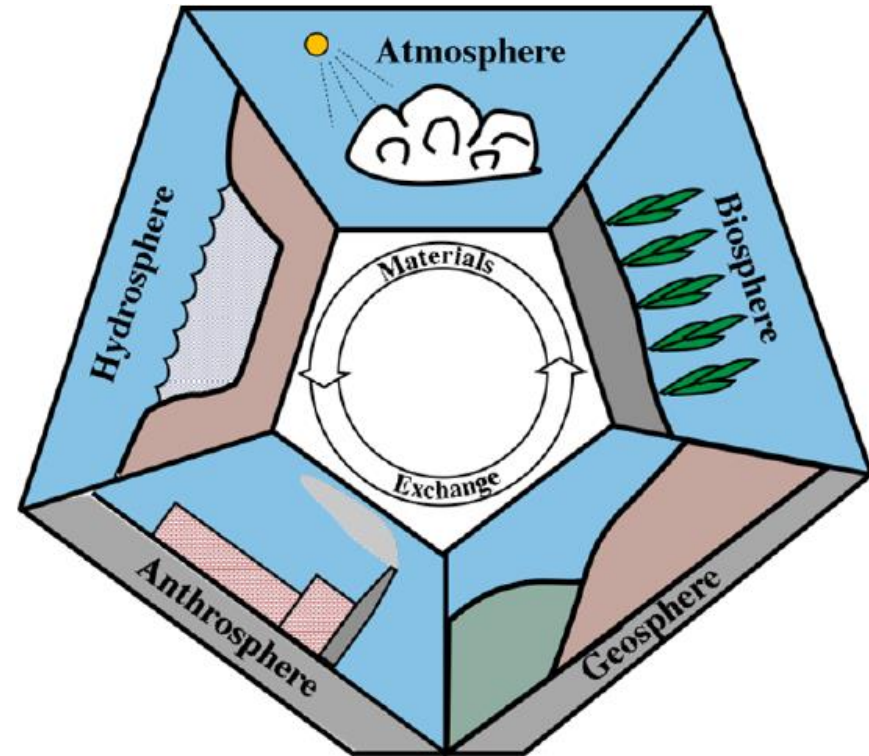


# EARTH'S SPHERES

- (i) Hydrosphere
- (ii) Atmosphere
- (iii) Geosphere
- (iv) Biosphere
- (v) Anthrosphere



## i. Water and The Hydrosphere

- Hydrosphere is a term used to describe the combined mass of water found on, under and over the surface of a planet. It refers to the discontinuous layer of water at or near the earth's surface.
- It includes surface water (which may exist in the liquid state or solid state in form of ice), groundwater and water vapour present in the atmosphere.

## ii. Air and The Atmosphere

- The atmosphere is a thin protective blanket that nurtures life on Earth and protects it from the hostile environment of outer space by absorbing energy and damaging ultraviolet radiation from the sun and by moderating the Earth's temperature to within a range conducive to life.
- It is the source of carbon dioxide for plant photosynthesis and of oxygen for respiration.
- It provides the elemental nitrogen that nitrogen-fixing bacteria and ammonia-manufacturing industrial plants use to produce chemically bound nitrogen, an essential component of life molecules.

### iii. Earth, The Geosphere

- The geosphere is composed of a solid, iron-rich inner core, a molten outer core, mantle, and the crust. The crust, only 5–40 km thick, is a thin outer skin composed largely of lighter silicate-based minerals and is the most important part of the geosphere in so far as interactions with the other spheres of the environment are concerned.
- It is that part of the Earth upon which humans live and from which they extract most of their food, minerals, and fuels.
- Geology is the science of the geosphere and is very important in considerations of the environment.

## iv. Life, The Biosphere

- All living entities on the Earth compose the biosphere. Living organisms and the aspects of the environment pertaining directly to them are called biotic, and other portions of the environment are abiotic.
- Biology is the science of life. It is based on biologically synthesized chemical species, many of which exist as large molecules called macromolecules.
- Biological science is a key component of environmental science and environmental chemistry.

