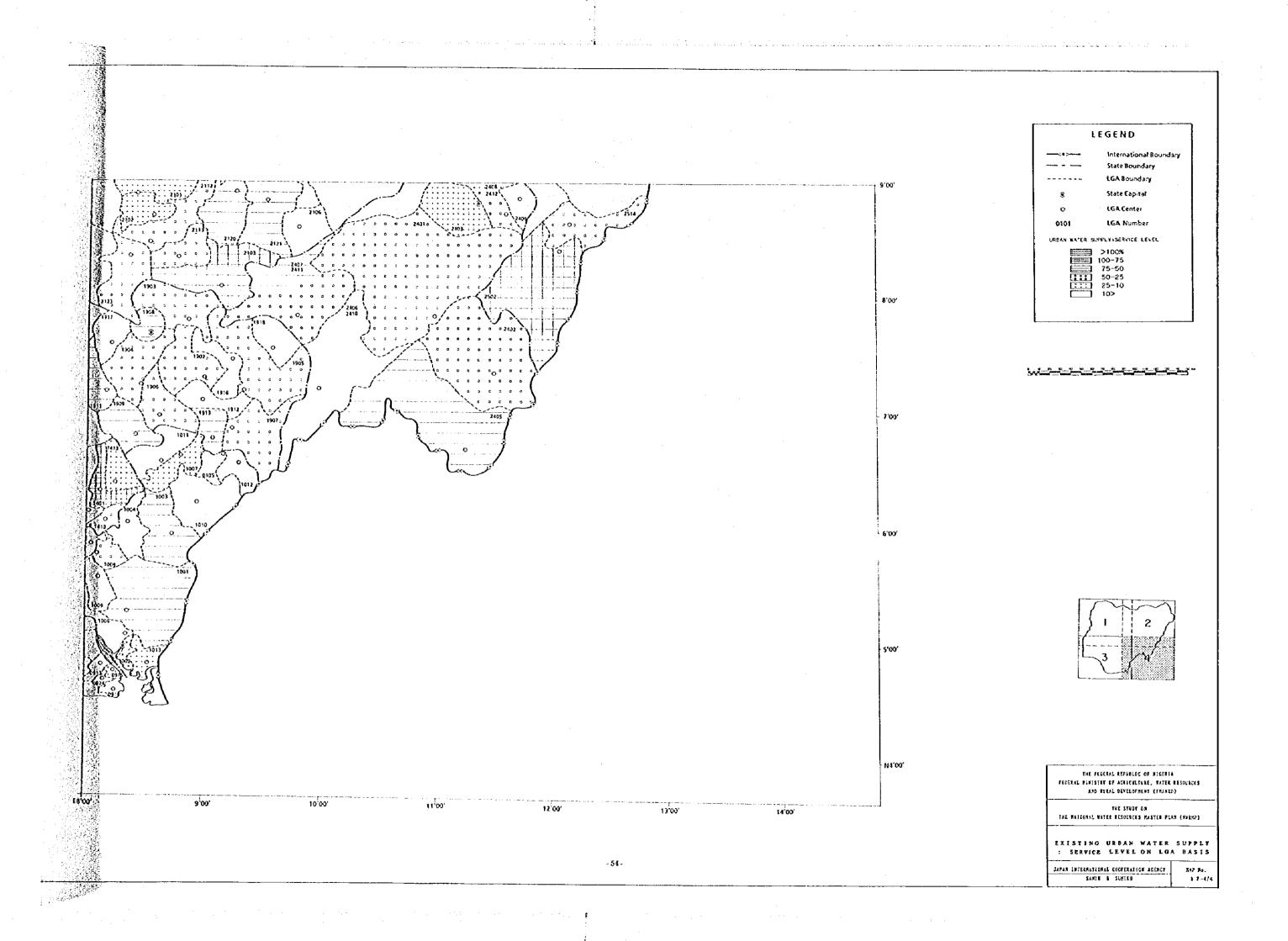
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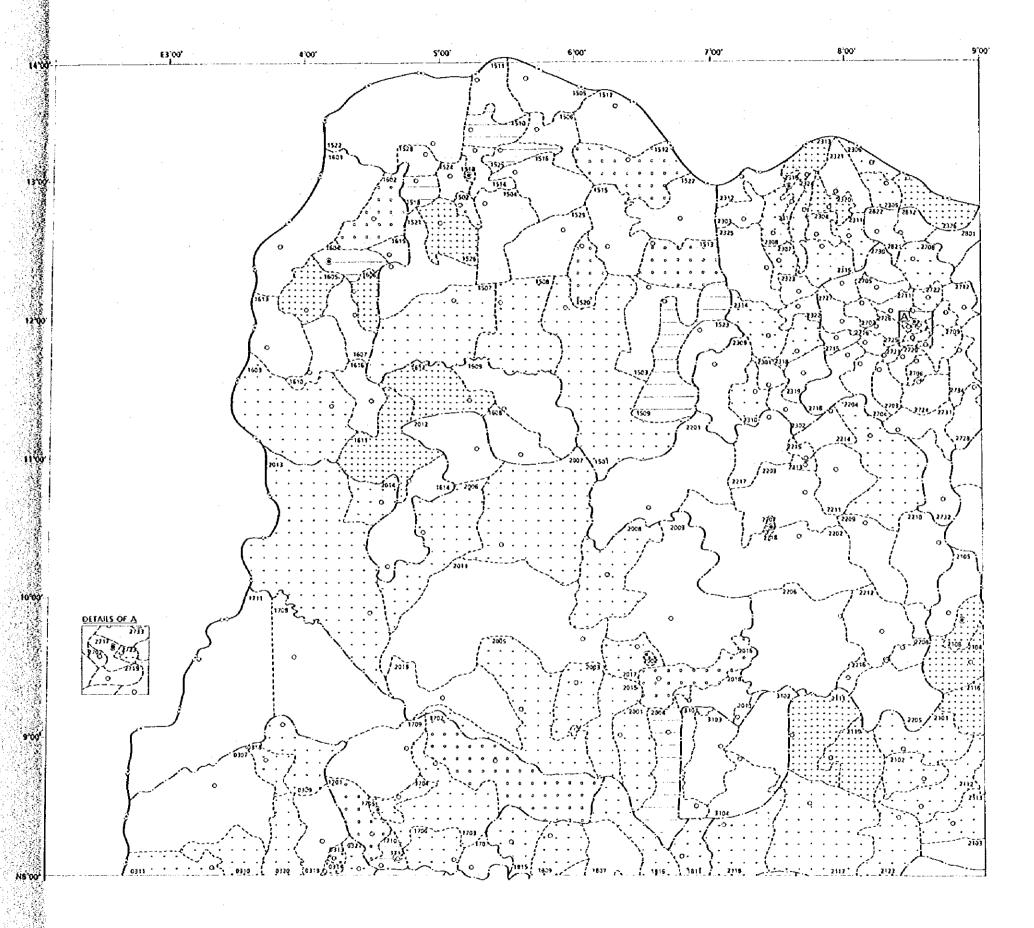
THE STOUT OR THE NATIONAL WATER RESOURCES MASTER PLAN (KWEMP)

EXISTINO URBÁN WATER SUPPLY : SERVICE LEVEL ON LGA 84SIS

JAPAN ENTERNATIONAL COOPERATION ACENCY
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LEGEND

International Boundary State Boundary

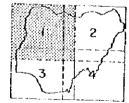
LGA Boundary

State Capital LGA Center

5101 tGA Number

RURAL WATER SUPPLY SERVICE LEVEL

>100% 100-75 75-50 111 50-30 30-15 11-5-5 5>



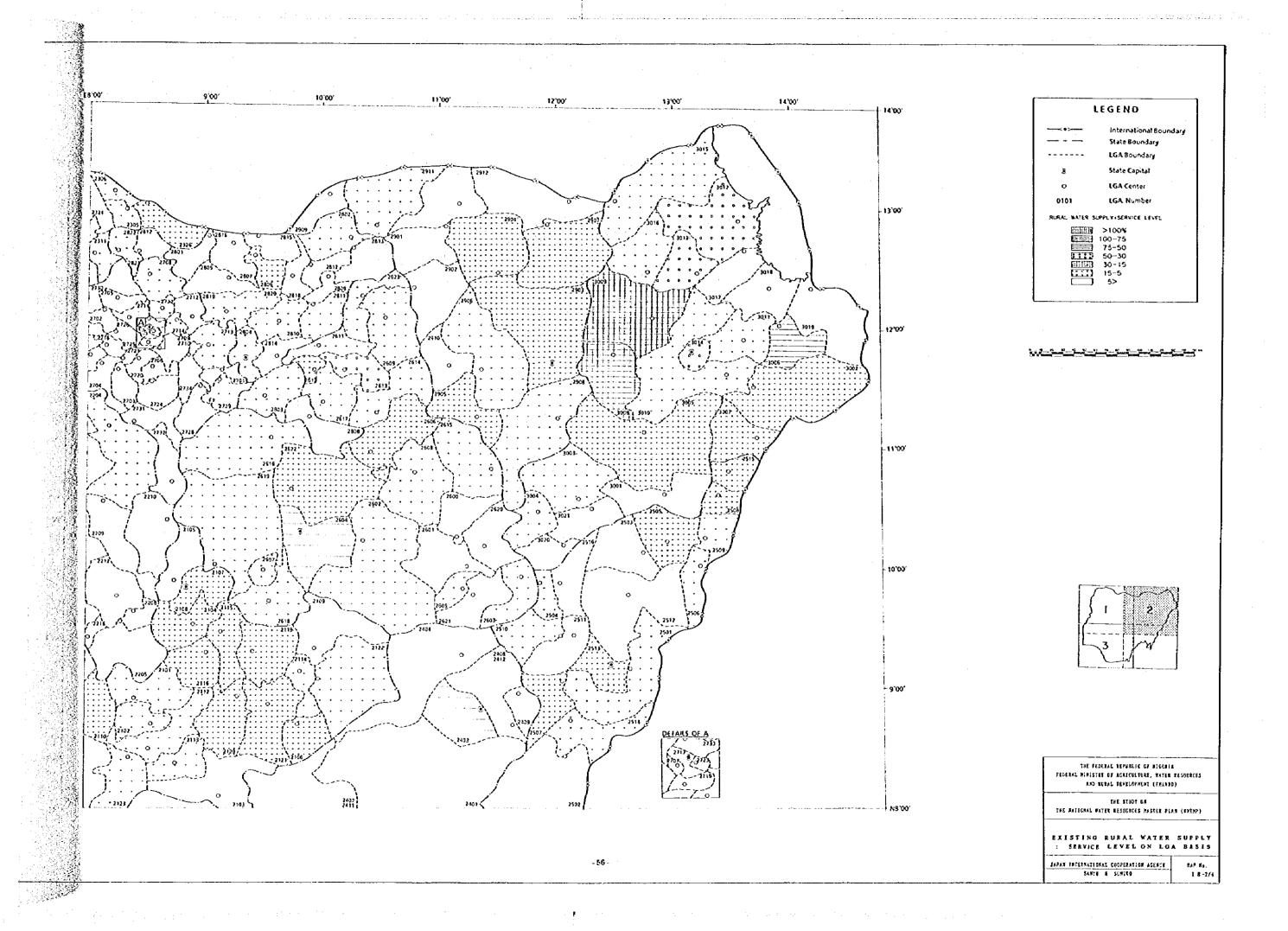
THE FEGERAL REPUBLIC OF PIGEOIA FEDERAL MINISTRY OF ACRECUTURE, NATER RESOURCES AND FURAL DEVELOPMENT (FMANNO)

