SHORE LINE/RIVERS AND CREEKS DELINEATION

DATA INFORMATION SHEET

ATTRIBUTE DATA DESCRIPTION:

1. COVERAGE NAME: SHORE LINE/RIVERS AND CREEKS DELINEATION

2. DESCRIPTION: This layer contains the delineation of the shoreline and rivers/creeks within the area covered.

3. FILENAME: SLUTM

4. FILESIZE: 2.1 MB

5. FEATURE REPRESENTATION: Lines

6. SOFTWARE USED: PC ArcInfo was used to build the data base while AutoCad was used to digitize graphic feature.

7. EQUIPMENT USED: The Kurta XLC (36" x 48") with resolution of up to 1279 points per inch and accuracy of ±0.01 inch mm was used to digitize the layer.

8. DATE CREATED: 1992.

9. PRODUCER: The MPE-PMO of the Department of Public Works and Highways, and Louis Berger International, Inc.

10. PROPRIETOR: The MPR-PMO of the DPWH which took over the function of the MPE-PMO.

11. AVAILABILITY: The data may be made available at the discretion of the Program Director.

12. AREA COVERAGE: The data covers the province of Pampanga and portions of the provinces of Tarlac, Zambales, Nueva Ecija, Bulacan and Bataan. This area corresponds to the features delineated in the 18 Quad Sheets from coordinates 119°45' longitude 14°45' latitude to 121°00' longitude 15°45' latitude.

13. DIGITIZING PROCEDURE: The data was digitized from the shoreline and rivers/creeks delineation as defined in the quad maps. The data in its original form was digitized using an assumed datum. The coverage, however, was later transformed to UTM Zone 51 coordinate system.

14. SOURCE(S) OF DATA: Shoreline and rivers/creeks delineation were taken from the 1:50,000 scale USDMA maps revised in 1987 and NAMRIA maps updated in 1977.

ARC ATTRIBUTE TABLE (AAT)

SLUTM_ID	N	11	0	Numeric codes that enables the suppression of some rivers and creeks features at the Delta area. The values are as follows: 4 - Rivers 40 - Newdelta
DXF_LAYER	C	10		Defines the ACAD layer where features will be placed when transferred to CAD station. It also provides textual description for codes listed above.

RIVER SYSTEM

BASIN AND SUB-BASIN DRAINAGE DIVIDES DELINEATION

DATA INFORMATION SHEET

1. COVERAGE NAME: BASIN AND SUB-BASIN DRAINAGE DIVIDES DELINEATION

2. DESCRIPTION: This layer contains the delineation of the various the drainage divides of major rivers within the study area. Selected sub-basins having significant deposits of lahar were also delineated.

3. FILENAME: BASIN

4. FILESIZE: 83.6 KB

5. FEATURE REPRESENTATION: Polygons, lines, annotations

6. SOFTWARE USED: PC ArcInfo was used to build the data base while AutoCad was used to digitize graphic features.

7. EQUIPMENT USED: The Kurta XLC (36" x 48") with resolution of up to 1279 points per inch and accuracy of ±0.01 inch mm was used to digitize the layer.

8. DATE CREATED: 1992

9. PRODUCER: The MPE-PMO of the Department of Public Works and Highways, and Louis Berger International, Inc.

10. PROPRIETOR: The MPR-PMO of the DPWH which took over the function of the MPE-PMO.

11. AVAILABILITY: The data may be made available at the discretion of the Program Director.

12. AREA COVERAGE: The data covers the province of Pampanga and portions of the provinces of Tarlac, Zambales, Nueva Ecija, Bulacan and Bataan. This area corresponds to the features delineated in the 18 Quad Sheets from coordinates 119°45' longitude 14°45' latitude to 121°00' longitude 15°45' latitude.

13. DIGITIZING PROCEDURE: The data was digitized from boundaries delineated using topographic data in the Quad maps described in item 12 above. The data was digitized directly into the UTM coordinate system (zone 51) using appropriate tic coordinates as control points. Digitizing software was AutoCad.

14. SOURCE(S) OF DATA: The data was obtained from drainage device boundaries delineated by the consultant using the topographic data on the 15' Quad maps. The 1:50,000 scale maps were from the US Defense Mapping Agency (USDMA), where available, and NAMRIA. USDMA maps used were from those revised in 1987 while NAMRIA maps were from those updated in 1977.

ATTRIBUTE DATA DESCRIPTION:

ARC ATTRIBUTE TABLE (AAT)

BASIN_ID	N	11	0	Numeric codes to identify whether the arc represents a basin or sub-basin boundary. The values for this code is as follows:

1 - Basin Boundary
2 - Sub-basin Boundary

| CLASS	C	25		Textual description of the codes listed above.

POLYGON ATTRIBUTE TABLE (PAT)

BASIN_CODE N	4	0	Numeric codes to differentiate between a Basin polygon and a sub-basin polygon. Values are as follows:

10xx - Basin Polygon
20xx - Sub-basin Polygon

where xx are numbers from 0-99.

BASIN_NAME	C	30	Contains the name of the Basin/sub-basin being represented by the polygon.

BASIN BOUNDARY
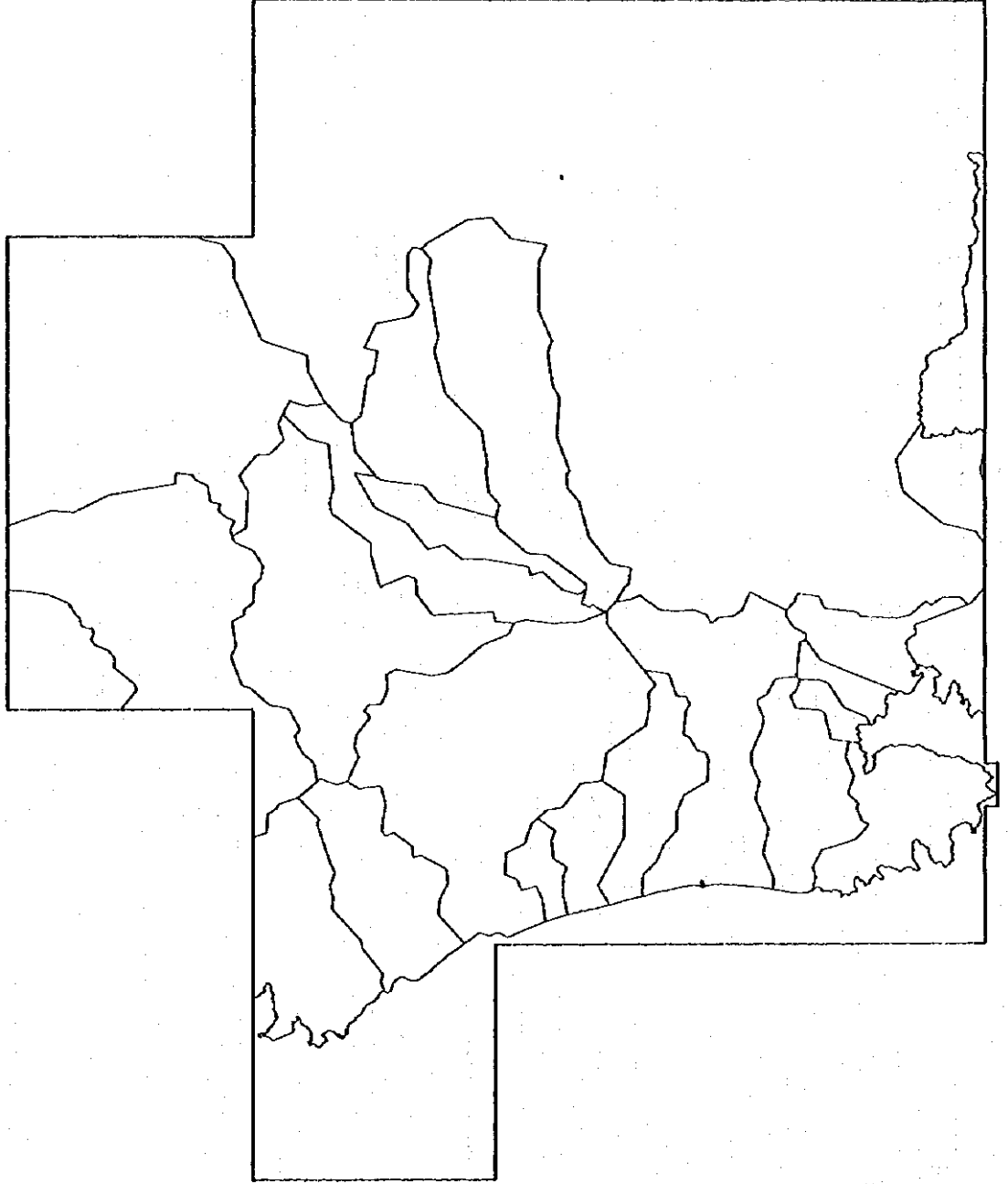
PYROCLASTIC FLOW DEPOSIT

DATA INFORMATION SHEET

1. COVERAGE NAME: PYROCLASTIC FLOW DEPOSIT

2. DESCRIPTION: This layer contains the delineation of areas covered by pyroclastic deposit as a result of the 1991 eruption.

