

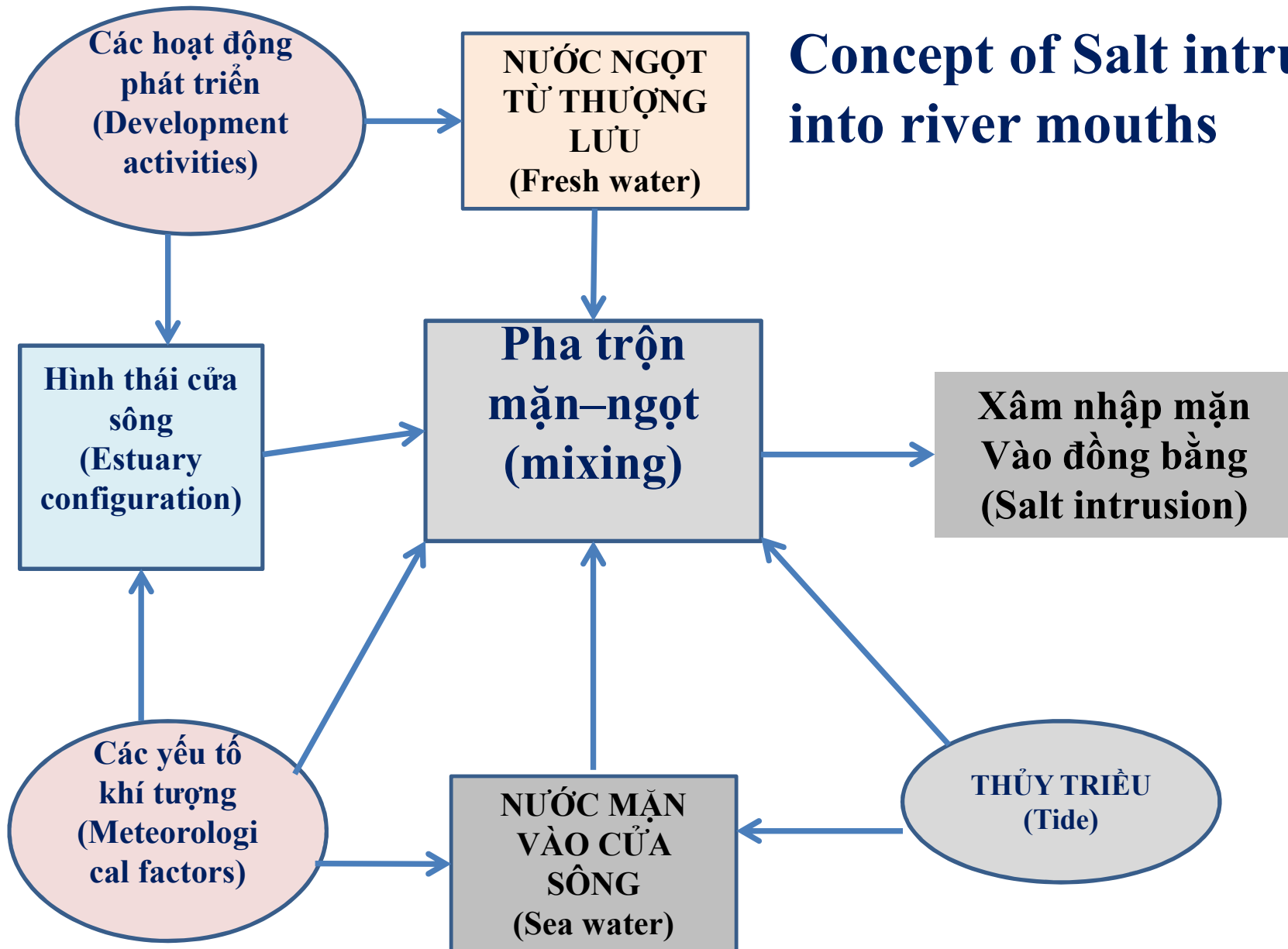


Possibilities of Balance Island for Salt intrusion reduction in Mekong delta, Vietnam