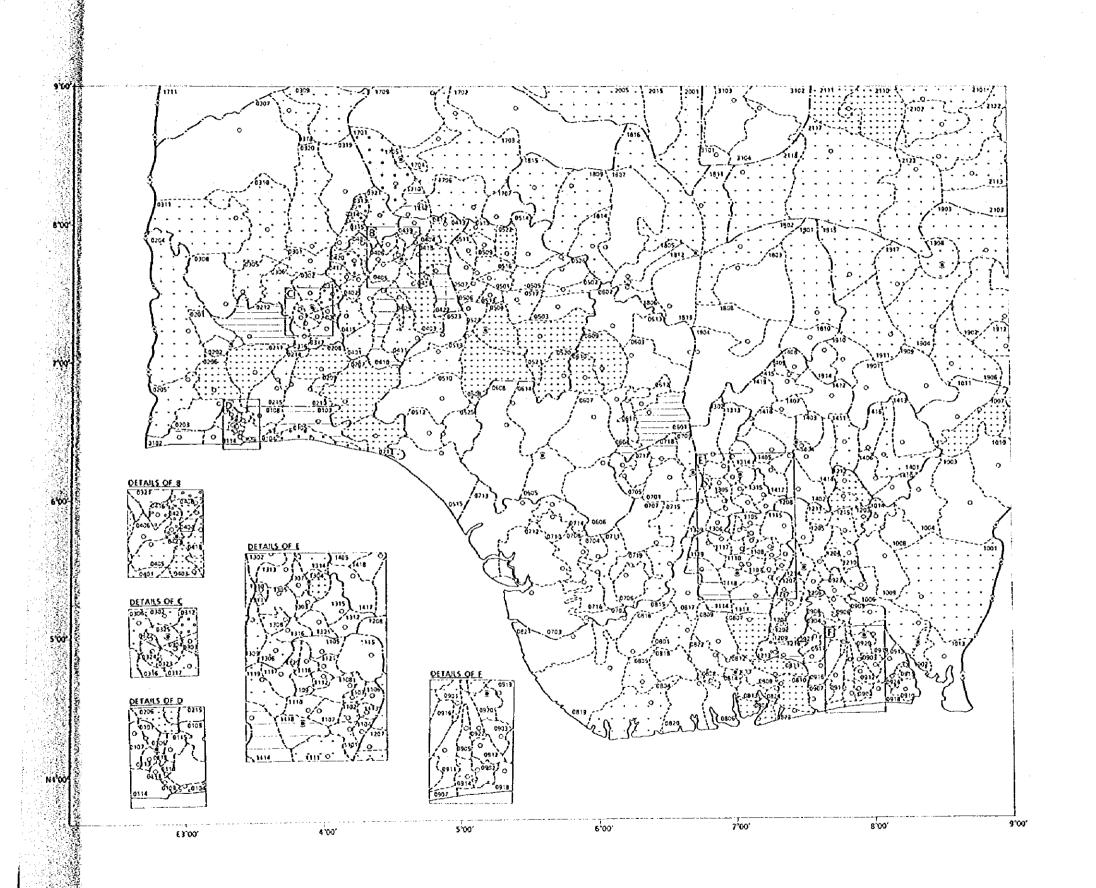
THE STUDY ON
THE MATTERNAL MATER RESOURCES MASTER PLAN (NURMY)

EXISTING RURAL WATER SUPPLY : SERVICE LEVEL ON LGA BASIS

JAPAN INTERSATIONAL COOPERATION AGENCY
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LEGEND

International Boundary

State Boundary

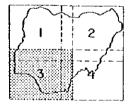
LGA Boundary

State Capital

LGA Center LGA Number

RURAL MATER SUPPLY SERVICE LEVEL

>100%



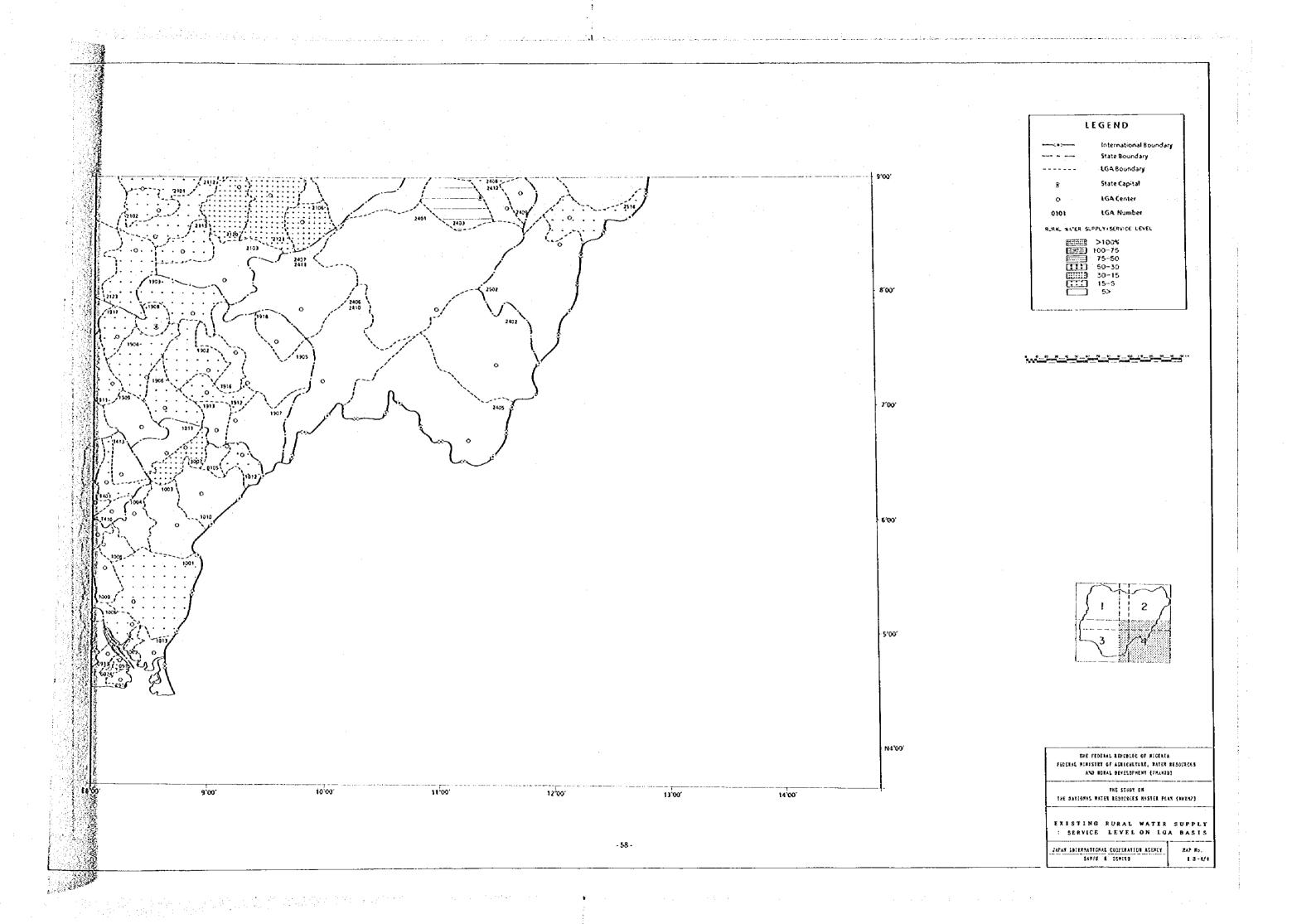
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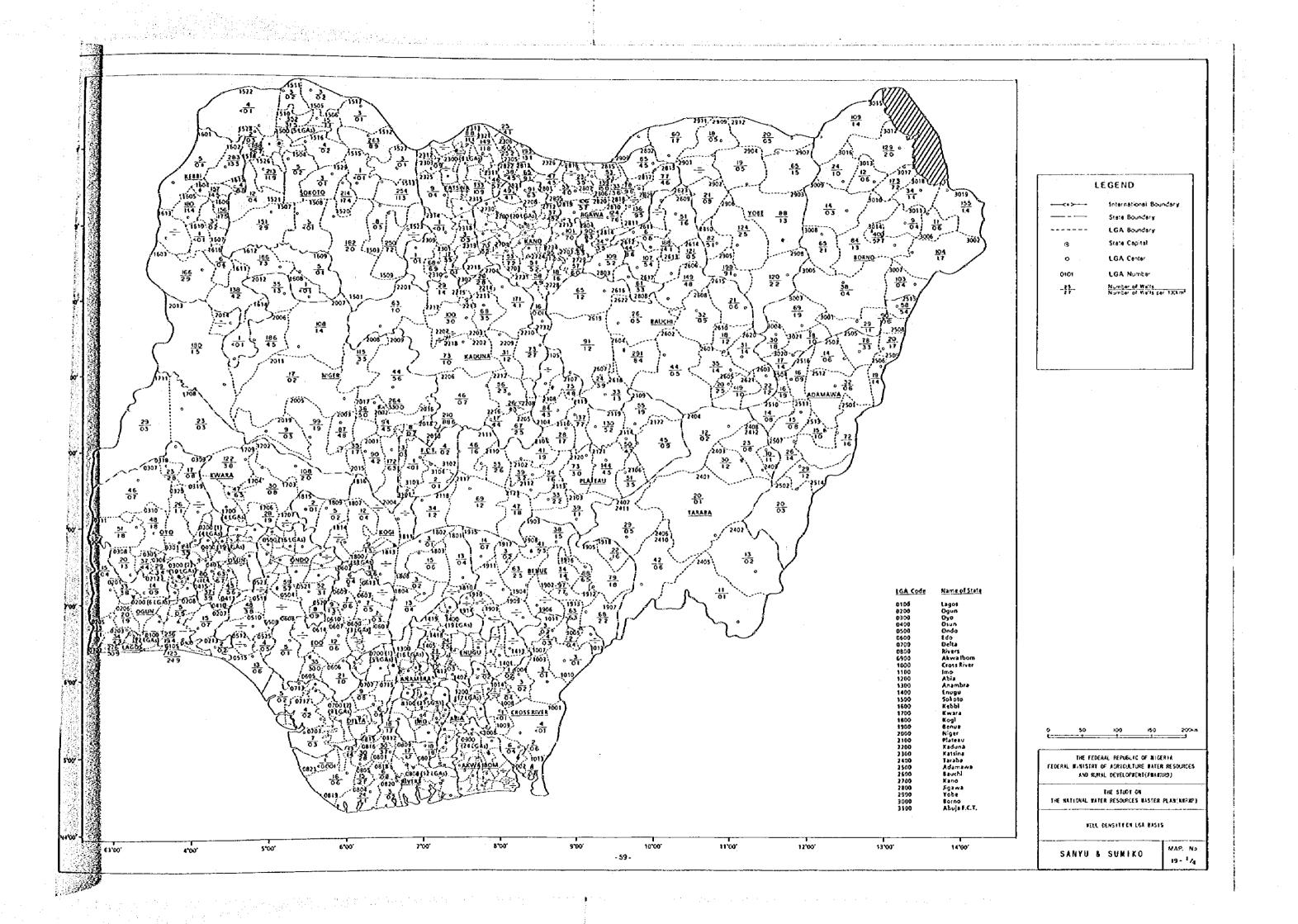
THE STUDY OF THE MATECHAL WATER RESOURCES WASTER PLAN (HWRHP)

