

Technology Fact Sheet

Closing bank-protection bank and intercepting sewerⁱ

1) Technology description

- Large-scale storm surge barriers with movable bulkheads have been used efficiently in several projects in developed countries in Europe , for e.g. The Netherlands, but still have not in use in developing countries.
- Medium-scale closure dams: have been already in use in developing countries due to lower investment capital and operation costs. In Vietnam, there are several riparian small-scale tidal lock structures built on rivers.

2) Socio-economic benefits

- Coastal zones were in better protection, which increasing local socio-economic development; reducing investment capital and maintenance costs for other protection structures.
- Providing other services such as freshwater supply, entertainment and tourism by reducing impacts of tides and waves.
- Such constructions can be integrated into hydropower structures, which providing renewable energy, securing energy security.

3) Environmental benefits

- Preventing flood and natural hazards, salinity intrusion into rivers and low-lying lands.
- Naturally cleansing lagoons water by using wind and tide by taking on water.

4) Status of technology

- In Vietnam, there were a number of sluices to prevent tide a small scale which was built on the river.
- The condition current only available to invest and build small-scale works in the rivers not large-scale works in estuaries and coastal lagoons.

5) Application potential

- At present: only available in building small-scale constructions due to lack of resources to build large-scale structures.

6) Barriers

- High construction, maintenance and operation costs.
- It is only suitable in narrow estuaries or lagoons but not a wide-spread application technology.
- Obstructing traffic and transportation, altering physical, chemical processes and impacting native ecosystems such as migration routes of birds or seeking food of fishes across the river to the sea.

- Too complicated in design and operation for local people and, requiring support from the Government.

7) Costs

Implementation technology application costs

The cost of the protection construction works depends on:

- Type of construction.
- Geological characteristics in dam area.
- Protecting rising level of water column.
- The heavy-duty due to predicted wave and storm action.
- Height and width of the work.
- Construction of single-stage or multi-stage.
- The cost of labor and experts.
- Costs for raw materials.

Increasing costs to adapt to climate change (compared to conventional technology)

- Investment costs and maintenance the work due to sea level rise problems in the future. The height will be lift; solid level also will be increased.

ⁱ **This fact sheet has been extracted from TNA Report - Adaptation for Vietnam. You can access the complete report from the TNA project website <http://tech-action.org/>**