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Pre-Angkor capital city and its surrounding geomorphology in the Stung Sen River drainage basin, central Cambodia

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Sambor Prei Kuk archaeological site is known as pre-Angkor capital city of Chenla, located in the Stung Sen river drainage basin, central Cambodia. The archaeological site is located facing the Stung Sen river with several canal systems, which implies water transport system was indispensable for the prosperity of Sambor Prei Kuk. This presentation shows geomorphological characteristics of the Stung Sen river drainage basin and their relation with geoarchaeological settings of Sambor Prei Kuk. The Stung Sen river is one of the biggest tributary of the Tonle Sap river system having its origin in Dangrek mountains, whose drainage area is about 16,000 km² and main channel length is about 500km. There is 7 km wide floodplain in the lower reach along with upland and the river forms box shaped channel flowing into the Tonle Sap lake. By seasonal climate change water level regularly changes every year and the water level difference comes to nearly 7m. Upland is divided into three, hilly upland I, flat upland II, and the lowest upland III. Sandy upland II where Sambor Prei Kuk is located has low permeability, which helps cultivation on the upland. The river meanders conspicuously forming meander scroll zone. In contrast back marsh has been filled with suspended flood sediments at least since 4,600 years ago with accumulation rate of 0.6 mm/yr. The floodplain and lake plain were divided into 5 zones to evaluate accessibility to the upland. We conclude that Zone II where Sambpr Prei Kuk and its adjacent port town are located is the most stable for water transport and against monsoonal flooding damage. Floodplain is affected by monsoonal rain and flood though has better accessibility to the river which makes water transport more efficient than upland. However it has lateral erosion risk by frequent channel course change near channel. In contrast, upland is much less convenient for water transport although flooding damage in monsoonal season is much less than flood plain. So the settlements were built on stable upland against monsoonal flood, while the port for water transport was built along the channel. Therefore Isanapura got efficient transport line in monsoonal season with canal connecting settlements and the port.

Keywords: land classification map, the Stung Sen river, meander, Sambor Prei Kuk, Cambodia