

(Geological survey-Japanese second party: Masataka Ochi, Susumu Takeda, Tetsuo Sato, Norio Tsushima)

Work	July	August	September	October
Mobilization(Narita->Jakarta->Bandung->Base camp)	3-5 *****			
Geological Survey (including Geochemical sampling)	6	25		
Moving (Base camp->Surabaya->Bandung)			26	
Data Analysis, Discussions with DMRI			27-28	
Moving (Bandung->Jakarta)			3	
Reporting of Survey Results to JICA			4	
Demobilization			4-5	
Laboratory work			-----	
Data analysis and Report writing				

Geophysical Survey and Drilling

Work	November	December	Jan-2004	Jan-2004	Mar-2004
Preparation	7-8				
Field Survey					
A+B: Mobilization Narita-Jakarta	9				
A+B: Visit to JICA, Embassy of Japan, DGGMR, Jakarta->Bandung	10				
A+B: Discussion at DMRI and Preparation of field work	11-12				
A+B: Bandung->Surabaya->Base camps	13				
A, B: Field work (including data analysis)	14	16	12-13	14	
A: Base camp->Surabaya->Jakarta		17			
A: Demobilization		17-18			
B: Base camp->Surabaya->Bandung				14	
B: Data Analysis				15	
B: Reporting to DMRI				16	
B: Bandung-> Reporting to DGGMR, and JICA				17	
B: Demobilization				17-18	
Laboratory Work			-----	-----	
Data analysis, Report making					19

DGGMR: Directorate General of Geology and Mineral Resources, DMRI: Directorate of Mineral Resources Inventory

Field Work {
 — A: Geophysical survey
 = B: Drilling
 - Laboratory work
 — Data analysis

Chapter 2 Geography of the Survey Area

2 -1 Survey area

The geological survey was carried out over a total of 260km². The coordinates of each district are shown on Table 1-2.

Table 1-2 Coordinates of Project and Survey Areas

		Latitude (S)	Longitude (E)		Latitude (S)	Longitude (E)
Tempursari District	a	8° 12' 09"	113° 01' 37"	b	8° 17' 05"	113° 01' 37"
	c	8° 12' 09"	112° 57' 39"	d	8° 17' 05'	112° 57' 39"
Purwoharjo District	a	8° 13' 24"	112° 57' 39"	b	8° 16' 36"	112° 57' 39"
	c	8° 16' 36"	112° 51' 00"	d	8° 18' 00'	112° 51' 00"
	d	8° 18' 00"	112° 49' 10"	f	8° 18' 00"	112° 49' 10"
	g	8° 13' 24"	112° 51' 00"			
Seweden District	a	8° 12' 13"	112° 14' 54"	b	8° 16' 43"	112° 14' 54"
	c	8° 16' 43"	112° 07' 24"	d	8° 12' 13"	112° 07' 24"
Prambon District	a	7° 55' 00"	111° 43' 00"	b	8° 02' 50"	111° 43' 00"
	c	8° 02' 50"	111° 37' 30"	d	7° 55' 00"	111° 37' 30"

Note: (a) to (d) show the corners of the districts

2 -2 Topography and Drainage

Access: Regular airline was used for trips between Jakarta / Bandung and Surabaya. Survey equipment was sent from Bandung to Turen, Blitar or Tulungagung; the first base camp by vehicles. Base camps were set up in the following towns or cities.

- (1) Turen and Pronojiwo, Kabupaten Malang for the survey of Tempursari and Purwoharjo
- (2) Blitar for the survey of Seweden district
- (3) Tulungagung for the survey of Prambon district

Of the roads in the survey area, the major highways joining Tulungagung, Blitar, Malang, Turen and Pronojiwo are paved and relatively well maintained. Other several roads within the districts are also maintained well but are narrower and bumpy. Local dirt roads are developed rather densely and were helpful for the survey.

Topography: Many volcanoes with elevation exceeding 2, 000m occur in the east to west direction in somewhat southern part of Java Island, and Mt. Semeru in the eastern part of the project area towers 3,676m high. Relatively gently undulating hilly areas exist between these volcanoes. The survey area to the south of this row of volcanoes consists of steep mountainous terrain, but the topography to the east and west of the survey area is relatively flat with gentle relief. The area to the east has limestone karst topography. The area to the north of the volcanic row generally has lower elevation compared to the south, and thus the drainage divide is located southward and the larger rivers drain northward. The major rivers are Brantas River.

The Tempursari and Purwoharjo districts are located at the southern flank of Mt. Semeru. The elevation of the northern ridges is more than 1,000 m and it decreases to the sea level at the southern part of the Tempursari district. That is the Tempursari district has the steepest mountains among the four districts. Major rivers in the Tempursari district are of K. Ngrawan and K. Gede and K. Lenkong:

In the Purwoharjo district, mountains are not so high as in the Tempursari district. But Valleys of big rivers such as K. Glidik and K. Coban are deep and have many waterfalls.

The elevation in the Seweden district is generally between 100m and 400m and the topography of the district shows gentle slopes. The mountain divide run the northern part of the district: rivers in the northern part pours to the Brantas river and many rivers in the southern part flow into the Indian

Ocean.

The topography of the Prambon district is steep in the northern part and rather gentle in the southern part. The elevation exceeds 800 m in the northern part and less than 100m in the southern part. The most of the rivers in the district go down to south and then join to the Brantas River.

2 -3 Climate and Vegetation

Climate: Eastern Java is located in the tropical rain forest climate zone, and it is divided into the dry (May – October) and wet (November – April) seasons. The average precipitation is 2, 000 to 2, 500mm and the average monthly temperature ranges between 23 to 32° C (Pacitan). The temperature and precipitation of Malang in the eastern part of the survey area is shown in the table below. The regional semi-detailed geochemical surveys were carried out during the dry season, and clear sky with scant rainfalls continued. The geological survey was carried out in the wet seasons and it rained almost everyday during the 19 days in the fieldwork, and the water sometimes rose in rivers.

The fieldwork of the geological survey was conducted during the dry season, and it rain on three days in the Tempursari district.

Table 1-3 Temperature and Precipitation in the Project Area

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Temperature (°C)	25	25	25	25	26	25	24	24	25	25	25	25
Monthly Precipitation (mm)	249	272	237	140	59	32	20	28	28	75	164	282

Vegetation: With the exceptions of the eastern part of the Tempursari district, the area is cultivated close to the mountain summits and rice fields and farms are developed extensively. There are not many jungles, and the vegetation is generally sparse. Eggplants, pepper, banana, papaya, pineapples, as well as crops such as rice, corn, and casaba are cultivated in the field. In the northern part of the Prambon district pine trees forest covers widely.