

Technology Fact Sheet

Seawallsⁱ

1) Technology description

- Seawalls are used to avoid erosion in coastline; generally are the type to retain soils and prevent wave impacts and floods.
- In the South, several seawalls have been being built as constructions as well as temporary solutions. There are such types of seawalls as rock dike, mole, concrete dike etc.

2) Socio-economic benefits

- Minimizing area of land used and investment capital costs of structures behind the seawalls as well as protecting the landscape and developing tourism and services.
- One of the adaptive technologies thanks to flexible heights with sea levels that helps to maintain structure and can be connected with new adaptation structures.

3) Environmental benefits

Reducing erosion across the coastline, in islands or long-term protected areas and protecting landscape.

4) Status of technology

- In Vietnam, many embankments are used as the band-aid solutions. There are many forms of embankment such as bulkheads, embankments wire mesh, and concrete. Embankments have various forms as parallel to the coastline, embankments standard wave soldering, coastal embankments and embankments in the coastal islands, offshore.
- Some coastal embankments in the Southern provinces were initially formed.

5) Application potential

Several local projects are in development.

6) Barriers

- Having adverse impacts to the environment.
- Lack of data on natural conditions, wind, storm frequency for optimal planning.

7) Costs

Implementation technology application costs

- Structural embankment has high longevity and reasonable maintenance cost.
- The cost of large investments and long construction: According to research by Linham et al. (2010) cost of building 1 km embankment is from 0.4 km to 27.5 million USD. In Vietnam, 2 km long embankment in Lien Chieu - Thuan Phuoc, Da

Nang (from +608 to km 9 +641 Km7) has a total investment of 72 billion VND (3.45 million USD). In Bac Lieu province the 2 km long breakwater embankment to cope with sea level rise and landslides have cost about 50 billion VND (2.4 million USD) investment.

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

- Depending on the maintenance and reinforcement and the height of the embankment.

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/>**