

Effects of Damming on Seagrass Distribution Near Mekong River Mouth

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Abstract:

Effects of damming on downstream environmental quality has long been an important subject of study. This research proposes to investigate effects of damming along Mekong River on the distribution of seagrass in the coastal area near the river mouth. In order to realize this research, an interdisciplinary approach is proposed, involving a wide range of fields, ranging from biology to remote sensing. The results promise to reveal important insights into the relationship between human activities in along river system and the coastal area near the river mouth, playing crucial role in progressing towards achieving the SDG Goal 14: Life below Water and Goal 15: Life on Land.

14 LIFE BELOW WATER



15 LIFE ON LAND



1. INTRODUCTION

Mekong River Delta is an important hotspot in all aspects including economic, social, political and environmental issues. Recent concerns have been raised about damming activities upstream having adverse effects on downstream environment. **This research highlights effects of damming activities on the coastal areas.**

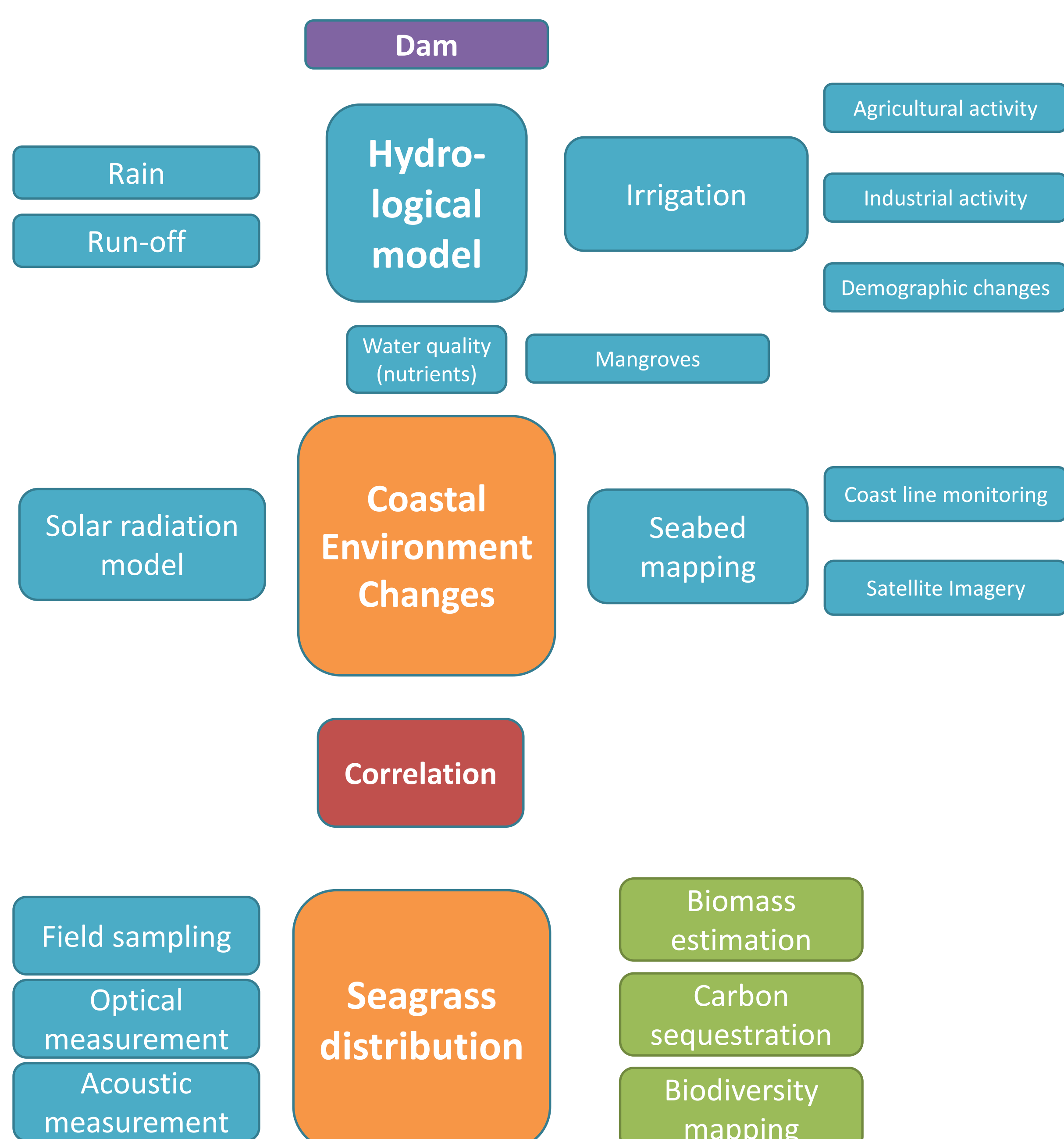
It is expected that damming leads to the retention of sediments, which in turns reduces the amount nutrients available near the river mouth. As a result, coastal ecosystem is negatively affected.

To assess effects on the coastal areas, seagrass are chosen as an indicator for coastal environmental quality. It is because seagrass is the foundation for coastal ecosystem.

This research proposes to investigate the effects of damming activities on seagrass distribution.

In order to measure seagrass distribution, it is important to combine field surveying and remote sensing data. Remote sensing is done by a combination of optical and acoustic measurement.

