

CHARACTERISTICS OF LAND MOVEMENT AROUND JATIGEDE DAM, SUMEDANG REGENCY, WEST JAVA PROVINCE

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Abstract

West Java region has a oceanic plate moving perpendicular relative to the shape of Java with the speed of 6-7 cm / year, and a factor of frequent earthquakes after a certain period at the contact boundary with the oceanic plate crustal plate the islands. Location of the study area is administratively located in cijeungjing village, jatigede areas which are geographically located at coordinates 108° 06' 11"E - 108° 06' 51"E dan 6° 50' 46"S - 6° 51' 11"S. The purpose of this research is to analyze the direction of the movement of the land of the study areas based on of the safety, primer and secondary data processing into use the software which produce results the end of the making of maps the direction of the movement of the ground. Zoning map of the safety and the direction of the movement of land movement based on a map other basic. At the data analysis started from digitation of map the basic into arcgis be digital maps , and data required in the map used as some of the maps thematic. And primary data of example land analyzed in order to determine the weight of the contents of, heavy the contents of saturated, cohesion and angles sliding in to get a security factor of land movement in section of this research. Zoning security factor in study areas according to classifications Joseph E.Bowles (2000) where security factor with the between 1,07 – 2,84. The condition of a slope that relative safe and rare landslide. And the direction of the movement of land in study areas land from the east moving west.

Key words: land movement, landslide, arcgis, saturated, cohesion, direction of movement

1. INTRODUCTION

Background

Jatigede Reservoir capacity is about 979,5 million meters cunic and will build pembangkit listrik tenaga air (PLTA) by 110 megawatts capacity, then for sure Jatigede Reservoir is multipurpose dam. The reason is because Jatigede reservoir besides for irrigation and raw water to PDAM it can be use for flood controllers das Cimanuk.

Jatigede reservoir Inundation is almost become reality and there will be Jatigede reservoir inaugurate by President of Republic of Indonesia in August 2015, then the researchers also ended especially in geology study for to able see rock outcrops and geological phenomena in Cinambo downstream river. The appearance of the river, geological phenomena, geological outcrops and morphology around the river will be lost by reservoir puddle. The effort to save rescue existing geological data in Cinambo river and surrounding areas is recording the datas in that area and documenting it properly and correctly so the result can be useful.

In phase I, the data and the recording has been done in Cinambo river route along the puddle plan. Then, the interpretation become the river geological path map. This phase II activity is done by sorting the data to be used as the basic geological map related by Cinambo river area and surrounding area such as geological structure outcrop data, stratigraphic data, lithology and other data. Base on the recording data, then it can be sorted according to the groups in the appearance of the field

Purpose of Paper

The purpose of this research is make the sort basic data for geology and geological engineering according to the recording data result surrounding Cinambo river that now has been inundating by Jatigede reservoir

2. LITERATURE REVIEW

The Jatigede dam location according to physiography region West Java division is included in Bogor zone (Van Bemmelen, 1949). This Bogor zone extends from west to east starting from Rangkas Bitung to Majenang (Bumiayu) this zone occupied by mountains and hills is anticlinorium that strongly grounded. The sediment accumulated by thick neogen sediment that characterized by deep sea sediment. In general consists of Batulempung, and breccia that is turbidit, including intrusion of igneous rock

3. METHODOLOGY

Research location administratively logged in Sumedang District, West Java Province. Data retrieval restricted by along Cinambo river in the middle to downstream, suitable with boundary of Waduk Jatigede reservoir pool.

Implementation of this research activity is done by using the existing trajectory and observation methods that have ever encountered geological phenomenon in the field and conducted recording. Observations and trajectories will produce a trajectory map containing the location where the geological data is recording. Recorded data field then sorted and arranged in accordance with the type of data so it will facilitate the discovery of required data. The compilation of such data will be based on geological data types, geomorphological data and technical geological data. The result of data preparation will be a data table according to the data type.

4. RESULT AND DISCUSSION

In practice, the trajectory which is the channel of the Cinambo River is limited to be flooded by the Jatigede Reservoir. Implementation of the river trekking in the beginning of the mouth of the River Cinambo located in Cimanuk River. So the starting point is the Cimanuk River intersection with Cinambo River (Figure 3). Timeline of Cinambo River time 6 (six) Stratigraphy according to previous researcher (Muldiyanto, Harya.; Wicaksono, Sonny, 2011) in areas starting from Cinambo Formation, Halang Formation, Broken Breccia, Unexplained Rocks, and Alluvial (Figure 4.). Implementation starting from downstream by creating a 1st location that is dissolved by alluvial deposits of clay holes to lumps, the unloading has not been cemented. In addition, river basins are also found that consist of sand, ragents and sludge bahn that horizontally layering. Furthermore, at the observation location 5 start exposed with clear clastic sedimentary rocks are claystone with the sandstone. Claystone clay with gray-greenish grain resistant clay, split with gray carbonate sandstone carbonate, medium-fine grain sand, commonly encountered flutecast sediment structure, has fragments of clastic material with fine sand matrix and carbonate cement. Sandstone sandstone adjacent to shale clay is increasingly upstream 10 cm - 110 cm thick, with variations of limestone limestone and tuffed sandstone. This is apparent at the location of observation 13 (WP013) with the exposure of limestone limestone.

