

JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)

No. 2

MINISTRY OF AGRICULTURE AND LIVESTOCK
REPUBLIC OF EL SALVADOR

THE MASTER PLAN
ON
THE JIBOA RIVER BASIN INTEGRATED
AGRICULTURAL DEVELOPMENT PROJECT
IN
THE REPUBLIC OF EL SALVADOR

FINAL REPORT
(MAIN REPORT)

MARCH 1997

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The following foreign exchange rate is applied in the study:
US\$1.00=8.70 colon (as of November 1996)

PREFACE

In response to a request of the Government of the Republic of El Salvador, the Government of Japan decided to conduct a master plan study on the Jiboa River Basin Integrated Agricultural Project and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to the Republic of El Salvador a study team headed by Mr. Narumi Yamada , Kokusai Kogyo Co., LTD., three times between January 1996 and February 1997.

The team held discussions with the officials concerned of the Government of the Republic of El Salvador, and conducted a field survey at the study area. After the team returned to Japan, further studies were made and the present report was prepared.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of El Salvador for their close cooperation extended to the team.

March 1997



KIMIO FUJITA

President

Japan International Cooperation Agency

March 1997

Mr. Kimio Fujita
President
Japan International Cooperation Agency

Dear Mr. K. Fujita,

Letter of Transmittal

We are pleased to submit to you the Final Report on the master plan study the Jiboa River Basin Integrated Agricultural Development Project in the Republic of El Salvador.

The master plan study of the Project has been conducted over a 16 month period, from December 1995 up to March 1997, in accordance with the terms and conditions of the contract concluded between your Agency and our firm. During the course of the study, the present situations of the Study Area have been carefully analyzed and the integrated agricultural development plan proposed in this study report was formulated. The Project aims at enhancing agricultural development activities in the Study Area, leading ultimately to the upliftment of the living standards of the people in the Jiboa River Basin.

This Project has been formulated as an integrated agricultural development master plan for the Jiboa River Basin in harmony with basin conservation. The Project area extends over 605.6km² including 4 departments and 35 municipalities. Furthermore, the Project contains several model projects in order to implement the master plan for the basin smoothly.

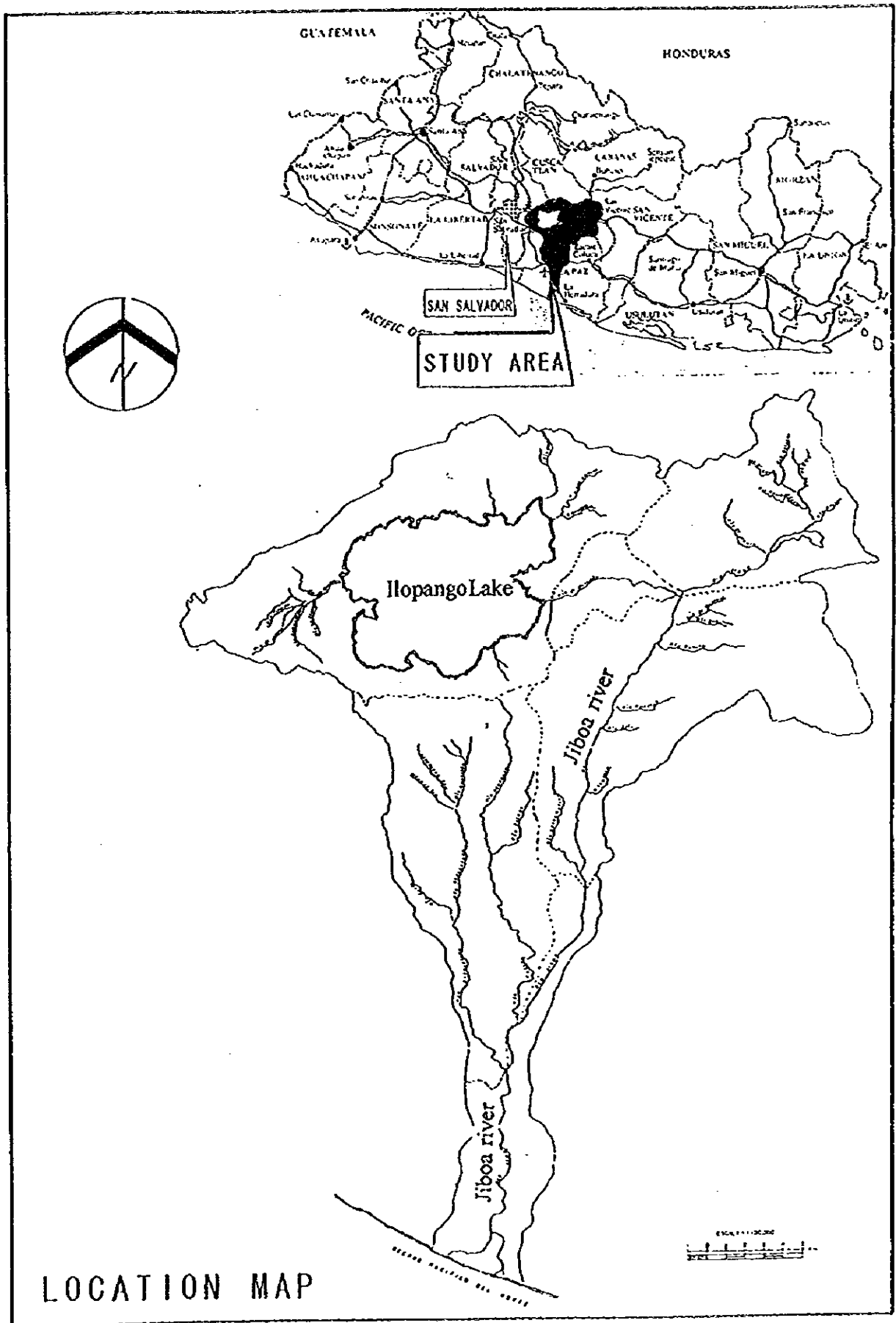
We wish to take this opportunity to express our sincere gratitude to the concerned officials and staffs in your Agency and the Ministry of Agriculture, Forestry and Fishery of Japan for their kind advice and assistance extended to the Study Team. We also wish to express our heartfelt appreciation to the concerned officials and staff members of among others, the Ministry of Agriculture and Livestock in El Salvador, the Embassy of Japan, and the JICA experts in El Salvador for their cordial cooperation and assistance during our study work in El Salvador.

We sincerely hope that the authorities concerned would take a quick action for the early implementation of the Project proposed in this study report.

