SEDIMENTARY CYCLE RECONSTRUCTION OF REEF AND FRAGMENTAL LIMESTONE IN CIKAMUNING AREA, PADALARANG, WEST JAVA, BASED ON SHALLOW WELL DATA AND OUTCROP

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ABSTRACT

Four (4) facies associations can be identified based on core data of three shallow wells in the Cikamuning area supported by outcrop observations. From older to younger they are: coral bindstone to rudstone facies association, prograding rudstone to packstone facies association, well bedded turbiditic packstone to grainstone facies association, and thick bedded to massive rudstone to grainstone facies association.

The coral bindstone to rudstone facies association is massive to thick bedded, dominated by platy corals that are typically 0.5cm to 1cm thick, embedded within packstone to grainstone matrix. This facies association is interpreted as a reef margin carbonate platform. The prograding rudstone to packstone facies association is generally thick bedded to massive, clast supported, generally coral fragments ranging in size from 1 cm to approximately 5 cm, embedded in packstone to grainstone matrix. The prograding rudstone to packstone facies association is interpreted as reef slope deposit. Field observations indicate that prograding rudstone to packstone facies association onlaps to coral bindstone to rudstone facies association. The well bedded turbiditic packstone to grainstone facies association is characterized by interbedded grainstone and marl, with graded bedding, parallel lamination, and convolute sediment structures indicative of turbiditic deposits in complete Bouma classic turbidite sequence. Thick bedded to massive rudstone to grainstone facies association is characterized by thick, massive bedded rudstone, with erosional truncation at the base and marl intercalations. Paleontology data indicate that this facies was deposited in deeper water environment (upper bathyal), with debris flow mechanism.

INTRODUCTION

Carbonate rocks of Rajamandala Formation in Padalarang area near Bandung, are a reef complex that developed in shallow marine environment. This excellent exposure of natural outcroppings and mining activities offer a good opportunity to study and identify the various carbonate facies.

The Rajamandala Formation has been chosen as an objective of a collaborative study between ITB, Rice University, ExxonMobil and BPMigas. The collaborative work encompasses biostratigraphic analyses, interpretation of depositional facies and geometries, and studying the relationship between carbonate platform evolution and regional tectonics (Sapiie, et. al., 2007).

Previous research done by ITB (Koesoemadinata and Siregar, 1984) and ITB-PT Exxon Mobil Oil team (2008-2009) in Rajamandala limestone has imposed the depositional model based on field