Fieldtrip Report

Saturday, 18th March 2023

Society of Economic Geologists

UNIVERSITAS GADJAH MADA

Student Chapter

Details: this fieldtrip was sponsored by Steward R Wallace Fund

Time: the fieldtrip was held on 18th March 2023

Location: Ngoro-oro cliff, Gunungkidul Regency

Participants: several members of SEG UGM SC 2022

Transportation and Logistics: student went to the location by bus

Detailed report:

The fieldtrip took place in Ngoro-oro cliff, Gunungkidul, Yogyakarta. According to regional geomorphology, this area is included in Southern Mountain Zone, specifically at Gunung Sewu Subzone. Ngoro-oro area consists of mainly clastic sedimentary and carbonate rocks mixed with volcanoclastic rocks (Van Bemmelen, 1949). This area is identified as part of Early Miocene Semilir Formation. The litology we found during observation such as tuff, lapili tuff, sandstone, siltstone, and polymitic conglomerate and volcanic breccia. Graded bedding, parallel lamination, stratification, and convolutstructures in its rocks. Those structures indicate that turbidity currents controlled the sedimentation of the volcaniclastic rocks and the deposition environement is in deep marine.

The formation was formed during the Miocene period, approximately 10 to 15 million years ago, as a result of volcanic activity associated with the subduction of the Australian plate beneath the Sunda plate. The volcanism that produced the Semilir Formation was part of a larger period of volcanic activity that occurred throughout much of Indonesia during the Miocene.

The formation is exposed in southern mountains due to a combination of erosion, tectonic activity, and human activity. In some cases, the volcanic rocks of the Semilir Formation have been uplifted by tectonic forces, bringing them closer to the surface and exposing them to erosion. In other cases, rivers and streams have cut through the surrounding sedimentary rocks, exposing the underlying volcanic rocks of the formation. Because of the uplifting there are many geological structures such as joint and fracture that exposed on this formation.

This fieldtrip activity was led by Gadjah Mada University geology engineering lecturer, namely Ir. Moch. Indra Novian, S.T., M.Eng. The fieldtrip starts at 09.00 AM which begins with an introduction to the concept of smart mapping. Smart mapping is a mapping concept by conducting remote sensing studies in determining

observation point stations before carrying out the actual mapping. Remote sensing identification is using the identification of geomorphology, geological maps, lineaments, and distribution of river patterns obtained from identification of topographic maps. From this identification, the exact location was determined to serve as the observation point station.

After the explanation, the activity continued with independent observation. Participants were given questions to discuss with other participants regarding the geological conditions on the Ngoro-oro cliff. Participants are welcome to measure the strike and dip directions of fault plane and bedding plane, identify lithology and mineralogy of the rock, and interpret depositional processes. After 2 hours, the participants were collected again, which was then discussed regarding the results of direct observations. In this activity, participants were very enthusiastic about understanding the geological conditions of the Ngoro-oro cliffs. The discussion sessions, both discussions between lecturers and participants as well as participants and participants, ran smoothly and were fun.

The fieldtrip ends at 02.00 PM. The activity ended with praying together and taking a group photo. The essence of this activity is about the importance of conducting preliminary studies before a geologist conducts field mapping. With the initial study, we can determine which location points will be used as observation locations so that the mapping will be more orderly and carried out systematically. Even though there is a possibility that the location found is not the right location, this initial study can assist in determining observation points so that mapping can take place efficiently.



Lecturing from Mr. Indra (left and middle), SEG member took picture together (right), All participants and lecturer (below)

Topography (left) and Geological map (Right) of Ngoro-oro cliff area

The cashflow for SEG UGM-SC fieldtrip are stated in the details below:

1 USD = IDR 14,912.35

A. Cashflow calculated using USD ($1 = Rp14.445,25)

Income				
Steward R, Wallace Fund			$	228.00
Outcome				
Agendas		Amount	Price(per pcs)	Amount ($)
	Tools			
	Speaker Rent	1	$ 3.35	$ 3.35
	Marker	4	$ 1.68	$ 6.72
	Battery	1	$ 3.02	$ 3.02
	Consumption			
	Lunch	100	$ 1.34	$ 134.32
	Transportation and Accommodation			
	Bus rent	1	$ 80.59	$ 80.59
Total				$ 228.00
Total Balanced				$0

B. Cashflow Calculated using IDR

Income				
Steward R, Wallace			Rp	3,395,000.00
Outcome				
Agendas		Amount	Price(per pcs)	Amount (Rp)
	Tools			
	Speaker Rent	1	Rp 50,000.00	Rp 50,000.00
	Marker	4	Rp 25,000.00	Rp 100,000.00
	Battery	1	Rp 45,000.00	Rp 45,000.00
	Consumption			
	Lunch	100	Rp 20,000.00	Rp 2,000,000.00
	Transportation and Acommodation			
	Bus rent	1	Rp1,200,000.00	Rp 1,200,000.00
Total				Rp 3,395,000.00
Total Balanced				Rp -

