## Strike slip duplexes: their role in basin formation and evolution, with reference to the North Sumatra Back Arc, Ombilin Intermontane and West Sumatra Fore Arc basins

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Interpretation of seismic data in the Aru Area (North Sumatra Back Arc Basin), detailed field mapping in the Ombilin Intermontane Basin and results of marine geophysical cruises in the West Sumatra Fore Arc Basin strongly suggest that the formation and development of those basins are closely associated with the strike slip duplex systems.

In the North Sumatra Basin, the strike slip duplex system was active during the Late Oligocene-Early Miocene to form N-S trending transtensional half grabens. The main depocenters are located in the western part of the Aru Area. Subsequently, deposition of lacustrine and fluvial sediments of Bampo and Prapat Formations took place. Inversion tectonics occurred in the Middle Miocene which resulted in the shifting of the depocenters towards east.

Similar mechanism appears to occur in the Ombilin Intermontane Basins. The formation of grabens through transtensional movements took place in Paleocene–Eocene times, during which the deposition of lacustrine, alluvial fans and fluvial sediments of Sangkarewang and Brani Formations was also occurred. That episode was subsequently followed by inversion tectonics in the Early Oligocene, and associated with the deposition of the fluvial sediments of the Sawahlunte and Sawahtambang Formations. Next transtensional episode was active in Late Oligocene–Early Miocene times. The deposition of the shallow-deep marine sediments of the Ombilin Formation was prevailed in the Neogene grabens situated to the southeast of the Paleogene depocenters.

Results of the marine geophysical cruises in the West Sumatra Fore Arc Basin and field mapping on Nias Island confirmed the occurrence of strike slip duplexes. N-S trending grabens were formed due to Late Oligocene transtensional movements in which sediments were deposited unconformably upon the Pre-Oligocene accretionary complex.

All basins are subjected to the Plio-Pleistocene orogeny which produced the present complex structures.