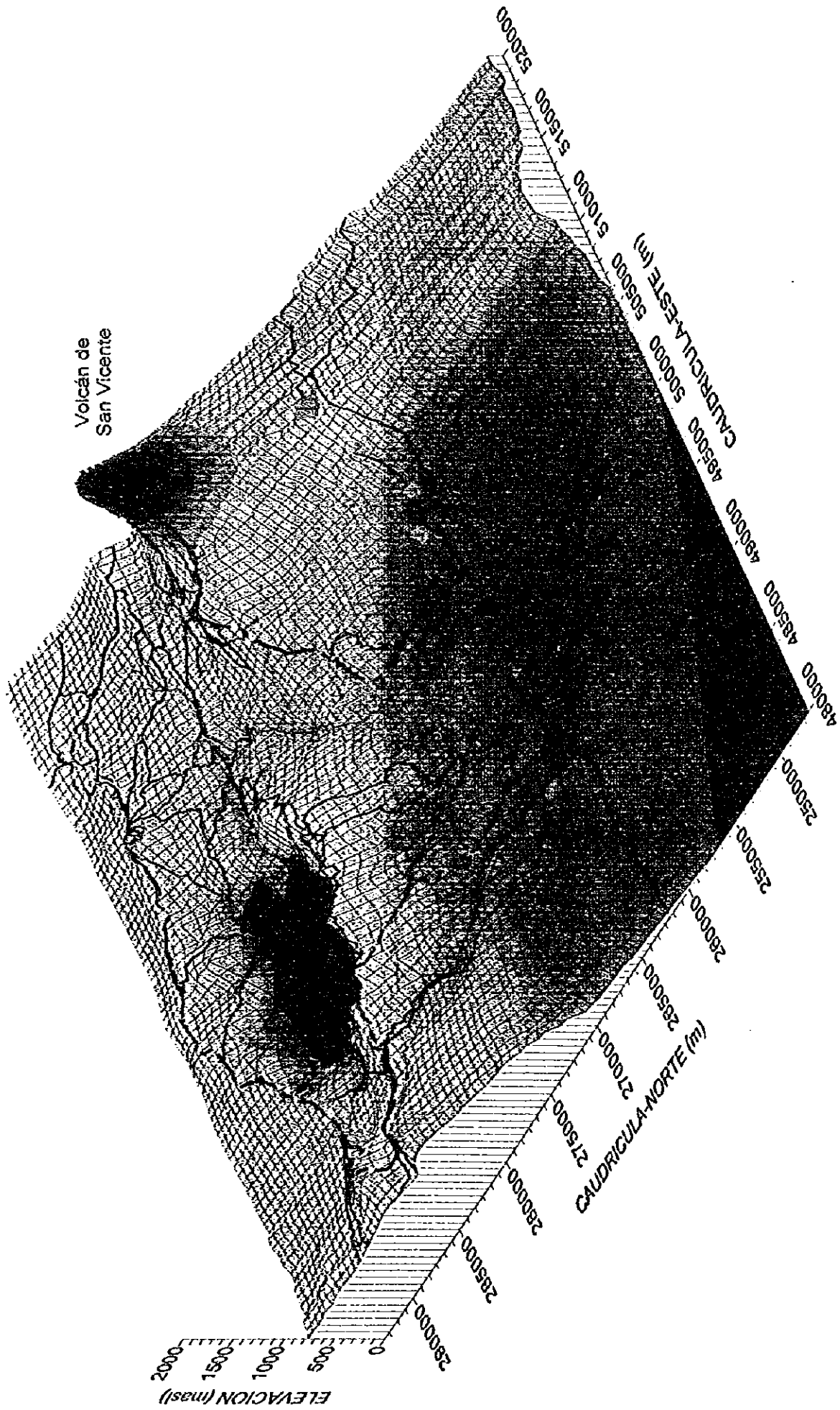
Very truly yours,



Narumi Yamada
Team Leader of the Study on the
Jiboa River Basin Integrated Agricultural
Development Project
Kokusai Kogyo Co., Ltd.