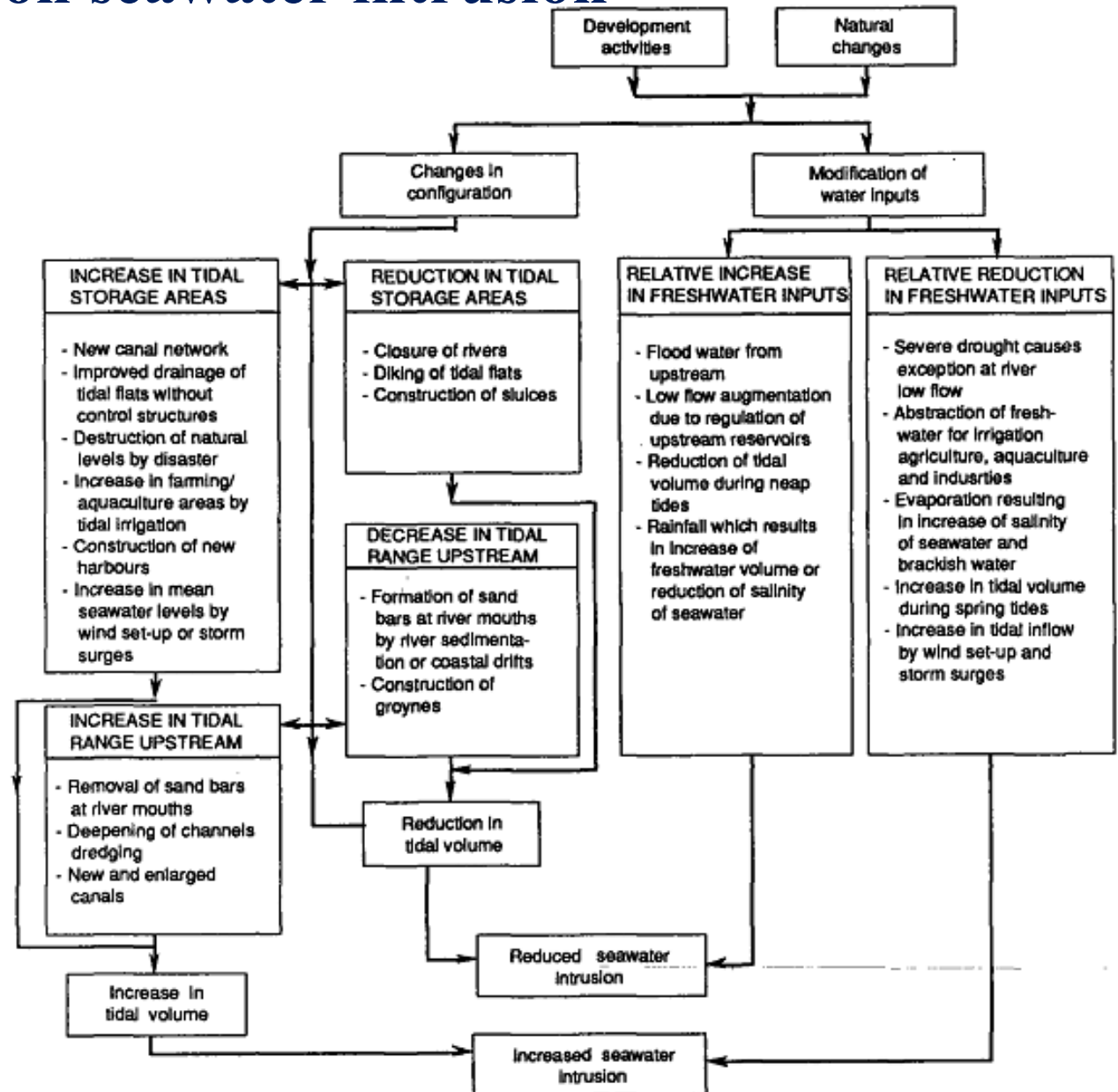
Hochiminh city May 8, 2015

**Assoc. Prof. Dr. Trinh Cong Van
Mekong water technology Innovation Institute (MWI)**

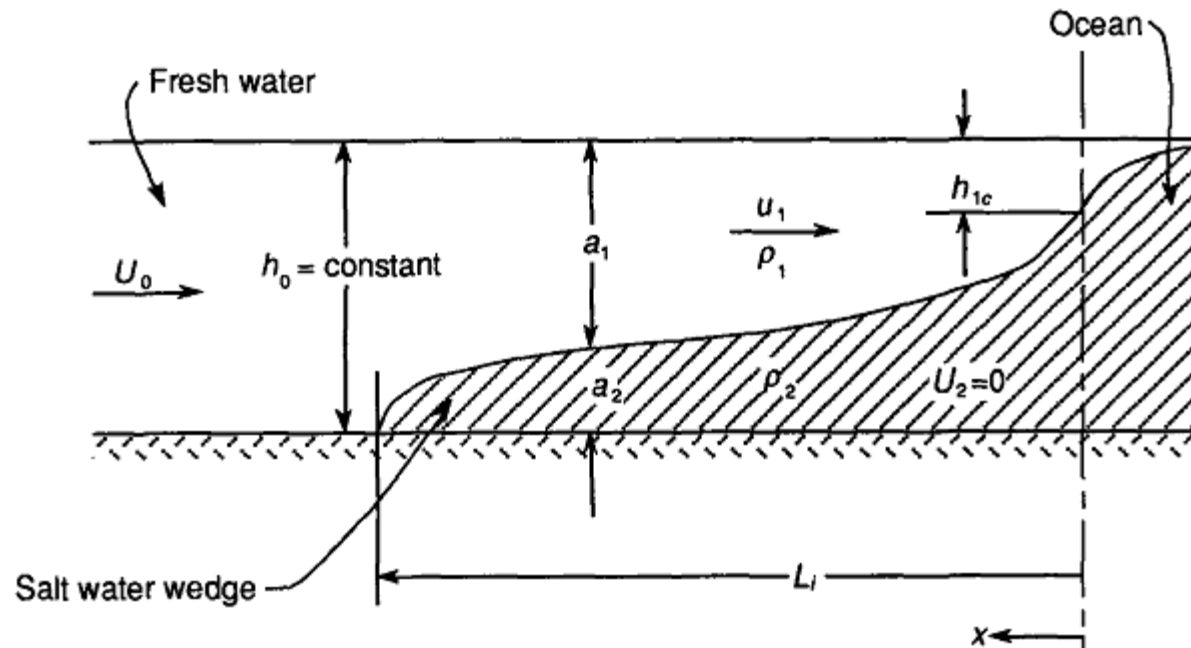
Concept of Salt intrusion into river mouths



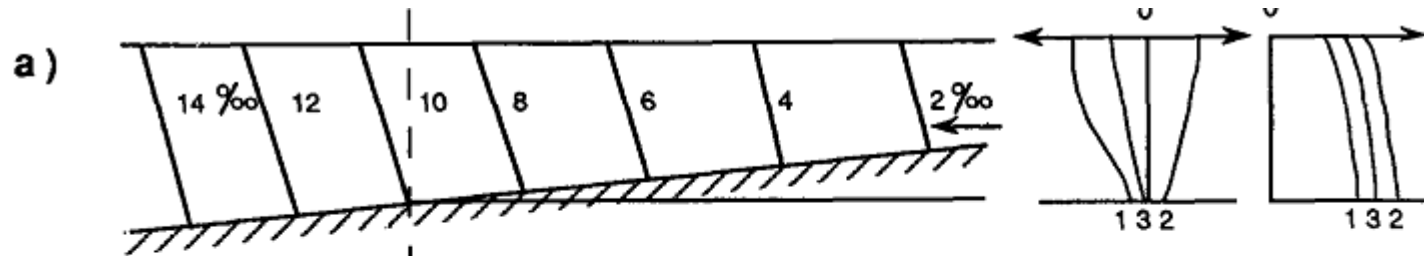
Possible impacts of natural changes and hydraulic works on seawater intrusion



