



*Photo courtesy Water Corporation*

Total water use in Western Australia doubled between 1985 and 2000 and is expected to double again by 2020.

At the same time the south-west corner of the State experienced a decline in rainfall. It is predicted that the South West will become increasingly warmer and drier than last century.

Western Australia has reached a point where water use efficiency – reducing our use by as much as possible without affecting our lifestyle – is an essential part of water resource management.

The protection and management of our water resources is based on understanding the interconnections in the water cycle. An understanding of the whole catchment water balance is needed.

**HINT!**

Results from research at the UWA have indicated that by improving irrigation efficiency you can greatly reduce the impact of nutrients on the environment. Over irrigation may lead to nutrient leaching.

**The Water Cycle**

Water continually circulates between the land, the oceans and the atmosphere. This circulation is called the Water Cycle or Hydrologic Cycle.

The amount of water in the earth's environment never changes, whether it is as a liquid (fresh water, seawater, rain, tiny droplets in clouds), as a gas (water vapour) or in its solid state (snow, ice or hail).

**How does the Water Cycle work?**

Heat from the sun causes water to become a vapour. This is called evaporation. As the earth's surface warms, rising currents of air carry the water vapour upwards. The water vapour becomes cooler as it rises, and condenses into tiny drops, forming clouds. These drops join together and fall back to the earth as rain, hail or snow.

Rainfall may:

- evaporate directly from water, land or vegetation;
- runoff the land into streams and wetlands;
- soak a little way into the ground, be absorbed by plant roots and then return to the air through the leaves as water vapour – a process referred to as transpiration; and
- soak deeper into the ground and add to the groundwater, moving slowly along the direction of groundwater flow towards rivers, wetlands or the sea.

This cycle has existed since water was formed on earth, but human activities change the way water moves through the landscape.

