

Economic feasibility of the Balance Island concept in Vietnam & Bangladesh

Determining suitable locations based on the economic benefits of the reduction in river salinity intrusion

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Abstract

The Balance Island concept is a possible solution to the increasing salinization problem in many deltas and estuaries. As part of the Balance Island international feasibility study this thesis explores possible locations for a Balance Island in the Ganges-Brahmaputra delta and the Mekong delta. The suitable locations have been evaluated and ranked according to their potential economic benefits as a result of desalinization. For the most preferred location a economic benefit analysis has been performed. This study finds that there are seven possible locations for a Balance Island; four in the Mekong Delta and three in the Ganges-Brahmaputra delta. Of these seven locations the Co Chien river is the most preferred location due to a relative large area that is affected by the saline river water and has agricultural land use that requires fresh water. The economic benefit analysis of desalinization at the Co Chien river shows that a significant area of rice and fruit cultivation becomes situated in a fresh water environment which will increase their production. Brackish water shrimp farming which experiences negative effects of desalinization will only marginally affected. For the rice cultivation the change in production due to the reduction in salinity has been estimated. Based on these changes in production the Net Present Value (NPV) of the rice production was calculated for a period of 30 years. Taking the current existing salinity measures (sluice gates) into account a Balance Island could increase the NPV of the rice production with € 5-30 million. With these estimates the maximum construction and maintenance costs can indicated in order to turn breakeven on the project.