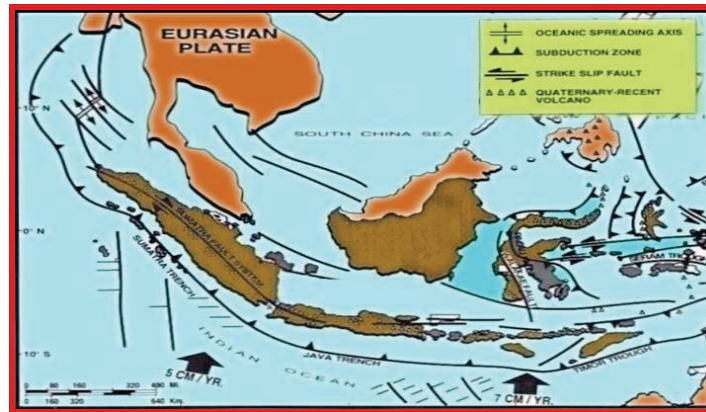


Figure. The Position of Java Island in Indonesia (Source: Asikin, s, et, 1974)

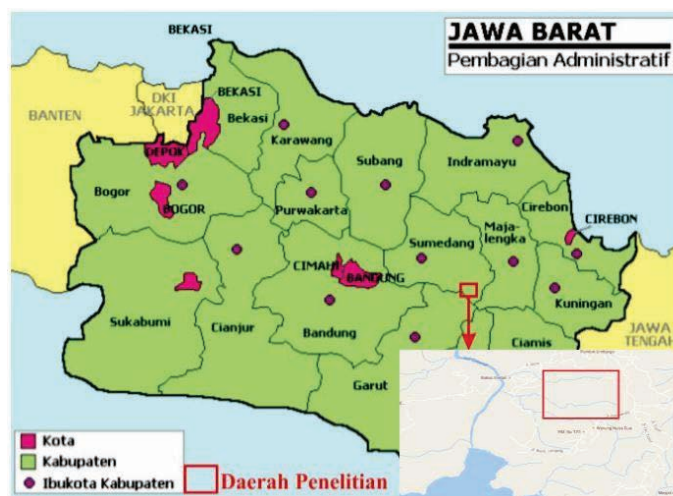


Figure 2. Location of the study area in West Java Province

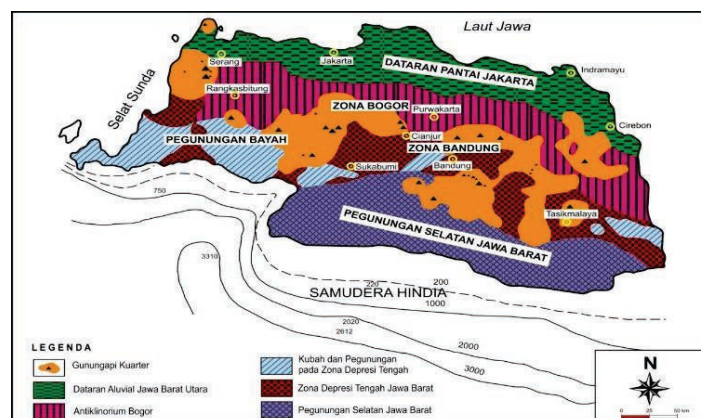


Figure 3. Physiography of West Java Island (Van Bemmelen 1949 with modification)

5. CONCLUSION

1. Flooding of Jatigede Reservoir will drown the middle of Ciniva River up to the downstream until it merges with Cimanuk River.
2. Geologically the Cinambo River is the location type of the Cinambo Formation, so much of the rock outcrop evidence showing the characteristics of the formation needs to be saved by recording before it is inundated.
3. Implementation of recording and recording of data is done by trajectory method along the Cinambo River from downstream to center.
4. Data yield record and recording arranged in the form of tables in accordance with the type of data.

ACKNOWLEDGEMENT

Thanks for the support of data and materials at Trisakti university and at Hibah Bersaing Dikti that support this activity

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