

LIMESTONE POTENTIAL IN CIKATOMAS REGION BASED ON GEOLOGICAL MAPPING AND IT'S ROLE TOWARDS DEVELOPMENT OF SOUTHERN PART OF WEST JAVA, INDONESIA

Presented at the FIG Working Week 2016, May 2-6, 2016 in Christchurch, New Zealand

By

Ildrem SYAFRI*, Murni SULASTRI*, Oeke SOBARIN*, Puspa Khaerani*,
Ginanjar Maulana*

* = Padjadjaran University, Jatinangor 45363, West Java, Indonesia



FIG Working Week 2016

CHRISTCHURCH, NEW ZEALAND 2-6 MAY 2016

Recovery

from disaster

Thursday, 5 May 2016 in TS07D-Wide Area Engineering Surveys for Monitoring, Features Determination and Environmental Management. Venue: Silkroom 1, Addington Raceway, Level 2

Organised by



Platinum Partners



Diamond Partner





FIG Working Week 2016

CHRISTCHURCH, NEW ZEALAND 2-6 MAY 2016

Recovery

from disaster

I. INTRODUCTION

This study is only one of some studies that we carried out in the southern west java region in the last five years

WHY IS THE SOUTHERN WEST JAVA REGION ?

West Java Province is a Indonesian province with the most dense population (43 millions peoples between 250 millions peoples)

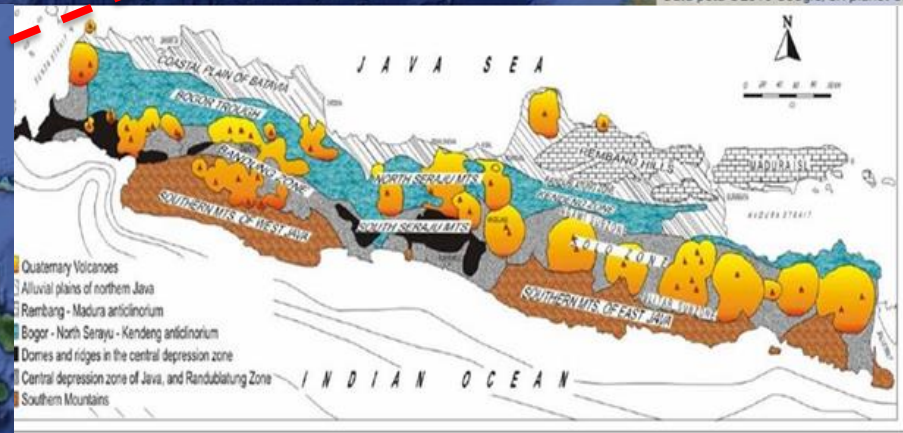
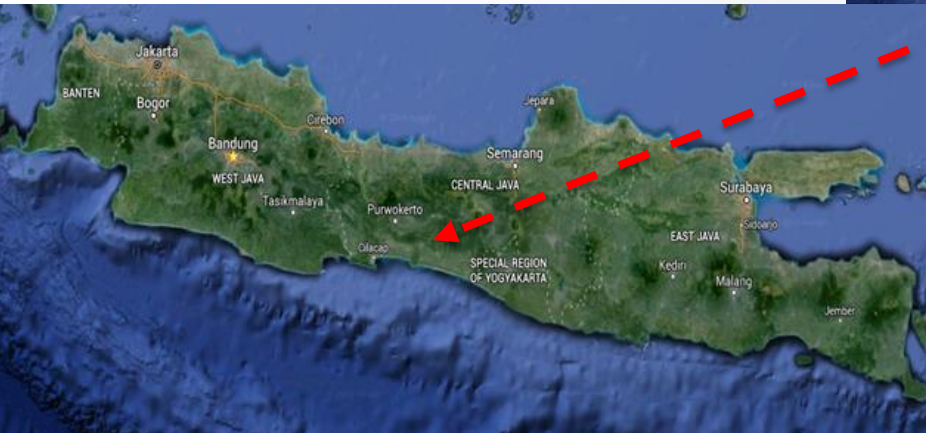
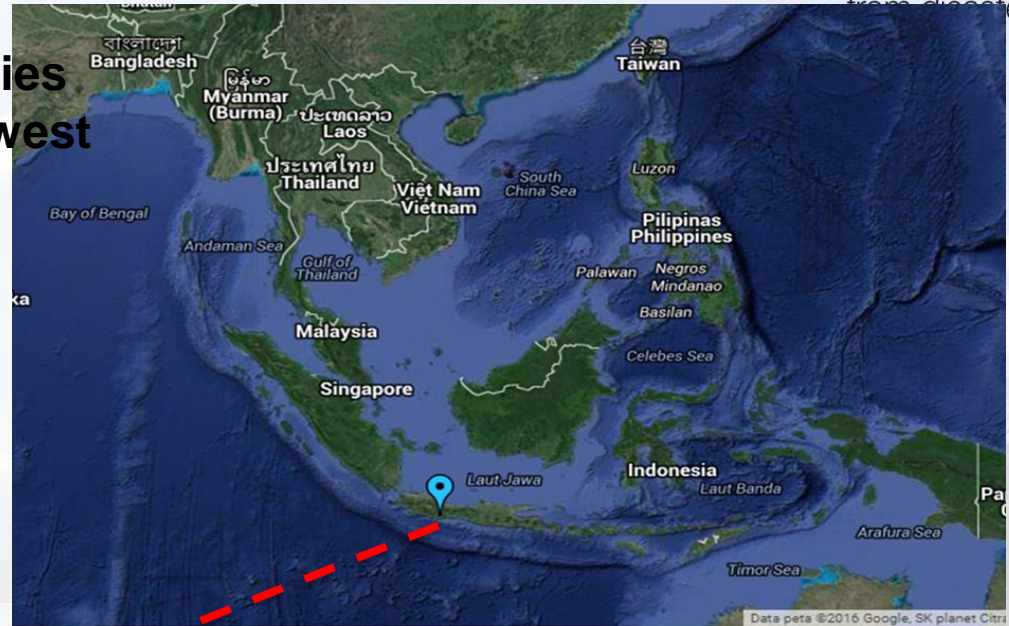


