

The Morpeth floods of 2008 & 2012: cause, effect and response

Look at the two images below. They show the flood which occurred in Morpeth, Northumberland on Saturday, 6th September 2008. Flooding occurred again in September 2012.



1. List two possible **causes** of the flood.
2. List the **effects** of the flooding which you can see in the images.
3. List the possible **effects** of the flooding which you cannot see in the images.
4. List some possible **responses** to the 2008 and 2012 Morpeth floods.
5. Using your answers to the above questions write a front page story for the local newspaper detailing the 2008 or the 2012 Morpeth flood.

Teaching notes

The differences between causes, effects and responses can be a difficult area for some students. The image of a domino chain below is one possible way of explaining the difference between cause and effect.



Alternatively a suggested approach might be to ask questions one to four as follows:

1. List two possible **causes** of the flood. **WHY** did it happen?
2. List the **effects** of the flooding which you can see in the images. **WHAT** has happened? **WHAT** has been the impact of the flood?
3. List the possible **effects** of the flooding which you cannot see in the images. **WHAT** might have happened?
4. List some possible **responses** to the 2008 Morpeth flood. **WHAT** will people do?

Causes

It is possible to differentiate between physical and human causes of flooding but frequently floods will be the result of several different factors. Some suggested causes of floods might include:

- There has been too much rainfall in a short space of time e.g. 'up to 12 cm of rain fell in the area in 24 hours or there has been a month's rain in two days!'
- There has been prolonged rain.
- A rise in temperature has caused rapid snowmelt.
- The previous rainfall had left the ground already saturated.
- The steep slopes in the drainage basin and/or impermeable rock have caused rapid surface run-off.
- The area is at the confluence of two or more rivers and a large quantity of water arrived within a short space of time causing the rivers to overflow.

- Weather conditions combined with a high tide have produced a storm surge which has moved up the river from the coast.
- Deforestation causes increased surface runoff and soils losses into the river channel.
- Increased urbanisation has reduced the permeability of the ground causing faster surface runoff.
- Poor farming including over cultivation and over grazing increases the risk of soil erosion. This increases the risk of raising the channel bed so the river overflows more easily.

Effects

These are probably best classified as either 'Primary effects' or 'Secondary effects.' Some Primary effects might include:

- Deaths
- Injuries
- Structural damage to houses, shops and other buildings.
- Cars and caravan swept away.
- Damage to transportation networks e.g. roads, airports and canals.
- Damage to sewerage and drainage systems due to collapses under pressure of the flood waters.
- Contamination of drinking water supplies.

Some Secondary effects might include:

- Loss of income e.g. from less tourists.
- Subsequent insurance claims.
- Spread of water-borne diseases due to the unhygienic conditions.
- Shortage of food caused by a loss of the entire harvest.
- Loss of woodland where tree species die from waterlogging/suffocation.
- Loss of soil fertility where the top soil has been transported away making the land barren or ...
- Increase in soil fertility where fertile silt and soil is deposited on the land.

Some textbooks will also consider '**Tertiary and long-term effects**'. This will include economic hardship resulting from a decline in tourism, the high cost of rebuilding, food shortages and price increases etc.

Responses

These are probably best classified as either 'short term or long term responses. Some suggested responses include:

- Evacuation
- Aid packages (at a national or international level)
- Installation of warning systems
- Construction of dams and reservoirs
- Land use zoning

The response can also be seen as one step in the management of flooding together with mitigation, preparedness, response, and recovery. However, in KS4 Geography the single key word, response is generally used to encompass all four facets.

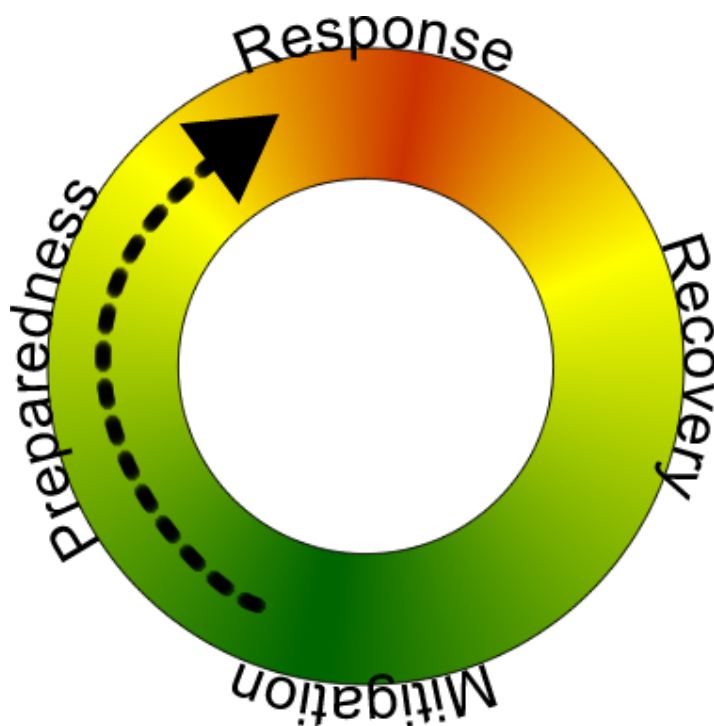


Image credits

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