3. FILENAME: PFD

4. FILESIZE: 255.9 KB

5. FEATURE REPRESENTATION: Polygons

6. SOFTWARE USED: PC Arcinfo was used to build the data base.

7. EQUIPMENT USED:

8. DATE CREATED: 1992

9. PRODUCER: NEDA Region III

10. PROPRIETOR: NEDA Region III/PHIVOLCS

11. AVAILABILITY:

12. AREA COVERAGE: The data covers the province of Pampanga and portions of the provinces of Tarlac, Zambales, Nueva Ecija, Bulacan and Bataan. This area corresponds to the features delineated in the 18 Quad Sheets from coordinates 119°45' longitude 14°45' latitude to 121°00' longitude 15°45' latitude.

13. DIGITIZING PROCEDURE:

14. SOURCE(S) OF DATA: This layer was based on digital data obtained from PHIVOLCS through NEDA Region III.

ATTRIBUTE DATA DESCRIPTION:

ARC ATTRIBUTE TABLE (AAT)

ID	N	3	0	Numeric code assigned to define what each polygon represents. The values are as follows:
				10 - Pyroclastic flow deposit
				40 - Island polygons
				50 - Pinatubo crater
				60 - Pinatubo lake
DESC	C	40		Textual description of codes listed above.

PYROCLASTIC FLOW DEPOSIT

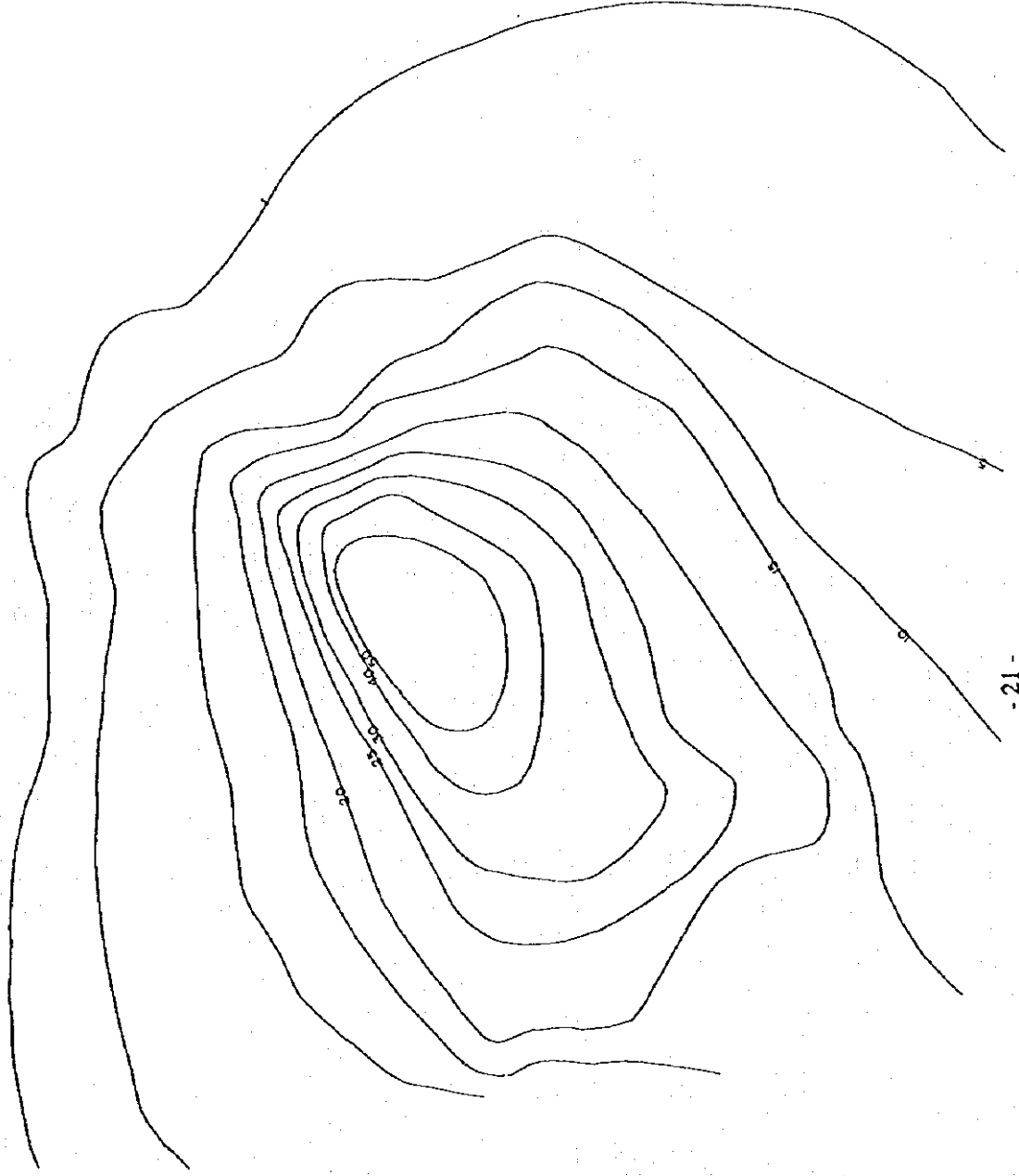ISOPACH LINES FOR ASHFALL DEPOSIT

DATA INFORMATION SHEET

1. COVERAGE NAME: ISOPACH LINES FOR ASHFALL DEPOSIT

2. DESCRIPTION: This layer contains the 1991 isopach lines for airborne ash deposits based on field measurements conducted by PHIVOLCS.

3. FILENAME: ISOUTM

4. FILESIZE: 16.0 KB

5. FEATURE REPRESENTATION: Lines

6. SOFTWARE USED: PC ArcInfo was used to digitize graphic features and build the data base

7. EQUIPMENT USED: The Kurta XLC (36" x 48") with resolution of up to 1279 points per inch and accuracy of ±0.01 inch mm was used to digitize the layer.

8. DATE CREATED: 1992

9. PRODUCER: The MPE-PMO of the Department of Public Works and Highways, and Louis Berger International, Inc.

10. PROPRIETOR: The MPR-PMO of the DPWH which took over the function of the MPE-PMO.

11. AVAILABILITY: The data may be made available at the discretion of the Program Director.

12. AREA COVERAGE: The data covers the province of Pampanga and portions of the provinces of Tarlac, Zambales, Nueva Ecija, Bulacan and Bataan. This area corresponds to the features delineated in the 18 Quad Sheets from coordinates 119°45' longitude 14°45' latitude to 121°00' longitude 15°45' latitude.

13. DIGITIZING PROCEDURE: The data was digitized from a lahar map published by PHIVOLCS. The data in its original form was digitized using an assumed datum. The coverage, however, was later transformed to UTM Zone 51 coordinate system.

14. SOURCE(S) OF DATA: The data was obtained from a folded map indicating the areas affected by the 1991 lahar episode published by PHIVOLCS in 1992.

ATTRIBUTE DATA DESCRIPTION:

ARC ATTRIBUTE TABLE (AAT)

ISOUTM_ID	N	11	0	Contains numeric values corresponding to the depth of airborne ash deposits delineated by the isopach lines. Values are from 1 to 50 cm., in 5 cm. increments.