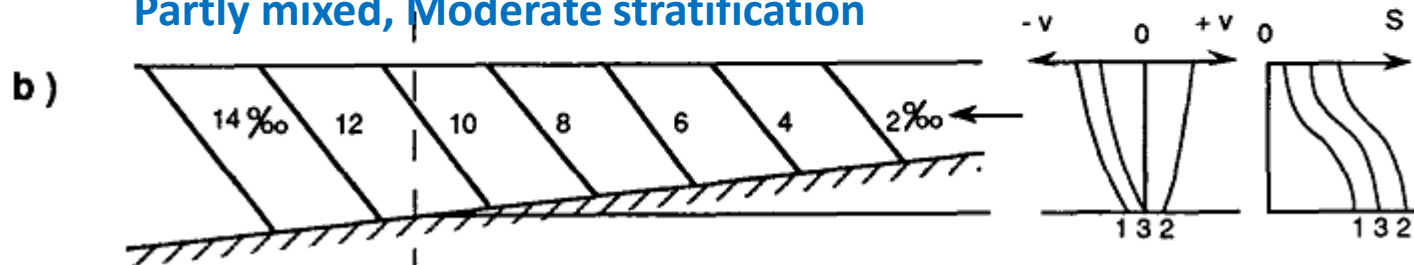
Stratification of estuaries



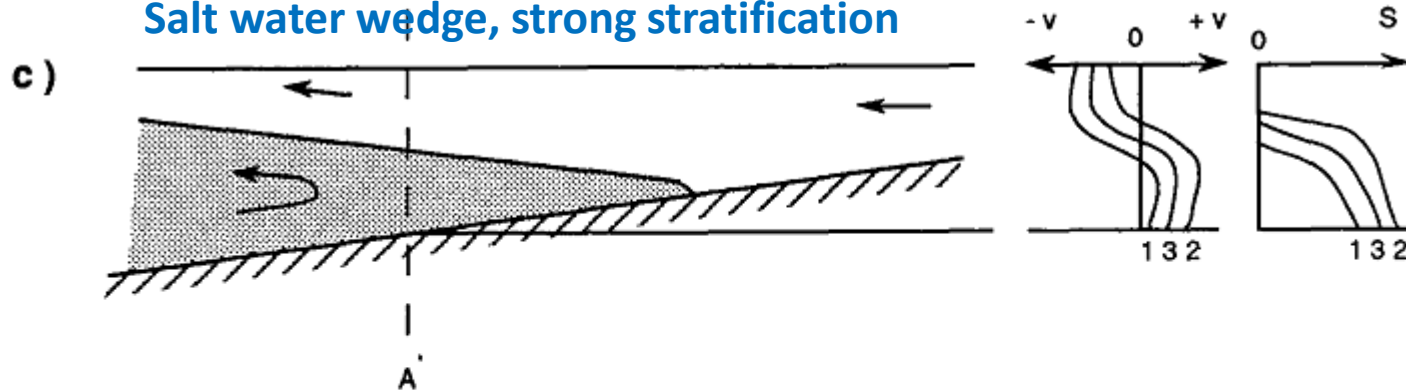
Well mixed, Weak stratification



Partly mixed, Moderate stratification



Salt water wedge, strong stratification

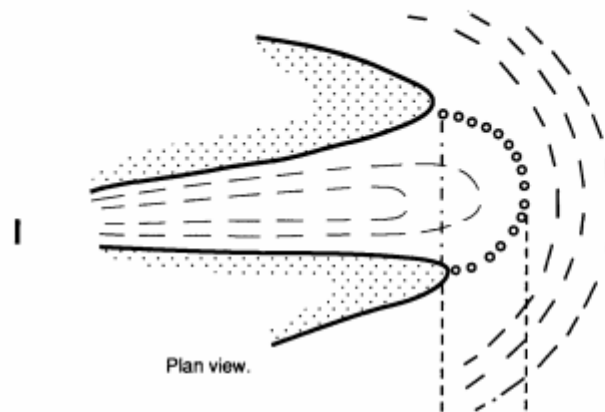


- a) well mixed
- b) partly mixed
- c) saltwater wedge

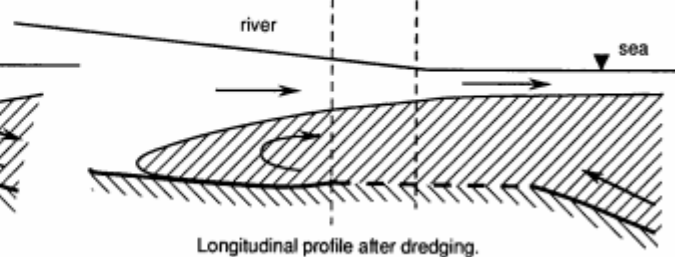
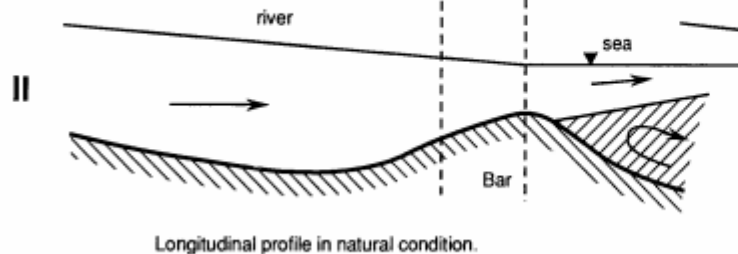
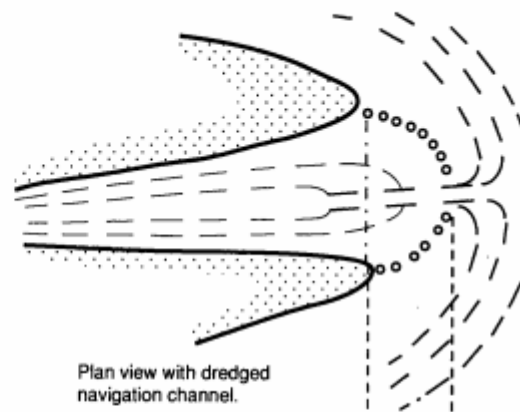
- 1 = flood tide
- 2 = ebb tide
- 3 = averaged over tidal cycle

Example: Salt intrusion increase due to dredging canal

a) Natural condition, before dredging of channel.



b) After dredging.

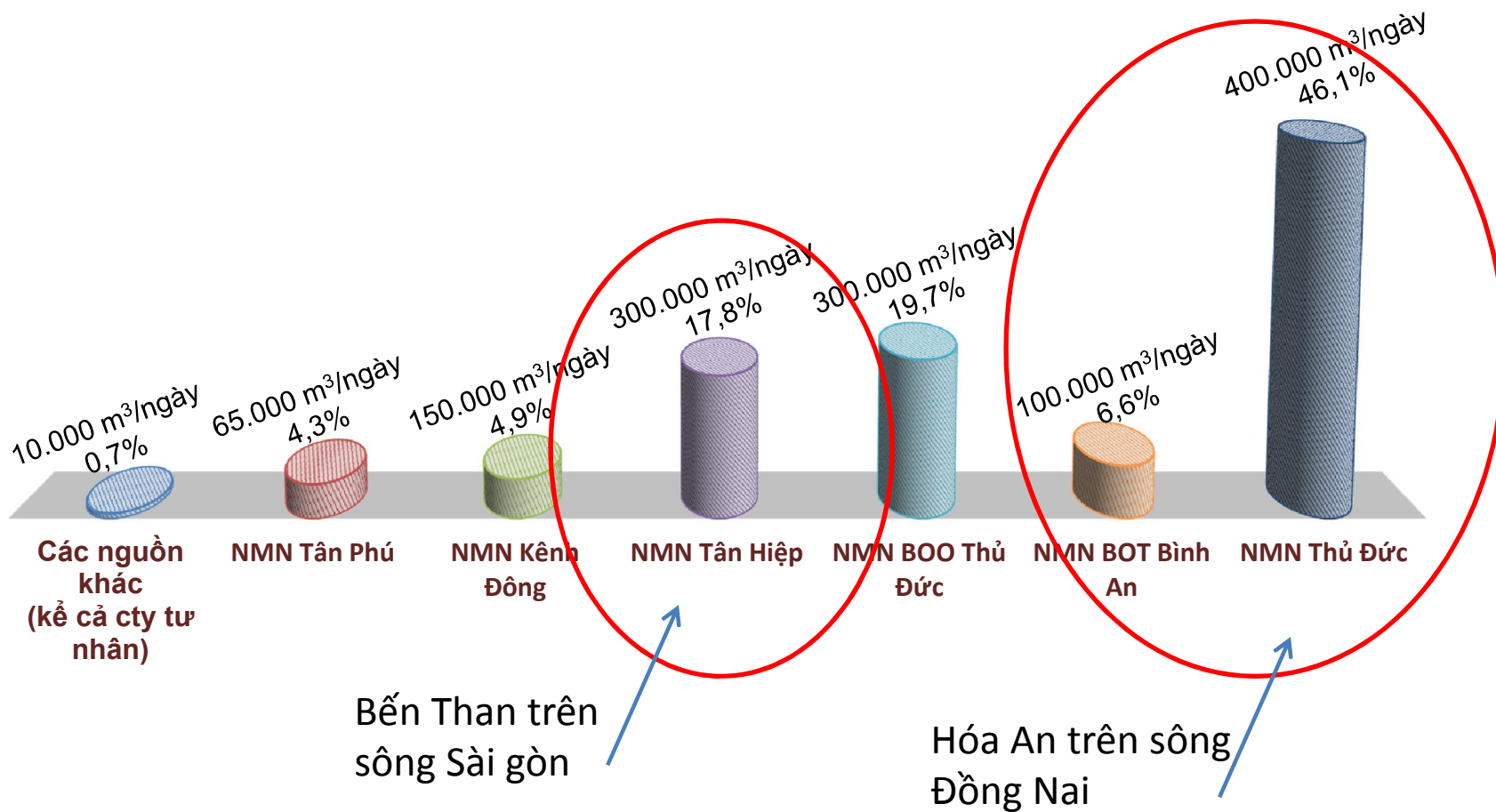


Possibilities of Balance Island for Salt intrusion reduction in Mekong delta, Vietnam

River mouths in the Mekong delta, Vietnam

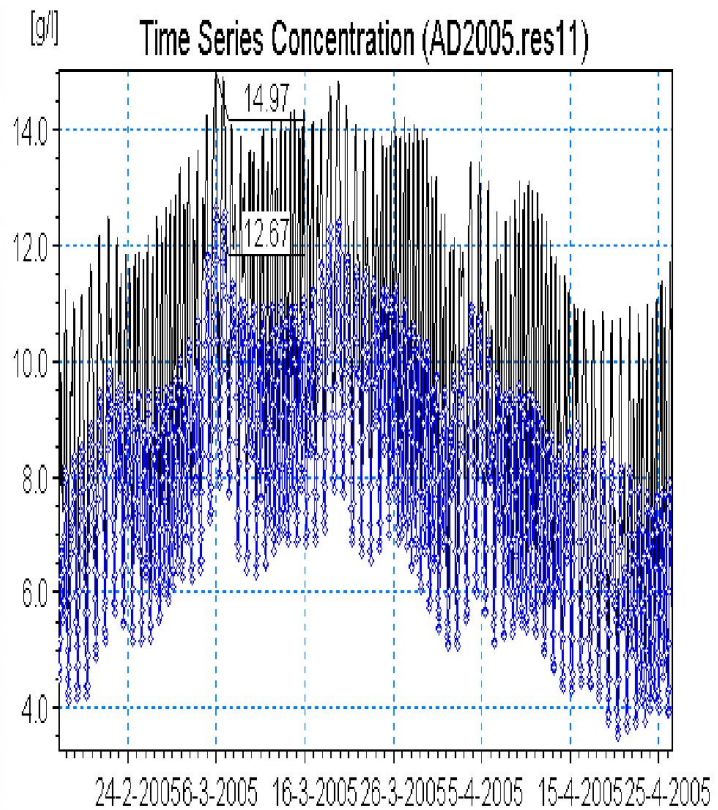
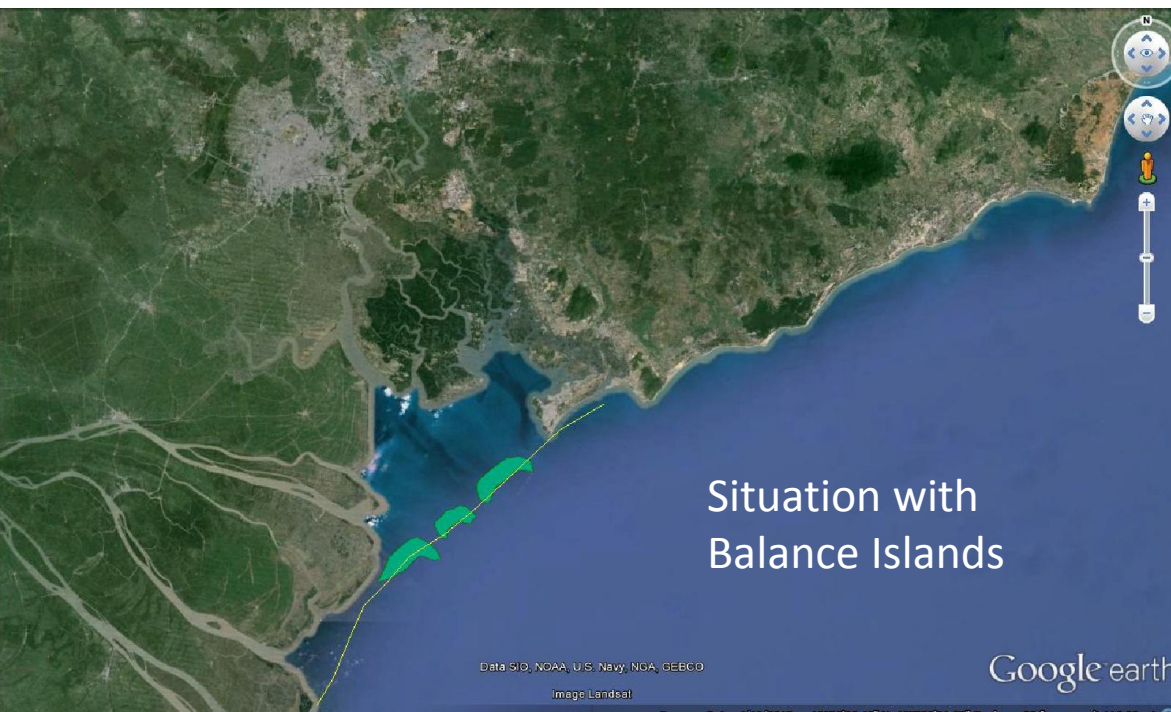