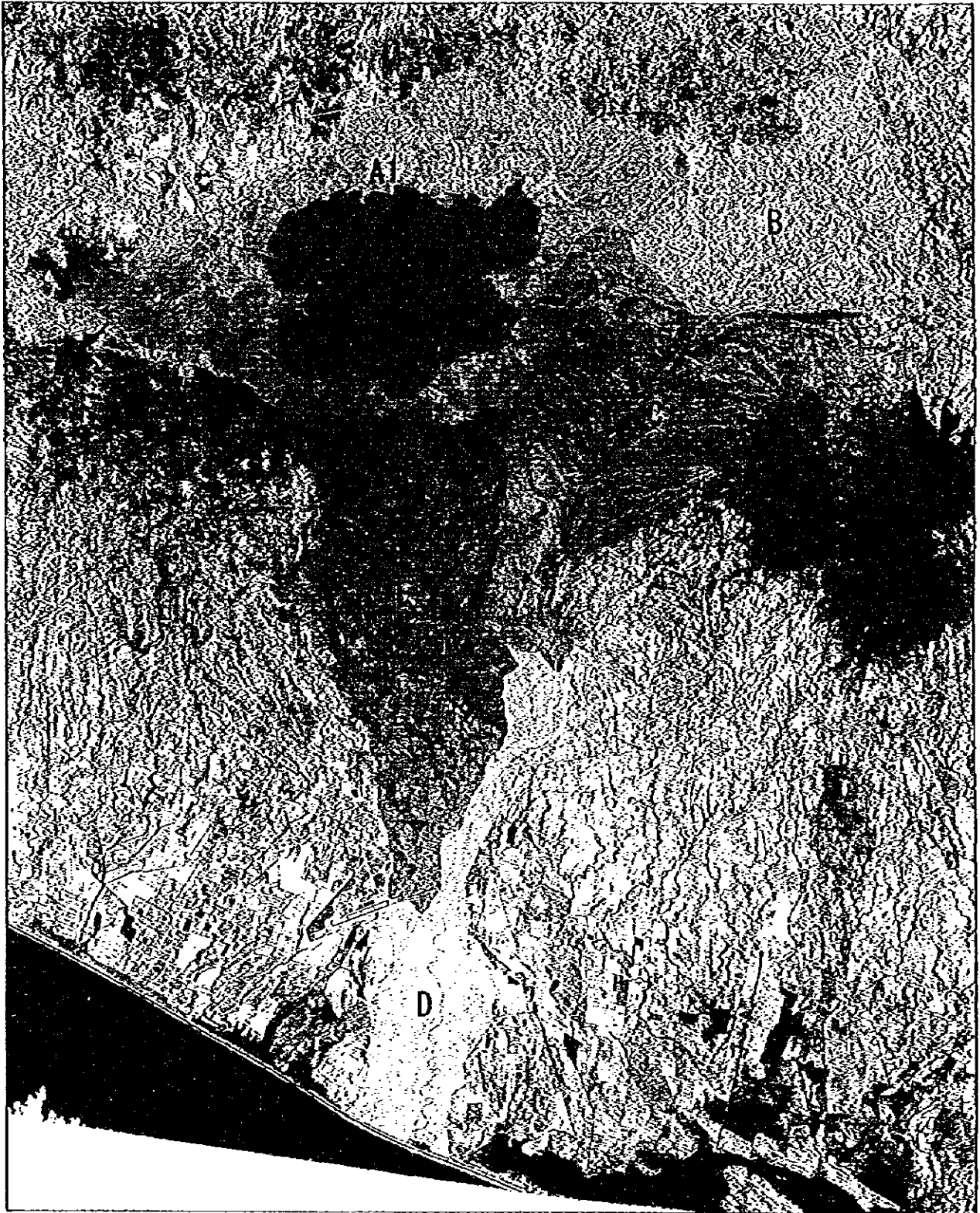


LOCATION MAP

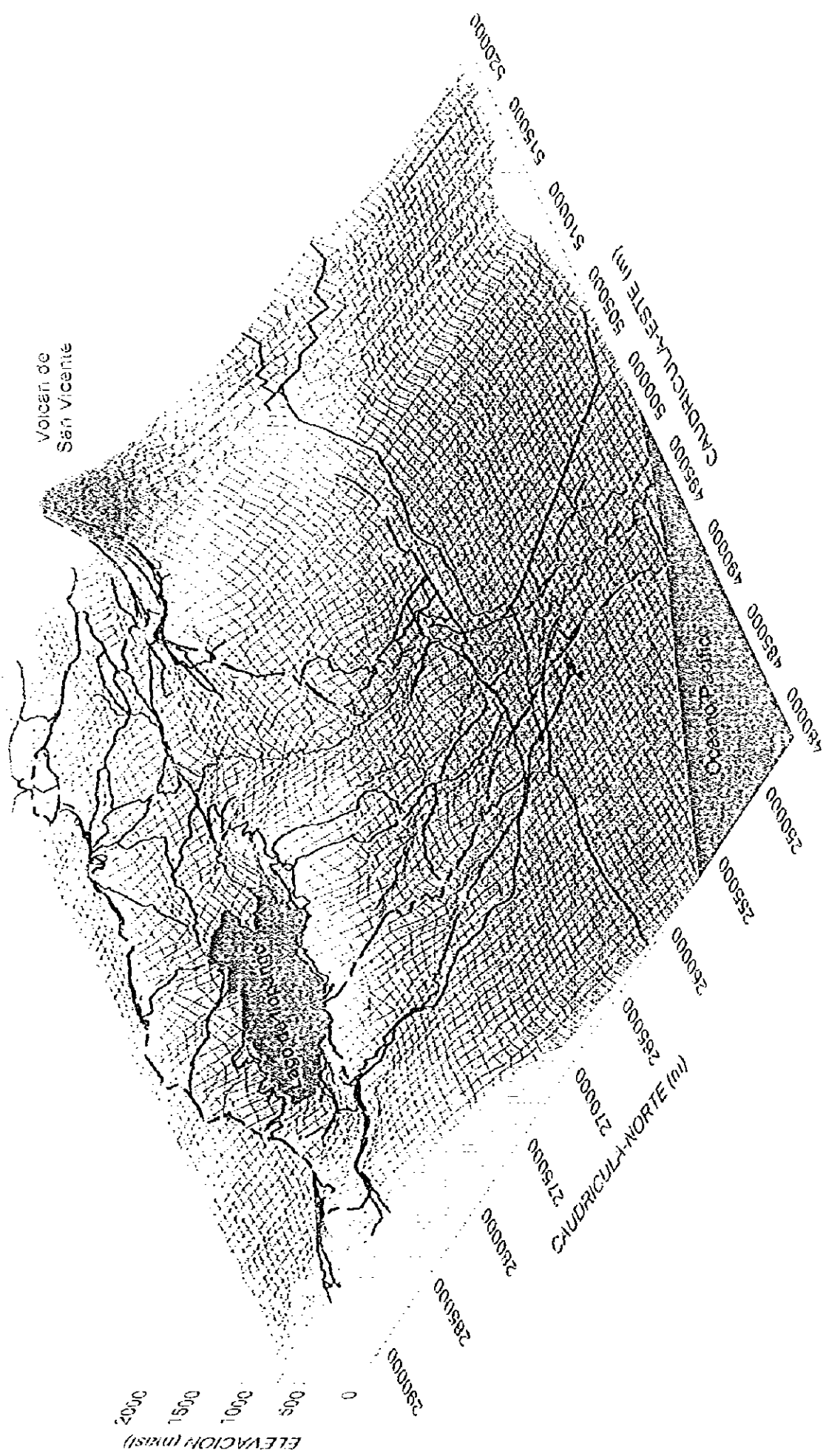


SW View

BIRD'S-EYE VIEW OF THE STUDY AREA



Sub-Basin Map