2. Proposed Framework



3. Challenges

There are many challenges that this research is addressing. Firstly, the relationship between human activities upstream and coastal environmental changes is difficult to investigate due to its complexity. Unravelling the dynamics amongst the vast number of factors having effects on coastal environmental changes requires an **interdisciplinary approach**. This research would require strong collaboration of scientists across many fields, to name a few, Remote Sensing, GIS, Biology, Marine Ecology, and Hydrology. Secondly, there are difficulties in understand shallow water environment, because of their rapid changes. Currently available datasets and surveying methods may help to measure these changes more accurately. Moreover, improved hydrological models and solar radiation are powerful tools to assist the analysis of coastal environment changes.

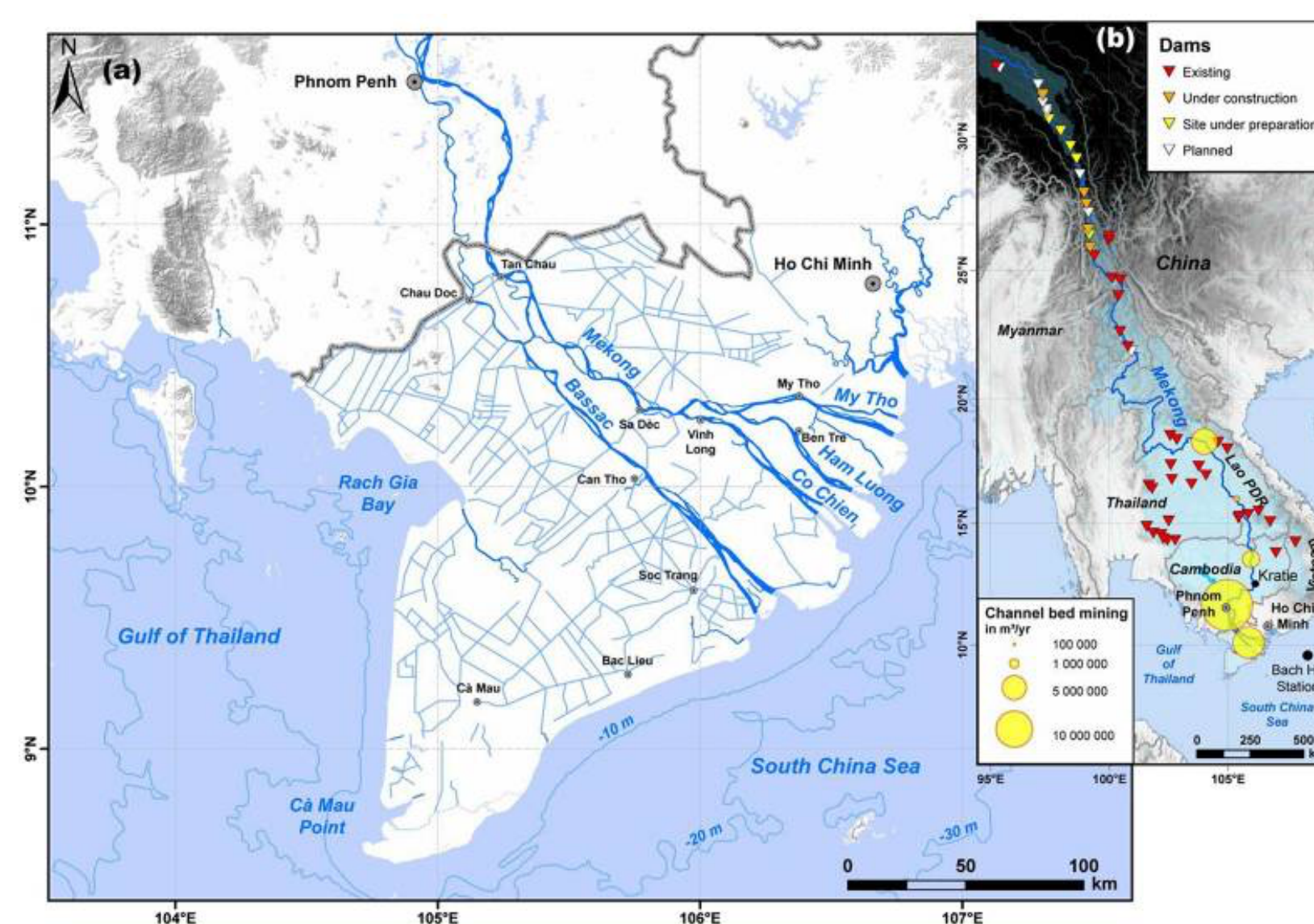


Figure 1: (a) Map of the Mekong Delta, (b) Diagram showing existing and planned dams along the Mekong Delta. Adapted from Anthony et al. (2015)

4. Significance

While bearing many challenges, the results of this research promise important insights. Understanding the relationship between damming and coastal biodiversity will prepare for investigations on **biomass estimations**, **carbon sequestration**, and **biodiversity**. These are important issues that the Sustainable Development Goals are targeting. Specifically, Goal 14 and Goal 15 focus on the conservation and sustainable use of the resources on the land and the ocean. As the two environments are intricately related, it is crucial to research into the relationship between the two. Results of this research will be guidance for **sustainable dam management**.

5. References

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