Existing Water supply for Hochiminh city

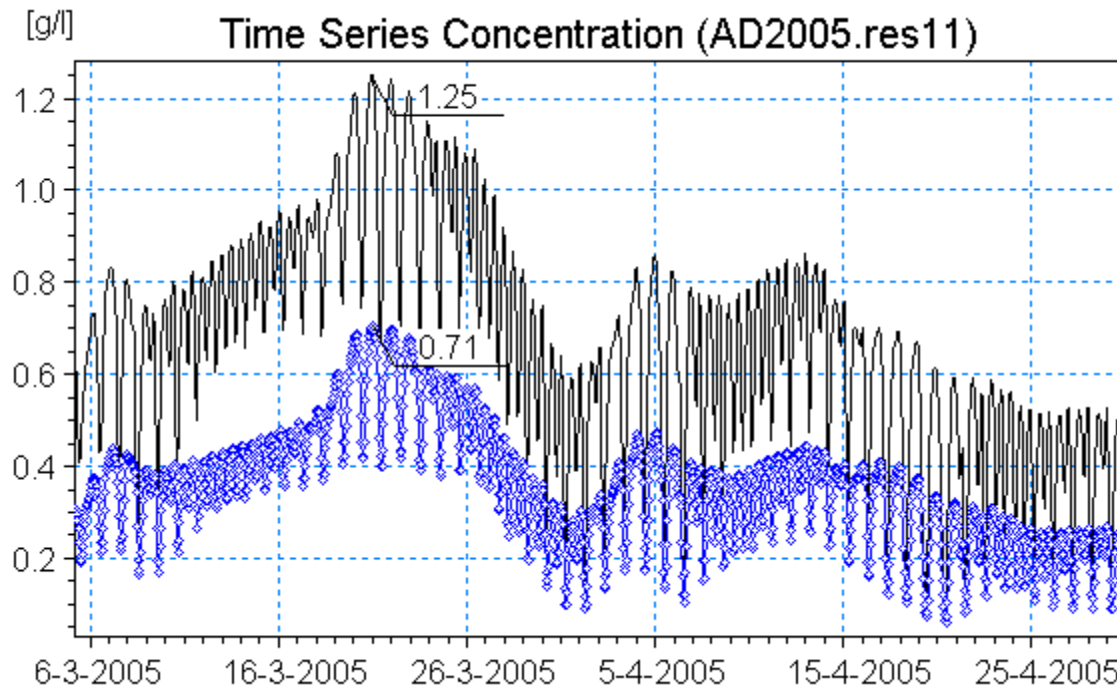




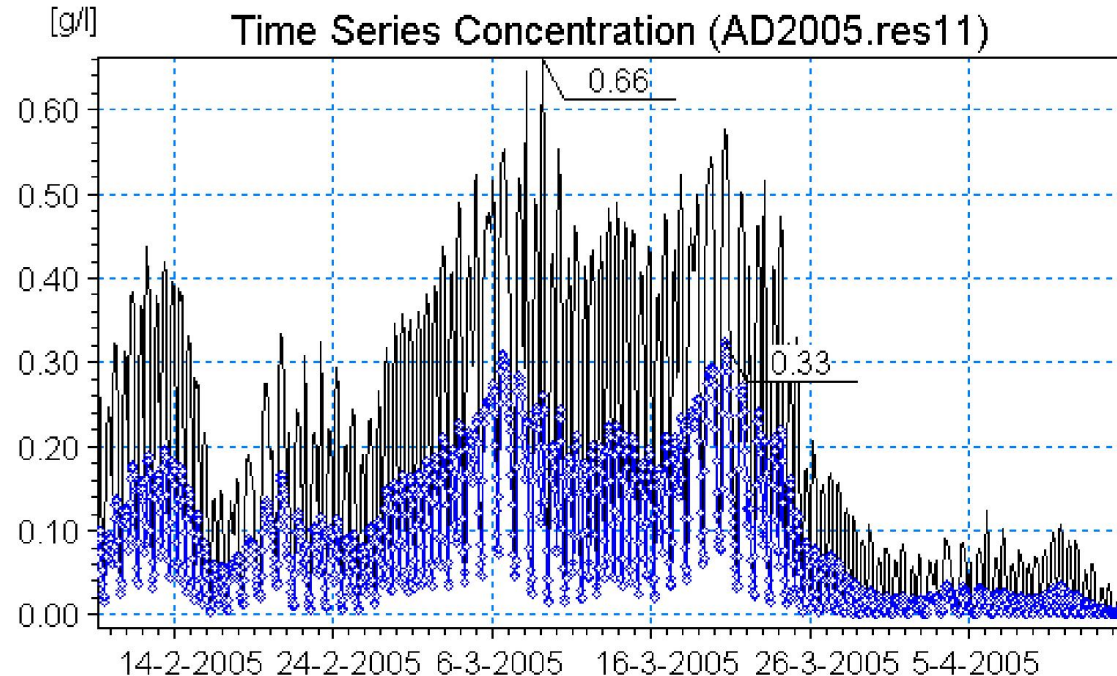
Saline reduction at river mouth due to Banlace Islands