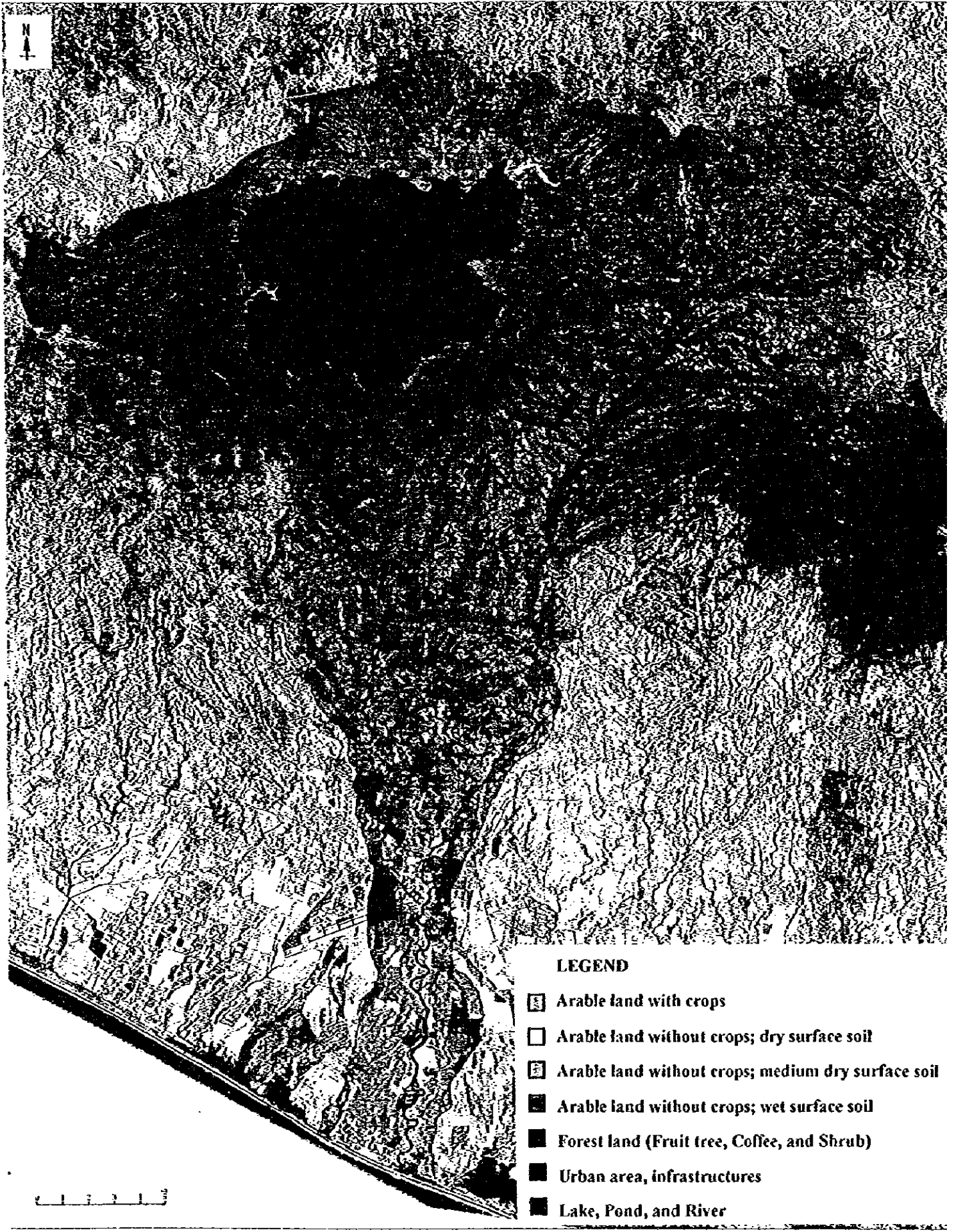


SW View

BIRD'S-EYE VIEW OF THE STUDY AREA



Sub-Basin Map



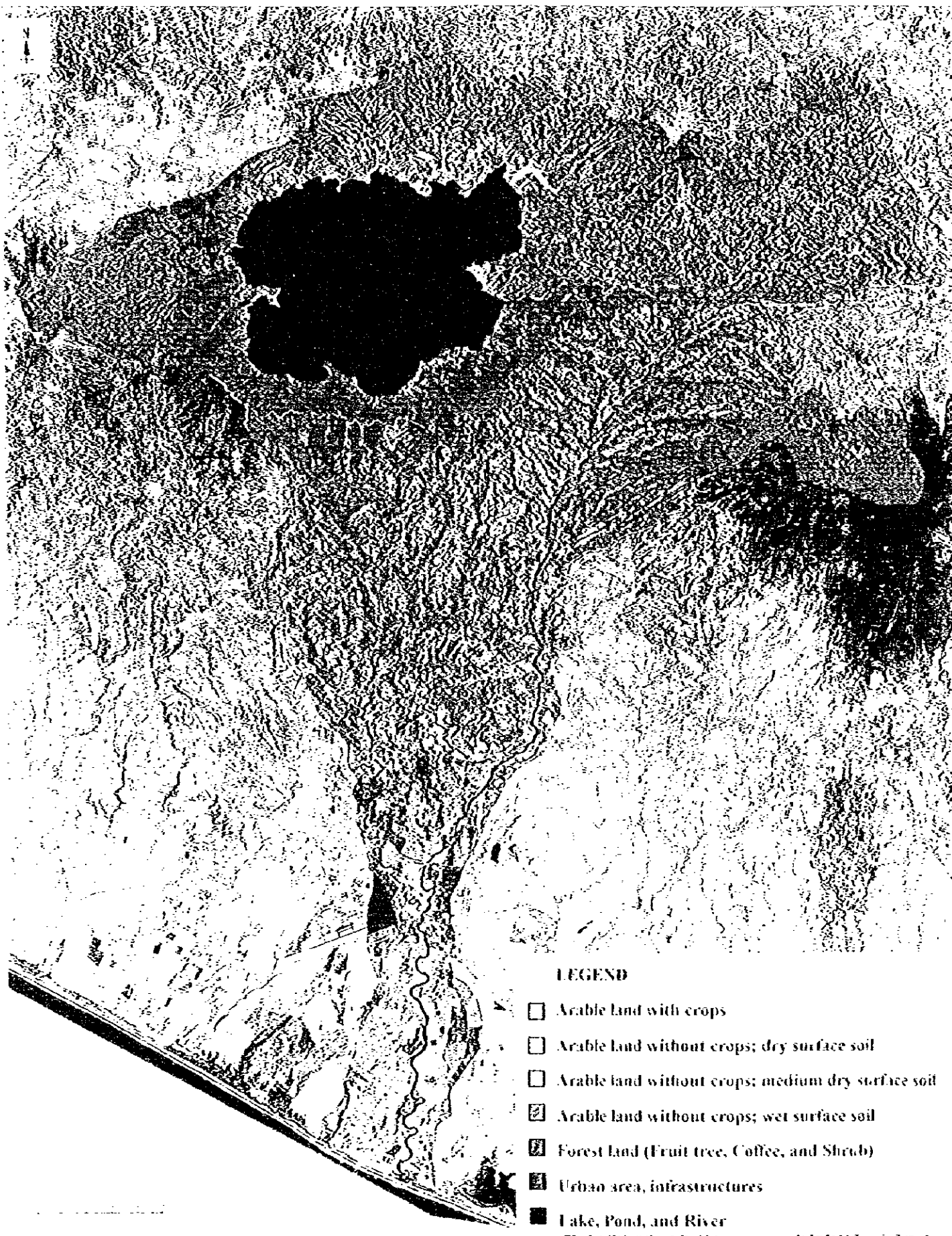
Present Land Use Map (January 15, 1996)

