



Developed River Deltas: Are they Socio-economically Sustainable?

Daniel Loucks

Cornell University, Civil & Env. Engineering, Ithaca NY, United States (dpl3@cornell.edu)

River deltas are often attractive sites for agricultural, commercial, industrial, and urban development. People like to live and work near water, and indeed a large percentage of the world's population does. Deltas can also provide a range of ecosystem services that add to their attractiveness for human habitat. Deltas tend to be relatively flat and therefore easy to build upon, accessible to marine and land transportation networks, attractive to commercial activities, and provide many water-based recreational benefits. At the same time deltas and their infrastructure that supports socio-economic development are also vulnerable to damaging natural events and human activities that can take place on and upstream of the delta. These can alter the delta's geomorphology and adversely impact the quantity and quality of their surface and ground waters. Over use of groundwater and reduction of sediment loads to the delta can result in subsidence, and this coupled with sea level rise can increase the frequency and extent of flooding and land loss. Hence the question 'are river deltas socio-economically sustainable?' This presentation examines this question for five particular river deltas: the California Bay Delta and the Mississippi River Delta in the US, the Nile River Delta in Egypt, the Mekong River Delta in Vietnam, and the Pearl River Delta in China.