

## **Evolution of the Mekong Delta: Holocene History, Present Situation and Perspectives for the Future**

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The coastal zone of South Vietnam was severely impacted by major changes in the Mekong Delta from the last glacial sea-level lowstand onward. First reorganisation by deglacial flooding of the lowstand delta and incised lower Mekong valley provided estuarine conditions. Flooding can be traced from the middle shelf 13300 cal yr ago until the maximum transgression reached the region of south-eastern Cambodia around 8500 years ago following meltwater pulse 1C. Second reorganisation started with the onset of the modern Mekong delta 8200 years ago during the final phase of the deglacial sea level rise when sea level stood alongshore a few metres below the modern one. At that time a bay-head delta initiated near Phnom Penh/Cambodia at the landward apex of a big shallow-marine embayment. The delta prograded rapidly after the mid-Holocene sea-level highstand 6000 years ago over a distance of 300 km and reached the modern shoreline 1000 years ago in the eastern and central parts of the delta. Camau Peninsula in the southwest emerged during the last millennium. Wave influence increased together with slower delta-progradation during the last 3000 years by heavier exposure to the open sea.

Third reorganisation takes place in our times as response to far outgrowing, delta-switching, sea-level rise and intensive human use. River discharge is switching from the eastern distributaries to the Bassac River. A major sediment plume is escaping at this river mouth and moves alongshore to the SW, enveloping then Camau Peninsula and the western border of the subaerial Mekong Delta. East of Camau Peninsula we observe frequently shoreline erosion. From the interplay of monsoon-driven south-westward sediment transport and shoreward directed wave action a very pronounced delta-front configuration with steep slopes of seaward dipping clinofolds has evolved. Remarkable is the shift of the prodelta depocenter away from the Bassac-River mouth in downdrift direction towards and around Camau-Peninsula as the result of wind-induced alongshore currents and wave action. Intense sand mining activities in the deltaic channels as well as the construction of reservoirs in the upper reaches of the Mekong River could be envisaged as direct man-made contributions to delta-deterioration. In combination with the ongoing sea-level rise substantial land-loss of more than 30% in the densely populated delta plain during this century must be expected.