



River management

1 Read the following text and answer the questions.

Flood management techniques can be divided into **hard** and **soft** engineering options. 'Hard' options tend to be more expensive and have a greater impact on the river and the surrounding landscape; 'soft' options are more ecologically sensitive.

Hard engineering options	
Dam construction	Dams are often built along the course of a river and the water is usually stored in a basin behind the dam. This water can then be used to generate hydroelectric power or for recreation purposes, but building a dam can be very expensive and sometimes it forces people to move. A dam may have the potential for enormous environmental damage; e.g. China's highly controversial Three Gorges Dam project hit the headlines for weeks when the Chinese government announced that almost five million people had to move from their homes near the dam area. <div style="display: flex; justify-content: center; gap: 10px;">  China's Yangtze Dam displaced  How hydroelectricity works </div>
River engineering	The river channel may be widened or deepened to allow it to carry more water, or straightened so that water can travel faster along its course. Altering a river channel may lead to a greater risk of flooding downstream, as the water is carried there faster.

Soft engineering options	
Afforestation	Trees are planted near the river. This is a relatively low-cost option, which enhances the environmental quality of the drainage basin.
Managed flooding	The river is allowed to flood naturally in places, to prevent flooding in other areas – for example, near urban areas.
Planning	Local authorities and the national government introduce policies to control urban development close to or on the floodplain. This reduces the chance of flooding and the risk of damage to property.

Different interest groups have different views about flood management techniques: governments often prefer large hard-engineering options, such as dam building. Profits can be made from generating electric or leisure revenue. Environmental groups and local residents often prefer softer options, such as planting trees. Soft options cause little damage to the environment and do not involve the relocation of communities. Effective flood management strategies should be economically, environmentally and socially sustainable.

1. Where are dams often built?
2. How can water be used?
3. What are the disadvantages of dam building?
4. What does river engineering deal with?
5. What engineering options can be considered 'soft'?
6. What should effective flood management strategies be?