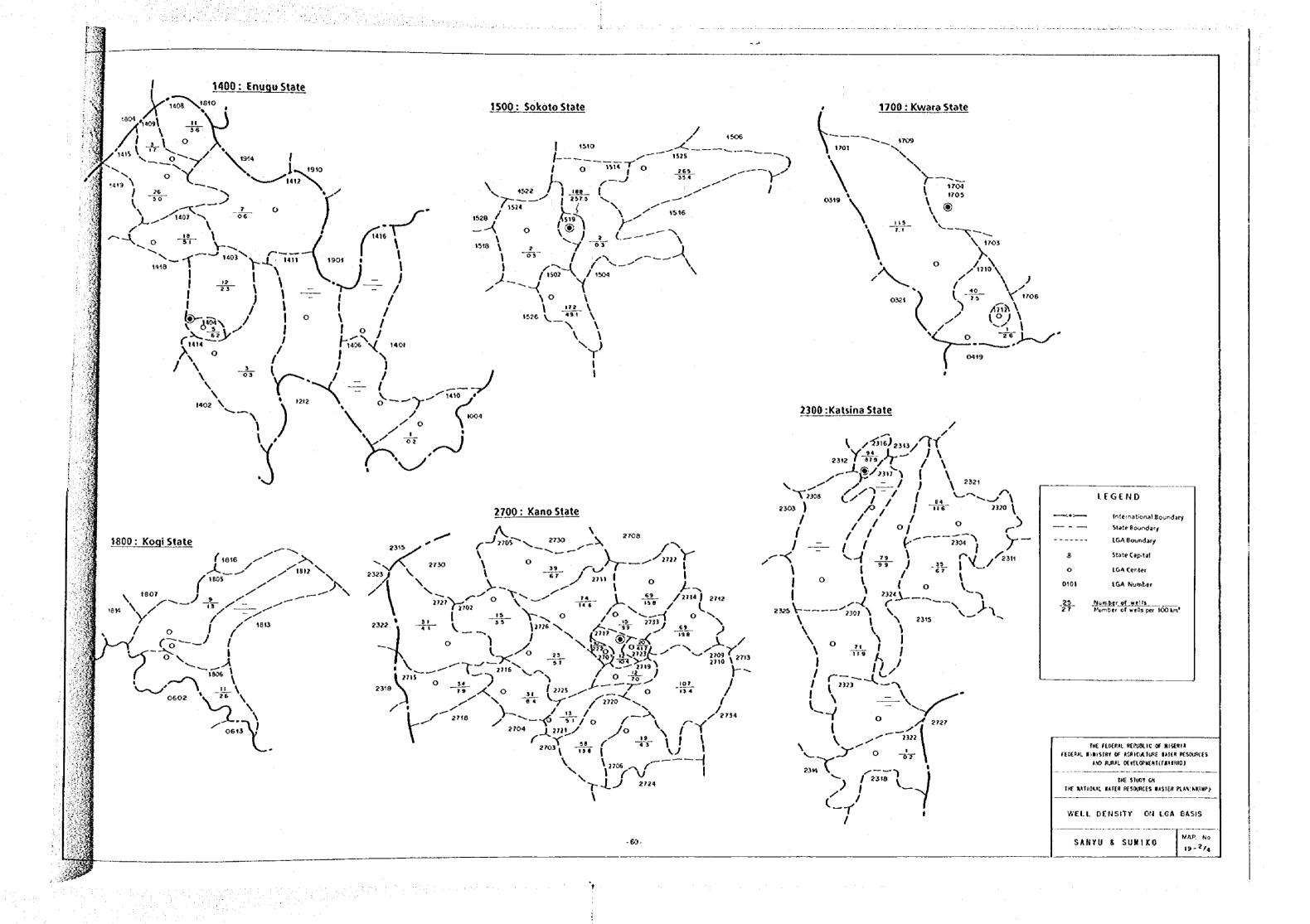
EXISTING RURAL WATER SUPPLY : SERVICE LEVEL ON LGA BASIS

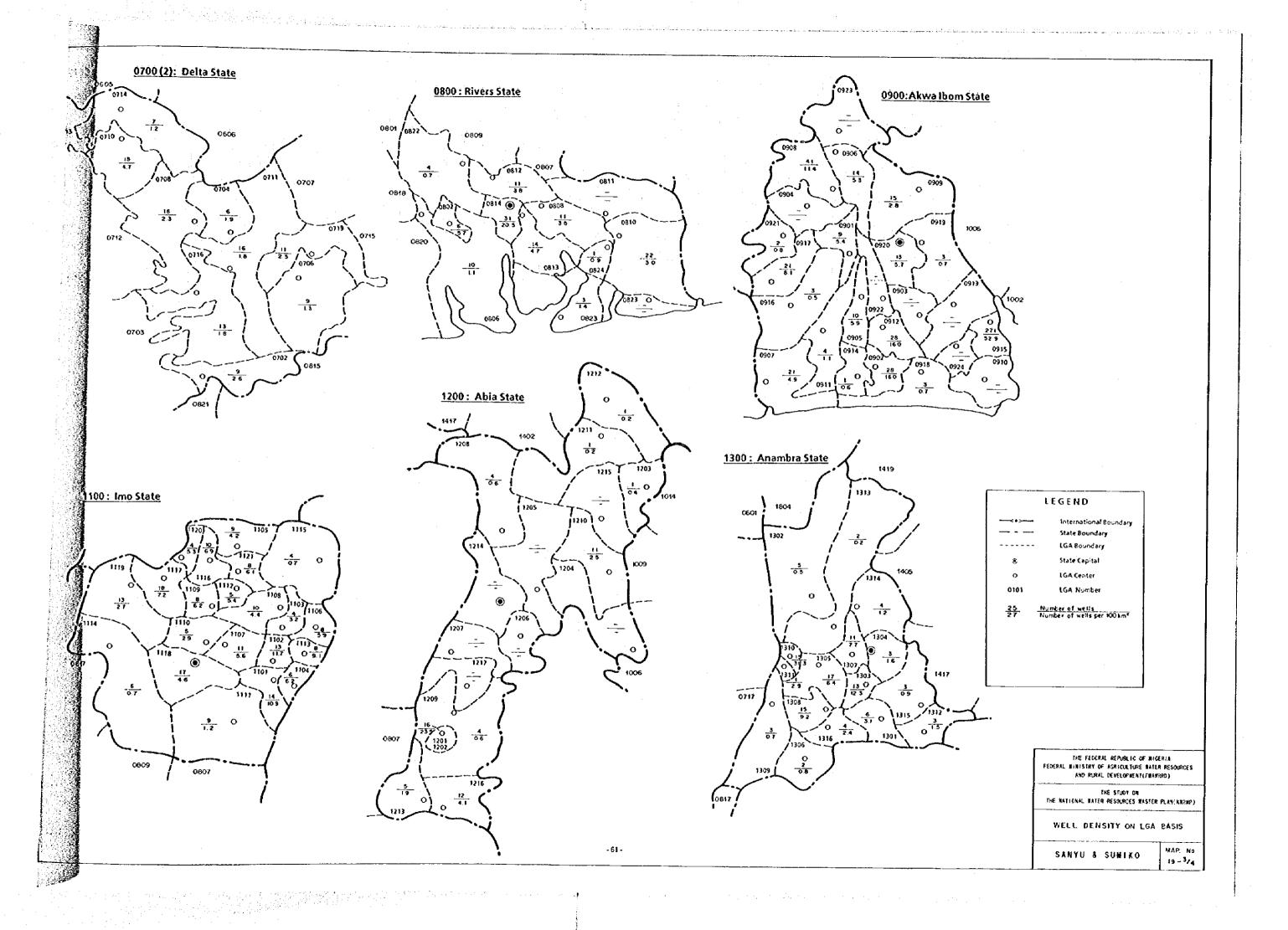
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SANYU & SUNIEG