ISOPACH LINES

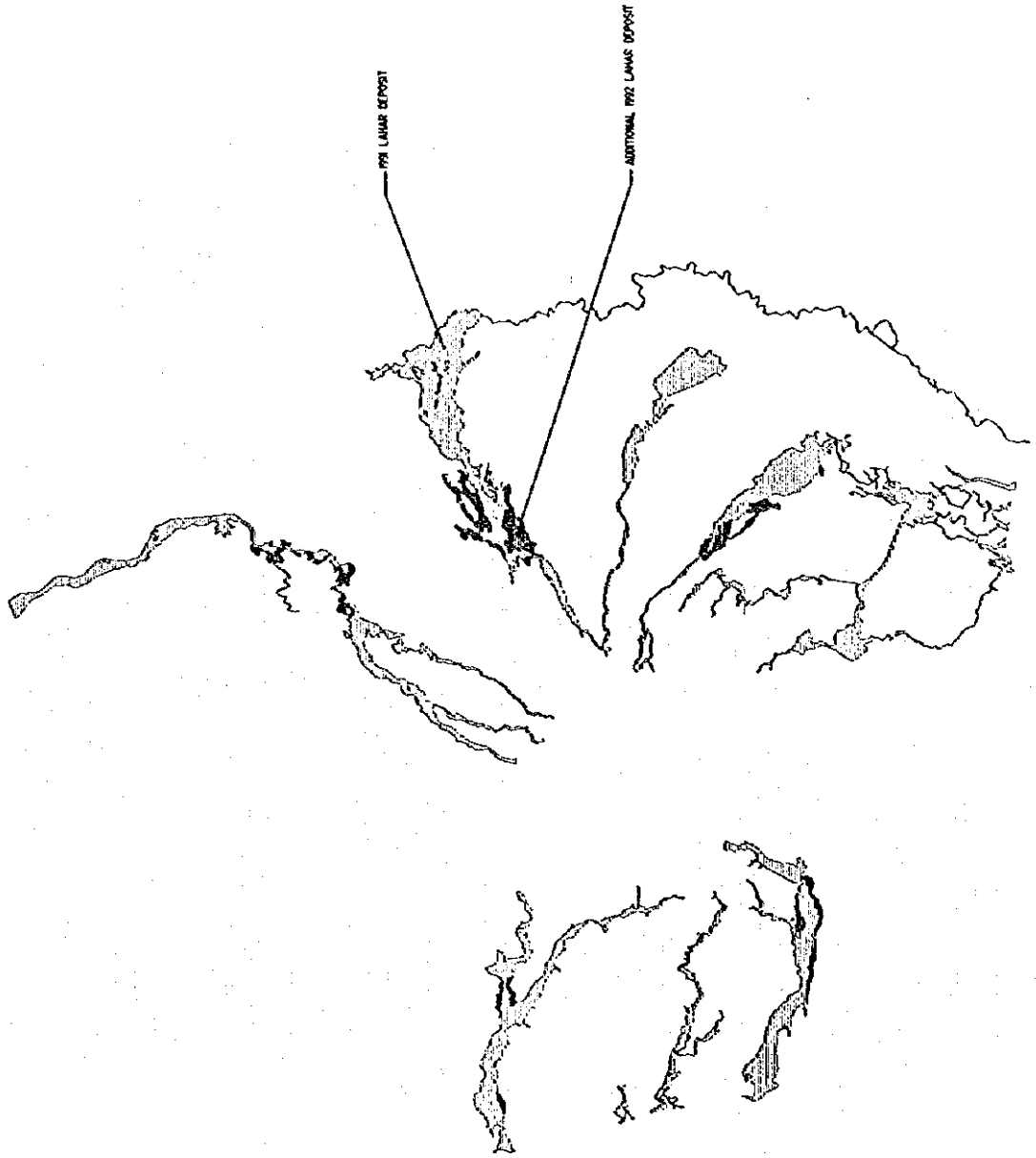# LAHAR AFFECTED AREAS

DATA INFORMATION SHEET

ATTRIBUTE DATA DESCRIPTION:

POLYGON ATTRIBUTE TABLE (PAT)

ID	N	3	0

Numeric codes to identify which lahar episode affected the areas delineated by the polygons. Values are as follows:

20	-	Areas affected by the 1991 lahar episode
30	-	Additional areas affected by the 1992 lahar episode
40	-	Island polygons

DESC	C	40	

Textual description of codes listed above.

---

1. COVERAGE NAME: LAHAR AFFECTED AREAS

2. DESCRIPTION: This layer contains the delineation of areas affected by the 1991 and 1992 lahar episodes.

3. FILENAME: LAHAR92

4. FILESIZE: 397.5 KB

5. FEATURE REPRESENTATION: Polygons

6. SOFTWARE USED: PC ArcInfo was used to build the data base while AutoCad was used to digitize graphic feature.

7. EQUIPMENT USED: The Kurta XLC (36" x 48") with resolution of up to 1279 points per inch and accuracy of ±0.01 inch mm was used to digitize the layer.

8. DATE CREATED: 1993

9. PRODUCER: The MPR-PMO of the Department of Public Works and Highways, and Louis Berger International, Inc.

10. PROPRIETOR: MPR-PMO

11. AVAILABILITY: The data may be made available at the discretion of the Program Director.

12. AREA COVERAGE: The data covers the province of Pampanga and portions of the provinces of Tarlac, Zambales, Nueva Ecija, Bulacan and Bataan. This area corresponds to the features delineated in the 18 Quad Sheets from coordinates 119°45' longitude 14°45' latitude to 121°00' longitude 15°45' latitude.

13. DIGITIZING PROCEDURE: The data was digitized from hand drawn delineation provided by PHIVOLCS. The data was digitized directly into the UTM coordinate system (zone 51) using the appropriate 1000 m UTM grid intersections as control points. Digitizing software was AutoCad.

14. SOURCE(S) OF DATA: The data was based hand drawn delineation made by PHIVOLCS on a 4 sheet 1:75,000 scale base maps provided by the MPR-PMO in early 1993.

