

11 FLOODS

FINANCIAL COST

Estimated value of damage by continent 1999–2008
US\$ billions



Life-threatening floods causing widespread destruction to lands, crops and infrastructure are becoming more frequent, and affecting an increasing number of people.

Severe weather triggers floods. Unusually heavy and prolonged rain or rapid seasonal ice-melt, over-fill river basins, spilling streams beyond their banks and floodplains. Hurricanes, cyclones and storms cause the sea to force its way inland, breaching flood defences, as in New Orleans in 2005.

Floods are typically regarded as “natural”, meteorologically caused, disasters, whose ferocity and number are increasing as a consequence of climate change. However, man-made alterations of the environment, such as draining of wetlands and constraint of rivers by dams and embankments, are also important factors. Nearly 7 million hectares of wetlands alongside the Mississippi – the river’s natural sponge – have been drained and developed over the past 100 years. These areas are now prone to severe flooding in a rainy year.

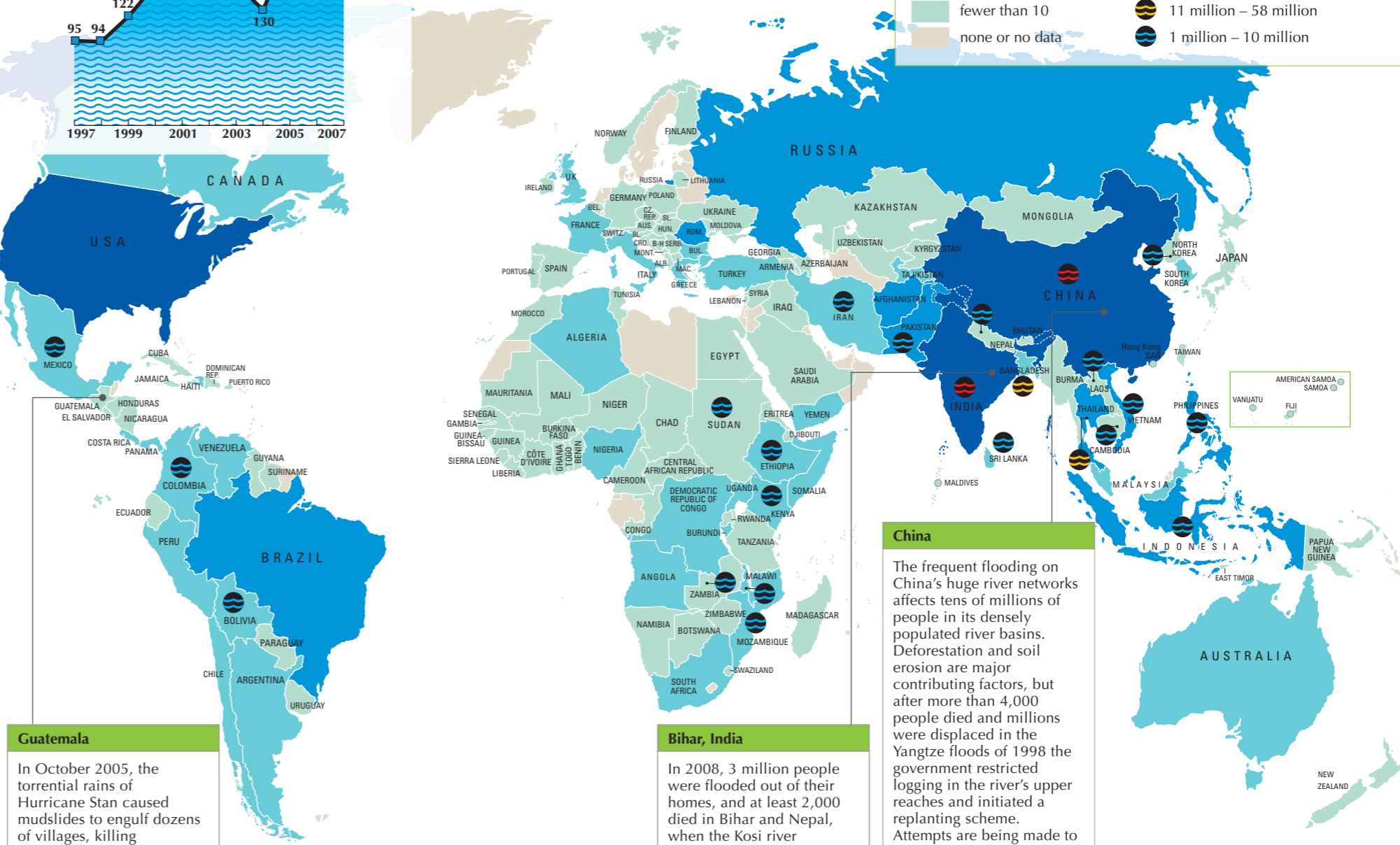
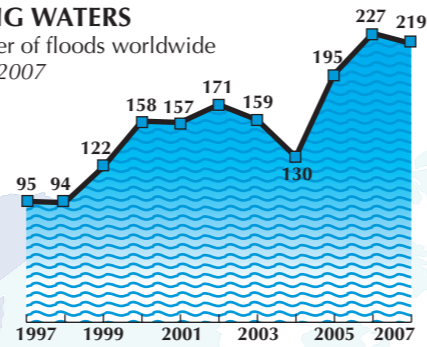
Deforestation also exacerbates flood disasters. Rainfall on treeless slopes washes away soil that would previously have absorbed it. This increases the loads of both water and silt in rivers and lakes, which reduces the volume of water they can hold.

All riverine and low-lying countries are vulnerable. Some delta areas depend for survival on the annual flood of major rivers and the fertile silt deposited on their soils. One-third of Bangladesh is routinely flooded. If there is too much rain, or a cyclone coincides, the fragile blessings of flood transform into disaster. In 1998, 31 million people in Bangladesh were made homeless and 1,300 lost their lives to rain-induced flooding. Himalayan deforestation and upstream barrages and diversions also contributed.

Floods in cities are made worse by the pervasiveness of impermeable concrete or tarmac, which prevents rain from soaking into the ground. There were flashfloods in Mumbai in 2005 when rainwater could not escape through drains that had become overloaded and blocked with plastic bags.

RISING WATERS

Number of floods worldwide 1997–2007



Guatemala
In October 2005, the torrential rains of Hurricane Stan caused mudslides to engulf dozens of villages, killing 670 people and leaving thousands homeless.

Bihar, India
In 2008, 3 million people were flooded out of their homes, and at least 2,000 died in Bihar and Nepal, when the Kosi river breached its poorly maintained embankments and diverted into a route 100 km from its channeled course, submerging hundreds of totally unprepared communities.

China
The frequent flooding on China’s huge river networks affects tens of millions of people in its densely populated river basins. Deforestation and soil erosion are major contributing factors, but after more than 4,000 people died and millions were displaced in the Yangtze floods of 1998 the government restricted logging in the river’s upper reaches and initiated a replanting scheme. Attempts are being made to manipulate river flow with large dams, including the Three Gorges on the Yangtze, but whether these are an enduring and effective flood-control mechanism is hotly disputed.