BOOK REVIEW

Sumatra. Geology, Resources and Tectonic Evolution

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BARBER, A. J., CROW, M. J. & MILSOM, J. S. 2005. Sumatra. Geology, Resources and Tectonic Evolution. Geological Society Memoir no. 31. ix + 290 pp. London, Bath: Geological Society of London. ISBN 1 86239 180 7. doi:10.1017/S0016756806212974.

This book provides collaborative approach of geology of Sumatra since previous publication of van Bemmelen, the Dutch geologist who published a 'comprehensive and masterly summary' of the Geology of Indonesia, initially in 1949. Much of the geological research conducted in Sumatra in the latter part of the twentieth century has been carried out by the British Geological Survey and the University of London SE Asia Research Group. The whole island has been mapped geologically at the reconnaissance level and completed in the mid-1990s, together with supplementary data obtained by academic institution and petroleum and mineral exploration companies, has resulted in a vast increase in geological information, which is summarized in this volume. The editors and most of the contributors are associated with these organizations and are thus able to draw on considerable personal experiences. In addition they have incorporated references to pretty much every single paper or book to have dealt with the geology of the island. It thus follows in the tradition of Van Bemmelen.

The opening part of this book presents a concise introduction to the topic of Seismology and Neotectonics that contains some late additions which provide a comprehensive summary of the information that became available immediately after the 2004 Sumatra's earthquake and tsunami and has a note added in proof to include data from other aftershocks up to the end of April 2005. It might therefore seem prescient to have planned the publication of a memoir describing the geology of Sumatra for 2005. In comparison to other publications that have followed the earthquake, this volume can fairly claim to provide a comprehensive context in which to place these momentous geological events. There is much more to the geology of Sumatra than its present-day position above an active subduction zone. It also contains one of the world's most prominent strike-slip faults (the Sumatra Fault), an active volcanic arc, a partially emergent forearc, and an extensive back-arc region. It contains a globally significant petroleum province, some coal reserves and more limited mineral resources. The geological evolution of the island can be traced back to the Carboniferous or older.

A review of Granites and Pre-Tertiary volcanic rocks of Sumatra gives a valuable history of the exploration and development of recently oil and gas discovery in fractured basement system in Sumatra, which played an important role in establishing the concept, and provides a general introduction to the geology of the Northern and Southern Provinces. There are few papers concerned with magmatism and Paleozoic island arc development on the active margin of Sumatra. Palaeozoic orogeny of Sumatra is considered as the subduction history of the Sundaland margin which gave some implication to describe present pre-tertiary basin in Sumatra.

More specifically, a gap in the current treatment is the limited coverage on the basins containing hydrocarbon reserves. Oil company data is always subject to constraints and confidentiality, particularly in Indonesia given the involvement of the Directorate of Oil & Gas in all licenses, but it would have been interesting to see some of the comprehensive datasets that must exist in these areas, which would help to address the thorny question of to which strike-slip deformation is associated with the formation and subsequent inversion of the Sumatra basins. In addition, the BGS and University of London projects were the models of constructive collaboration with Indonesian organizations and it is perhaps a pity that none of their Indonesian counterparts are represented amongst the authors. There is no doubt that this volume will replace Van Bemmelen's as the standard reference for anyone working in Sumatra and will, no doubt, be the focus of much more work in years to come. Additionally, it guides the reader through further information sources such as other geological, geophysical, geochemical, and mineral maps covering the area. It also points the reader towards the nationally important archive of resources.

Overall, this is an excellent book and certainly represents compulsory reading for undergraduate and postgraduate students who wish to carry out research and revisiting of Sumatra's resources exploration. The booklet is well referenced. With over 200 pages, and packed with illustrations and photographs (all black-and-white), it represents excellent value for money. It also serves its intended purpose as an excellent reference guide for more experienced researchers who may need reminding of the exploration opportunity.