Figure 1 - Physiographic map of Java and Madura Islands (Bemmelen, 1949). The box marks the study area. It is located at the border of West to Central Java.



FIG Working Week 2016

CHRISTCHURCH, NEW ZEALAND 2-6 MAY 2016

Recovery

Regional Development of Southern West Java Region, based on Regulations No.28-2010:

Development of Southern West Java Region in 2010 – 2029



Target & goal:

- Agro-business area
- Agro-industry area
- Maritime industry area
- Integrated tourism by optimize the land resources; maritime and coastal areas without destruction the environment.



Regional development plan map of Southern West Java Region



FIG Working Week 2016

CHRISTCHURCH, NEW ZEALAND 2-6 MAY 2016

Recovery

from disaster

II. METHODS



Geological mapping conducted on 100km² area in scale 1 : 25000. The rocks samples taken during the field observations, The results of this mapping is a sample location map and geological map.



Petrographic analysis conducted by using a polarization microscope. Thin section is made on the 3 units of samples consisting of carbonate sandstone, clastic limestone, and coral limestone. For naming the rock using the classification of limestones (Dunham, 1962). This classification is constituted by fossil and mineral components (grain) and cement content.



Limestone potential in this area will be taken into consideration of development of the southern region of West Java Province. Therefore, the proposed development plan would be linked with the applicable laws and regulations in this area.