©CNES, 1996, Spot Images



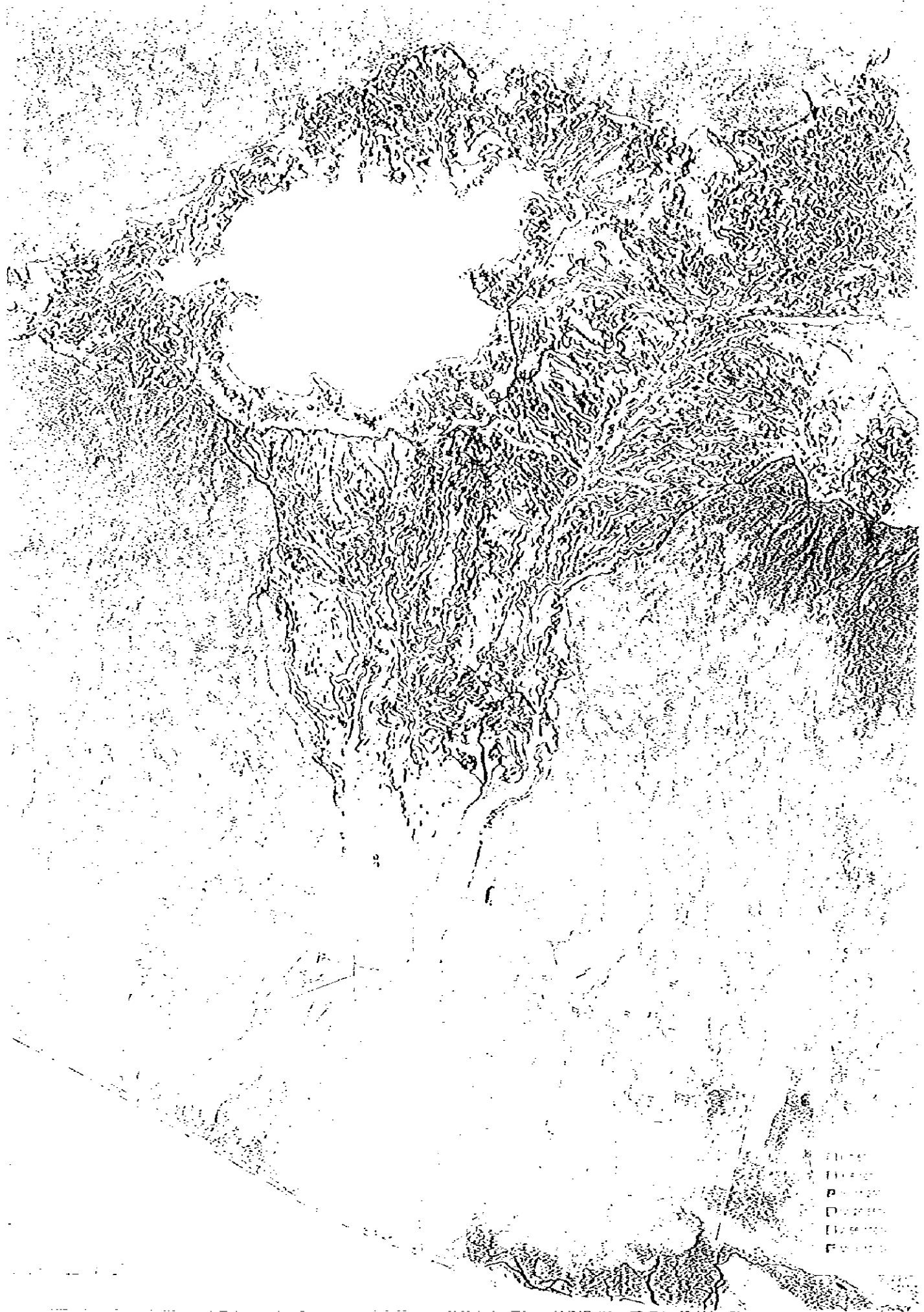
Slope Map

CONES, 1996, Scale 1:50,000



Present Land Use Map (January 15, 1996)

