Factsheet 7: Coastal Management

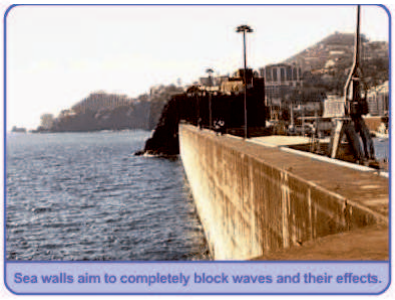
(Compiled from various sources)

The coastline is a used environment. Human beings, plants and animals all use the coastline for different things. In the case of humans, we use the coastline for agriculture, for fishing, for industry and power generation, for transport routes and for land upon which to live. However, a lot of these land uses are incompatible with the fact that the coastline is constantly changing


Porthleven in a storm

Councils and governments are starting to manage coastlines in order to protect them from increasing coastal erosion and flooding due to altering sea levels. The reason for coastal management is obvious, to protect homes and businesses from being damaged and even destroyed by coastal erosion or flooding. Failure to do so can have severe economic and social effects, especially along coastlines which are used for tourism and industry (pretty much all of them).Management of coastlines is also important to help protect natural habitats, however governments generally don't engage in coastal management where there isn't an economic risk as effective coastal management is *very* expensive.

Strategies have been tried around the world, and can be divided into two main groups, **hard** and **soft** engineering. Hard engineering methods aim to stop the coastal processes from occurring. Soft engineering methods try to work with nature to protect the coast.


Sea walls aim to completely block waves and their effects.

Hard Engineering

Sea Walls:

Often built in front of seaside resorts.
Very expensive.
They aim to completely block the waves and their effects.
Life span of approximately 75 years.
Can cause the erosion of the beach in front of them.
Socially reassuring for local residents.

Wooden Groynes:

Wooden "fences" built at right angles to the coastline.
They aim to stop the movement of material along the beach due to long shore drift.
Their primary intention is to build up the amount of sand on the beach.
They have a life span of approximately 25 years.

Gabion Groynes:

Large steel mesh cages filled with large rocks.
Aligned at right angles to the coastline.
They aim to do a similar job to wooden groynes.
Expected life span of 20 - 25 years, as the steel will rust

Rip Rap / Rock Armour:

Large boulders, of 10 tonnes or more, are used as a sea wall.
The gaps between the rocks allow water through, which means that the energy of the waves is dissipated very effectively.
It is important that the boulders are big enough to withstand being eroded themselves and therefore becoming part of the coastal system.

Soft engineering options

Soft engineering options are often less expensive than hard engineering options. They are usually more long-term and and sustainable with less impact on the environment.
There are two main types of soft engineering.

1. **Beach management**
   - This **replaces** beach or cliff material that has been removed by erosion or longshore drift.
   - The main advantage is that beaches are a **natural defence** against erosion and coastal flooding. Beaches also attract **tourists**.
   - It is a relatively inexpensive option but requires constant **maintenance** to replace the beach material as it is washed away.
2. **Managed retreat**
   - Areas of the coast are allowed to **erode and flood** naturally. Usually this will be areas considered to be of **low value** - eg places not being used for housing or farmland.
   - The advantages are that it encourages the development of **beaches**(a natural defence) and **salt marshes** (important for the environment) and cost is low.
   - Managed retreat is a cheap option, but people will need to be **compensated** for loss of buildings and farmland.

Compiled for FoPB by Gill Butler