Saline reduction effects

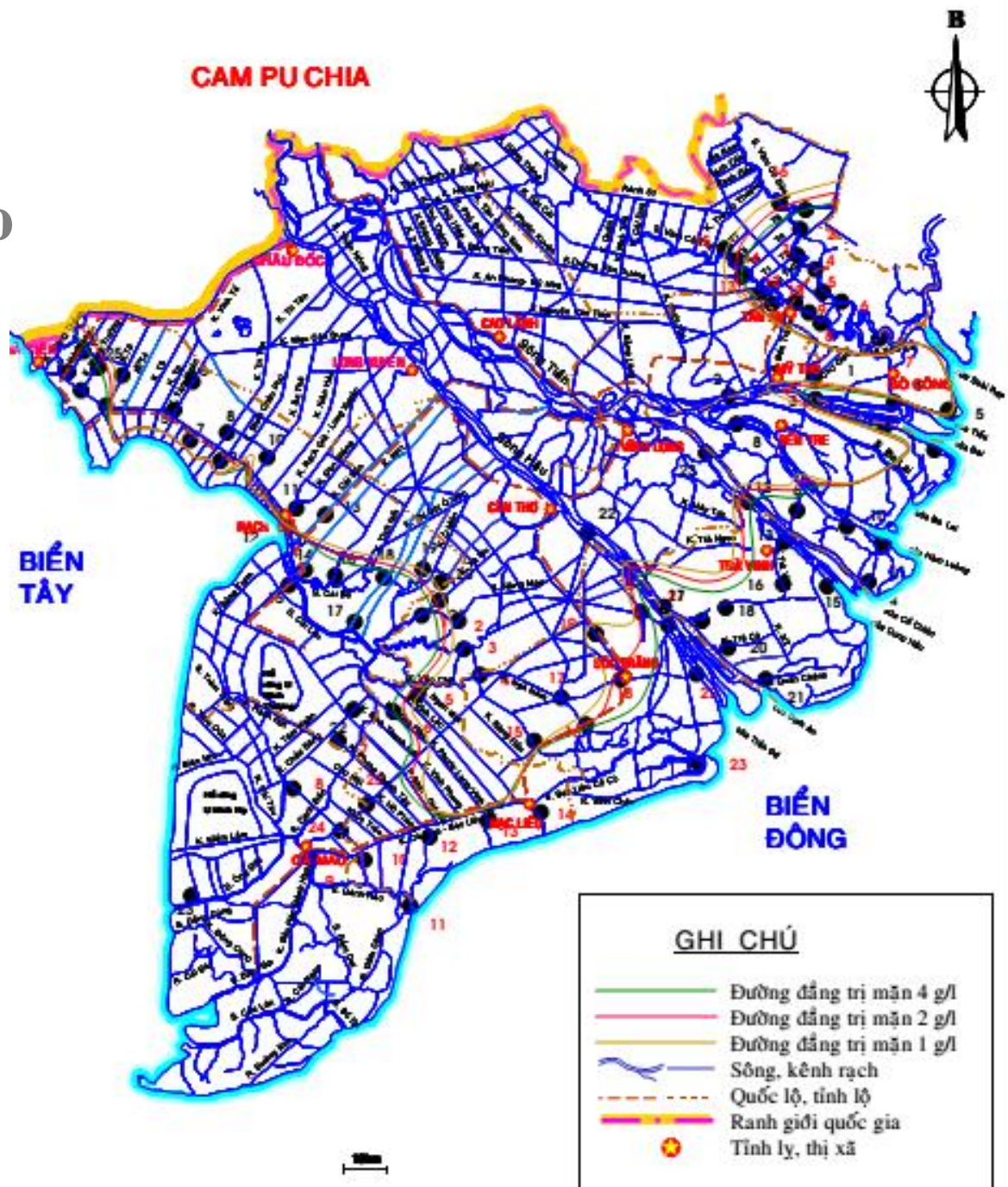


Saline reduction at water supply station of Benthan on the Saigon river

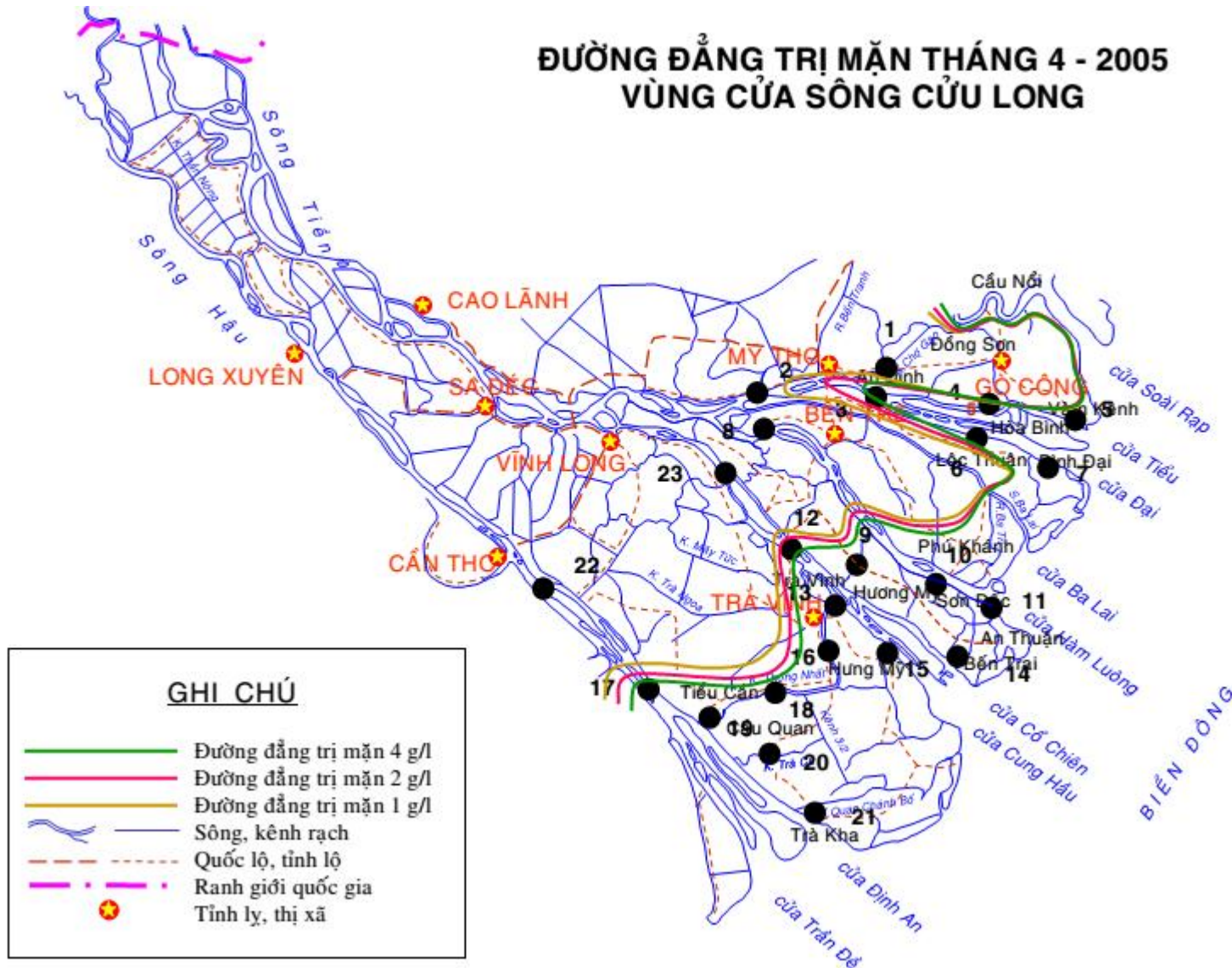


Saline reduction at water supply station of Hoaan on the Dongnai river