CCNI S, 1996, Spot images

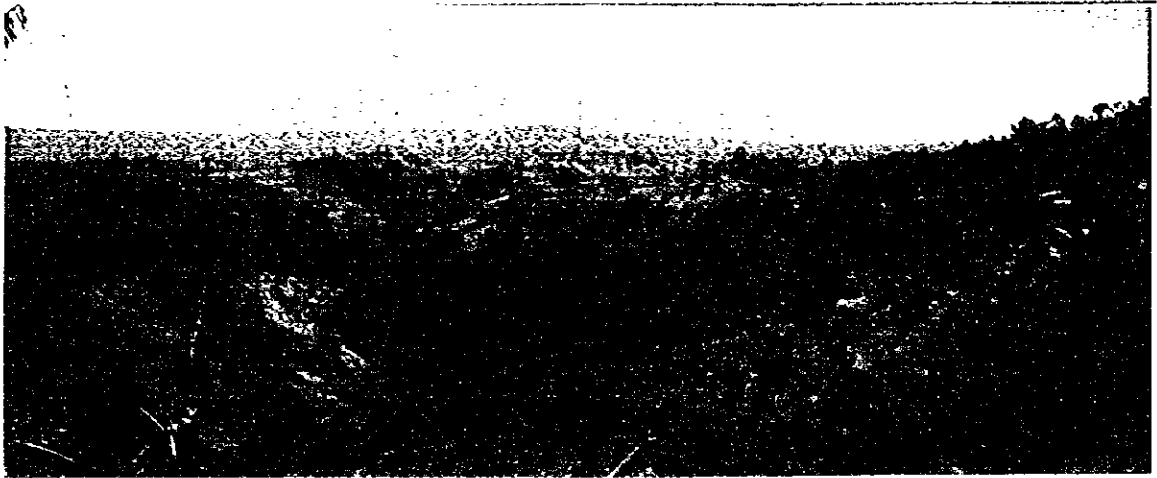


- Elevation
- Contours
- Drainage
- Elevation
- Elevation

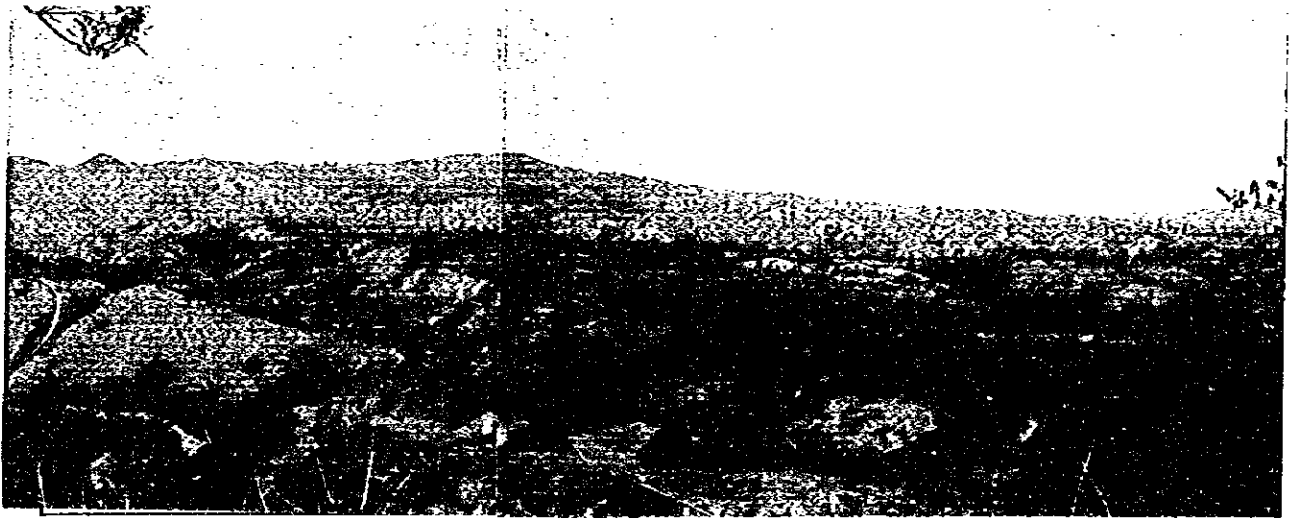
Slope Map

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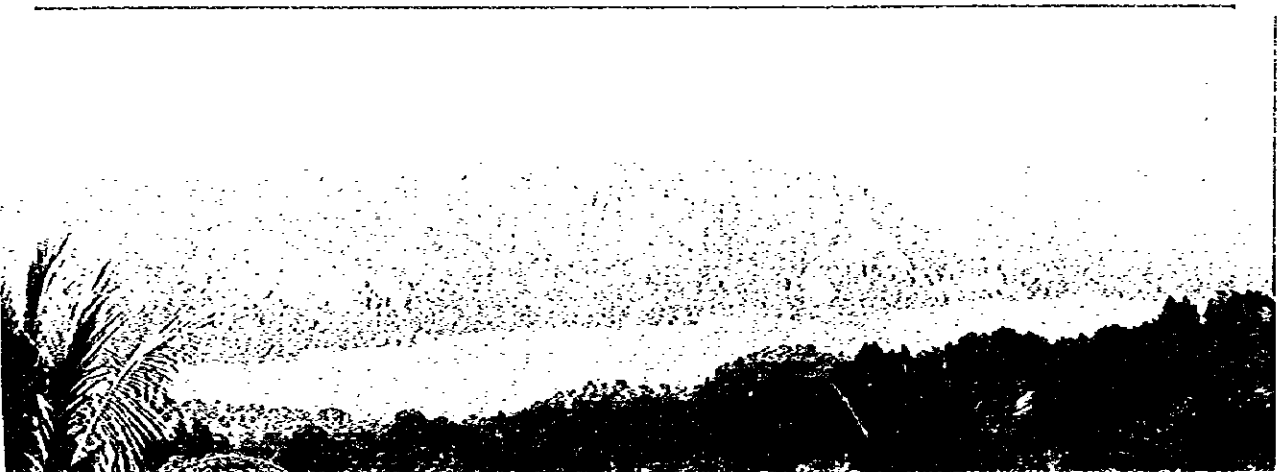
Study Area of the Jiboa River Basin (1)



1. Upper basin of the Jiboa River in dry season (from national road "CA1")

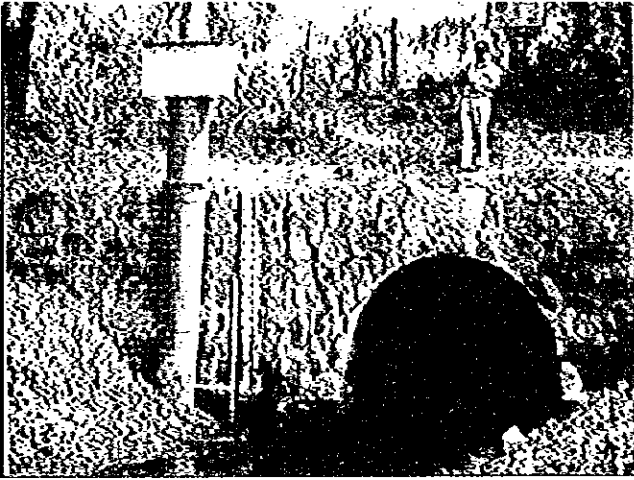


2. Upper basin of the Sepaquiapa River in dry season from Buena Vista



3. Hopango Lake

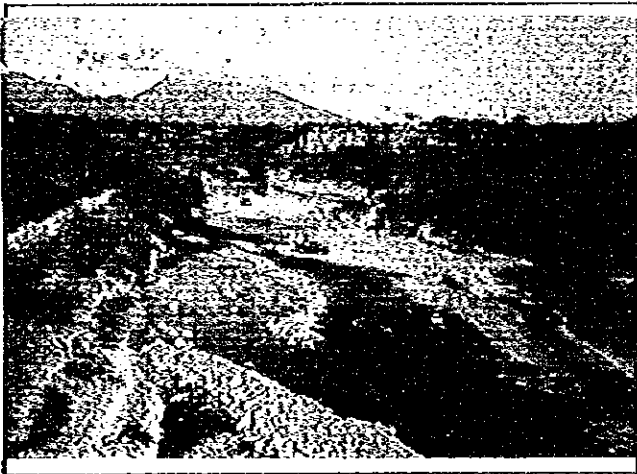
Study Area of the Jiboa River Basin (2)



4. Desague River tunnel (Water from Hopango Lake joins in the Jiboa River through this tunnel)



5. Upper stream of the Jiboa River at R-2 point in dry season



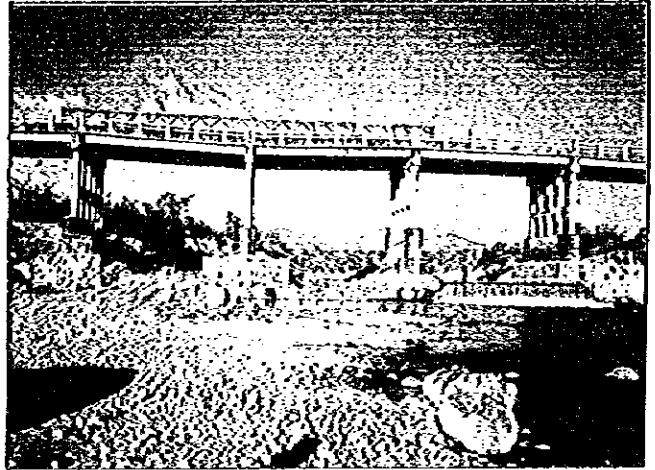
6. Middle stream of the Jiboa River (Upstream from national road "CA2")



