Managing Floods at Boscastle

Learning Objective:

• **Examine** the benefits of managing floods
Learning Outcomes:

• **Describe** how Boscastle has been affected by flooding

• **Explain** strategies to reduce the risk

• **Evaluate** the social, economic and environmental costs and benefits
So where is Boscastle?
Boscastle is located by the sea in the south-west of England, in the county of Cornwall. The land around the town is steep as the contour lines are close together. There are also two rivers that join together at a confluence in Boscastle.
12 noon: Extreme rainfall begins in North Cornwall.

1pm: River Valency and tributaries begin to rise.

3pm: Visitors cars almost fill 170-space car park

3:30pm: Valency begins to spill over bank after 3hrs of extreme rainfall.

4pm: 3m wall of floodwater sweeps across Visitor Centre car park; B3263 is impassable

4:10pm: Main road bridge blocked by debris causing water levels upstream to rise.

4:45pm: Helicopters from Royal Navy, RAF and Coastguard arrive on scene; people start evacuating buildings

5pm: Floods at their peak; cars washed down from car park; most of Visitors Centre collapses.

5:23pm: Rescue helicopters begin winching people from buildings.

5:55pm: Truro and Plymouth hospitals put on standby in case of casualties.

6pm: Floods start to recede.

8pm: Water levels back within river banks.
In 2004 England and Wales experienced its wettest summer since 1956; more than double the normal amount of rain fell. In Cornwall flash floods devastated the tourist village of Boscastle on 16th August 2004.

Weather report:
Heavy, thundery downpours developed by midday on 16th August (remnants of Hurricane Alex). Winds converged along the coast and the ground in the local area. There was extreme frontal activity at this time.

Settlement at Boscastle:
Development on a narrow flood plain on west coast of England where rainfall is often high.
There are 1000 permanent residents, who rely on tourist revenue.
Flood defences were set to built, but were not underway.

Key facts:
3 million tonnes of water was added to drainage basin (volume).
185mm rainfall in 5hrs, majority in first 2hrs (intensity).
Peak flow was about 140 m3/sec, between 5:00pm and 6:00pm BST.
The annual chance of this (or a greater) flood in any year is about 1 in 400
Soils were already saturated.
There was a high tide in the bay.
Storm hit in tourist season (settlement population doubled; more vehicles).

Geography of area:
Three rivers - Valency, Jordan and Paradise converge at Boscastle.
Drainage basin is just 40km².
The three river valleys are very steep and narrow.
Parent material (rock type) is hard sandstone.
Surrounding vegetation is agricultural land, but there is some forestry.
Impacts of the Boscastle flood of 2004

Social

Economic

Environmental
Boscastle Flood management scheme (by 2008)

1. Choose two hard engineering strategies and explain how they reduce the risk of flooding.

2. Choose two soft engineering strategies and explain how they reduce the risk of flooding.
## Issues with the scheme

<table>
<thead>
<tr>
<th><strong>Social Issues</strong></th>
<th><strong>Economic Issues</strong></th>
<th><strong>Environmental Issues</strong></th>
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<tbody>
<tr>
<td>Homes and businesses are now less at risk of flooding. So there is less risk of expensive damage to property, loss of stock and business, and rising insurance costs.</td>
<td>Residents' lives were disrupted for years by rebuilding projects and the construction of flood defences.</td>
<td>Many residents do not like the new bridge, and think that it's not in keeping with the character of the village.</td>
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<td>Vegetation and river habitats in the area are now continuously managed. Biodiversity and river habitats have been improved.</td>
<td>The flood management scheme cost over £4 million, but the scheme isn't as good as it could be – some options were still considered too expensive.</td>
<td>The new defences have made Boscastle a safer place to live in.</td>
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<td>The defences will only protect against a 1 in 75 year flood – they won't prevent flooding of the same size as the 2004 flood. The defences needed for this would spoil the character of the village.</td>
<td>The new channel has been engineered to look natural and to function as a normal river.</td>
<td>The village is a popular tourist destination and 90% of the local economy relied on tourism before 2004. Flood protection has brought businesses and tourists back to the area.</td>
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Explain how the Boscastle flood defence scheme benefits the local people and the environment.

(6 marks)

The residents that live there will now have a safer place to bring up their families and go to work. The defences have taken a long time to build, but can now protect businesses so tourism can return. Consequently more visitors will spend money in the area and improve the standard of living for people.

The new river channel blends in with the environment as it looks natural. As a result of the care for the environment, biodiversity has improved and habitats have grown in size.
1) Boscastle flooded in 2004

2) Deepening and widening the river is hard engineering

3) The flood was a 1 in 100 year event

4) The flood management scheme took 4 years to complete
True or False?

1) Boscastle flooded in 2004

2) Deepening and widening the river is hard engineering

3) The flood was a 1 in 100 year event

4) The flood management scheme took 4 years to complete