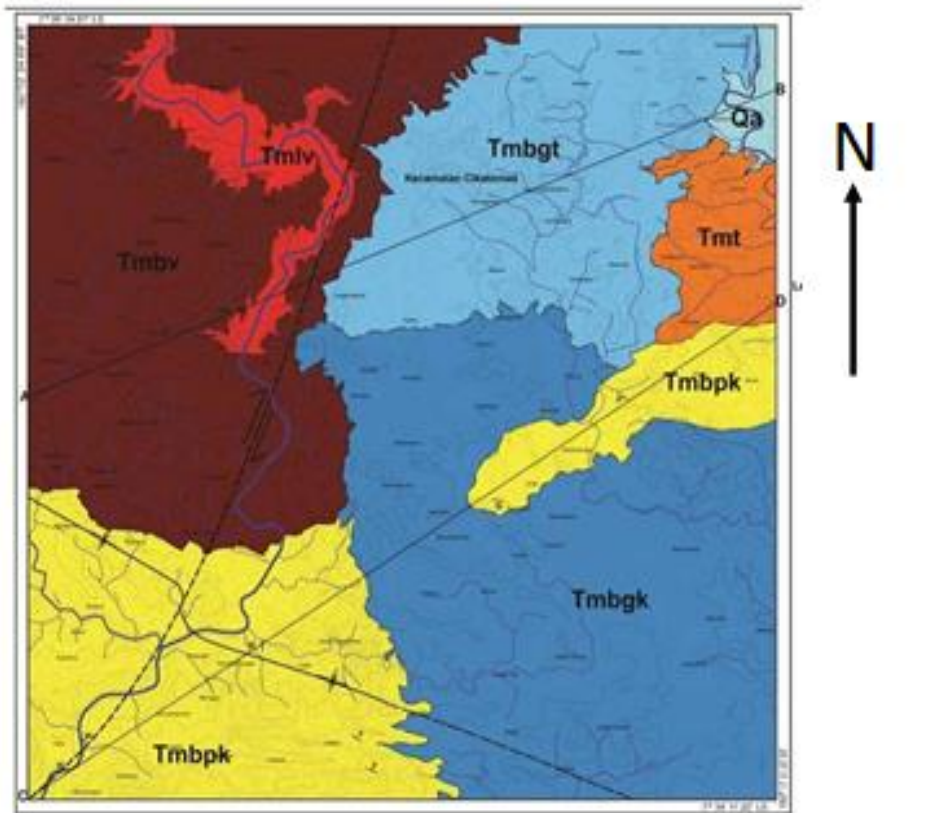
FIG Working Week 2016

CHRISTCHURCH, NEW ZEALAND 2-6 MAY 2016

Recovery

from disaster

III. RESULT.



		KOLOM STATIGRAFI			
UMUR		SATUAN BATUAN			
Zaman	Kala	Sedimen	Beku	Endapan Aluvium	
Kuartar	Holosen			Qa	
	Plistosen				
Terstier	Plistosen				
	Akhir				
Miosen	Awal				
	Akhir	Tmbgk			
	Tengah	Tmbgt, Tmbpk, Tmt			
Oligosen	Awal				
	Akhir	Tmbv	Tmlv		
	Awal				

- Qa : Aluvial deposit
- Tmbpk: Calcareous sandstone unit
- Tmbgk: Clastic limestone unit
- Tmbgt: Reef limestone unit
- Tmlv : Andesitic lave unit, sheeting joints
- Tmbv : volcanic breccia unit with basaltic components and tuff matrix

Platinum Partners:

Diamond Partner





FIG Working Week 2016

CHRISTCHURCH, NEW ZEALAND 2-6 MAY 2016

Recovery

from disaster

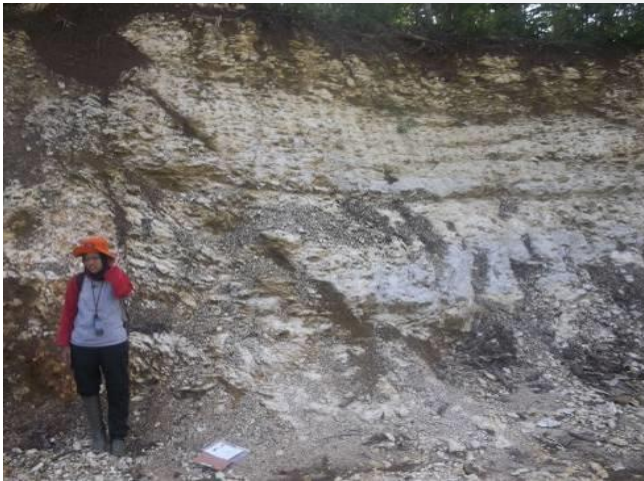
Limestone Outcrop in Cikatomas Region



Reef limestone



Thin-section of reef limestone



Clastic limestone



Thin-section of clastic limestone



Platinum Partners:



Diamond Partner





Limestones composed nearly 65% of the study area, wide of distribution area are expected around 5500 hectares. They are located in diverse regions composed of clastic limestone, reef limestone and carbonate sandstone

Reef Limestone Unit (Tmbgt)

Reef limestone and crystallin limestone, fresh gray color, gray brown color in weathered, composition dominated by shellfish such as corals that show the growth (branching coral and head massive coral) and a few shells of mollusks, the matrix Limemud matrix, fair-medium sand, poor permeability, rounded shape grain, hard hardness, and has cavities. This reef limestone unit covers the northern part of the study area,

Microscopically, the reef limestone is fine-grained, fragments rounded sole, pack closed, poor sorting, fragments of foraminifera (30%), and fragments of non-skeletal, sparry calcite (5%), quartz (15%), Void (10%) and carbonat matrix (40%), This is packstone (Dunham, 1962). In other locations, crystallin limestone are found separately.



Clastic Limestone Unit (Tmbgk)

This limestone unit is composed of clastic limestone, fresh white color, faded white color of obsolete, by fragments of shells and matrix. Fragments of shells in the form of shell fragments of coral and mollusks, lime mud matrix, fine-medium sand sized, bare-rounded grain shape, poor permeability.