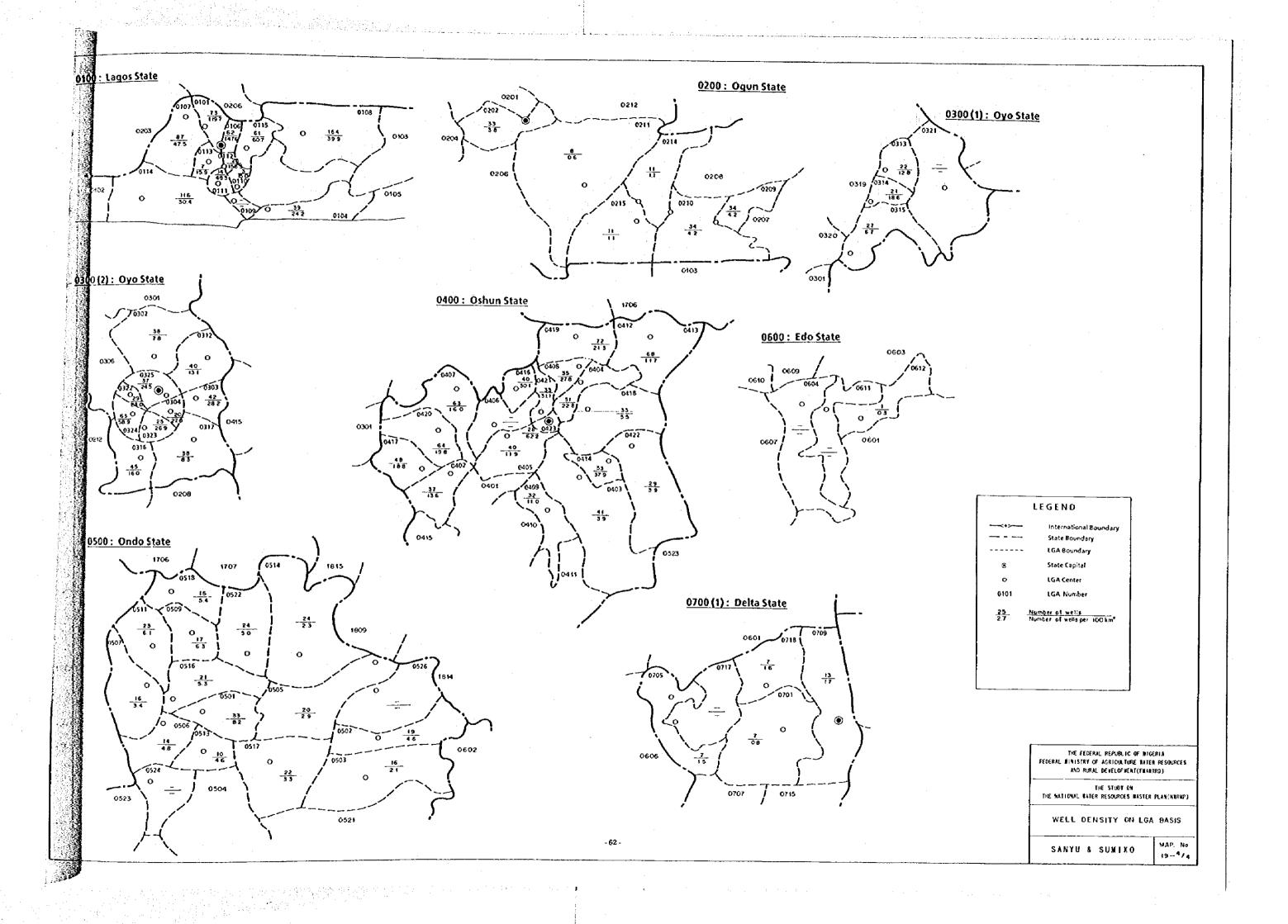
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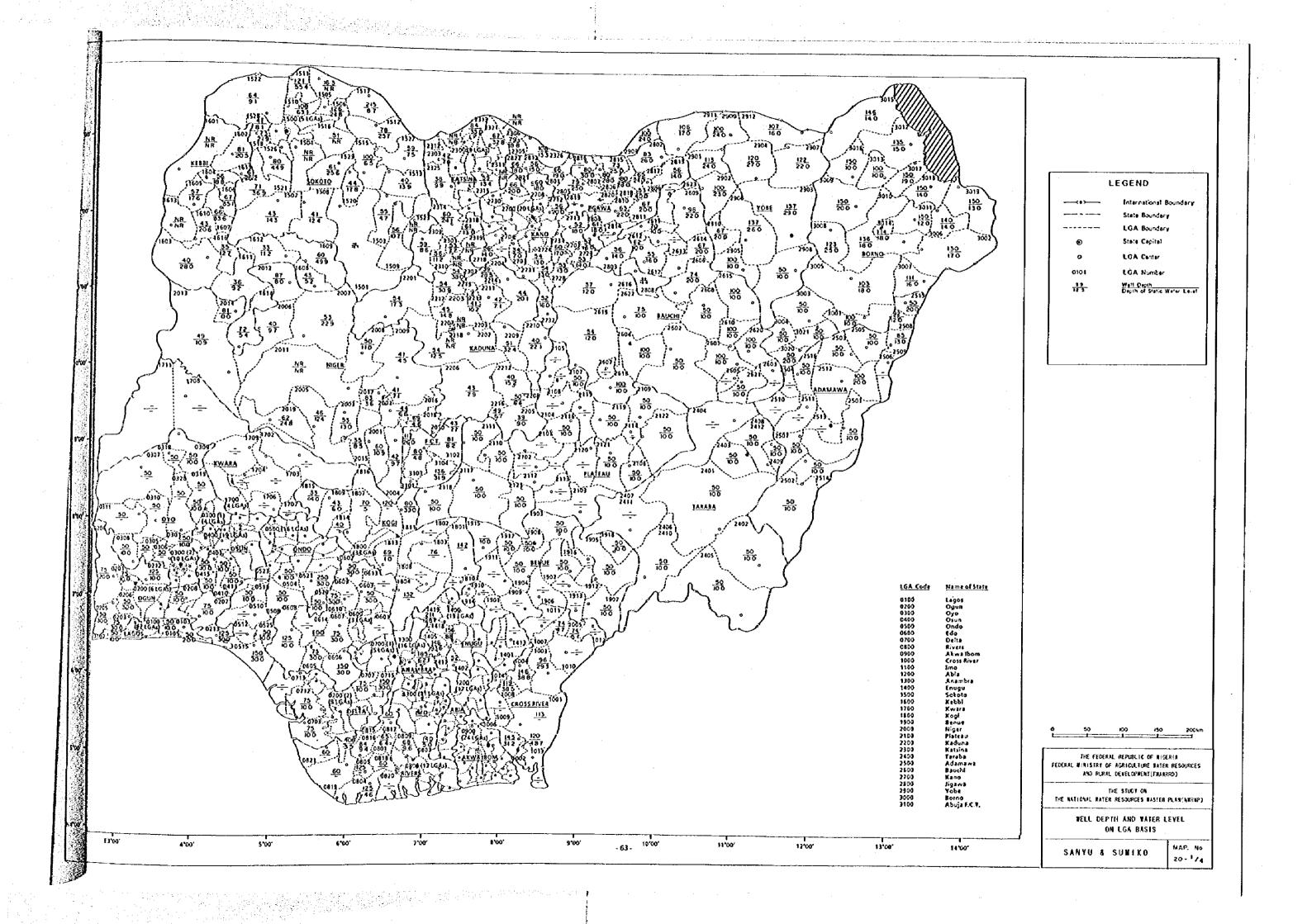


