

**THE STUDY  
ON SUSTAINABLE GROUNDWATER DEVELOPMENT  
FOR BOGOTA PLAIN  
IN THE REPUBLIC OF COLOMBIA**

**FINAL REPORT  
SUPPORTING REPORT**

**PART 8**

**METEOROLOGICAL OBSERVATION**

**Final Report  
(Supporting Report)**

**Part 8 Meteorological Observation**

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## PART - 8 METEOROLOGICAL OBSERVATION

The Study Team installed eleven meteorological stations for the purpose of meteorological observation of the Study Area.

### CHAPTER 1 Installation of Meteorological Stations

Meteorological observation stations were installed in eleven sites listed below, and these sites are shown in Figure-3.1. These sites were selected after close discussion among the Study Team, EAAB, CAR, IDEAM, and INGEOMINAS. Eleven sites were finally installed in hills and mountains in the Study Area, where meteorological data has not obtained fully up-to now. Installed meteorological stations by the Study Team are involved in the existing meteorological observation network, and observed result is used by all the relating organizations. In the selection of the sites for the installation, it was examined that sites should have not only importance in meteorological observation but also security against theft and destruction.

- |                        |                        |                       |               |
|------------------------|------------------------|-----------------------|---------------|
| 1) Tomine              | 2) Suesca              | 3) Casa Loma          | 4) EL tablazo |
| 5) El Vino             | 6) Cruz verde (Bojaca) | 7) Paramo de Guerrero | 8) Siecha     |
| 9) Aguas claras (Muna) | 10) Dona Juana         | 11) Manjui (Chia)     |               |

### CHAPTER 2 Observation Items

Items to be observed are listed below.

- |                             |                  |                    |                |
|-----------------------------|------------------|--------------------|----------------|
| 1) Wind speed and direction | 2) Precipitation | 3) Humidity        | 4) Temperature |
| 5) Sunshine Hour            | 6) Evaporation   | 7) Solar Radiation |                |

AHLBOR Company in Germany produced instruments for the meteorological observation. Type, purpose and the number of instruments are shown in Table-2.1.

**Table-2.1 Instruments of Meteorological Observation by JICA Study Team**

Instrument	No	Instrument	No
<b>Sensors</b>		<b>Energy system</b>	
a)Wind speed/ direction (windmill type)	11	a)Solar panel	11
b)Temperature/ Humidity	11	b)Battery	11
c)Solar radiation	11	c)Stabilizer	11
d)Evaporation(Tank type and micro-wave sensor)	11		
<b>Data recording unit</b>		<b>Others</b>	
a)Digital Precipitation meter (Balance type)	11	a)Software for data input and data operation	4
b)Data recording unit	11		
c)Data collection unit	4		
d)Portable personal computer unit (Data input and programming)	4		

### CHAPTER 3 Observation Record Data

Installation of meteorological stations was completed at the end of February 2002, and then observation started. The result of observation was used efficiently for climate analysis of the Study.

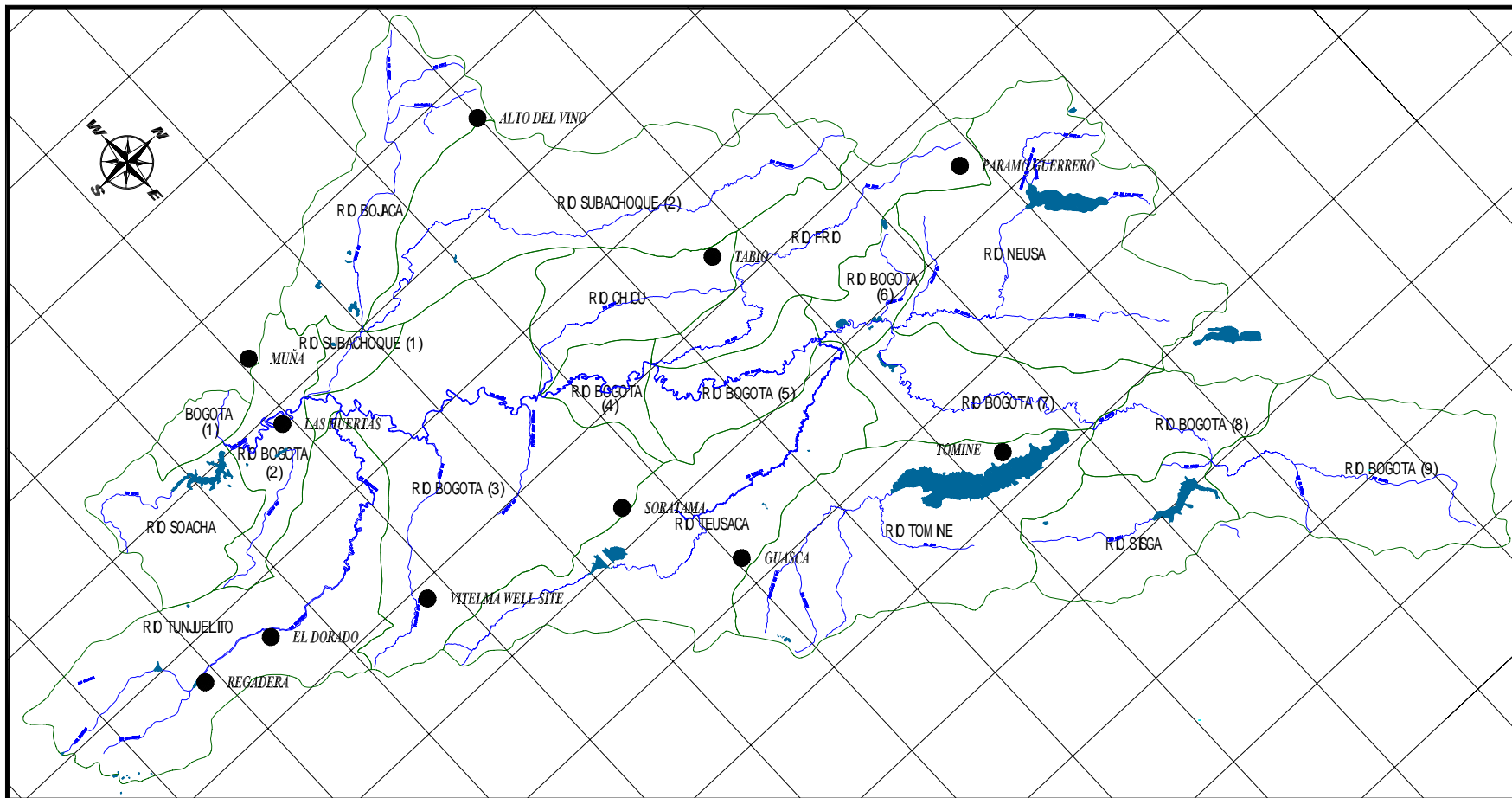


Figure-3.1 Sites for Installation of Meteorological Stations