Details: this fieldtrip was sponsored by Steward R Wallace Fund

Time: the fieldtrip was held February, 11th – 12th 2022

Location:

· Pulau Merah – PT. Bumi Suksesindo (February 11th , 202))

· Ijen Volcano Complex, Kali Pait, Kawah Urung (February 12th , 2023)

Participants: Members of SEG UGM SC 2022

Transportation and Logistics: student went to the location by bus

Detailed report:

The field trip took place in the Tumpang Pitu deposit, located in the gold mining operation area of PT Bumi Suksesindo. It was situated on the southeast coast of East Java in the Banyuwangi Region of Indonesia. The Tumpang Pitu area was known for its geology dominated by low-K calc-alkaline aged Late Oligocene-Middle Miocene andesitic volcanic rocks, interbedded with volcaniclastic rock sequences and low K intermediate intrusions. The mineralization in the overlapping prospect was interpreted as an overlay of high sulfide Au-Ag-Cu zone and partial overprinting of the Cu-Au-Mo porphyry system. The central part of Tumpang Pitu hill rocks had undergone advanced argillic alteration and contained abundant vuggy silica, while the eastern slope exhibited an argillic zone. Quartz vein stockworks filled with iron oxide minerals, known as boxworks, were visible in some outcrops. Ore mineralization was primarily found in hydrothermal breccias, and diorite, dacite porphyry, and tuff breccia were the core minerals in the wall rocks. Mineral drilling had identified the presence of a chalcopyrite-sphalerite-covellite mineral assemblage occurring in a magnetite-chalcosite stockwork vein system, indicating the possibility of a porphyry system. Gossan deposits consisting of hematite-goethite and characterized by boxwork structures were found on Pulau Merah, located offshore about 250 m south of the Tumpang Pitu hill complex, extending up to 50 X 100 m. Propylitic alteration zones had been identified in the rivers on the west side of Tumpang Pitu hill, characterized by chlorite-epidote-quartz-calcite assemblages replacing primary minerals such as pyroxene, plagioclase, and volcanic glass from andesite rocks. We also visited Kawah Ijen to identify potential future deposits. However, due to increased volcanic activity at that time, we conducted our study in the safe zone. Access to the crater required a 2-hour hike. After that, we also visited Kali Pait, which was the result of past

lava flows, and Kawah Wurung, a prehistoric volcanic complex, where PT. Medco Geothermal conducts geothermal power generation activities.

The field trip activity coincides with the company visit to PT Bumi Suksesindo (BSI), a mining company for Domestic Investment (PMDN) located in Banyuwangi Regency, East Java Province, Indonesia. During this visit, PT Bumisuksesindo aims to share information about gold mineralization, which is the main focus of their exploration activities. Gold mineralization refers to the process of gold deposits forming in soil or rock, and it is a crucial factor in determining the potential of gold mines.

In this visit, the company explains that they have conducted various geological and geophysical studies to identify potential locations with gold mineralization. These studies include geological mapping, rock sample analysis, and geophysical measurements such as gravity and electromagnetic mapping. They use AI and advance technology to engage this analysis. This comppany let us did core analysis that have many meters lenght from their site

Furthermore, PT Bumisuksesindo also explains the technology used to extract gold from the ore found. One of the technologies used is cyanide processing. However, the company also emphasizes the importance of environmental conservation and minimizing the negative impacts of mining activities.

This visit also provides an opportunity for participants to witness the exploration and gold mining activities carried out by PT Bumisuksesindo firsthand. Participants are invited to visit drilling and sampling locations, as well as observe the process of gold ore processing.BSI has obtained a Production Operation Mining Business Permit (IUP OP) covering an area of 4,998 ha, as per the Decree of the Banyuwangi Regent No. 188/547/KEP/429,011/2012 dated 9 July 2012. BSI is primarily engaged in gold and copper production at the Tujuh Bukit Operation, also known as Tumpang Pitu. The mineral resources in Tujuh Bukit Operation are recognized by the state as a strategic asset, and BSI was designated as a National Vital Object (Obvitnas) on 26 February 2016. BSI has shown commitment to the Banyuwangi Regency Government by granting them ownership without any burden since 2013 of 10%, which was later adjusted to 6.42% after the Initial Public Offering (IPO) on 19 June 2015. This is the only share granted by the gold mining company to the local

government where the mine is located. BSI commenced production in the oxide layer on December 1, 2016, with the first ore mining, and has implemented the concept of green mining, ensuring openness to public interest in accordance with legislation. The company involves approximately 1,500 employees, of which 99% are Indonesian citizens and nearly 62% are young people from Banyuwangi Regency. The Tujuh Bukit Operation successfully produced 25,063 oz of gold and 6,420 oz of silver in the first quarter of 2017, as reported on 17 March 2017.