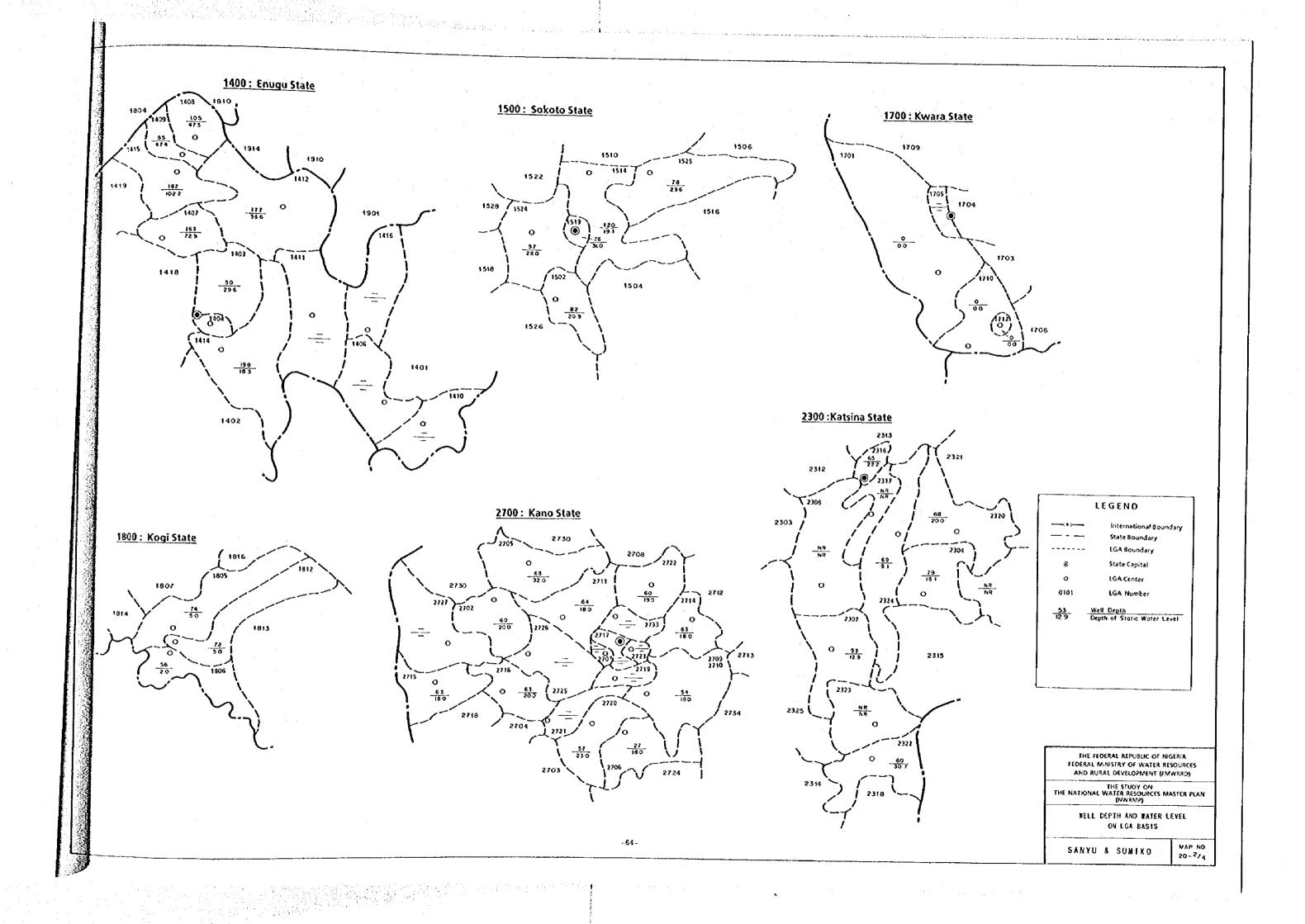


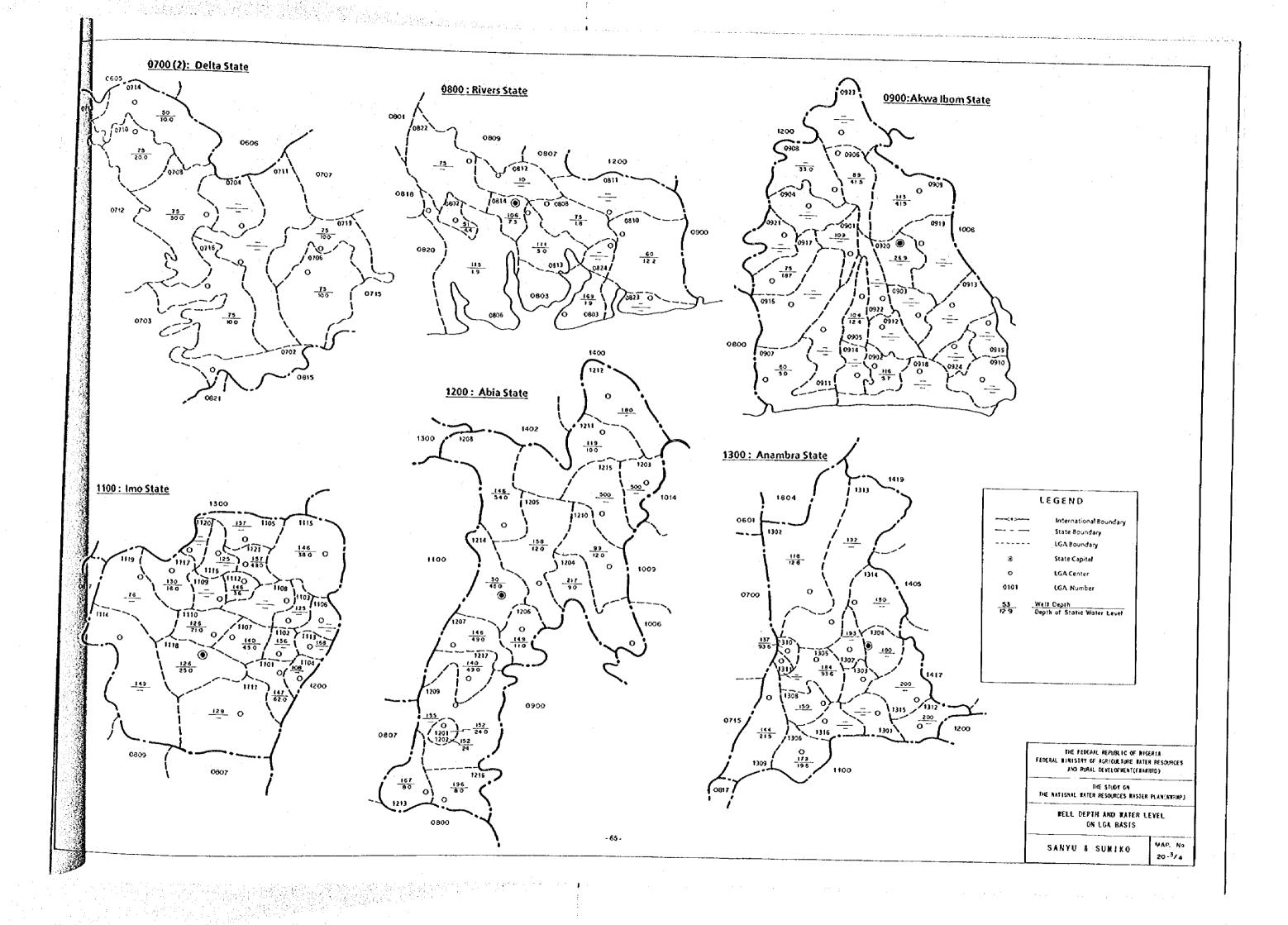


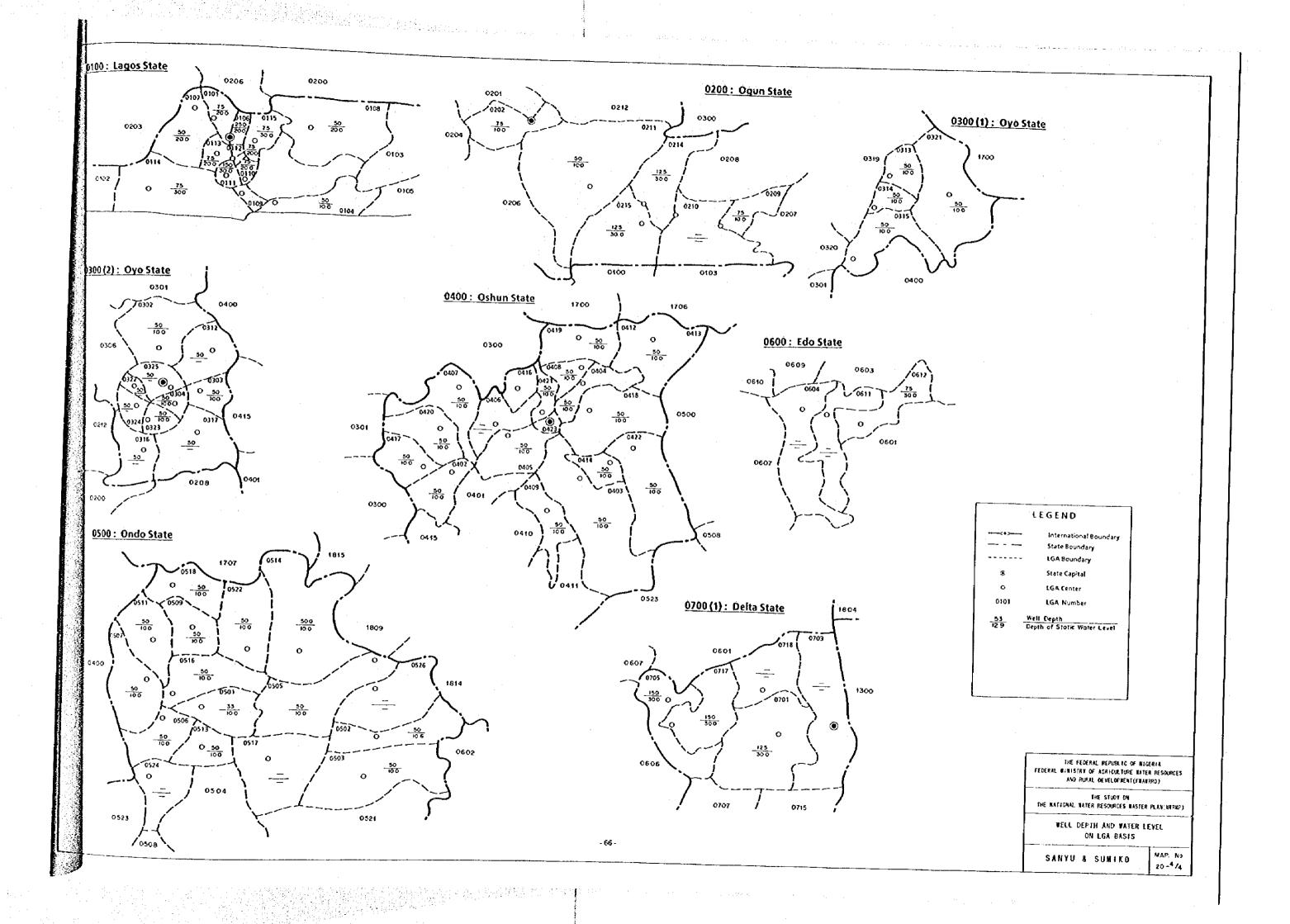


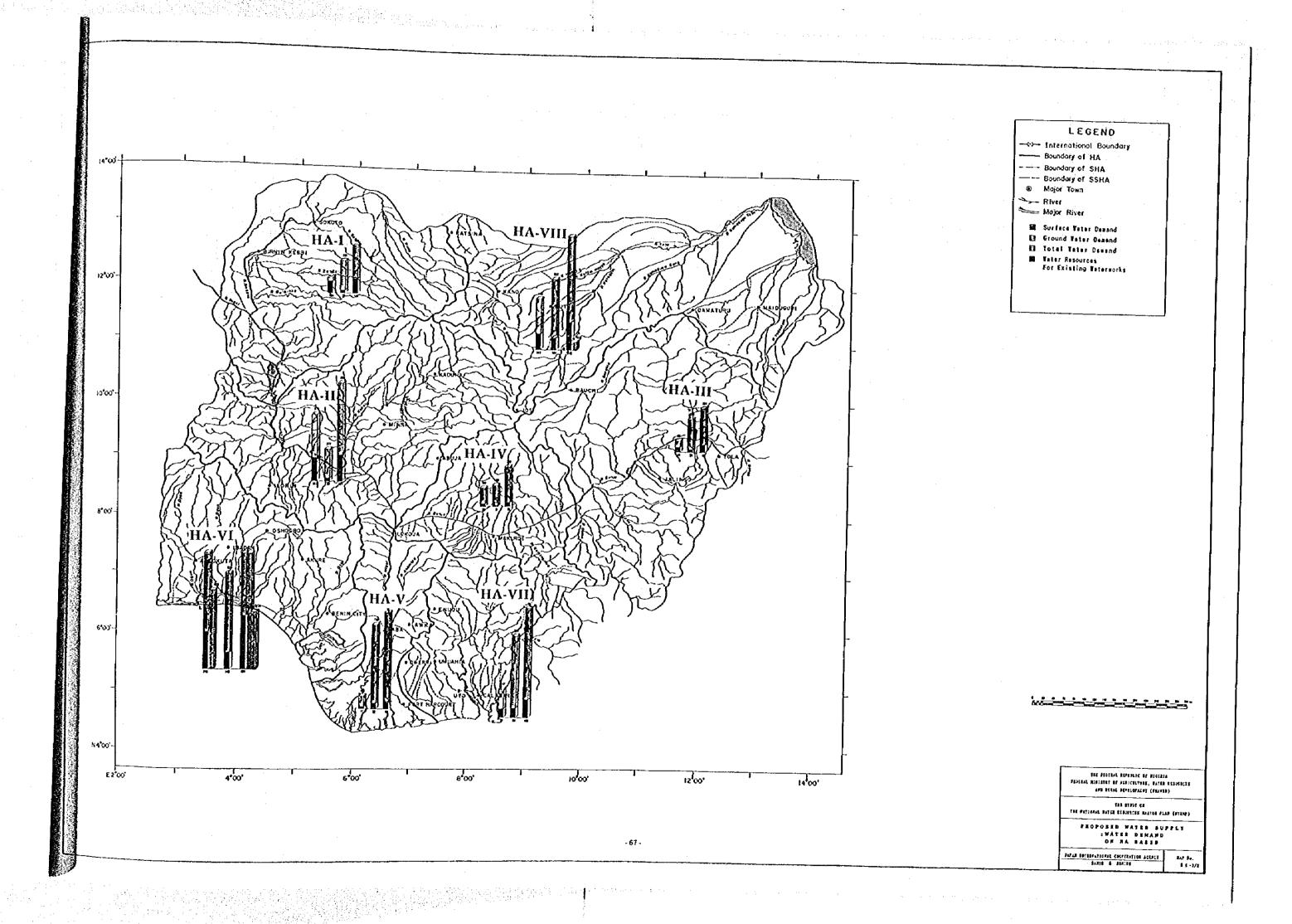


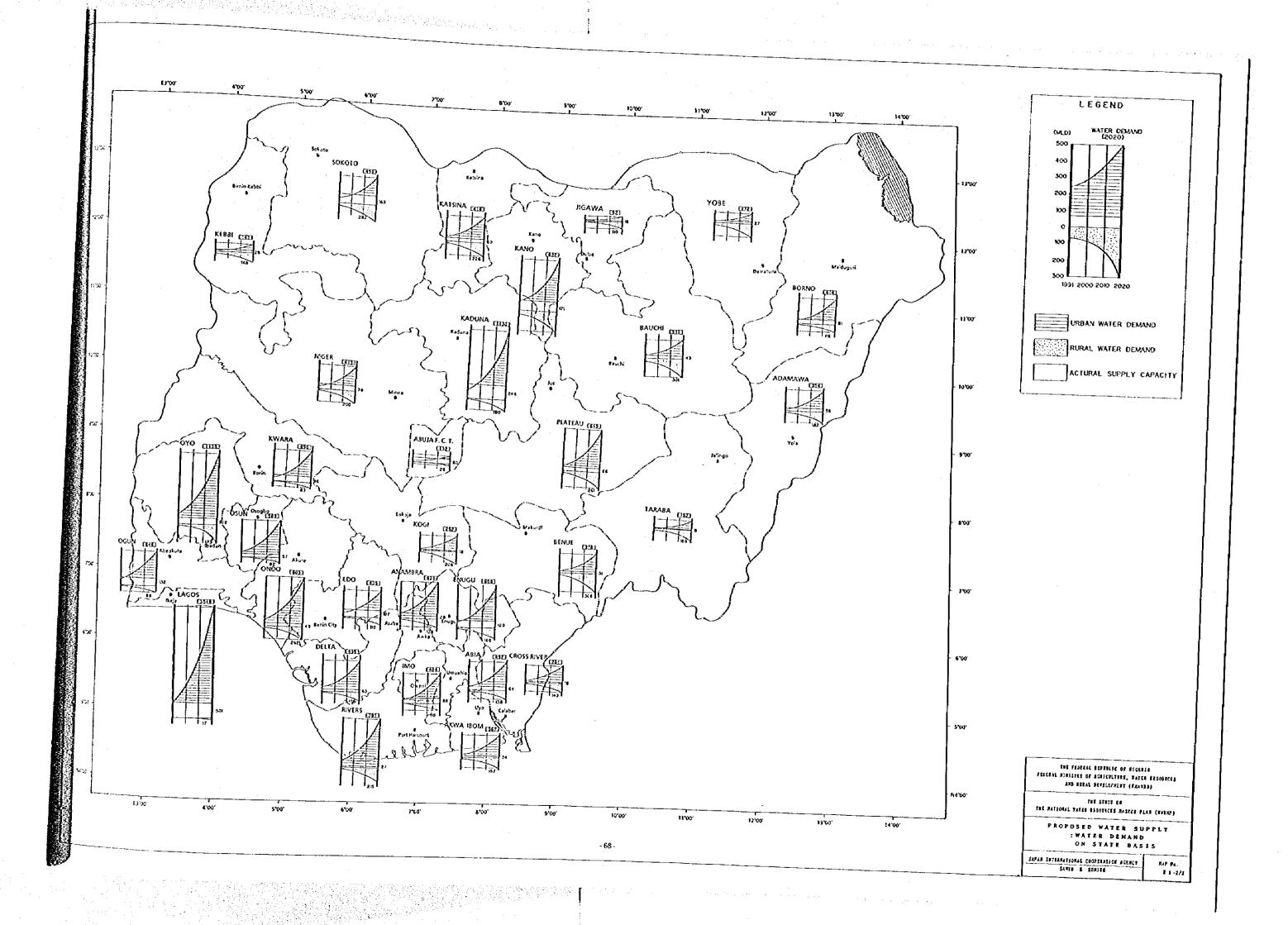


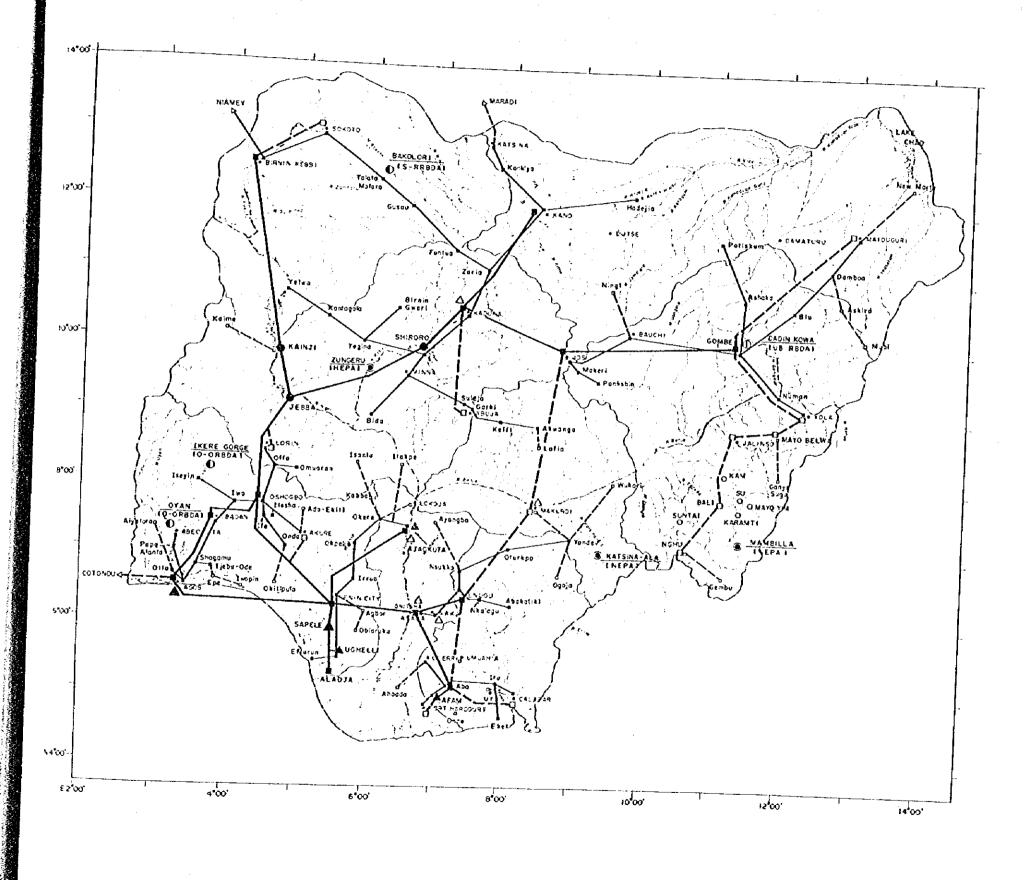












GENERAL LEGEND

Boundary of HA
Boundary of SHA
Boundary of SSHA

State Capital
River

SPECIFIC LEGEND

	EXISTING	PROPOSEC
POWER PLANT	- 	
THERMAL	· •	۸
HYDRO (NEPA)	_	2
HYDRO (RBDA)	ŏ	•
HYDRO (Proposed	by JICA Team)	ō
BULK SUPPLY		
MAJOR	=	-
LOCAL	-	D
	•	ō
TRANSMISSION LINE		
330 KV	5	D
132 KV		
		D

NOTE

This Map compiles the sites of potential hydropower preliminarity Identified on the FSN Maps (1:50,000) by the JICA Team during the course of the NWRMP Study on the basis of the "Map of Nigeria Shawing NEPA Grid System up To December 1995 (prepared by NEPA in November 1990)."

THE PECEFAL REPUBLIC OF RECEETA

FEDERAL RERISTED OF ACRICULTURE, BATER RESOURCES

AND RURAL DEVELOPMENT (FRANCE)

THE STATE OF

THE PATIONAL TATER RESOURCES RADICE PLAN (FREEP)

NR PA POWER ORED SYSTEM

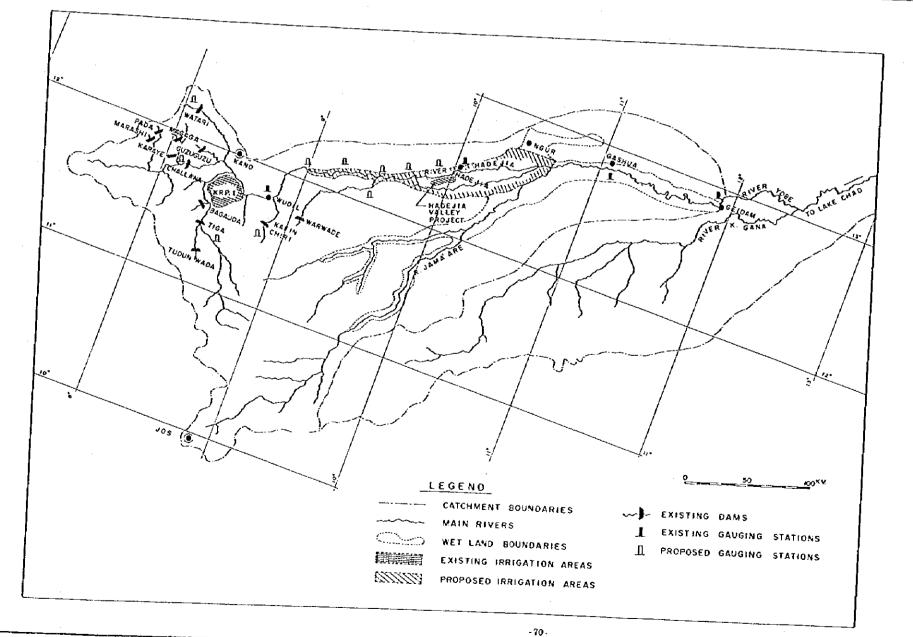
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SUMMARY OF RESERVOIR PROJECTS IN UPPER HADEIIA

Project	Č(1.4	Catchment	Storage (MCM)		Dam (m)		• •	-