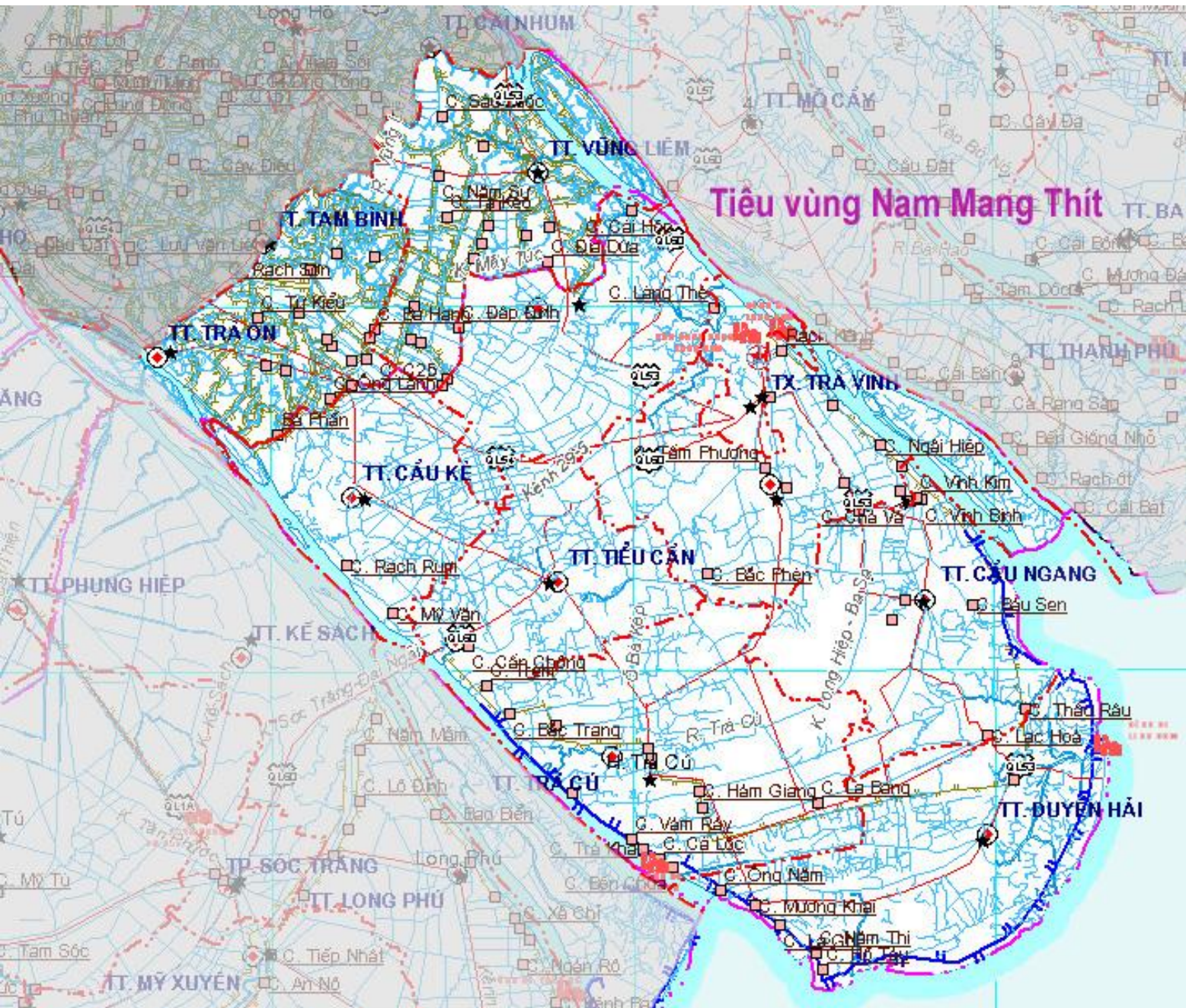
Salt intrusion into Mekong delta (2005 April)



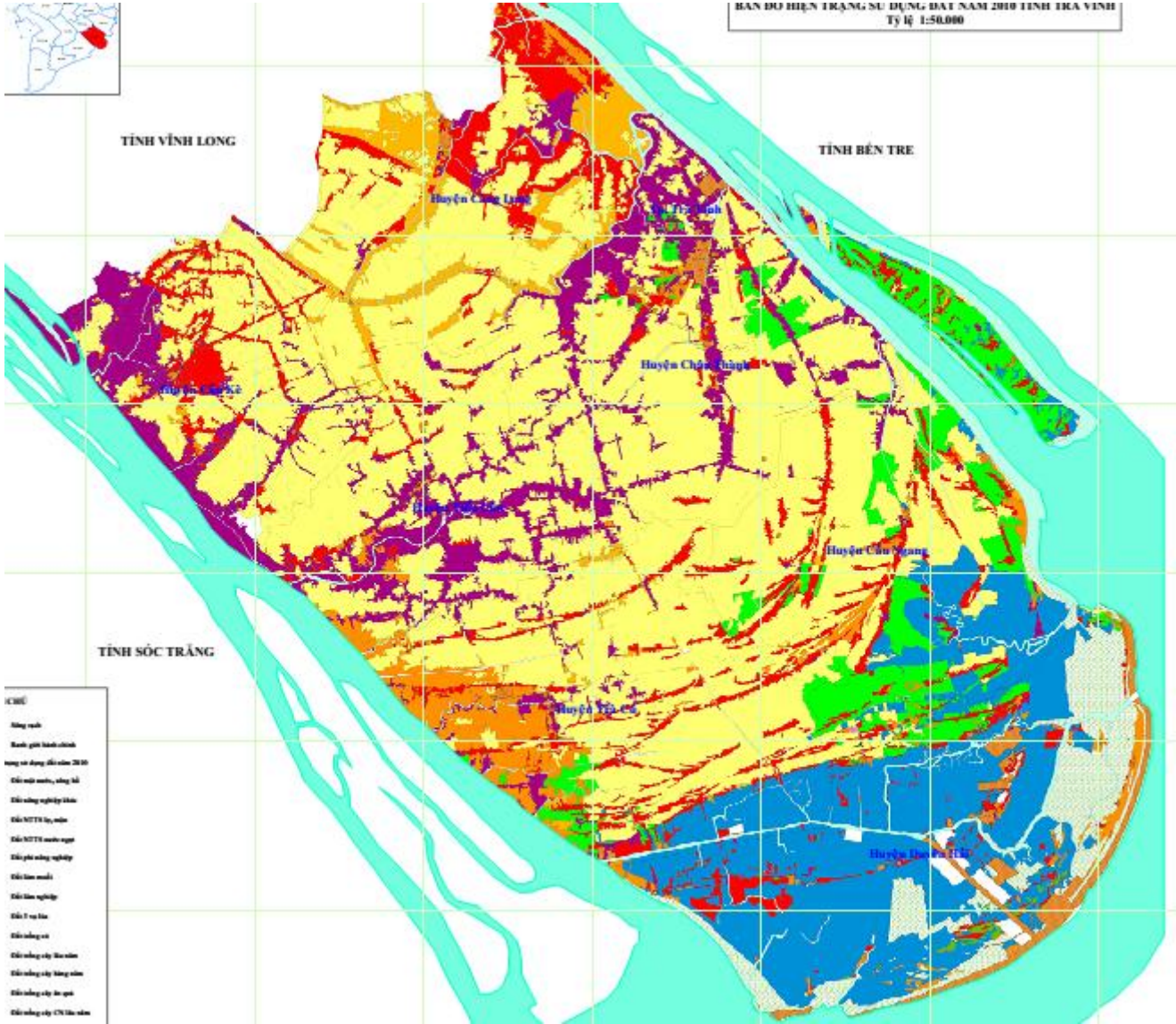
ĐƯỜNG ĐẲNG TRỊ MẶN THÁNG 4 - 2005 **VÙNG CỬA SÔNG CỬU LONG**