Prior to embarking on the field trip, the participants were equipped with a course led by experts such as Simon Meldrum, STJ Budi Santoso, Johan Arief, Benny Bensaman, Bronto Sutopo, Sukmandaru Prihatmoko, Ikrar Teguh Mandiri, and Agus Purwanto. The topics covered in the course were aligned with the subjects that would be explored during the upcoming field trip.

Fieldtrip Rundown

Friday, 10 February 2023	
Time	**Event**
06.00 - 07.00	Preparation
07.00 - 07.30	Opening Speech and Take a Photo together
07.30 - 11.30	Go to Masjid Quba Kota Caruban or nearest Rest Area
11.30 -12.45	Ishoma, Friday Prayer
12.45 - 18.00	Go to Pulau Merah Beach (via Jember)
18.00 - 19.15	Ishoma
23.00 - 06.30	Rest at Cottage Pulau Merah
Saturday, 11 February 2023	
Time	**Event**
06.30 - 07.15	Breakfast
07.15 - 07.30	On the way to Pulau Merah
07.30 - 08.45	Visit Pulau Merah
08.45 - 09.00	Preparation to go to PT BSI
09.00 - 09.30	On the way to Office PT.BSI
09.30 - 11.00	Introductions to Inductions, Geology Review & PPE
11.00 - 12.00	Coreshed
12.00 - 13.00	ISHOMA
13.00 - 16.00	Go to site PIT C, Heap Leach, Tanjung Jahe
16.00 - 16.15	Preparation to go to Kawah Ijen Homestay
16.15 - 18.15	On the way to Homestay Kemarang
18.15 - 19.15	ISHOMA
19.15 - 20.15	Kawah Ijen matriculation, briefing activity in Kawah Ijen
20.15 - 20.25	On the way to Homestay Kemarang dan Homestay Oku
20.25 - 02.00	Rest

Fieldtrip Rundown

Sunday, 12 February 2023	
Time	**Event**
02.00 - 02.30	Preparation to Kawah Ijen
02.30 - 03.30	On the way to basecamp Kawah Ijen
03.30 - 06.30	Hiking to Kawah Ijen
06.30 - 07.00	Field observation of Kawah Ijen
07.30 - 10.00	On the way to basecamp Kawah Ijen
10.00 - 10.30	On the way to Kawah wurung
10.30 -11.30	Explanation about Kawah wurung
11.30 - 12.00	On the way to Kali Pait
12.00 - 12.30	Explanation about Kali Pait
12.30 - 14.00	On the way to Homestay
12.30 - 13.30	On the way to Sanggar Genjah Arum
13.30 - 13.40	On the way to Sanggar Genjah Arum
13.40 - 15.30	Ishoma at Sanggar Genjah Arum
15.30 - 18.00	On the way to Probolinggo
18.00 - 19.15	Dinner in Probolinggo
19.15 - 02.00	On the way to Jogja


FIELDTRIP
Day 1


FIELDTRIP
Day 2

The cashflow for SEG UGM-SC fieldtrip are stated in the details below:

1 USD = IDR 14,912.35

Cashflow calculated using USD ($1 = Rp14.445,25)

Income	
Detailed	Income
SEG Student Wallace Fund (remaining)	$ 1,272.00
Registration Fee	$ 669.00
Sponsorship	$ 2,500.00
Total Income	$ 4,441.00

Expenses				
Detailed Item	vol	Unit/day	Price per Unit ($)	Total Price ($)
Accomodation				
Hotel Room Pulau Merah	22	unit	$ 29.93	$ 658.46
Villa on Kawah Ijen	2	unit	$ 133.04	$ 266.08
Consumption for 50 person for 3 days	450	unit	$ 2.66	$ 1,197.00
Road Trip				
Rent a bus for 3 days	2	unit	$ 598.70	$ 1,197.40
Toll Cost	2	unit	$ 66.52	$ 133.04
Travel Agent for Kawah Ijen	1	unit	$ 532.18	$ 532.18
Company Visit				
Cost Visit	1	unit per day	$ 13.30	$ 133.04
Instructor	1	unit per day	$ 33.26	$ 33.26
Emergency				
First Aid	1	unit	$ 13.30	$ 13.30
Media				
Memento for PT. BSI	1	unit	$ 4.99	$ 4.99
Memento for Instructor	1	unit	$ 4.99	$ 4.99
Field Property Rent	3	days	$ 16.63	$ 49.89
Bus Banner	2	unit	$ 3.33	$ 6.65
Vast	50	unit	$ 9.98	$ 499.00
Camera Rent (3 days)	3	unit	$ 19.96	$ 59.88
Retribution Cost (parking. etc.)	1	unit	$ 13.30	$ 13.30
Total				$ 4,802.46
Total Income				$ 4,441.00
Income-Expenses				-$ 361


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