read

Coastal Landscapes

Hard Engineering

quiz

The Big Picture

Hard Engineering

Hard engineering coastal management involves the construction of structures built to control erosion and reduce flooding. Hard engineering strategies work against nature. Decisions about hard engineering solutions are based on cost-benefit analysis.

Key Terms

- **Gabion** – Steel wire mesh filled with boulders.
- **Groyne** – A wooden barrier built out into the sea to stop longshore drift.
- **Hard engineering** – The use of artificial structures to defend from erosion.
- **Rock armour** – Large boulders dumped on the beach to defend the coast.
- **Sea wall** – A concrete wall which reflects wave energy protecting the coast.

Sea Walls

Benefits

- Gives people a sense of safety and security.
- Tend to have a long life-span and provide excellent defence where wave energy is large.

Costs

- Flooding can occur when waves overtop (break over) the sea wall.
- Very expensive to construct and maintain.

Rock Armour

Benefits

- It is cheap compared to constructing a sea wall and absorbs wave energy very well.
- Quick and easy to construct.
- Extends the life of sea walls.

Costs

- Costs increase when the rock is imported.
- Rock armour looks unattractive.
- Access to beach can be affected.

Gabions

Benefits

- Cheap and easy to construct.
- Quick to build and cheap to maintain.
- Does not restrict longshore drift.
- Blend in well.

Costs

- Damaged gabions are unsightly and dangerous to wildlife.
- Can make access to the beach difficult.

Groynes

Benefits

- Act as wind-breaks for people on the beach
- Groynes do not affect access to the beach.
- At around £5000 each, they are relatively cheap.

Costs

- do not look attractive.
- The downdrift beach can be much lower.
- Beaches downdrift are starved of beach material.