



Floods

Floods and storms have affected human lives since the beginning of civilization, but all types of floods – riverine and coastal floods and storms, sudden snow melts, floods after intense rainfall – have become more destructive in recent decades, because, increasingly, human infrastructure is being built in flood-prone areas. Such floods are likely to be even more pronounced in the future – as we are all aware from the international media, from statisticians, and perhaps from our own personal experiences.

One example is the floods along the Yangtze River in 1998. The cutting of forests throughout the river's watershed and the gradual movement of both farmers and urban developers to occupy the river's floodplains by draining lakes and wetlands made the area more vulnerable. The effects of the record rains that fell in the Yangtze basin in the summer of 1998 were amplified by these management practices, leaving 3,600 people dead, 14 million homeless, and US\$ 36 billion in economic losses. China has embarked upon a very costly

restoration process to re-establish the ecosystem's flood control services.

More recently, the devastating effects of hurricane Katrina in the USA in 2005 was a timely reminder of the price of mismanagement of wetlands. The hurricane caused a tidal surge that flooded 80% of the city of New Orleans through the breaching of levees. Widely branded as the worst engineering disaster in US history, most analysts recognise it as a human-made rather than a natural disaster, one that was just waiting to happen. The death toll was put at 1,464 and the human health issues following the disaster – both physical and mental – have been significant. To prevent a similar catastrophe, the US government has pledged to restore the natural surge defences – the natural marshes, cypress swamps, and barrier islands – rather than relying solely on improving the engineered solutions that failed so dramatically in 2005.

The direct and immediate impacts on human health include loss of life, injuries, and, within a very short period of time, the lack of clean water and destruction of sewage systems, which result in another set of threats to human

health - diarrhea, cholera, and other life-threatening, water-related ailments. Receding floods in some countries also provide the perfect environment for malaria-carrying mosquitoes. Finally, there are the longer term effects on mental health, such as the anxiety and depression that often follow a major flooding event.

While we cannot easily prevent major floods, we can ensure that we benefit from the flood protection services that wetlands supply free of charge. Rivers, lakes and marshes slow down and retain floodwaters but only if we do not build our urban centres on natural floodplains and do become more thoughtful about the broader implications of channelising our rivers and draining our marshes.

