

Up a dry gully fact sheet for students

How dams work



What is a dam?

A dam is a wall of solid material built across a river valley or catchment to block the flow of the river. The dam wall creates a lake and allows water to continue flowing down stream of the dam.

Dams create a permanent supply of water for the community to use. The dam must be watertight so it is safe and stops water from escaping downstream.

Dam walls must be strong to resist water pressure. The higher the dam, the greater the depth of water stored behind it, and the greater the water pressure on the dam wall.

A dam must have a way of releasing water in controlled amounts so people can use it. Water is released into a network of pipelines that supply our homes, businesses and farms with water.

If it rains heavily, or if the river floods, water can escape over a concrete 'spillway' and into the river downstream. A spillway is usually built at the side of the dam wall. If the dam is built of concrete, water can even flow over the dam wall.

Many dams are built to stop people living along the Nerang River being flooded during times of heavy rain.

How are dams built?

Each dam is different. Some dams are small and deep. Some dams are shallow and wide. It depends on the size of the river and shape of the valley. Dams can be made from different materials. There are two main types of dams.

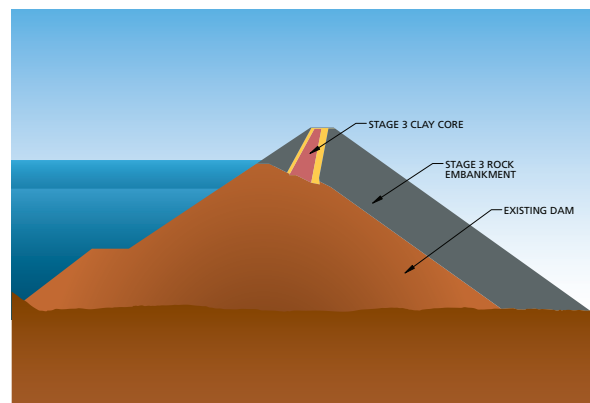
1) Concrete dams are made of strong, solid concrete walls that resist the pressure of water.

2) Earth and rock fill dams have a solid core of clay in the middle to prevent water leakage, and an outer layer of rock for strength.

Dams and the environment

A dam built across a river will affect the river valley. Plants, animals, roads, farms and sometimes even towns will be flooded. The flow of a river downstream will be disrupted. Fish and wildlife may be threatened.

This is why all modern dams undergo strict environmental controls to minimise their environmental impact. Some ways to reduce the



environmental impact of dams are:

- Working with the local community to relocate houses and roads
- Keeping trees and vegetation in the valley to stop soil erosion into the dam lake
- Preventing noise, dust and pollution during construction
- Relocating wildlife or special cultural sites in the catchment area
- Building water 'ladders' around the dam wall so fish can swim upstream or downstream
- After the dam is built, regularly releasing water to keep the river healthy

Activities

- 1) On a map, find the dam that supplies water to your school.
- 2) Discuss in class the advantages and disadvantages of dams. Make a list on a whiteboard.
- 3) Where is the best location to build a dam?
- 4) What are the two main types of dams?
- 5) Draw a picture of a dam and mark some of its features (e.g. wall, spillway, valley, rock quarry, intake tower, etc)
- 6) Discuss how to prevent dams from damaging the environment. Make a list of things to do.
- 7) Have students research and report on a local dam, including in their reports the following:
 - Location of dam
 - Benefits of dam
 - Type and size of dam
 - Cost to build dam
 - Engineering features of dam

Further reading

Hinze Dam Stage 3 Project:
www.hinzedamstage3.com

Wivenhoe Dam:
www.seqwater.com.au/content/standard.asp?name=WivenhoeDam

South East Queensland Water:
www.seqwater.com.au

Two main types of dams



Concrete wall dam



Rock and earth wall dam