Karaye Challawa Guruguzu Magaga Watari Marashi	8032 8032 8032 8032 8032 8033	Area (km²) 80 3,859 106 119 653	Active 14.7 900.0 21.5 17.2 92.7	Total 17.2 930.0 24.6 19.7 104.5	15.2 38.0 17.4 19.4	Length 1,585 7,804 2,090 2,550	12,500 530 600	Water Supply 0 0 - 0
Pada Tudun Wada	8031 8031 8041	43 62	5.8 10.5	6.8 12.0	11.5 14.2	3,658 540 2,150	1,500 n a 200	0 - 0
Tiga Bagauda Kafin Chiri Warwade	8041 8042 8071 8072	85 6,641 207 225 106	16.6 1,845.0 20.9 24.6 9.7	20.8 1,963.0 22.1 31.1 12.3	21.0 47.2 20.7 16.0	2,478 5,791 2,134 5,405 2,780	360 26,000 610 860 240	0 0

WATER MANAGEMENT PROJECT OF THE UPPER HADEJIA



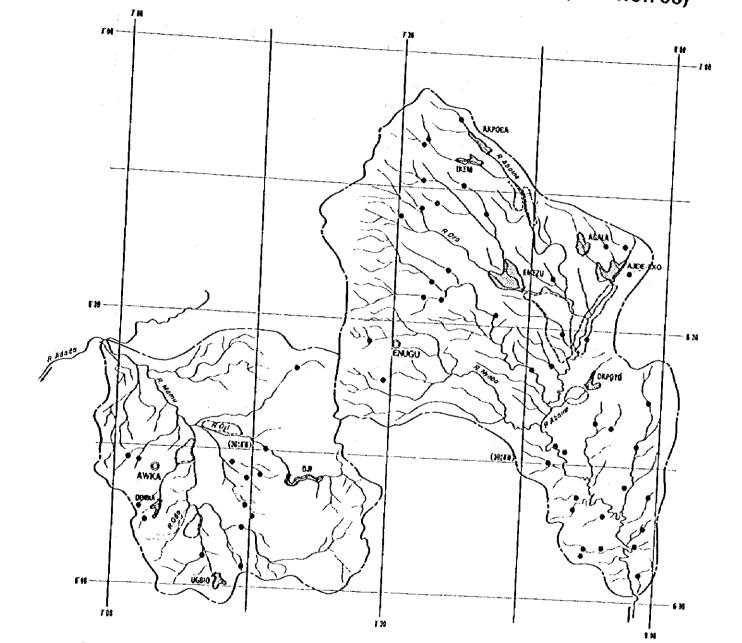
SHE PETERAL REPODUCE OF DIGERIA
FEDERAL MINISTRY OF AGRICULTURE, BATCH RESOURCES
AND RUSAL DEVELOPMENT (FENERA)

THE MATERIAL MATER RESOURCES MASTER PERM (MAZER)

NWRMP PRIORITY BASINS : HABEJIA-JAMA'ARE (HA-VI)

JAPAN INTERNATIONAL COOPERATION ASSOCS
SANTO & SUNTED

ABOINE BASIN (SHA NO.703)



MAMU BASIN (SHA NO. 504)

GENERAL LEGEND

Rasin Boundary (Basin Area; Aboine 4,560sq.km, Mamu 2,550sq.km)

Major River

O Major Town

SPECIFIC LEGEND

Proposed Large / Medium Dam

• Proposed Small Dam and Diversion Dam

A Existing Large Dam

Proposed Irrigation Area

Note: 1) Following Maps of 1:50,000 are not available;

(301NW), (302NW)

 Proposed Dams are planned with multipurpose for Irrigation and Water Supply.