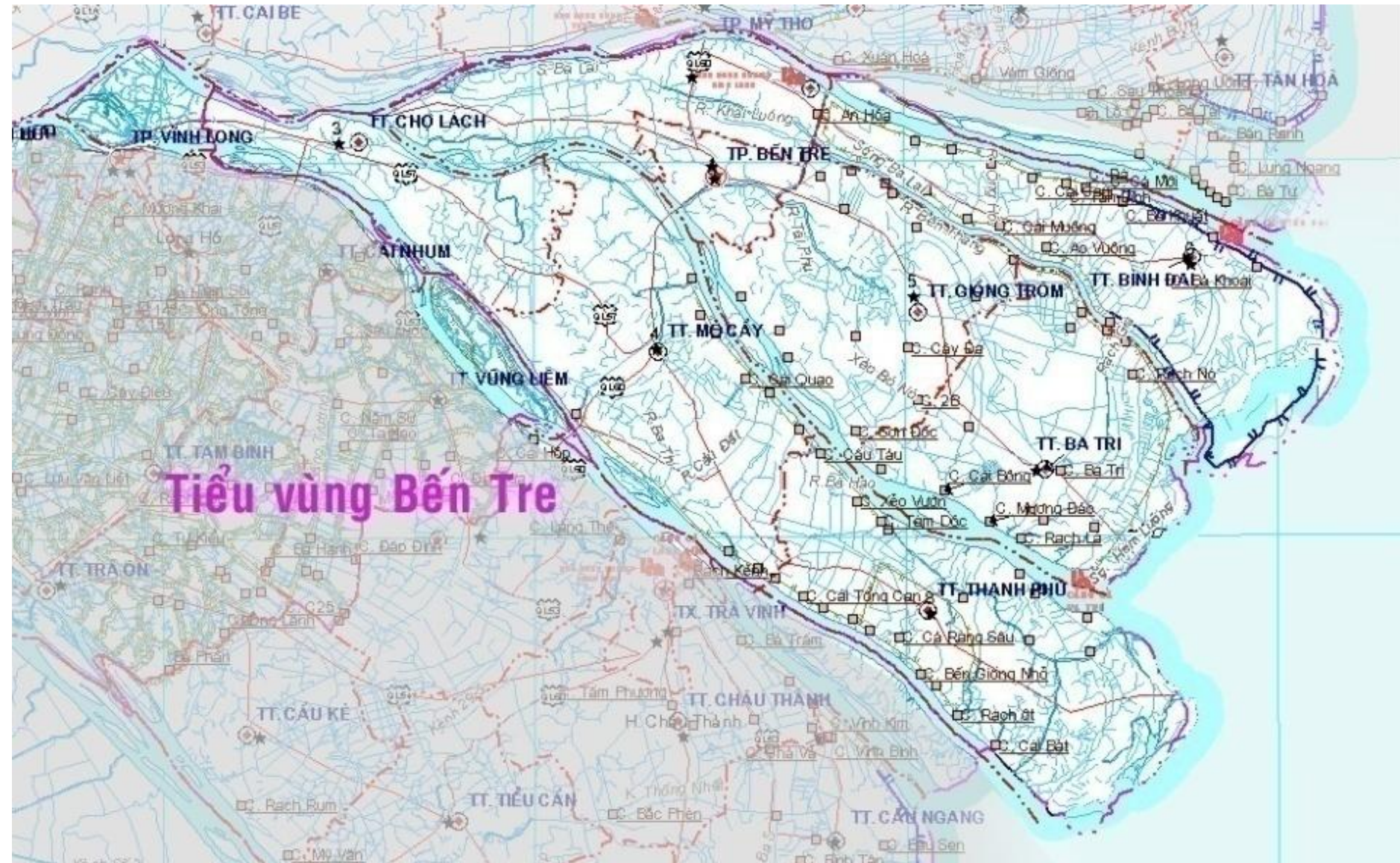
Water control system of Travinh

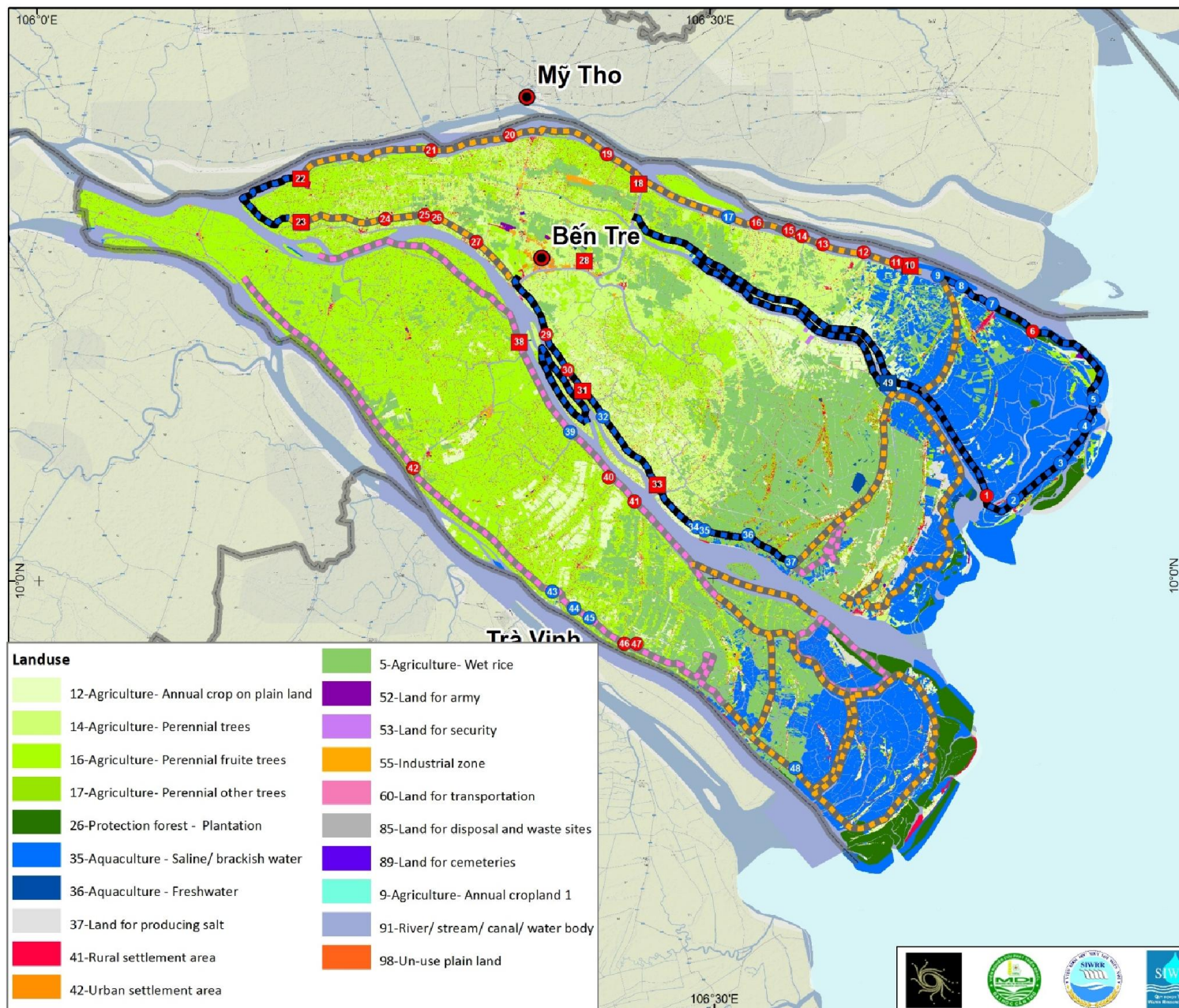


Land use of Travinh



Water control system of Bentre

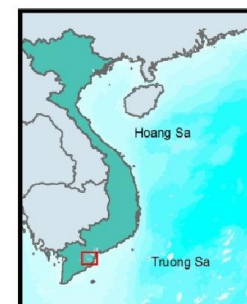




LAND USE, BEN TRE PROVINCE

Legend

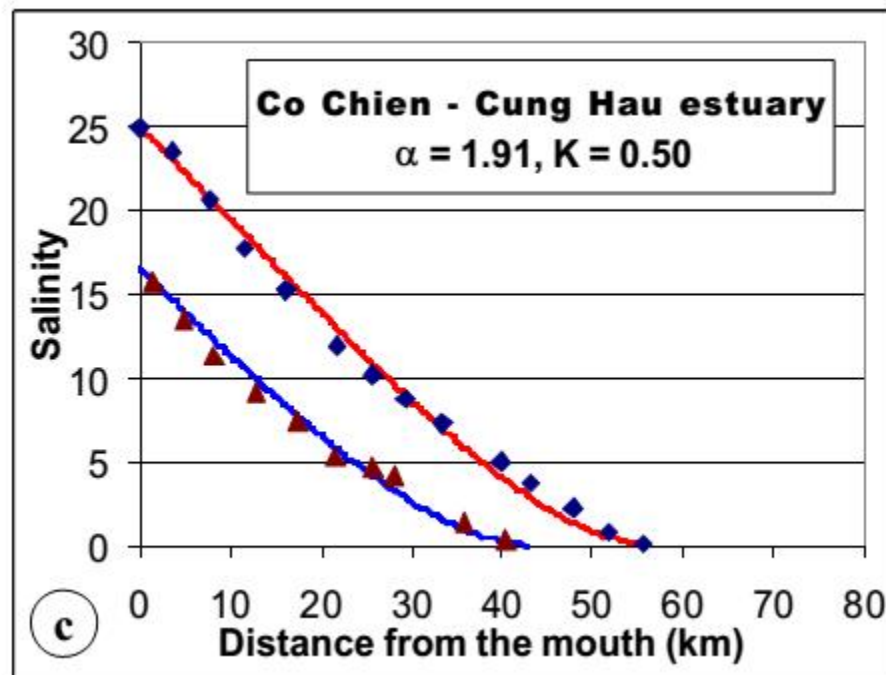
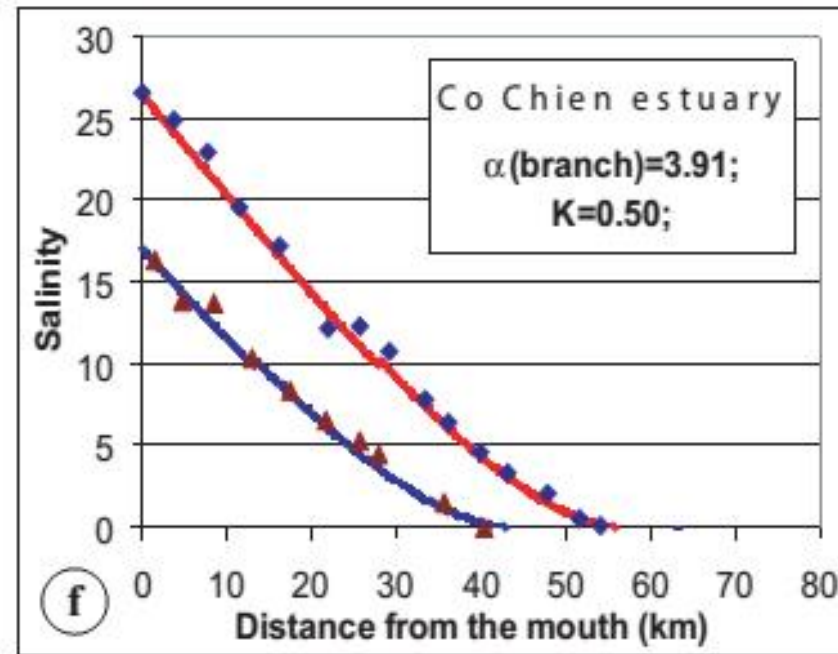
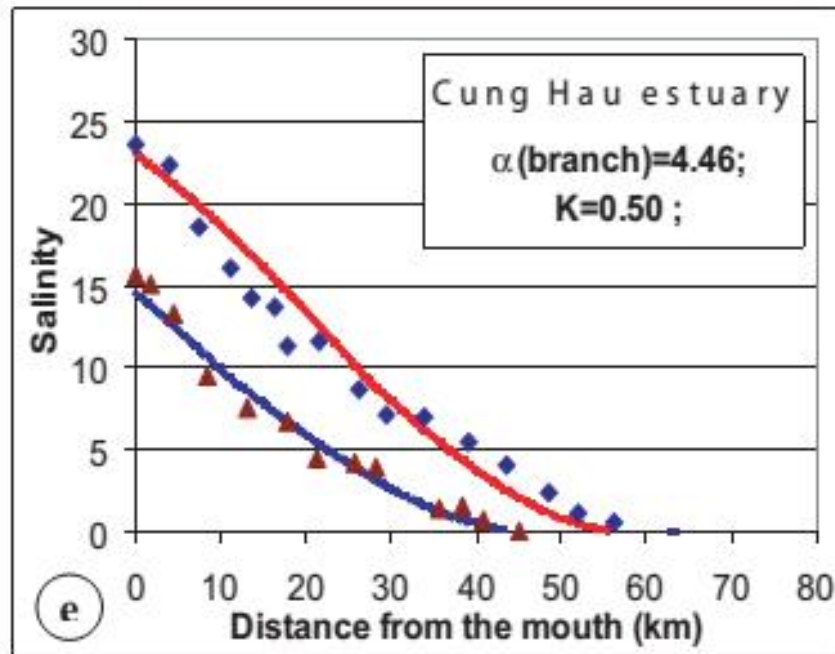
- Existing large sluice/ lock
- Existing sluice-gate
- Proposed large sluice/ lock
- Proposed sluice-gate
- Provincial capital
- Existing dyke
- Upgraded dyke
- Proposed dyke
- Country boundary
- Provincial boundary



Data Source:
Topographical maps
Land-use MONRE +



0 4 8 16
Kilometers