1991 AND ADDITIONAL 1992 LAHAR DEPOSITS

1991 LAHAR DEPOSIT

ADDITIONAL 1992 LAHAR DEPOSIT

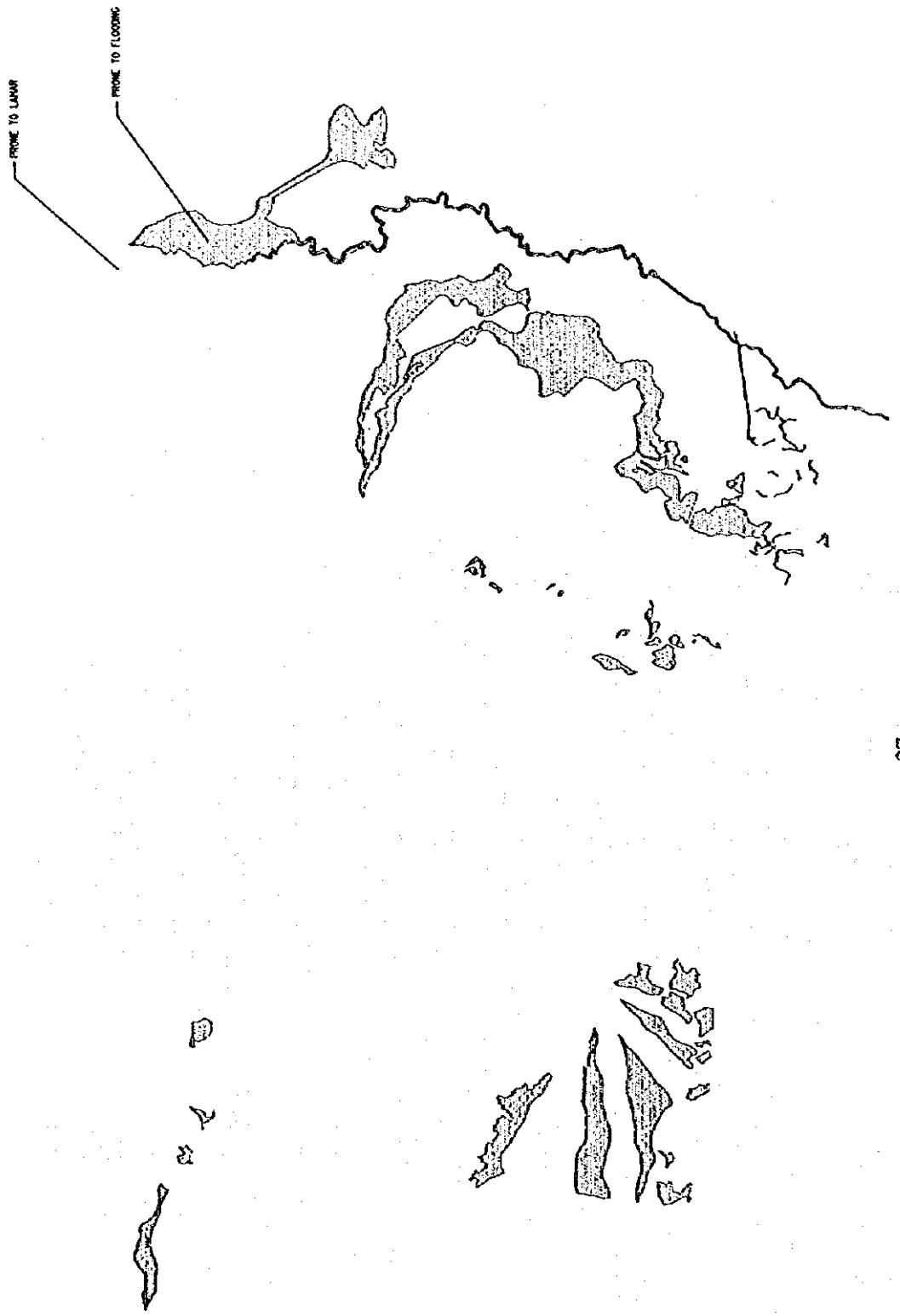# MUDFLOW HAZARD ZONE

DATA INFORMATION SHEET

ATTRIBUTE DATA DESCRIPTION:

1. COVERAGE NAME: MUDFLOW HAZARD ZONE

2. DESCRIPTION: This layer contains the delineation of areas likely to be affected by future lahar episodes.

3. FILENAME: PRONE

4. FILESIZE: 331.0 KB

5. FEATURE REPRESENTATION: Polygons

6. SOFTWARE USED: PC ArcInfo was used to build the data base.

7. EQUIPMENT USED:

8. DATE CREATED: 1992

9. PRODUCER: NEDA Region III

10. PROPRIETOR: NEDA Region III/PHIVOLCS

11. AVAILABILITY:

12. AREA COVERAGE: The data covers the province of Pampanga and portions of the provinces of Tarlac, Zambales, Nueva Ecija, Bulacan and Bataan. This area corresponds to the features delineated in the 18 Quad Sheets from coordinates 119°45' longitude 14°45' latitude to 121°00' longitude 15°45' latitude.

13. DIGITIZING PROCEDURE:

14. SOURCE(S) OF DATA: This layer was based on digital data obtained from PHIVOLCS through NEDA Region III.

POLYGON ATTRIBUTE TABLE (PAT)

ID	N	3	0
			Numeric codes to identify type of hazard will likely affect the areas delineated by the polygons. Values are as follows:
			70 - Prone primarily to lahar
			80 - Prone primarily to flooding
			40 - Island polygons
DESC	C	40	Textual description of the codes listed above.

LAHAR AND FLOOD PRONE AREAS

PRONE TO LAHAR

PRONE TO FLOODING

- 27 -

JICA/BSWM MUDFLOW HAZARD MAP

DATA INFORMATION SHEET

1. COVERAGE NAME: JICA/BSWM MUDFLOW HAZARD MAP

2. DESCRIPTION: This layer contains the delineation of the different zones of varying levels of risk from lahar attacks based on studies conducted by the Japan International Cooperation Agency and the Bureau of Soils and Water Management. River wash areas, representing new and existing floodplains, were also identified.

3. FILENAME: GISME_1

4. FILESIZE: 212.2 KB .

5. FEATURE REPRESENTATION: Polygon

6. SOFTWARE USED:

7. EQUIPMENT USED:

8. DATE CREATED: 1992

9. PRODUCER: Bureau of Soils and Water Management (BSWM)/Japan International Cooperation Agency (JICA)

10. PROPRIETOR: BSWM/JICA

11. AVAILABILITY:

12. AREA COVERAGE: The data covers risk areas in the province of Pampanga and portions of the provinces of Tarlac, Zambales, Nueva Ecija, Bulacan and Bataan.

13. DIGITIZING PROCEDURE:

14. SOURCE(S) OF DATA: The data was obtained in digital format from BSWM. The data was projected to UTM coordinates from the original PTM coordinates.

ATTRIBUTE DATA DESCRIPTION:

POLYGON ATTRIBUTE TABLE (PAT)

MF_CODE	N	3	0	Numeric codes assigned to polygons to indicate the risks it represents. Values are as follows:

1 - Low risk area
2 - River wash
3 - Very high risk area
4 - Non risk
5 - High risk

DESC	C	30	Textual description of the codes listed above.

MUDFLOW HAZARD - JICA/BSWM VERSION

LOW - RISK

LOW RISK

HIGH RISK

VERY HIGH RISK

RIVER WASH
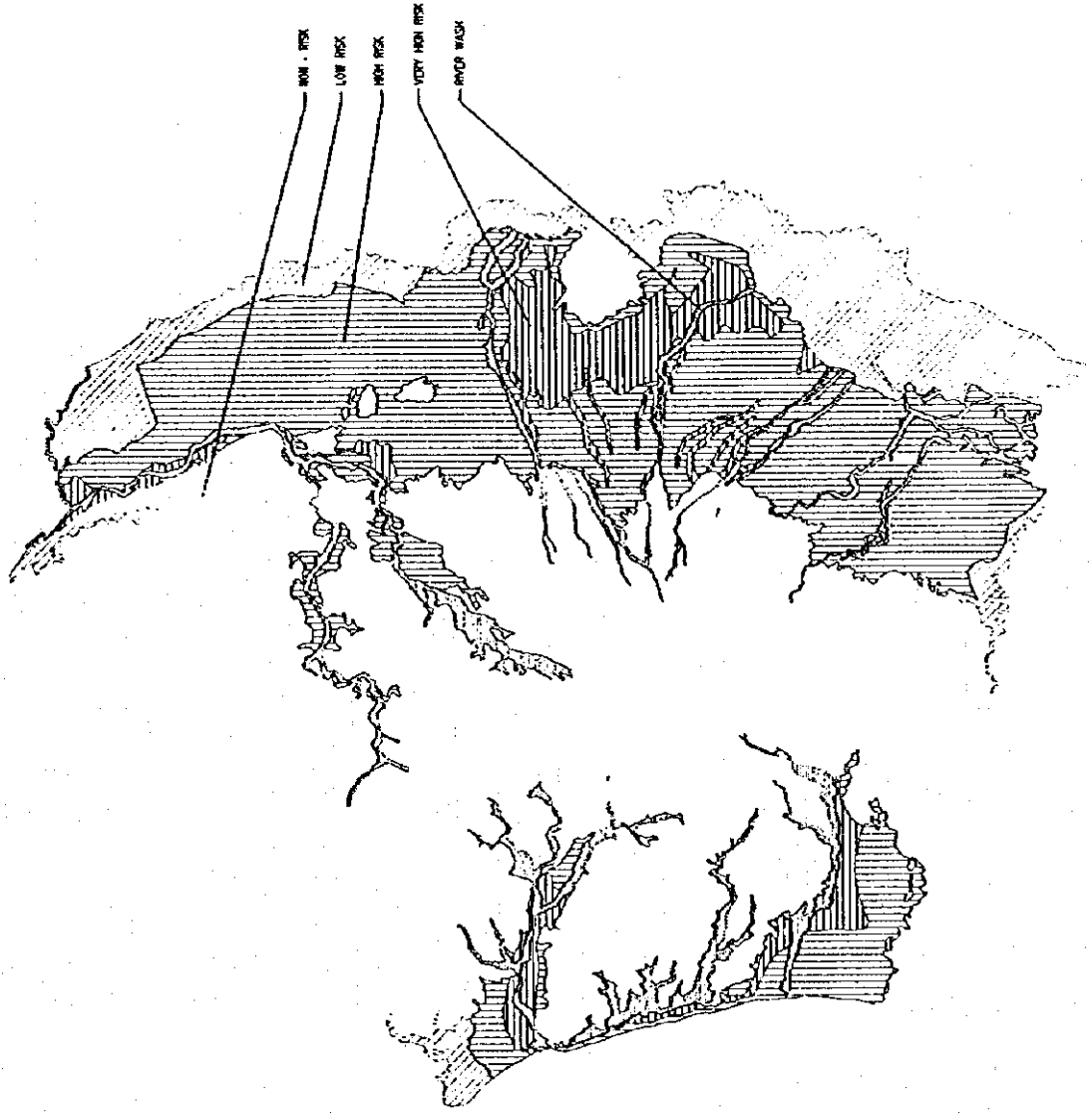
LAND USE VEGETATION

DATA INFORMATION SHEET

ATTRIBUTE DATA DESCRIPTION:

