Tacipi limestone facies distribution and sequence development, Mio-Pliocene, south Sulawesi, Indonesia*

Alit A. Ngakan & Neil Harbury (Birkbeck College & University College London)

The tectonic evolution of Sulawesi is complex it is situated in the triple junction of the Indo-Australian, Eurasian and Pacific Plates. The late Cretaceous to Neogene history has resulted in considerable changes in the tectonic setting attributable to plate motions. Southern Sulawesi was a fore-arc region in the late Cretaceous with the deposition of a deep marine siliciclastic sequence (Balang Baru Formation); this evolved into a back arc setting in the Eocene, and a thick succession of volcanics of both acidic and basin composition were developed from Eocene to lower Miocene times. Following this volcanic phase carbonate sedimentation dominated in the Middle Miocene. This study documents the tectonic control on carbonate facies distribution (Tacipi and Walanae Formations) in the Middle Miocene-Lower Pliocene of southern Sulawesi.

The Tacipi region is situated approximately 160-200 km northeast of Ujung Pandang in south-west Sulawesi. The region lies in the Sengkang Basin, bounded to the north by the Latimojong Mountains composed largely of Cretaceous flysch sediments.

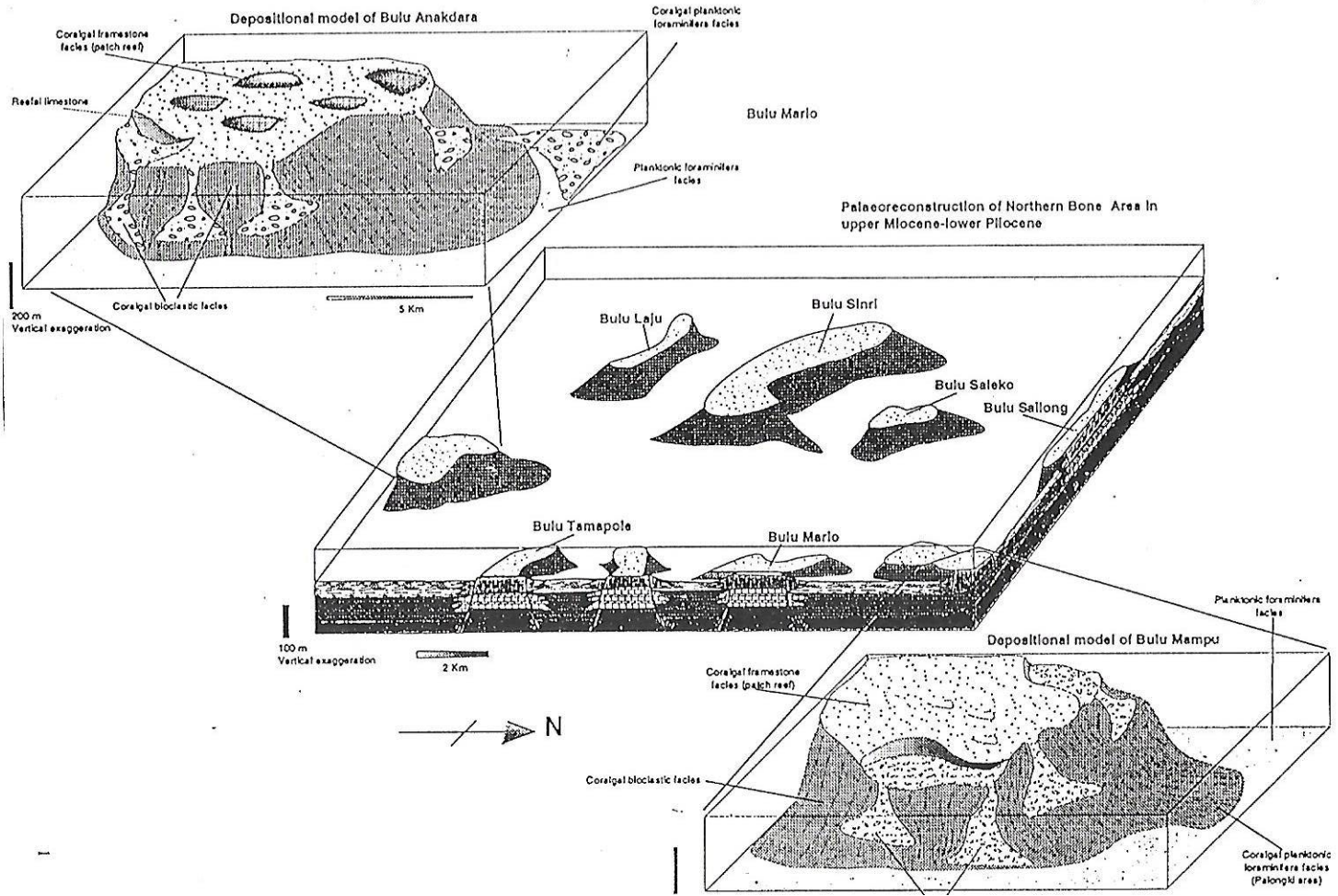
Upper Cretaceous-lower Pliocene sediments crop out in the Bone Mountains forming the southern boundary of the East Sengkang Basin. To the west, the Camba Range consists of a pre-Tertiary ophiolitic complex covered by Neogene island-arc volcanics while to the east of Sengkang Basin lies the Gulf of Bone.

Over 168 selected stratigraphic sections of the Tacipi Limestone have been examined in the field. Detailed sedimentary logs have been prepared to establish the sedimentary facies and depositional sequences. The distribution of facies are illustrated by numerous facies maps controlled by the data collected from measured sections (see Fig. 1 for model). These data are constrained with core and wireline logs from the northern part of the East Sengkang Basin.

Five major depositional units can be identified within the Tacipi Limestone Formation these can themselves be divided into eighteen subfacies. The major depositional units consist of the following lithofacies: volcanic arenite with byozoa, coral rudstone / floatstone, skeletal grainstone / packstone, skeletal packstone/wackestone and coralline buildups. Detailed palaeoenvironmental and biostratigraphic studies constrain the sedimentary and tectonic history of the area (Fig. 2).

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Depositional model of Bulu Anakdara
Coralgal framestone facies (patch reef)
Reefal limestone
Coralgal planktonic foraminifera facies
Bulu Marlo
Planktonic foraminifera facies
Coralgal bioclastic facies
5 Km
200 m
Vertical exaggeration
Palaeoreconstruction of Northern Bone Area in upper Miocene-lower Pliocene
Bulu Laju
Bulu Sinri
Bulu Saleko
Bulu Sallong
Bulu Tamapole
Bulu Marlo
100 m
Vertical exaggeration
2 Km
N
Planktonic foraminifera facies
Depositional model of Bulu Mampu
Coralgal framestone facies (patch reef)
Coralgal bioclastic facies
Coralgal planktonic foraminifera facies (Palongki area)