

Human Interaction with fluvial processes| sample answer

Q: 'Examine with reference to example(s) that you have studied, how human activities have impacted on either river, coastal or mass movement processes' (2012 Q2 C.)

River processes are erosion, transport, and deposition. Much of the river's energy is used in transporting the load. These processes continually reshape the landscape over which the river flows.

Human processes are anything that interferes with the natural course of the river, man made levees and dams are good examples.

One of the worlds largest schemes to control a river and manage its flow is at the Three Gorge Dam in China. It is the biggest and most powerful dam in the world.

Building dams effects the river transport processes. Building dams across a river to control flooding interferes with the ability of the river to carry its load of source to sea.

As dams block the river water builds up behind it, called a reservoir, and in Yangtze the reservoir displaced over 2 million people. It is 600 km long and 170 metres deep.

The Three Gorge Dam is 85 metres high and 1.6 km wide and built across the river Yangtze. The dam is used to generate green energy for major cities such as Shanghai. Also built to prevent the devastating floods which in the past have killed hundreds of thousands of people.

Negative effects include the prevention of fertile, alluvium rich soils to farms downstream of the dam.

Though floods have stopped, farmers are now forced to purchase expensive fertilisers to keep their farms productive.

The erosion process has also been affected, so when the water is released through the otherside of the dam, the flow is irregular and can cause an excess of hydraulic action and vertical erosion

Because of this lack of sediment and excess of hydraulic action, the river becomes lower than the floodplains and this is called entrenched channels

The natural habitat of the river has also been affected and in 2007 the River Yangtze dolphin was declared extinct.

Building levees prevents natural flood processes from occurring eg along the River Rhine in Germany.

Levees are built to stop a river flooding onto its flood plain. Because there are a lot of urban centres and infrastructures built on flood plains, man made levees have stopped the natural flooding processes and have therefore stopped damage to economically important developments such as factories.

Negative effects include the fact that the river cannot flood naturally so deposits are laid on riverbed; resulting in the raising riverbed and consequently a higher river level and then levees have to be continuously built higher and strengthened.

Floodwater which would naturally escape off onto the floodplains is now trapped in the river and is funneled downstream until it can overflow where it causes more damaged. The hydraulic action and abrasion where the river is released is increased significantly.

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The Rhine, because of the man made levees flows 30% faster than its natural flow should be.