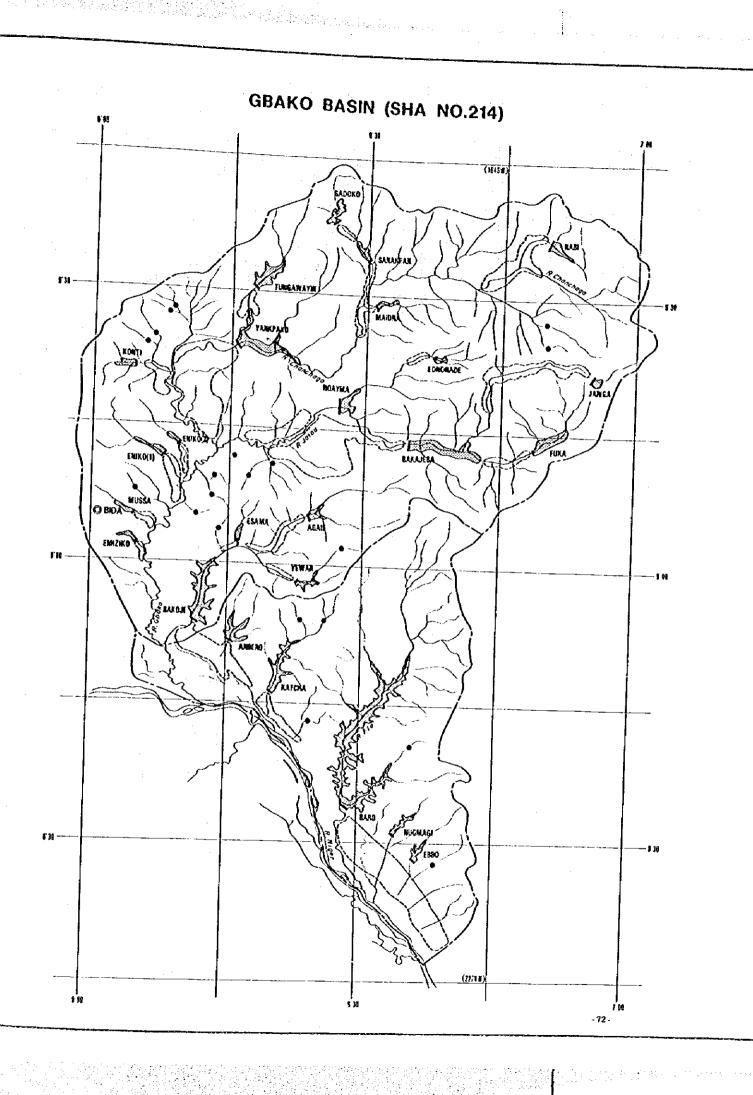
5 10 15 20 km

THE PISTERL REPORTER OF RIGGERS
PROBERL DIMINISTE OF ACOLORATES, BATCH BISCURCES
AND BREAL DEVELOPMENT (FRANCE)

THE STUDY OF TAXONAL PAIRS RESOURCES MASTER PLAN (FYRMP)

NWANP PRIORITY BASINS I ABOUNE & MANU (HA-W&V)

JAPAN ENTERNATIONAL COOPERATION ACCRET



GENERAL LEGEND

Basin Boundary (Basin Area, 9,850 sq.km)

Major River

Major Town

SPECIFIC LEGEND

Proposed Large / Medium Dam

Proposed Small Dam and Diversion Dam

▲ Existing Large Dam

Proposed Irrigation Area

Note: 1) Following Maps of 1:50,000 are not available;

(161SW), (227NW)

2) Proposed Dams are planned with multipurpose for brigation and Water Supply.

5 10 15 20km

THE FIDERAL REPUBLIC OF PICCEIA
FEBERAL RIFISTET OF ACCECULACIES, TATER RESOURCES
AND BORAL DEVELOPMENT (FALAR)

THE STUDY OF THE PATTORAL MATER BESOURCES RASSER PLIR (FREMP)

NWRMP PRIORITY BÁSINS :GBARO (HA-H)

JAPAN ENTERNATIONAL COOPERATION ASSECT
SANYS & SUNIEG

Rap No. 2 3 - 3/6

UPPER OGUN BASIN (SHA NO.602)



GENERAL LEGEND

Basin Boundary (Basin Area, 10,600 sq.km)

Major River

Major Town

SPECIFIC LEGEND

Proposed Large / Medium Dam

Proposed Small Dam and Diversion Dam

Existing Large Dam

Proposed Irrigation Area

Note: 1) Following Maps of 1:50,000 are not available;

(221SE), (222SW), (241NW), (261NW)

2) Proposed Dams are planned with multipurpose for freigation and Water Supply.

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PROBLEM BINISTED OF RESIDENCES
AND RESAL DEVELOPARM (FRANCE)

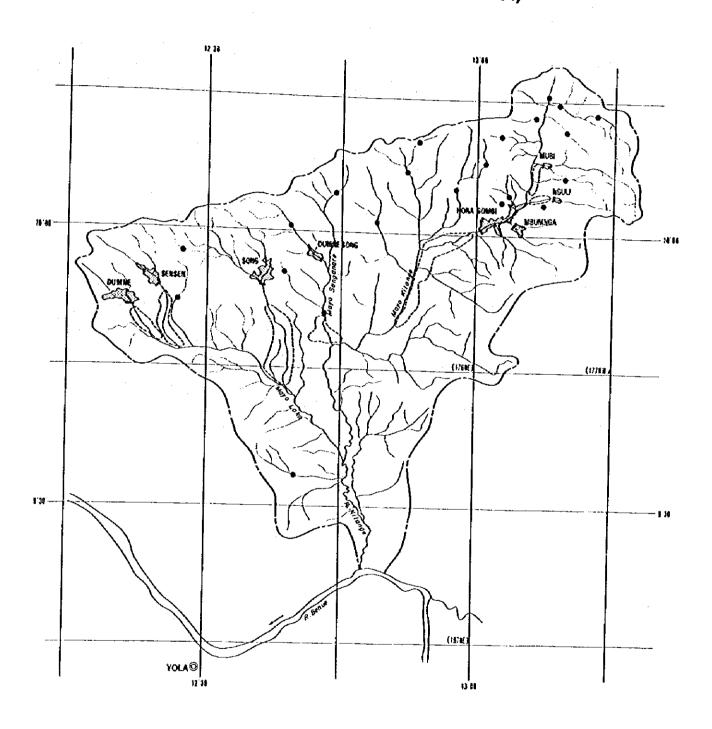
THE STUDY DE THE MATIONAL WATER RESOURCES RASTER PLAN (AFRAP)

NWEMP PRIORITY BASINS : UPPER OOUN (HA~H)

JAPAN BATERNATIONAL COOPERATION AGENCE SANTE & SENIES

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KILANGE BASIN (SHA NO.301)



GENERAL LEGEND

Basin Boundary (Basin Area, 5,540 sq.km)

Major River

O Major Town

SPECIFIC LEGEND

Proposed Large / Medium Dam

e Proposed Small Dam and Diversion Dam

▲ Existing Large Dam

Proposed Irrigation Area

Note: 1) Following Maps of 1:50,000 are not available;

(176NE), (177NW), (197NE)

2) Proposed Dams are planned with multipurpose for irrigation and Water Supply.

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THE PIDERAL REPUBLIC OF BIGERIA PEDERAL BIBISTRY OF ACTICUSTORS, MATTER RESOURCES AND BERAL DEVELOPHENT (TRADER)

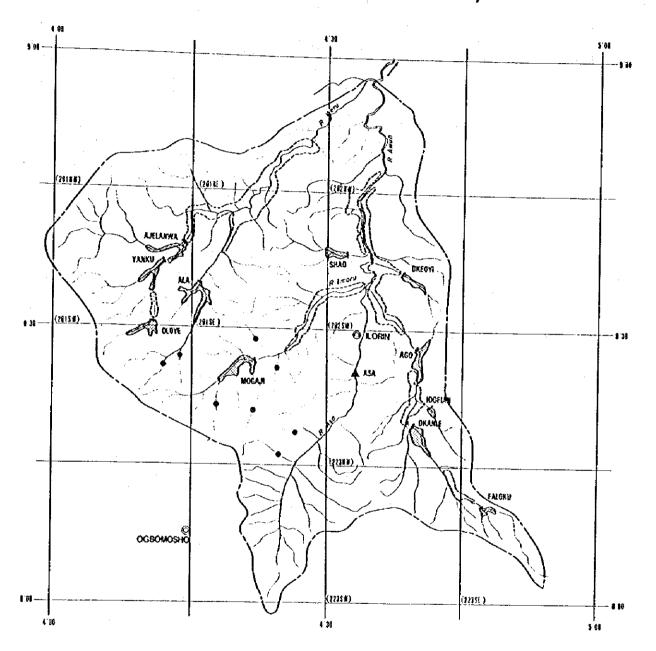
THE STUDY OF THE NATIONAL MATER RESOCRCES MASTER PLAN (FURNP)

NWRMP PRIORITY BASINS : KILANOS (HA-m)

JAPAN INTERNATIONAL COOPERATION AGENCY
SANYN & SUNIED

- 74 -

AWUN BASIN (SHA NO.204)



GENERAL LEGEND

- Basin Boundary (Basin Area, 5,630 sq.km)

Major Rive

Major Town

SPECIFIC LEGEND

Proposed Large / Medium Dam

Proposed Small Dam and Diversion Dam

A Existing Large Dam

Proposed Irrigation Area

Note: 1) Following Maps of 1:50,000 are not available;

(201: NW,NE, SW, SE), (202: NW, SW), (223: NW, SW, SE)

2) Proposed Dams are planned with multipurpose for lirigation and Water Supply.