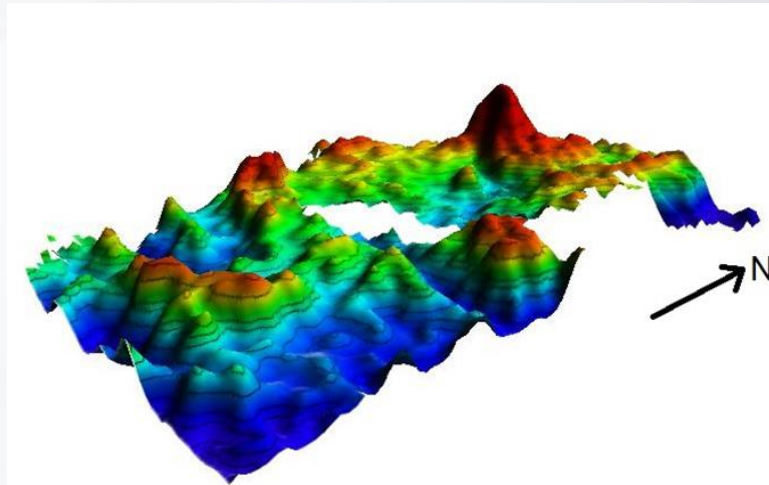
Microscopically, the section of clastic limestone is pure white, Fragment Skeletal consists of foraminifera (30%), fragments of Non-Skeletal 30%, consisting of carbonate mineral (45%), quartz (15%), carbonate matrix (40%) and secondary porosity (10%), belongs to a generation of rock packstone and wackestone (Dunham, 1962)



Estimation of Resource Potential

An accurate resources accumulation => topographic maps of 1: 25,000.

On topographic maps or 3D model: limestones are in morphological solitary conical hill. The Calculation of reserve volume : by calculating the cross-sectional area x by the distance between the cross section, then the figures obtained hypothetical limestone reserves in the study area of 148.000 m³, after deducting the estimated thickness of soil. If the density limestone considered average of 2.00 will be obtained reserves that can be mined as much 356.364,29 tons.





IV. DISCUSSION

Development of Southern Part of West Java Province

West Java Provincial Government has established "*West Java Provincial Regulation No. 28 Year 2010 on Regional Development of the Southern part of West Java Year 2010-2029*". Based on the regulation on No 28 year 2010 that the scope of the development region South West Java consist of 83 (eighty three) sub-district which covers five (5) regencies, includes Sukabumi, Cianjur, Garut, Tasikmalaya and Ciamis Regency. Cikatomas District included in Tasikmalaya Regency To operationalize Regulation No. 28 Year 2010, West Java Provincial Government through the Department of Housing and Real Estate West Java Province prepare a Strategic Plan (Plan) Development of Java West South Section.

The purpose of the strategic plan of development of the Southern Region West Java is to formulate policies and sectoral strategies for developing this area, in an effort to realize the southern region of West Java into integrated area of agribusiness, agro-industry, marine industry and tourism which is optimizing resources land, coastal and marine while maintaining environmental sustainability. Mining and quarry issues discussed in *Chapter 8* which states the direction of mining activities that are environmentally friendly and have an integrated management and control.



The need for mining materials especially limestone is very high to support such development. Potential of limestone quarry should be properly harnessed and implemented in accordance with the regulations. Therefore, the potential of Cikatomas limestones in this region can be considered to be exploited further. Another plus is the mileage and road access to the region's relatively easy, thus benefiting investors and development to carry out the mining activities there.

Utilization of Limestone in Cikatomas District

Minerals in the study area are pretty much in the form of limestone. Limestone widespread in the study area used by locals to be used as the foundation of the house and the base path and there are also people who use limestone as lime. Mining activities undertaken by this population is still in traditional way with activities in accordance with needs. This potency has not been optimally utilized by the people. Maximum utilization can increase incomes in the Cikatomas region that automatically increase local revenue. As is done in the United States generally limestone used as raw material for Portland Cement, breakfast cereals, paints, calcium supplement pills, marble tables, antacid tablets, high-quality paper (Bliss, Hayes, and Orris, 2012).



CONCLUSION

The study on the limestone potential in Cikatomas District needs to be continue by geochemical analysis for limestone quality, and subsurface investigation to determine the subterrain cave and rivers; deliniate / make the zonation of karsification



FIG Working Week 2016

CHRISTCHURCH, NEW ZEALAND 2-6 MAY 2016

Recovery



Thank you



Platinum Partners:



Diamond Partner

