

I'm in Pontypridd, South Wales, to explore how to manage rivers effectively.

In 2024, the river Taff burst its banks, flooding Pontypridd and surrounding areas.

Decision makers like government agencies use hard and soft engineering to manage rivers.

Let's take a look at some of these along the River Taff.

Hard engineering is used for the creation of dams and reservoirs that store water and release it slowly, reducing potential floods downstream.

Channelisation, which can include straightening, changes river channels so water flows away more quickly.

Embankments erase riverbanks that contain flood water.

Channelisation and embankments do not prevent all flooding and may even make floods worse for communities downstream as more water surges through.

Floodplain zoning is a soft engineering technique used to help manage rivers.

It prevents land use on the areas at highest risk of flooding, keeping houses and businesses away while allowing use for parks and farmland.

Afforestation means planting trees.

This vegetation increases interception, reduces surface runoff and slows the flow of water.

River restoration returns rivers to a more natural state, for example removing straightening measures and artificial embankments.

These measures help store more water and slow the flow.

Both hard and soft engineering have benefits and costs.

As geographers, we must consider how to manage rivers sustainably.