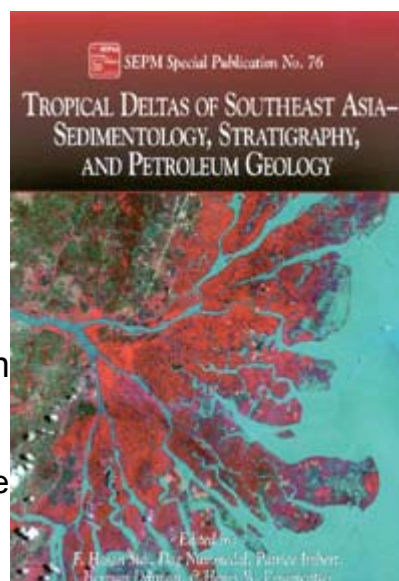


SEPM Special Publication #76:

Tropical Deltas of Southeast Asia

Sedimentology, Stratigraphy, and Petroleum
Geology

Edited By: F. Hasan Sidi, Dag Nummedal, Patrice
Imbert, Herman Darman, and Henry W.
Posamentier



The early years of process–response sedimentological research were strongly focused on deltas, for a variety of reasons. They were important for accumulation of oil, gas, and coal; they were environmentally sensitive; they were readily accessible to academic communities; and consequently they were intensely studied. With the shift in emphasis towards predictive stratigraphy and the stacking of depositional systems, and away from the stratigraphic architecture of depositional systems themselves, research on deltas reached a plateau in the 1980s and early 1990s. Today, however, the widespread use of shallow- as well as deep-penetration seismic data, cores from subsurface reservoirs, vibracores from modern environments, sophisticated oceanographic tools, and numerical modeling has resulted in a rejuvenation in delta research. In addition, a global province that hitherto had received relatively little attention increasingly became a focus for research—the equatorial zone of Southeast Asia. It is the objective of this volume to bring to the fore a category of deltas with which many sedimentologists and stratigraphers are, at best, vaguely familiar. It is expected that this volume also will stimulate new research on tropical deltas by highlighting how their facies and stratigraphic architectures differ from mid- and high-latitude ones, by emphasizing their significance to the global sediment budget, and by stressing their uniqueness within a petroleum systems framework.

This special publication emphasizes the need for models intrinsic to tropical deltas of Southeast Asia to supplement the more conventional general models currently in vogue, based on past studies of large and small mid-latitude deltas. The tropics are different. They differ from the mid-latitude climate belts in almost all the fundamental physical factors that shape depositional systems. The climate is warm and equable, so weathering rates and sediment yields are high; rainfall is abundant, so rivers have high discharge. In Southeast Asia especially, this high discharge is readily conveyed to the sea because of abundant small and steep drainage basins. Low-latitude tides are strong and play an effective role in the exchange of sediment from continental to marine environments. Storms, which are remarkably effective agents for marine sediment dispersal in many mid-latitude regions, are hardly present in equatorial zones because of the weak Coriolis effect. Because of low storm intensity combined with the limited wind fetch within the confined seas that characterizes this region of peninsulas and archipelagos, Southeast Asian seas have the lowest wave energies on earth.

The papers in this book explore how the combination of these complex factors has shaped deltas in this region. In many instances their morphology and stratigraphic architecture differs significantly from the (mid-latitude) norm in part because of the intimate linkage of carbonates and clastics in this climate zone. Sedimentological surprises such as distributary channels floored by thick accumulations of fluid mud lend a bit of "mystery" to tropical deltas. We hope

that, rather than being merely a summary of tropical deltas, this book may open the door to a new and active phase of sedimentological and stratigraphic research in tropical environments across the globe. Almost all of our continents, at one geologic time or another, have migrated through the earth's tropical zone. Consequently, the active pursuit of research on modern tropical depositional environments has the potential to improve our interpretation of ancient rocks beyond the limits of today's tropics.

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