1. COVERAGE NAME: LAND USE VEGETATION

2. DESCRIPTION: This layer contains the major land use categories in the study area.

3. FILENAME: LANDUSE

4. FILESIZE: 215.3 KB

5. FEATURE REPRESENTATION: Polygons

6. SOFTWARE USED: PC ArcInfo was used to build the data base while AutoCad was used to digitize graphic feature.

7. EQUIPMENT USED: The Kurta XLC (36" x 48") with resolution of up to 1279 points per inch and accuracy of ±0.01 inch mm was used to digitize the layer.

8. DATE CREATED: 1992

9. PRODUCER: The MPE-PMO of the Department of Public Works and Highways, and Louis Berger International. Inc.

10. PROPRIETOR: The MPR-PMO of the DPWH which took over the function of the MPE-PMO.

11. AVAILABILITY: The data may be made available at the discretion of the Program Director.

12. AREA COVERAGE: The data covers the province of Pampanga and portions of the provinces of Tarlac, Zambales, Nueva Ecija, Bulacan and Bataan. This area corresponds to those delineated by the 18 Quad Sheets from coordinates 119°45' longitude 14°45' latitude to 121°00' longitude 15°45' latitude.

13. DIGITIZING PROCEDURE: The data was digitized from a blueprint of a landuse vegetation map. The data in its original form was digitized using an assumed datum. The coverage, however, was later transformed to UTM Zone 51 coordinate system.

14. SOURCE(S) OF DATA: The data was lifted from a folded blue print of a landuse vegetation map produced by the Bureau of Soils and Water Management in 1988. The scale of the original map is 1:250,000.

POLYGON ATTRIBUTE TABLE (PAT)

CLASS	N	1	0	Numeric codes assigned to identify each major landuses. Code values are as follows: 1 - Agricultural areas 2 - Grassland/Shrubland areas 3 - Woodland areas 4 - Wetland areas 5 - Miscellaneous
DESC	C	40		Textual description of the codes listed above.

LANDUSE DELINEATION

AGRICULTURAL AREAS

MISCELLANEOUS

WETLAND AREAS

WOODLAND AREAS

GRASSLAND/SHRUBLAND AREAS

LOCATION OF RESETTLEMENT/EVACUATION SITES

DATA INFORMATION SHEET

1. COVERAGE NAME: **LOCATION OF RESETTLEMENT/EVACUATION SITES**

2. DESCRIPTION: This layer contains the location of resettlement and evacuation sites within the area coverage.

3. FILENAME: **RESET.**

4. FILESIZE: 79.7 KB

5. FEATURE REPRESENTATION: Points

6. SOFTWARE USED: PC ArcInfo was used to build the data base while AutoCad was used to digitize graphic feature.

7. EQUIPMENT USED: The Kurta XLC (36" x 48") with resolution of up to 1279 points per inch and accuracy of ±0.01 inch min was used to digitize the layer.

8. DATE CREATED: 1993

9. PRODUCER: The MPR-PMO of the Department of Public Works and Highways, and Louis Berger International, Inc.

10. PROPRIETOR: MPR-PMO

11. AVAILABILITY: The data may be made available at the discretion of the Program Director.

12. AREA COVERAGE: The data covers the province of Pampanga and portions of the provinces of Tarlac, Zambales, Nueva Ecija, Bulacan and Bataan. This area corresponds to the features delineated in the 18 Quad Sheets from coordinates 119°45' longitude 14°45' latitude to 121°00' longitude 15°45' latitude.

13. DIGITIZING PROCEDURE: The data was digitized from hand drawn delineation provided by the USAID Mt. Pinatubo Relief and Rehabilitation Office. The data was digitized directly into the UTM coordinate system (zone 51) using the appropriate 1000 m UTM grid intersections as control points. Digitizing software was AutoCad.

14. SOURCE(S) OF DATA: The data was based hand drawn delineation made by the USAID Mt. Pinatubo Relief and Rehabilitation Office on a 4 sheet 1:75,000 scale base maps provided by the MPR-PMO in early 1993.

ATTRIBUTE DATA DESCRIPTION:

POINT ATTRIBUTE TABLE (PAT)

ID	N	2	0	Numeric code that will provide linkage to an external database" to be provided by the USAID Mt. Pinatubo Relief and Rehabilitation Office. Values ranges from 1 to 74.
TYPE	N	1	0	Numeric codes that determines public/private sector entities responsible in maintaining the facilities. Values are as follows:
				1 - GOP Resettlement Site
				2 - GOP Evacuation Site
				3 - PNRC Resettlement/ Evacuation Site
				4 - NGO Resettlement/ Evacuation Site
DESC	C	45		Textual description of the code TYPE
NAME	C	45		Name of the Resettlement/Evacuation sites

* - The data base has not been provided to date.

EVACUATION & RESETTLEMENT SITES

NGO OPERATED EVACUATION CENTER

MSWC EVACUATION CENTER

GOP EVACUATION CENTER

GOP RESETTLEMENT SITE

BASIN AND SUB-BASIN DELINEATION FOR THE ABACAN AND SACOBIA-BAMBAN RIVERS

DATA INFORMATION SHEET

1. **COVERAGE NAME:** BASIN AND SUB-BASIN DELINEATION FOR THE ABACAN AND SACOBIA-BAMBAN RIVERS

2. **DESCRIPTION:** This layer contains the delineation of the Abacan and Sacobia-Bamban Rivers drainage divides. Sub-basins have were also delineated.

3. **FILENAME:** BASINBDY

4. **FILESIZE:** 32.5 KB

5. **FEATURE REPRESENTATION:** Lines

6. **SOFTWARE USED:** PC ArcInfo was used to build the data base while AutoCad was used to digitize graphic features.

7. **EQUIPMENT USED:** The Kurta XLC (36" x 48") with resolution of up to 1279 points per inch and accuracy of ±0.01 inch mm was used to digitize the layer.

8. **DATE CREATED:** 1994

9. **PRODUCER:** Louis Berger International, Inc. for the JICA Team for the Study on Flood and Mudflow Control for the Sacobia-Bamban/Abacan Rivers Draining from Mt. Pinatubo.

10. **PROPRIETOR:** JICA Team for the Study on Flood and Mudflow Control for the Sacobia-Bamban/Abacan Rivers Draining from Mt. Pinatubo.

11. **AVAILABILITY:**

12. **AREA COVERAGE:** The data covers the vicinity of Sacobia-Bamban/Abacan Rivers.

13. **DIGITIZING PROCEDURE:** The data was digitized from hand drawn delineation made by the JICA Study Team. It was digitized directly in the UTM Zone 51 coordinate system using LATLON grid intersections as control points. Digitizing software was AutoCad.

14. **SOURCE(S) OF DATA:** The data was based on the basin/sub-basin delineation made by the JICA Study Team on a 1:50,000 computer generated base map of the study area.

