

## Three Gorges Dam

The Three Gorges Dam is built on the Yangtse River in Central China. The dam is the largest HEP in the world and is massive in scale. The dam 2,335m wide, 101 metres high and 115m thick. It has 34 generator with an electricity capacity of 22,500MW. The reservoir behind the dam will be 660km long and have a surface area of 1,045km<sup>2</sup>. Although the dam is effectively a wall across the river, the navigation has been improved by building a series of 5 locks alongside the dam.

The site of the Three Gorges Dam was chosen over 15 other sites based on the following advantages:

- The valley floor was wide and low making building easy
- The Yangtse has huge hydro-electric power potential
- The bedrock is firm with limited crack making a firm foundation
- Although in a seismically active (earthquake region) there have been few earthquakes near the site of the dam
- There was a small island making construction of a diversion channel easy during construction
- Workers could easily be moved to the site
- The relocation of people was not really an issue in Communist China



## ADVANTAGES OF THREE GORGES DAM

- The Three Gorges Dam has become a tourist attraction with people visiting the dam
- The dam produces clean renewable energy. It was initially thought that it would meet 10% of China's energy needs, but this figure has fallen as China has developed.
- Improved navigation and trade as far as Chongqing - Chongqing is now one of the fastest growing cities in the world.
- The amount of flooding has reduced downstream of the dam.
- Water is stored behind the dam that can be used for drinking, farming, etc.
- The dam created a lot of jobs during building and there are now permanent jobs operating and maintaining the dam
- The dam created a sense of national pride because it is the largest dam in the world.

**Upstream:** Means above the dam and towards the source.

**Downstream:** Means below the dam and towards the mouth.

## CHANGES IN RIVER UPSTREAM OF DAM

- A large artificial store will be created behind the dam
- The gradient of the river will be reduced
- The velocity of the river will be reduced
- Evaporation rates behind the dam will increase because there is a large surface area of water

## DISADVANTAGES OF THREE GORGES DAM

- The Yangtse freshwater dolphin has become extinct, mainly due to increased river traffic and pollution
- The sturgeon and alligator are severely threatened because of pollution and disruption to breeding patterns
- The dam cost an estimated \$39 billion to build
- The dam is built near a fault line so is vulnerable to earthquakes
- 1.3 million people had to be relocated as the reservoir flooded
- Many archeological sites were covered in water.
- Farmland downstream of the dam will become less fertile as less alluvium is deposited

## CHANGES IN RIVER DOWNSTREAM OF DAM

- The discharge of the river downstream will be reduced
- The discharge downstream will become more regular
- There will be less load (and therefore alluvium) in the river downstream
- The velocity of the river will be reduced downstream