

WATER

KEY POINTS

Climate, forests and global biogeochemical cycles are all linked to the global water cycle.

Current levels of human water use and diversion threaten food security and ecosystem services.

Water and environmental impacts are embodied in products and world trade.

We must plan for increased urbanisation and climate change.

Water efficiencies come from managing lilac, blue and green water. In urban space this means water-sensitive design that includes:

- Improving rainwater harvesting and storage linked into buildings.
- More recycling of greywater and stormwater.
- Improved management of water flows including water storage in the soil.

Planet Earth has been called the ‘Blue Planet’ because, when seen from space, this is the colour reflected by the large volume of water that covers 71% of its surface (see Figure 5.1).

Only a planet of the appropriate mass, chemical composition and distance from the Sun could have the range of conditions necessary for life to exist and flourish. Water is one of the vital chemicals needed for life to exist, and nowhere else in the universe has life been found, yet.

The water cycle

Apart from its importance as a component of living organisms, water also has a major

influence on the climate, carbon cycle and other biogeochemical cycles.

The hydrosphere is the Earth’s total supply of water and the cycling of water between the atmosphere, oceans, waterbodies and biosphere is called the global water cycle or hydrological cycle.

Salty ocean water makes up 97.5% of all the Earth’s water. Of the remaining 2.5% freshwater component, the majority, about 40–80%, is locked up in polar ice (most in Antarctica) and underground water, mostly aquifers. The volume of water in aquifers is unknown but estimated at about half that in the polar caps. Of the water in soil, about half is estimated to be in the root zone. Only about