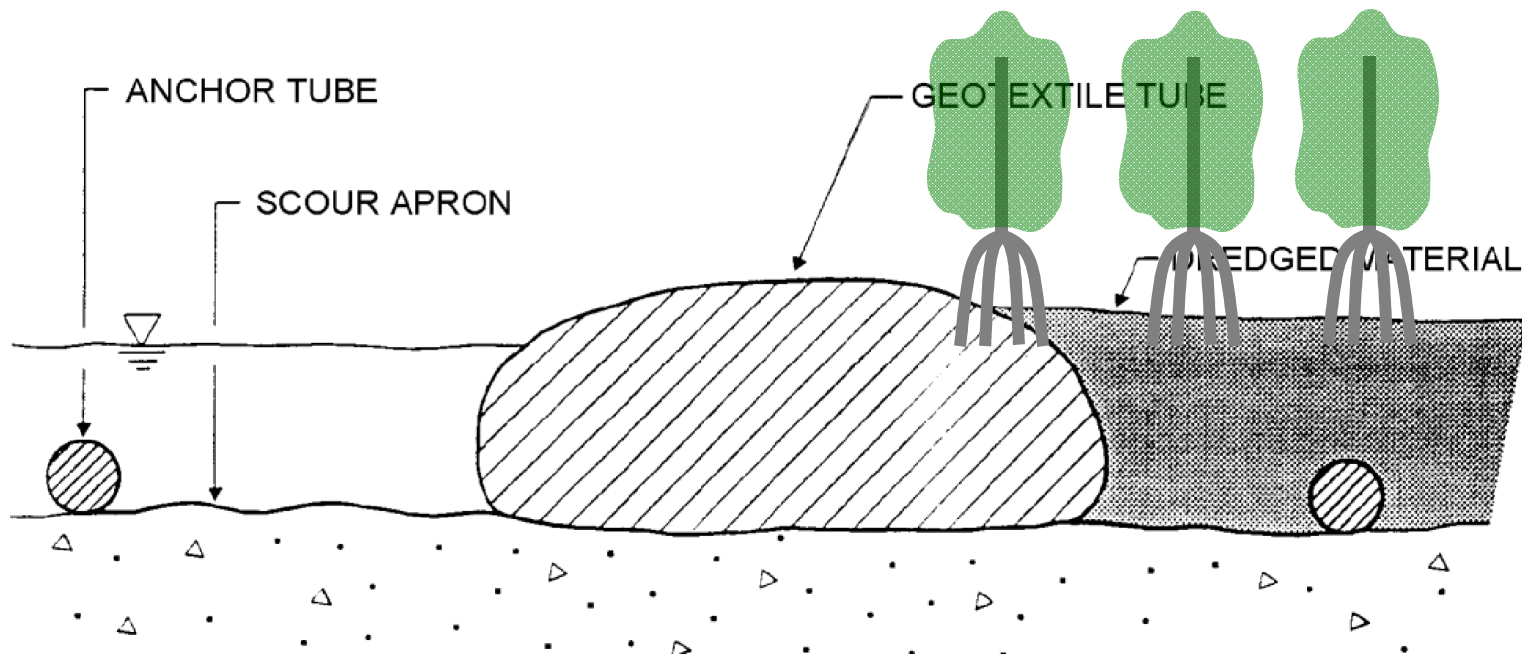
Salt intrusion into Cochien-Cunghau river mouth

A. D. Nguyen and H. H. G. Savenije

Possibility for Balance Island in Cochien-Cunghau



How to build balance islands on river mouths? an example for construction measure





Geo-tubes and geo- containers constructions



Built as Nature



Expected Ecosystem on Balance Islands



Study needs

- ❖ Needs for salt water reduction
 - ❖ Location, size, shape of islands for the location of river mouths
 - ❖ Measures for design and construction
 - ❖ Effects of island (economic, environmental, social...)
-
- ❖ Impacts of islands on environment
 - ❖ Impact on navigation
 - ❖ Impact on sedimentation