ATTRIBUTE DATA DESCRIPTION:

ARC ATTRIBUTE TABLE (AAT)

LINE_ID	N	2	0	Numeric codes to identify whether the arc represents a basin or sub-basin boundary. The values for this code is as follows:
				1 – Basin Boundary
				2 – Sub-basin Boundary
DXF_LAYER	C	25		Defines the ACAD layer where feature will be placed when transferred to a CAD station. It also provides textual description of the codes listed above.

SACOBIA-BAMBAN/ABACAN RIVER BASIN
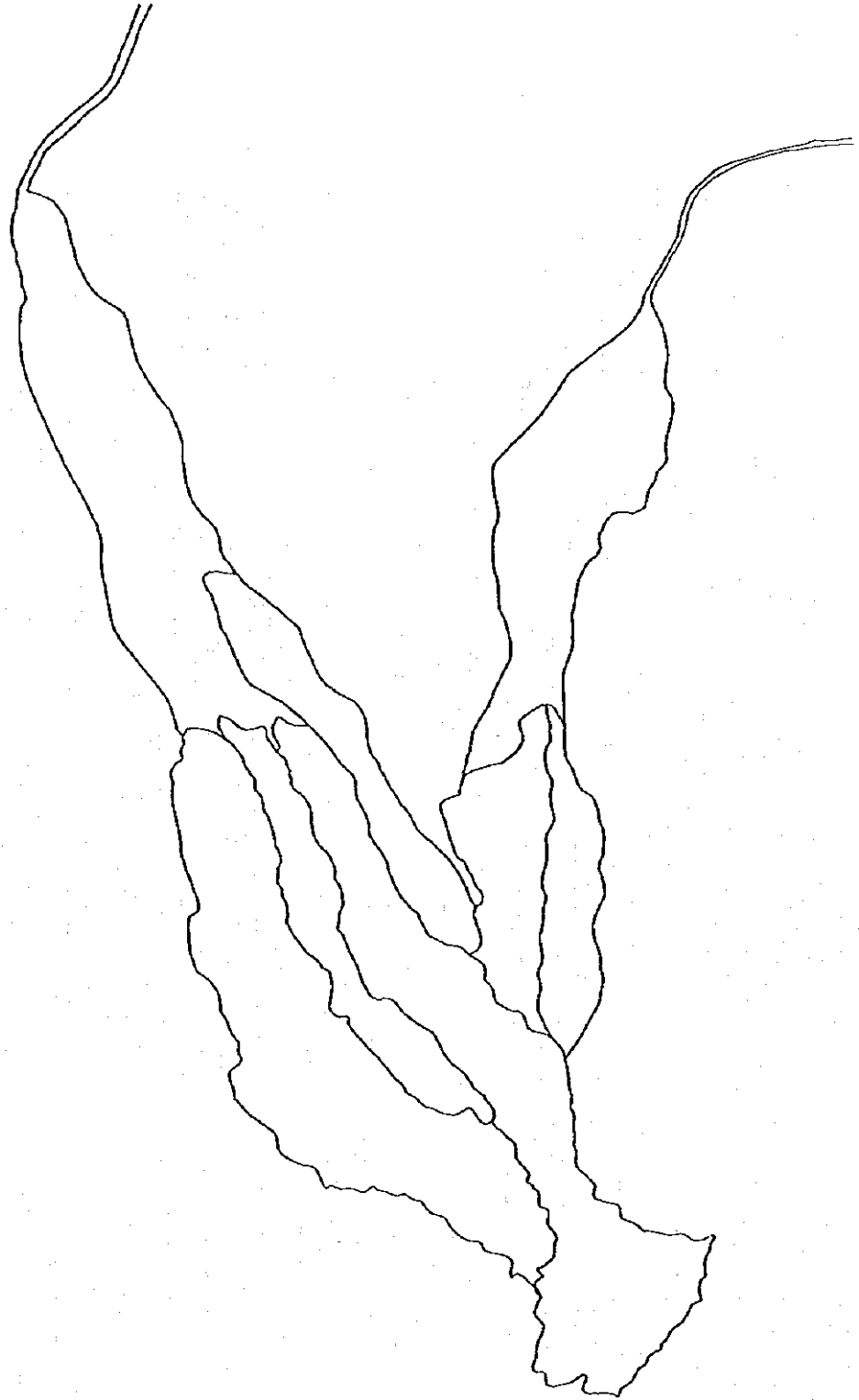
LOCATION OF SABO DAMS

DATA INFORMATION SHEET

1. COVERAGE NAME: LOCATION OF SABO DAMS

2. DESCRIPTION: This layer delineates the location of sabo dams in the vicinity of Sacobia-Bamban and Abacan Rivers.

3. FILENAME: SABODAM

4. FILESIZE: 16.7 KB

5. FEATURE REPRESENTATION: Points

6. SOFTWARE USED: PC ArcInfo was used to build the data base while AutoCad was used to digitize graphic features.

7. EQUIPMENT USED: The Kurta XLC (36" x 48") with resolution of up to 1279 points per inch and accuracy of ±0.01 inch mm was used to digitize the layer.

8. DATE CREATED: 1994.

9. PRODUCER: Louis Berger International, Inc. for the JICA Team for the Study on Flood and Mudflow Control for the Sacobia-Bamban/Abacan Rivers Draining from Mt. Pinatubo.

10. PROPRIETOR: JICA Team for the Study on Flood and Mudflow Control for the Sacobia-Bamban/Abacan Rivers Draining from Mt. Pinatubo.

11. AVAILABILITY:

12. AREA COVERAGE: The data covers the vicinity of Sacobia-Bamban/Abacan Rivers.

13. DIGITIZING PROCEDURE: The data was digitized from hand drawn delineation made by the JICA Study Team. It was digitized directly in the UTM Zone 51 coordinate system using LATLON grid intersections as control points. Digitizing software was AutoCad.

14. SOURCE(S) OF DATA: The data was based sabo dams delineation made by the JICA Study Team on a 1:50,000 computer generated base map of the study area.

ATTRIBUTE DATA DESCRIPTION:

POLYGON ATTRIBUTE TABLE (PAT)

NAME	C	5	0	Identifiers assigned to each sabo dams
NDEG	N	3	0	Defines the Northings of sabo dam location
NMIN	N	2	0	
NSEC	N	2	0	
EDEG	N	3	0	Defines the Eastings of sabo dam location
EMIN	N	2	0	
ESEC	N	2	0	

LOCATION OF SABO DAMS

S-2

S-1

NO. 4 NO. 5

NO. 6

NO. 2 NO. 3

NO. 1

NO. 9

M-1

R-1

L-1

SAMPLE MAPS

BASE MAP

PINATUBO VOLCANO & VICINITY

LEGEND :