7. Tilapa River (downstream from national road "CA2")

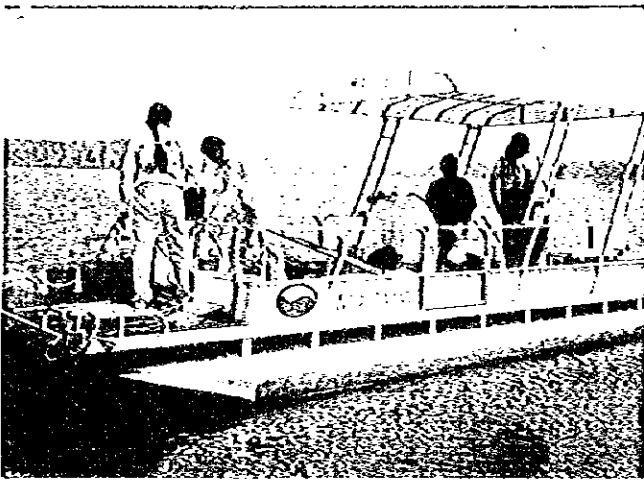


8. Sepaquiapa River (downstream from national road "CA2")

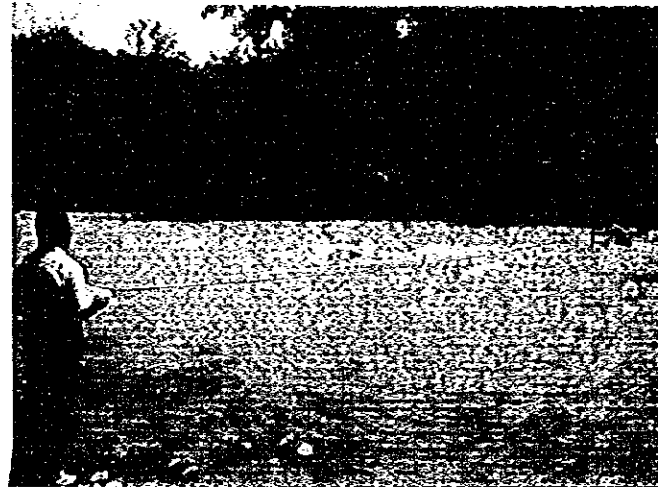


9. Bridge pier settling in the middle stream of the Jiboa River due to excessive extraction of sand

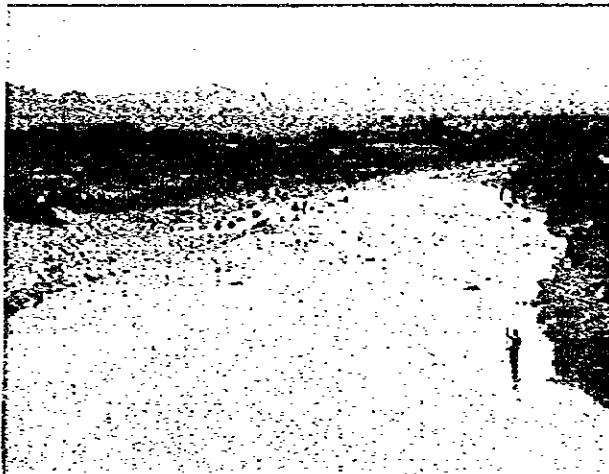
Study Area of the Jiboa River Basin (3)



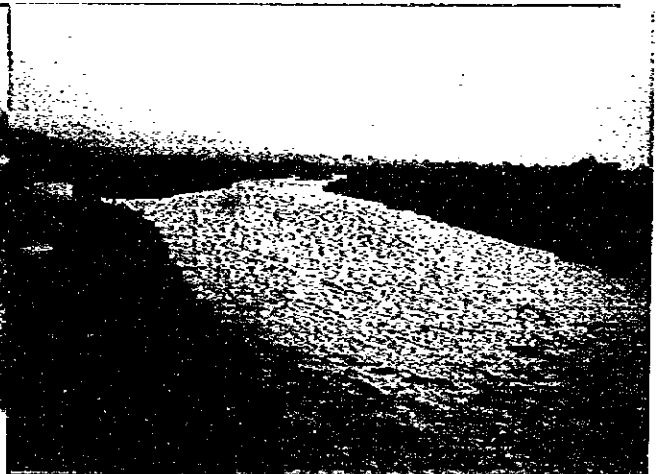
10. Water quality survey at the Ilopango Lake (This survey was carried out with the cooperation of the NGO, Fundation Amigos del lago de Ilopango)



11. River Discharge observation in rainy season (at Monte Cristo point, middle stream of the Jiboa River)



12. Rainy season at middle stream of the Jiboa River (Normal stage)



(Flood stage)



13. Inundation of the farm in El Poreñir district, lowerstream of the Jiboa River

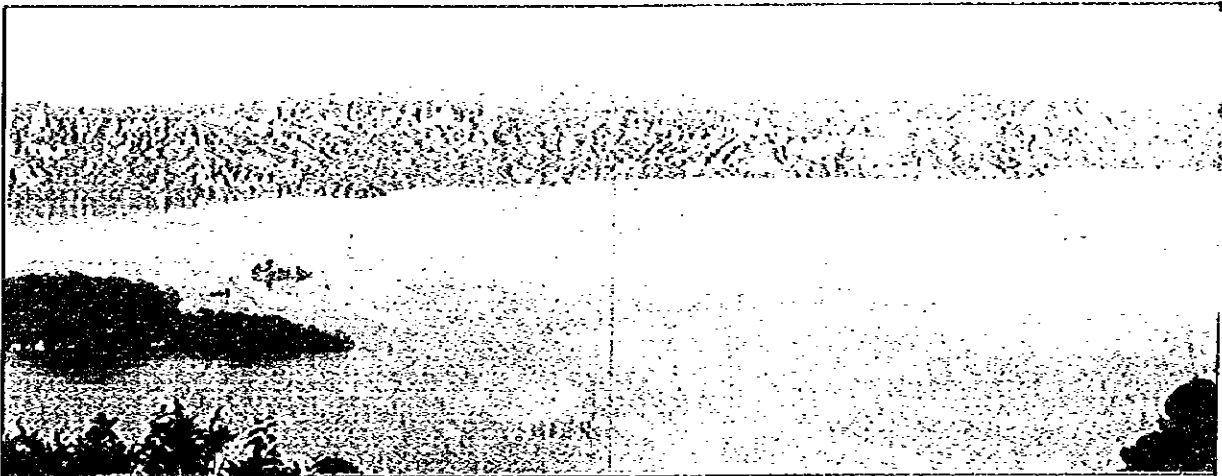
Study Area of the Jiboa River Basin (4)



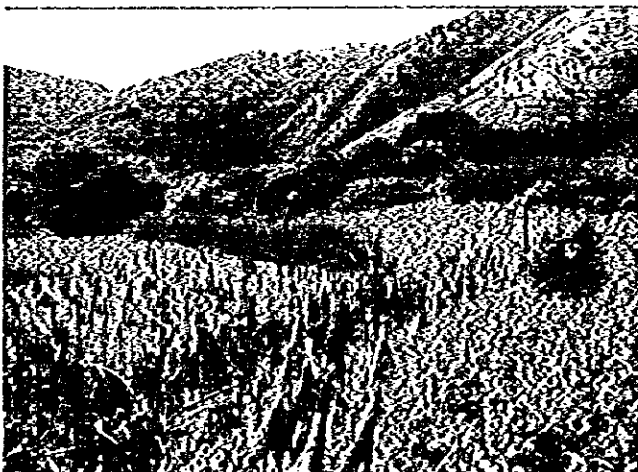
14. Eucalyptus plantation managed by the Astoria cooperative farm



15. Nursery center managed by the forest section of DGRNR (Not working at present)



16. Devastated condition of north shore of the Ilopango Lake



17. Model soil conservation of shore area of the Coatepeque Lake (executed by MAG)



18. Soil conservation experiment and exhibition farmland in Santa Cruz Analquito (Not working at present)

Study Area of the Jiboa River Basin (5)



