I'm in Pontypridd, South Wales, alongside the River Taff.

In November 2024, Storm Bert caused devastating floods across the town and nearby valleys. I'm here to investigate the factors that led to these floods

Flooding is influenced by both human and physical factors.

Precipitation was the main physical cause of the Pontypridd floods. More than 150 millimeters of rain fell in upland areas.

Pontypridd sits where two narrow, steep valleys meet and so the relief of the land increased the risk of flooding.

Rainfall flowed quickly downhill as surface runoff. This created a very short lag time, the delay between peak rainfall and peak river discharge. The river couldn't hold enough water and burst its banks.

Geology is another physical factor that contributed to the floods.

Impermeable rocks do not allow water to soak in and previous storms that autumn left soils saturated, which further reduced infiltration.

Human activity also played a part.

Urbanisation over time replaced natural ground with impermeable surfaces, including roads, pavements and buildings. These directed water quickly into rivers. Drainage systems were overwhelmed.

Deforestation upstream meant fewer trees to intercept and absorb rainfall. This meant more water reached the river faster.

Physical and human factors combine to influence flood risk.

In Pontypridd, this led to widespread flooding and damage, but with lessons learned, planners can work to reduce risks so communities can live more safely alongside rivers.