9 10 15 20 km

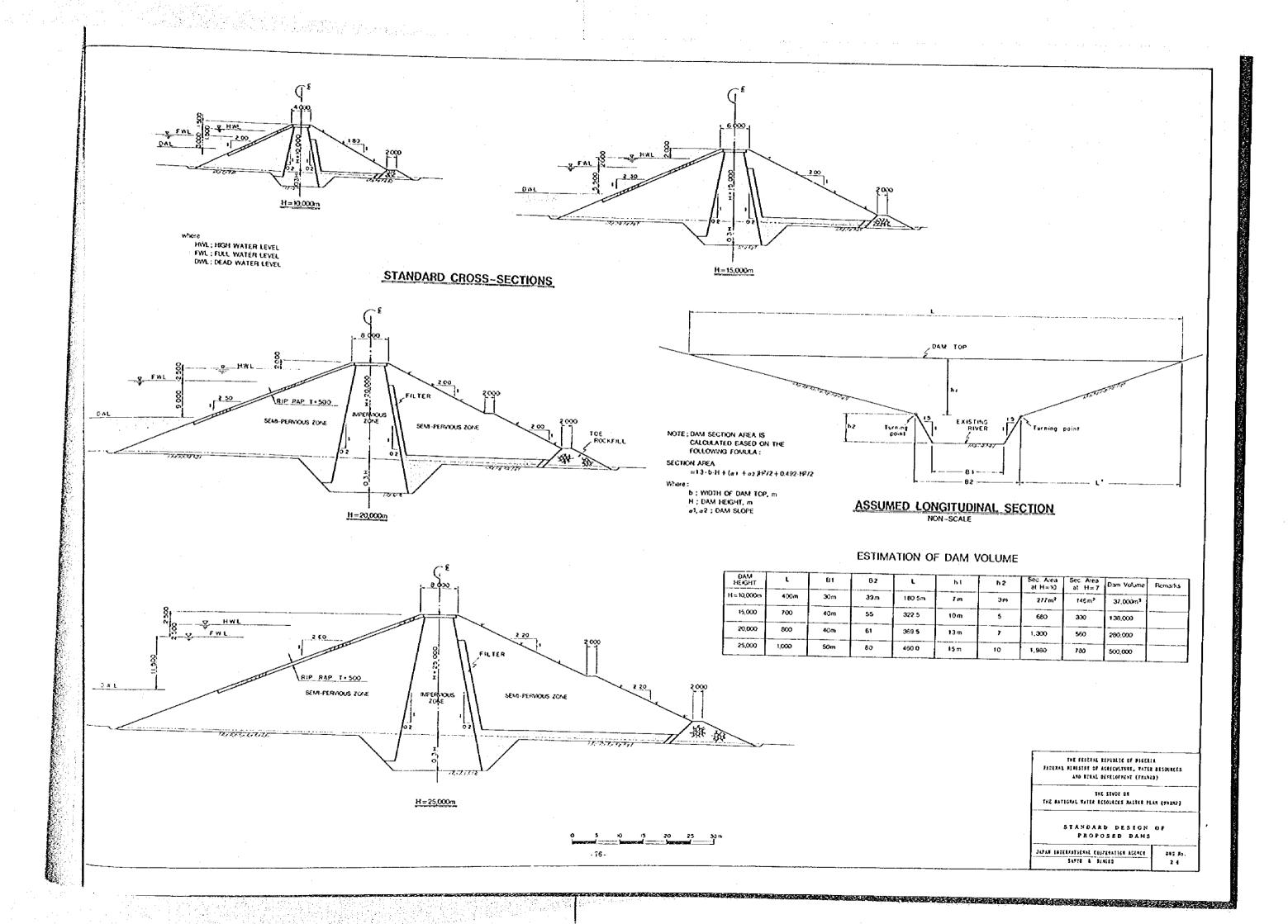
THE PERFECT REPUBLIC OF DIGENTA PROBLEM REPUBLISH OF AGRICULTURE, MATER RESOURCES AND ESTAL DEVELOPMENT (FRANCE)

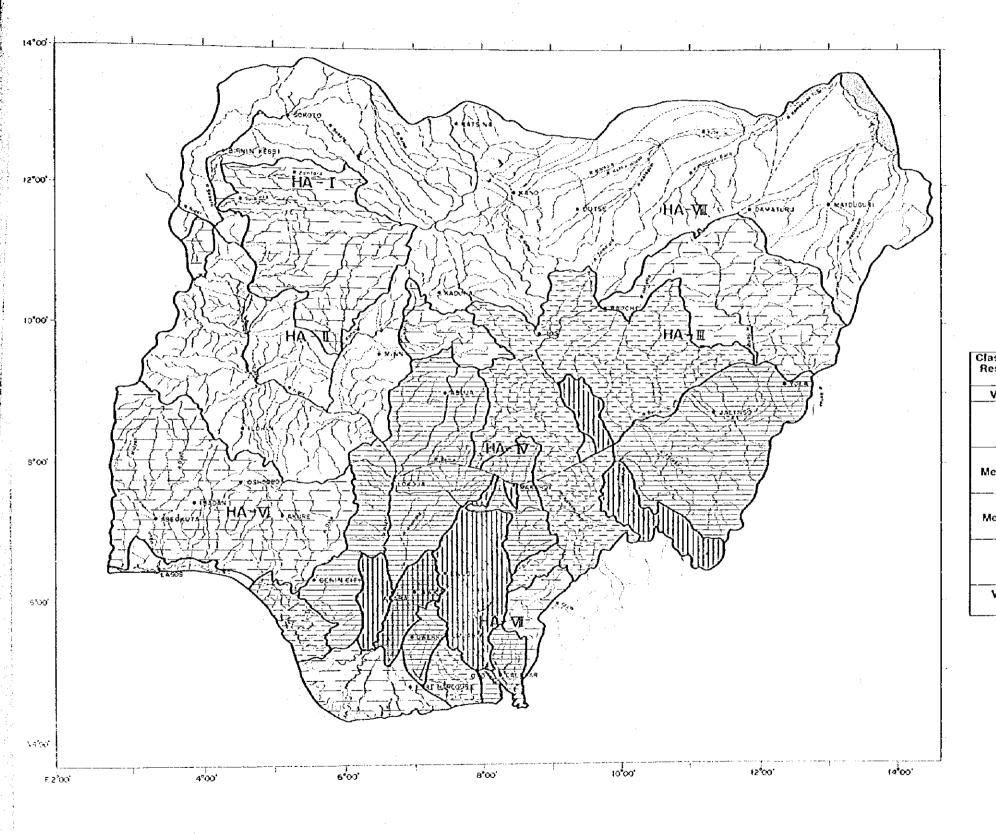
THE STEDY OF THE MATER PLAN (MYZAP)

NWRMP PRIORITY BASINS : AWUN (HA-II)

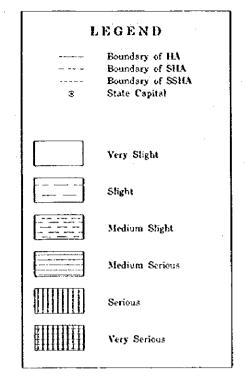
JAPAN INTERNATIONAL COCPERATION ASSENCE
SANYN & SCHIED

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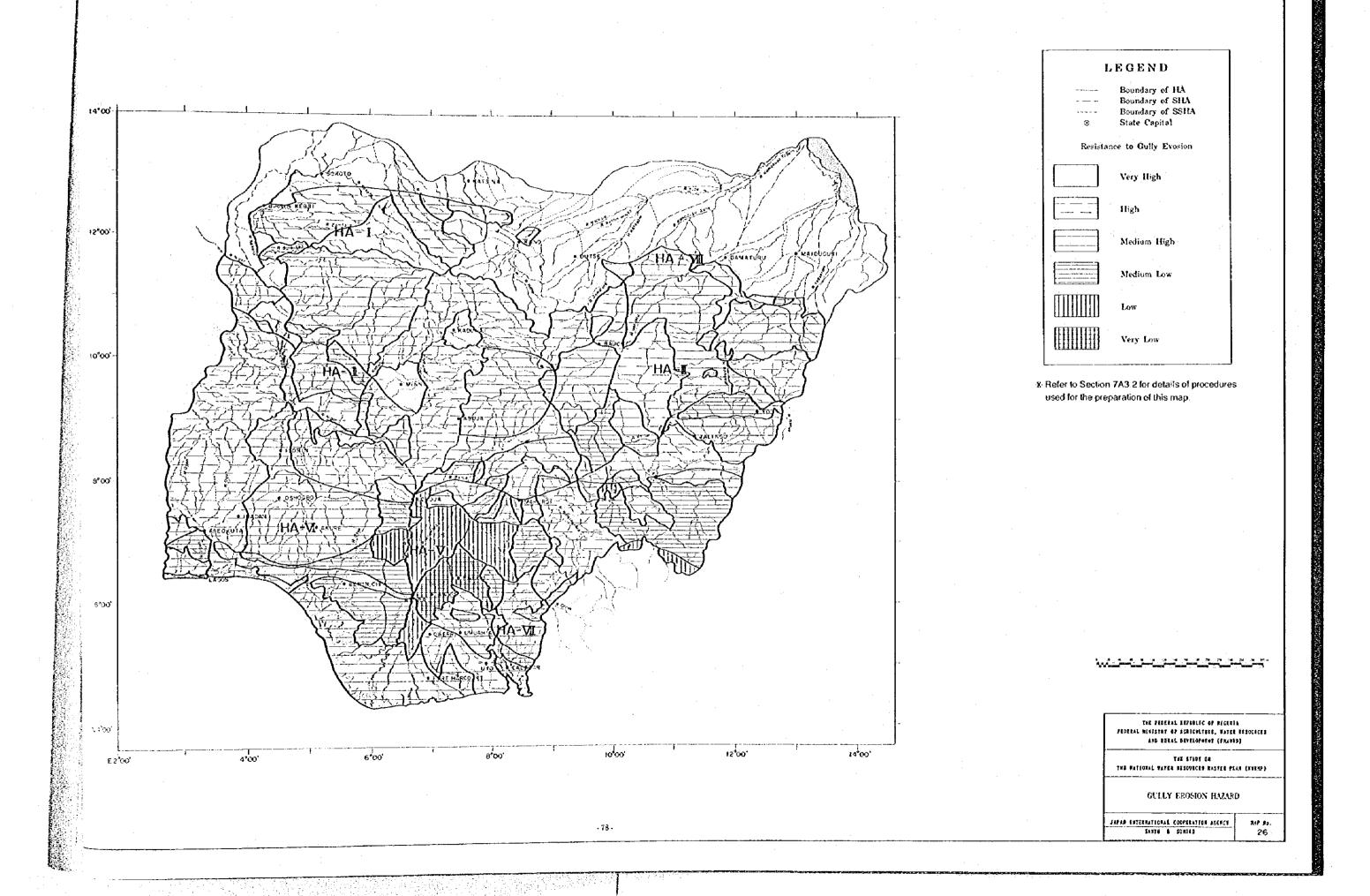
Classification - Resistance to Erosion	Land Use/Future Development	Control of Existing Gullies
Very High	No restriction	No Existing Gullies
fligh	No restriction although simple protection facilities may be required.	Simple facilities only eg. drains, plantation.
Medium Higo	No restriction provided erosion control facilities are constructed and well maintained.	Orainage and plantation.
Medium Low	Limitations required. Regional drainage systems to accompany future developments.	Sabo dams.
Low	Strict limitations required. Regional drainage and protection facilities needed.	Sabo dams urgently required.
Very Low	Suitable for forestry only.	Large scale sabo works urgently required.

THE PROBABL REPORTE OF PISCELL PROCESS HIGHSTOP OF AGRICULTURE, BATCH RESOURCES AND BREAC BEVILOPHENT (FRANCE)

THE STUDE OF THE BATTORAL BATTOR BESOCRES AASTRO PEAK (AMENF)

PRESENT DISTRIBUTION OF GULLY EROSION

JAPAP TOTERFATIONAL CODREATION ASSUCE SANYN & SCHIED WAP #0. 25



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