

CASE STUDY

CLIMATE CHANGE VULNERABILITY IN LONDON, UK

London faces a threat of flooding caused by storm surges driven by depressions into the Thames Estuary from the North Sea. The last serious event was in 1953 when 300 people died. The UK's Environment Agency believes there remains a one-in-a-thousand chance of London being flooded in any given year, owing to the limits of the protection offered since 1984 by the Thames Flood Barrier (Figure 2.28). Closing the barrier seals off part of the upper Thames from the sea and unusually high tides that might push seawater into central London. When not in use, the six rising gates rest out of sight on the riverbed, allowing free passage of river traffic through the openings between the piers.

However, climate change may mean that the risk of the barrier failing is growing because of (1) global eustatic sea-level rise (mainly because of thermal expansion) and (2) more powerful storms (see page 54) that generate higher tides (also known as storm surges). By 2030, either a new US\$6 billion flood barrier or a US\$30 billion tidal barrage may need to be built. The high cost of defending this city appears to be justifiable when risk and vulnerability are examined in detail:

- Eight million people live in London, around one million of whom (in half a million homes) are at direct risk of flooding. Elderly or disabled floodplain residents are especially vulnerable to a sudden-onset flood event.
- If the Thames did burst its banks in central London due to a tidal surge, Westminster (where the UK Government is based) would be under 2 metres of water; 16 hospitals and 400 schools would be flooded; 68 underground railway stations would be drowned utterly.
- London's total level of risk is growing all the time, as more people migrate there and new housing developments increase the total value of vulnerable property. An estimated US\$200 billion of property is now at risk.

Such disastrous events are most likely preventable, however. London is protected already to a very high standard and the UK government can be expected to pay for whatever new adaptation measures are required as and when climate risks worsen.

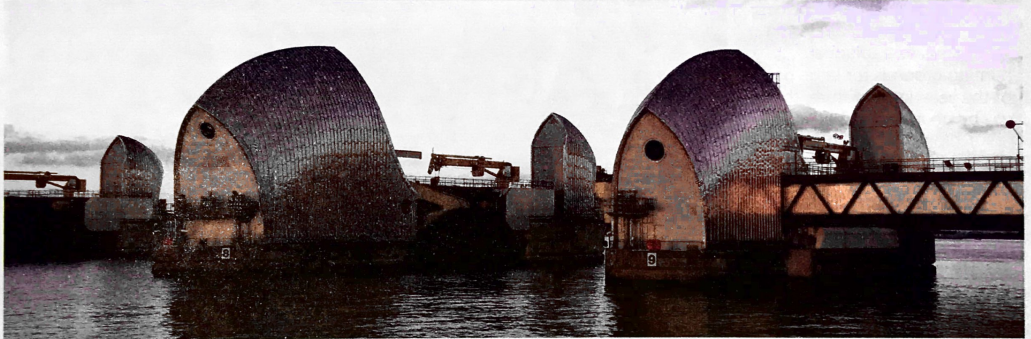


Figure 2.28 The Thames Flood Barrier



Figure 2.29 Parts of London at risk from a 5-metre storm surge (the Thames Barrier currently protects areas of central London)