

# **Palaeogene Tectonics Evolution and Sedimentation of East Java Basin: A Future Hydrocarbon Exploration Target**

Sapiie, Benyamin, Agus Handoyo Harsolumakso, and Sukendar Asikin, Institute of Technology Bandung, Bandung, Indonesia

Recent evidence from both subsurface data and outcrop suggested that southern part of East Java Basin is underlain by continental crust. This result reveals new knowledge in term of tectonics evolution and sediment in East Java Basinal area particularly during Paleogene time. Moreover, this new finding opens future exploration opportunity in the southern part of the East Java. Our works recognized two sets of faults, NE-SW and E-W trend controlling the distribution of Paleogene graben system in the southern part of East Java Basin. Sedimentation and structural relationship indicates that E-W trending faults are slightly older than NE-SW trends. It is evident that E-W trending faults controlled the distribution of Paleogene graben system. The lower part of the E-W grabens system filled by syn-rift deposit consist of conglomerate, quartz sandstone and shale as part of Ngimbang Fm. depositing in fluvial environments. Some of the field in the East Java produced from this clastic unit. However, the tectonics and provenance of Ngimbang clastic is poorly known.

A new tectonics model of Paleogene system of East Java is presented. Our tectonics model involves collision between rafted Australian continental crusts namely the East Java Microplate with Sundaland during late Cretaceous. The result of the collision is reactivated pre-existing E-W faults in the basement becoming strike-slip fault systems which control the development Ngimbang graben along the pull-apart area. Our tectonics model is not only explaining the sedimentation of Ngimbang Fm., but also tectonic evolution of East Java basinal area including its paleogeography.