

# The River Ganges Case Study

**Damien Hockey 10AM**

## The Background of the River Ganges

The most sacred river of the Hindus, the Ganges flows 2,510 km (1,560 miles) from the southern parts of the Himalayas in Northern India, to its mouth into the Bay of Bengal at Bangladesh's Meghna estuary.



Hindu pilgrims bathe in the Ganges' waters to purify themselves of sin. Water from the river is also given to the dying as a final act of purification for over 2000 years. Millions flock to the river to rid themselves of sin. However, deforestation and industrial waste has led to loss of animals' around the rivers habitat and now there is not much left of the Ganges that is clean.

The major tributaries of the Ganges are the Brahmaputra, which joins the Ganges near its mouth in Bangladesh; the Yamuna, Gomti, Gandak and Kosi rivers also join up to the Ganges.

The Ganges basin is India's main site of agriculture and is the most densely populated area. The main crops grown on the plain include: rice, sugarcane, lentils, oil seeds, potatoes, and wheat. Almost all of the plain has been cleared of its former grasslands and forests to make way for crops.

Typically, the banks of the Ganges are lined with swamps and lakes. In these areas including the fertile delta, crops such as rice, legumes, chillies, mustard, sesame, sugarcane, and jute are grown. Only a stretch of the south-western delta, covered with mangrove trees, is untouched. The mangroves are ideal habitat for several species of crocodile and one of wildlife's last retreats.

## The Causes of Flooding of the River Ganges

Because the Ganges is fed by snow-capped peaks, it remains a sizable body of water throughout the year and can be used for extensive irrigation even during the hot, dry season of April through June. During the summer monsoon season, heavy rains can cause destructive floods, especially in the delta area



From July to September 1998, flooding became an increasing problem along the Ganges. The main human causes of the extensive flooding were: deforestation, irrigation, lack of money and lack of solid protection schemes to stop flood waters.

Human causes are:

- Deforestation causes less water being taken in from the trees and shrubbery. This means more water being drained into the river; and when no more water can be taken in, surface run-off occurs and the river bursts its banks.
- Irrigation has led for the river to be diverted into fields of crops. This has led to sediment being dropped off at the fields instead of further down river to raise the flood plains, giving a lesser chance of flooding.
- The lack of money due to heavy debt means that no money has been put into schemes to stop flooding. The methods used now do not work, because of lack of updating and funding.

### Natural Causes are:

- Monsoon Rain has led to the river carrying more water than usual.
- Melting Snow in the Himalayas
- Tectonic Activity meaning that the Indian Plate is moving towards the Eurasian Plate. The land where they meet (Himalayas) is getting higher and steeper every year (Fold Mountains). As a result soil is becoming loose and vulnerable to erosion. This causes more soil and silt in the rivers and tributaries of the Ganges, leading to flooding in Bangladesh.
- Bangladesh is only 5m or less above sea level, so it is already vulnerable to flooding.
- Although the Ganges and other rivers bring hazards to India, the huge delta the country lies across provides a nutrient soil for crop growing.



## Results of the Flooding of the River Ganges

Positive impact of flooding in Ganges/Brahmaputra river basin

Regular annual flooding is essential to people who live on the flood plain of these rivers, the farming season is planned around the floods and rice is a main crop and requires large quantities of water. Also, when the river floods it leaves behind fertile silt.