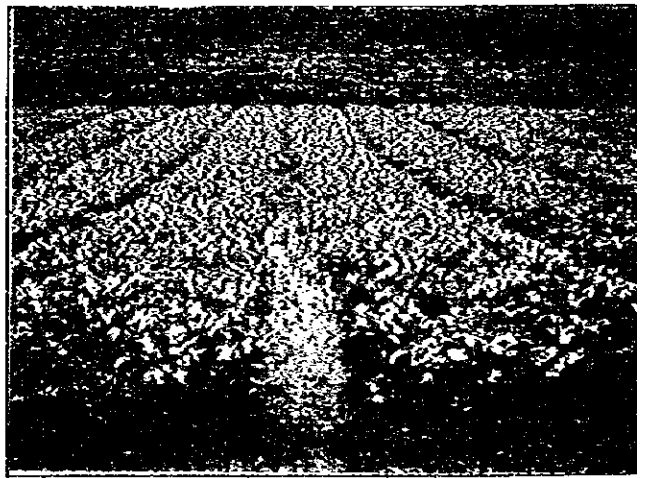
19. Only water level observation station on the Jiboa River
(The instrument was stolen in June 1996
and not working at present)



20. Water quality analysis laboratory of MAG



21. Sugarcane fields on the south side of San Vicente volcano



22. Red radish cultivation using spring water in San Ramon

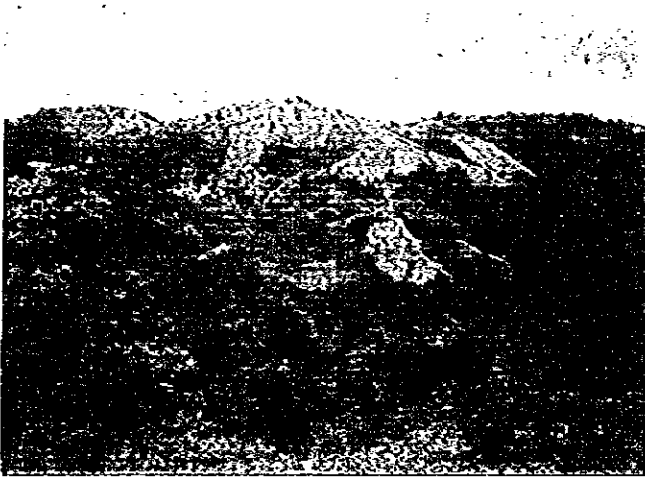


23. Sesame cultivation by a cooperative farm in the lower basin

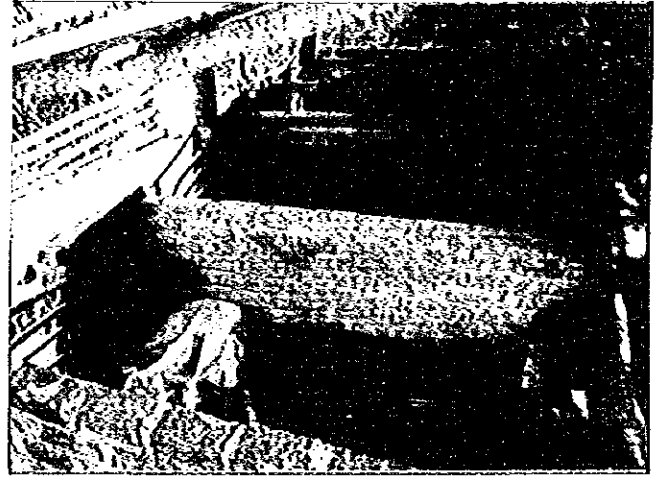


24. Maize and kidney bean inter cropping

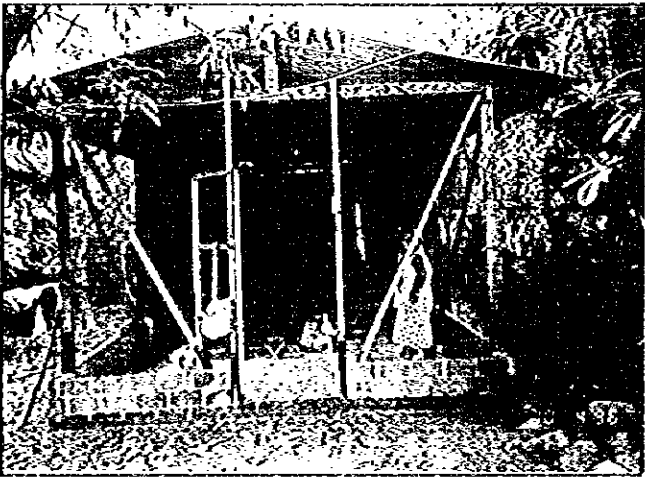
Study Area of the Jiboa River Basin (6)



25. El Socorro District of the middle stream of the Jiboa River, San Antonio Masahuat



26. Small scale swine farmer in the upper basin, San Cristobal



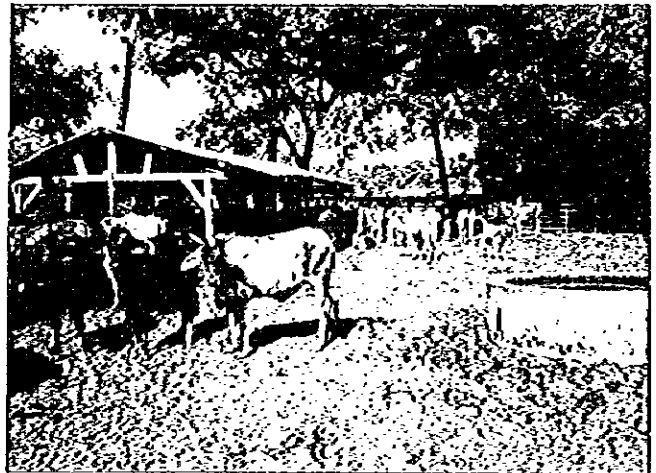
27. Extensive small scale chicken farming in El Rosario



28. Fishing farming of Tilapia in the Ilopango Lake



29. The largest slaughter house in Soyapango metropolitan area



30. Bovine at Astroria cooperative farm in the lower Jiboa basin

Study Area of the Jiboa River Basin (7)



31. Pipe irrigation using stream water in the upper Jiboa River basin



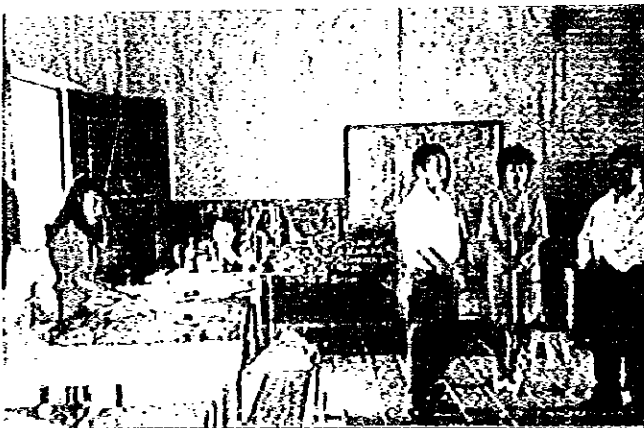
32. Rural road in outskirts of San Ramon



33. Lake water usage on the shores of the Ilopango Lake



34. Farmhouse well in San Pedro Masahuat in the lower Jiboa River basin



35. Sewing class conducted by San Cristobal Municipality



36. Waste dumping on the Northwest shore of Ilopango Lake