PROVINCIAL BOUNDARIES
MUNICIPAL BOUNDARIES
ROADS

Base map consists of 21 quadrangles obtained from NAMRIA.
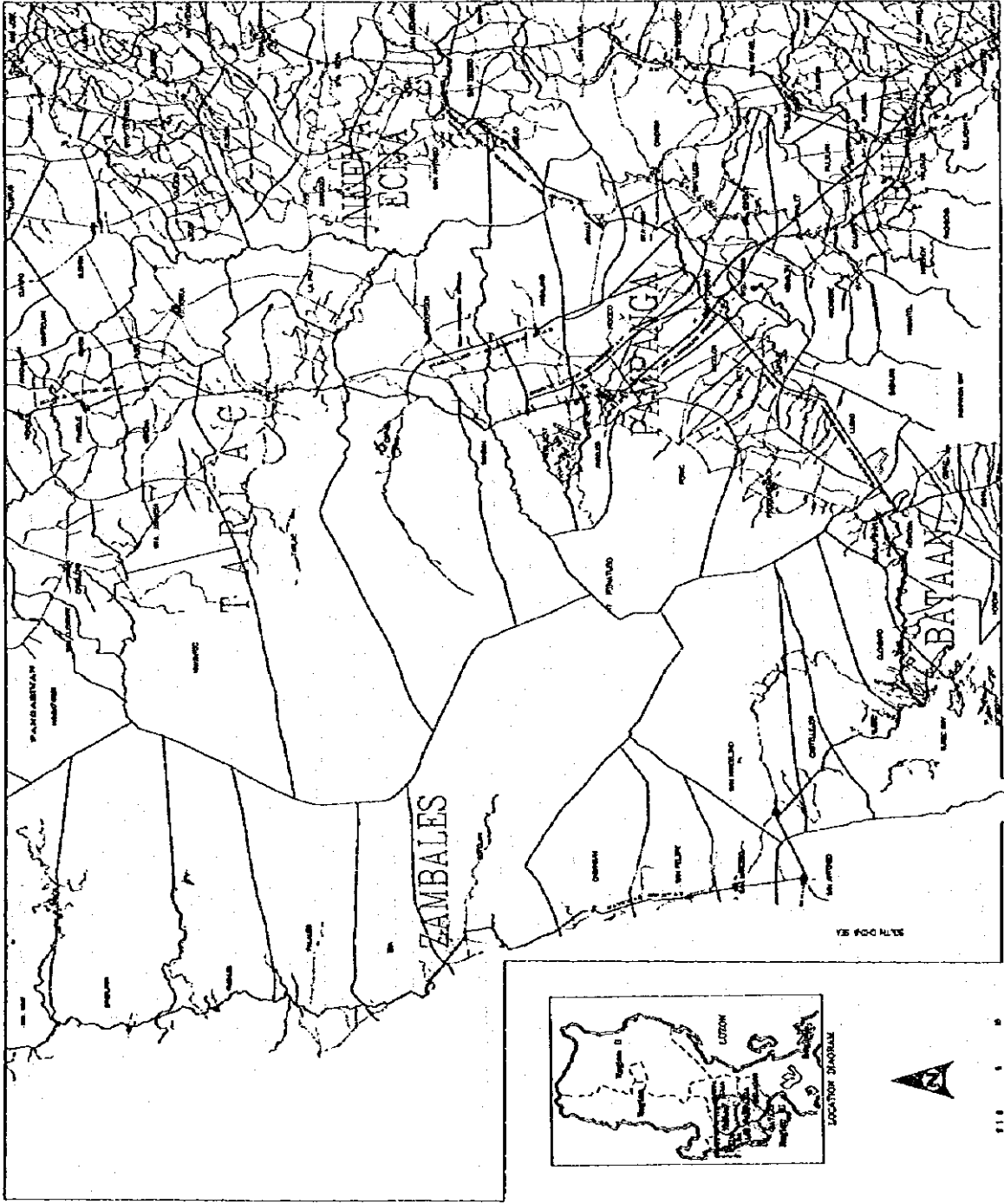
MPR - PMO

MT. PINATUBO REHABILITATION
PROJECT MANAGEMENT OFFICE
DEPARTMENT OF PUBLIC WORKS & HIGHWAYS
REPUBLIC OF THE PHILIPPINES

PHILIPPINE INSTITUTE OF VOLCANOLOGY
AND SEISMOLOGY

NATIONAL MAPPING AND RESOURCE
INFORMATION AUTHORITY

LOUIS BERGER INTERNATIONAL, INC.
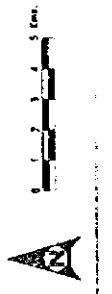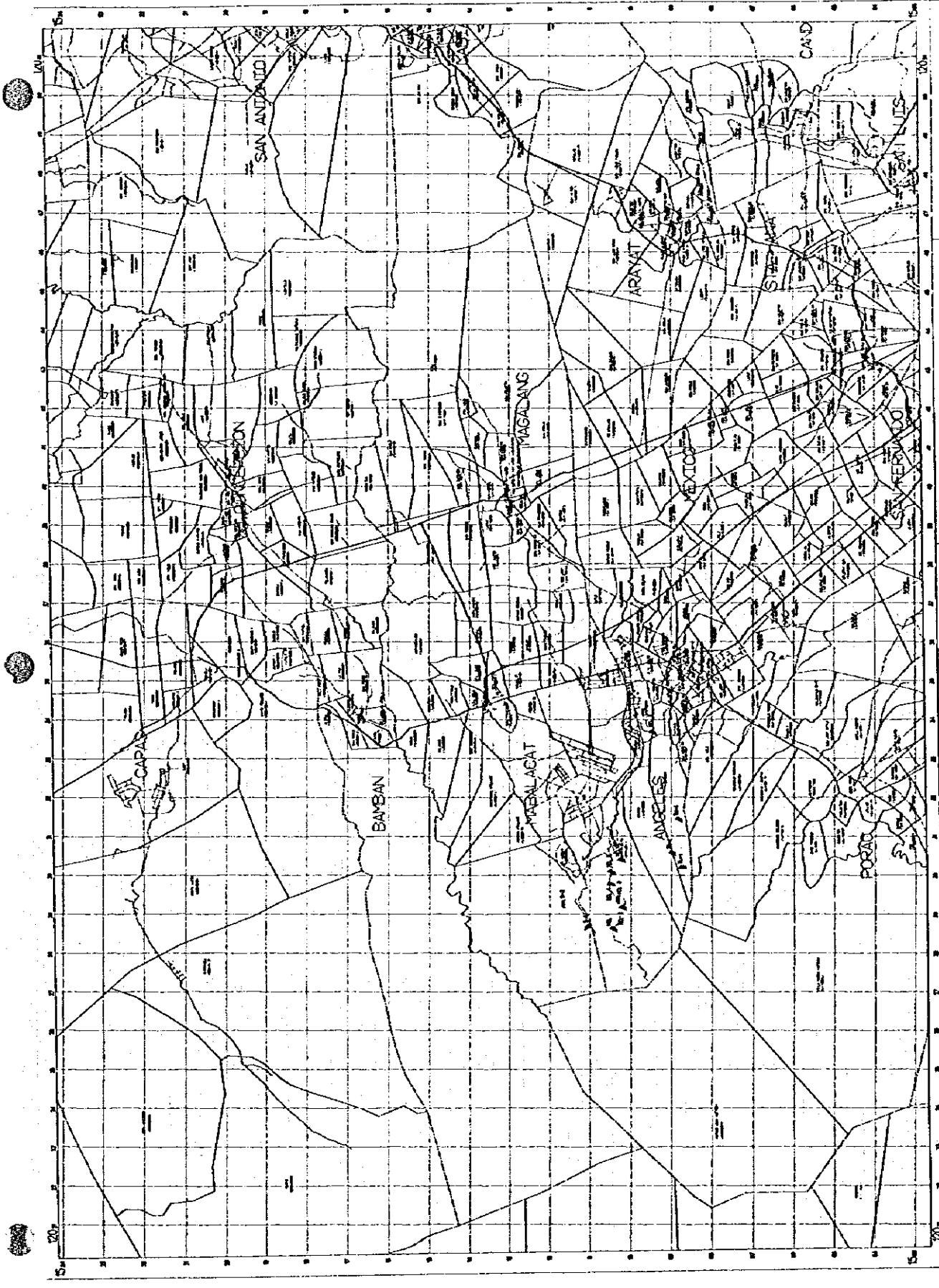
UNITED STATES AGENCY FOR INTERNATIONAL
DEVELOPMENT

NUEVA ECIJA

TARLAC

PAMPANGA

ZAMBALES

BATAAN

PANGASINAN

LUZON

LOCATION DIAGRAM

MUDFLOW HAZARD MAP
PINATUBO VOLCANO & VICINITY

LEGEND:

- HIGH PYROCLASTIC FLOW DEPOSIT
- HIGH LAHAR DEPOSIT
- LOW LAHAR DEPOSIT
- PRONE PRIMARILY TO EROSION AND FLOODING
- PROVINCIAL BOUNDARIES
- MUNICIPAL BOUNDARIES
- ROADS

SOURCES OF DATA:

MPR – PMO

LOCATION DIAGRAM

-45-
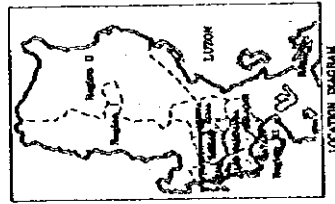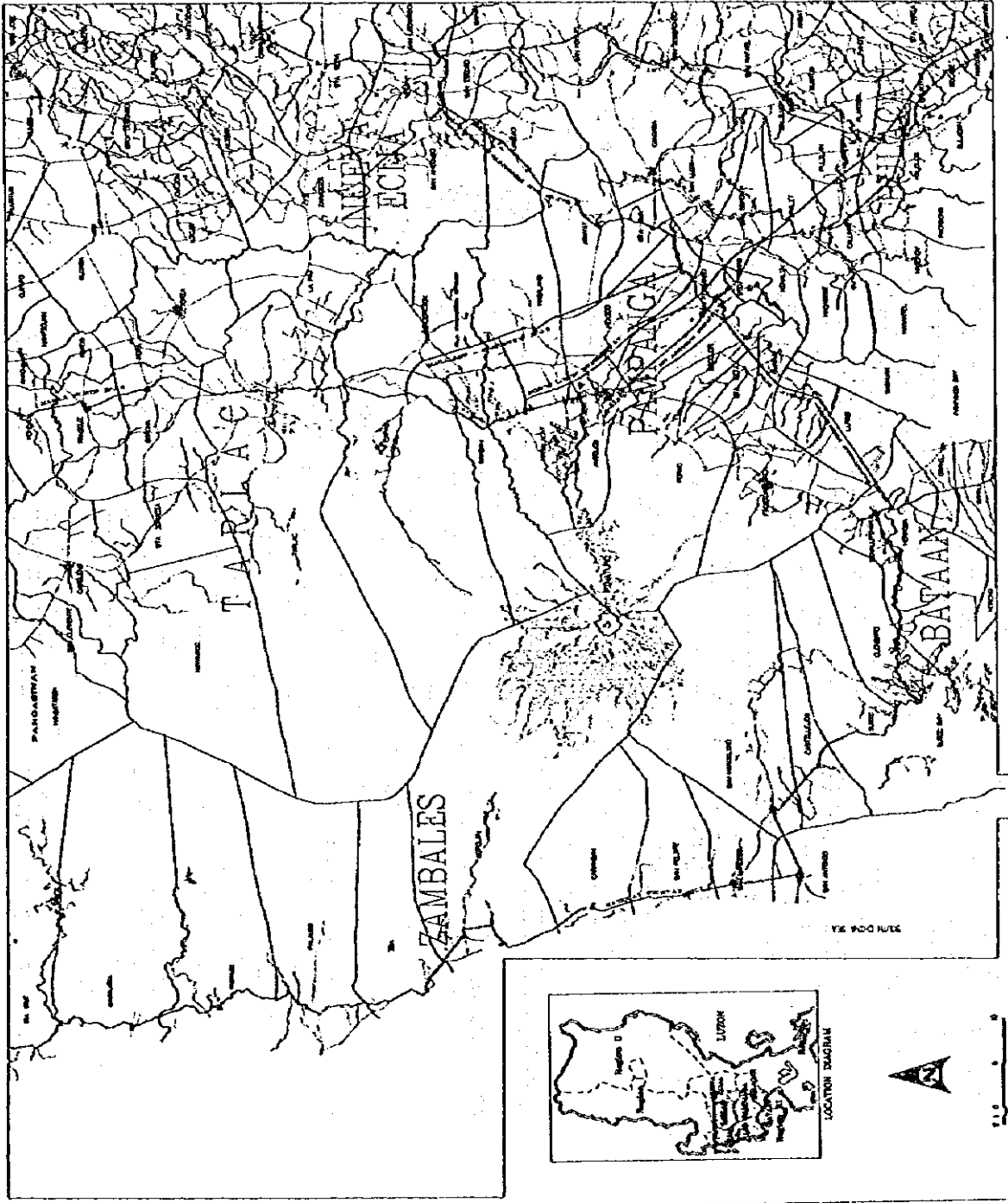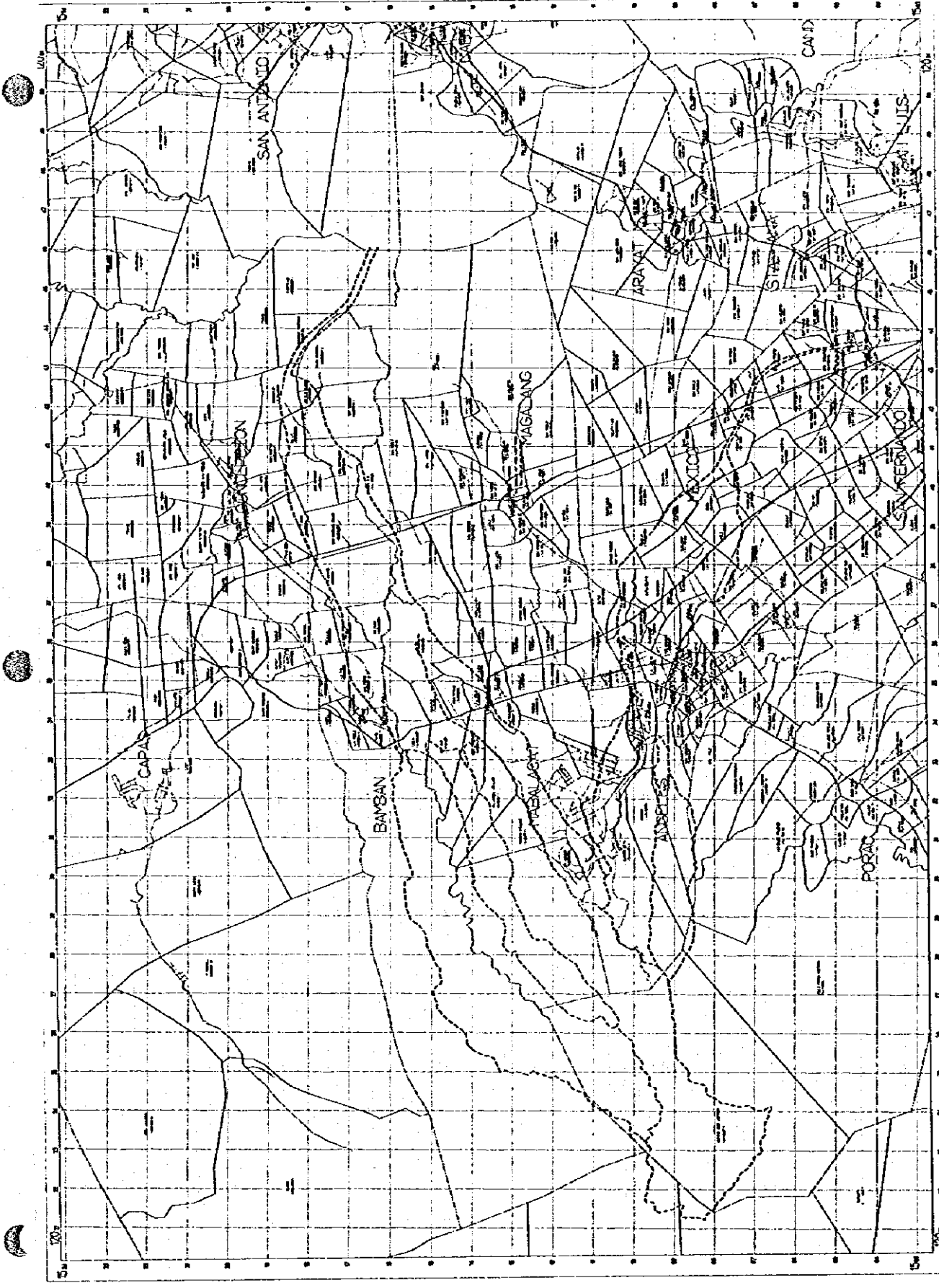
BASIN DELINEATION MAP

JICA STUDY FOR FLOOD CONTROL AND MUDFLOW
OF SACOBIA-BAMBAN AND ABACAN RIVERS

JAPAN INTERNATIONAL COOPERATION AGENCY

GOVERNMENT OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS & HIGHWAYS
MT. PINATUBO REHABILITATION-PROJECT MGMT. OFFICE

PHIL. INSTITUTE OF VOLCANOLOGY & SEISMOLOGY

NIPPON KOEI CO. LTD., JAPAN
CTI ENGINEERING CO. LTD., JAPAN
LOUIS BERGER INTERNATIONAL, INC.

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LOCATION OF SABO DAMS

JICA