## v. Technology and the Environment-Anthrosphere

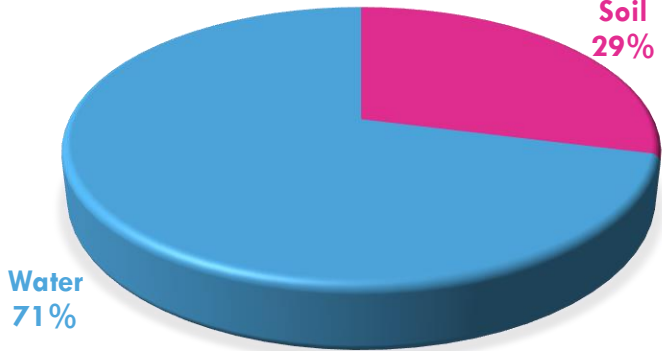
- Technology refers to the ways in which humans do and make things with materials and energy, that is, how they construct and operate the anthrosphere.
- It is essential to consider technology, engineering, and industrial activities in studying environmental science because of the enormous influence that they have on the environment
- The challenge is to integrate technology with considerations of the environment and ecology such that the two are mutually advantageous rather than in opposition to each other.

# Movement of Water Between Stores

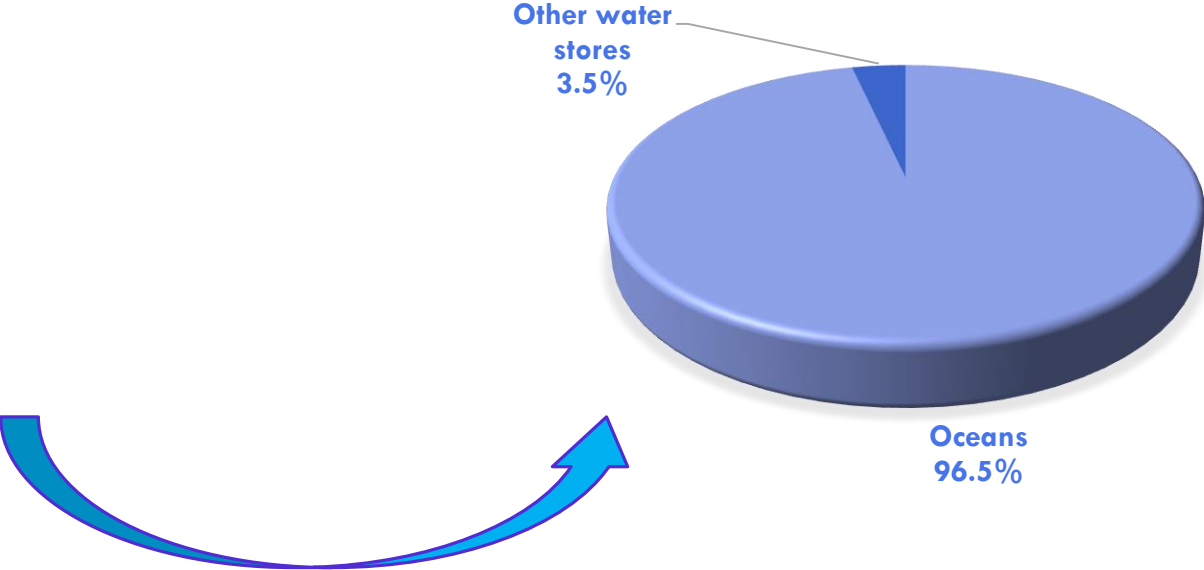
- Water in the hydrosphere is stored in a number of reservoirs (stores), which can be defined in several ways. Stores are present in different spheres of the Earth's system:

Geosphere	Biosphere
<ul style="list-style-type: none"><li>❖ Proper—oceans, seas, lakes, rivers, marshes</li><li>❖ Ice and snow</li><li>❖ Groundwater, water in rocks, and Earth crust</li><li>❖ Clouds</li></ul>	<ul style="list-style-type: none"><li>❖ Living organisms, flora, and fauna</li></ul>

**Surface of the Earth**

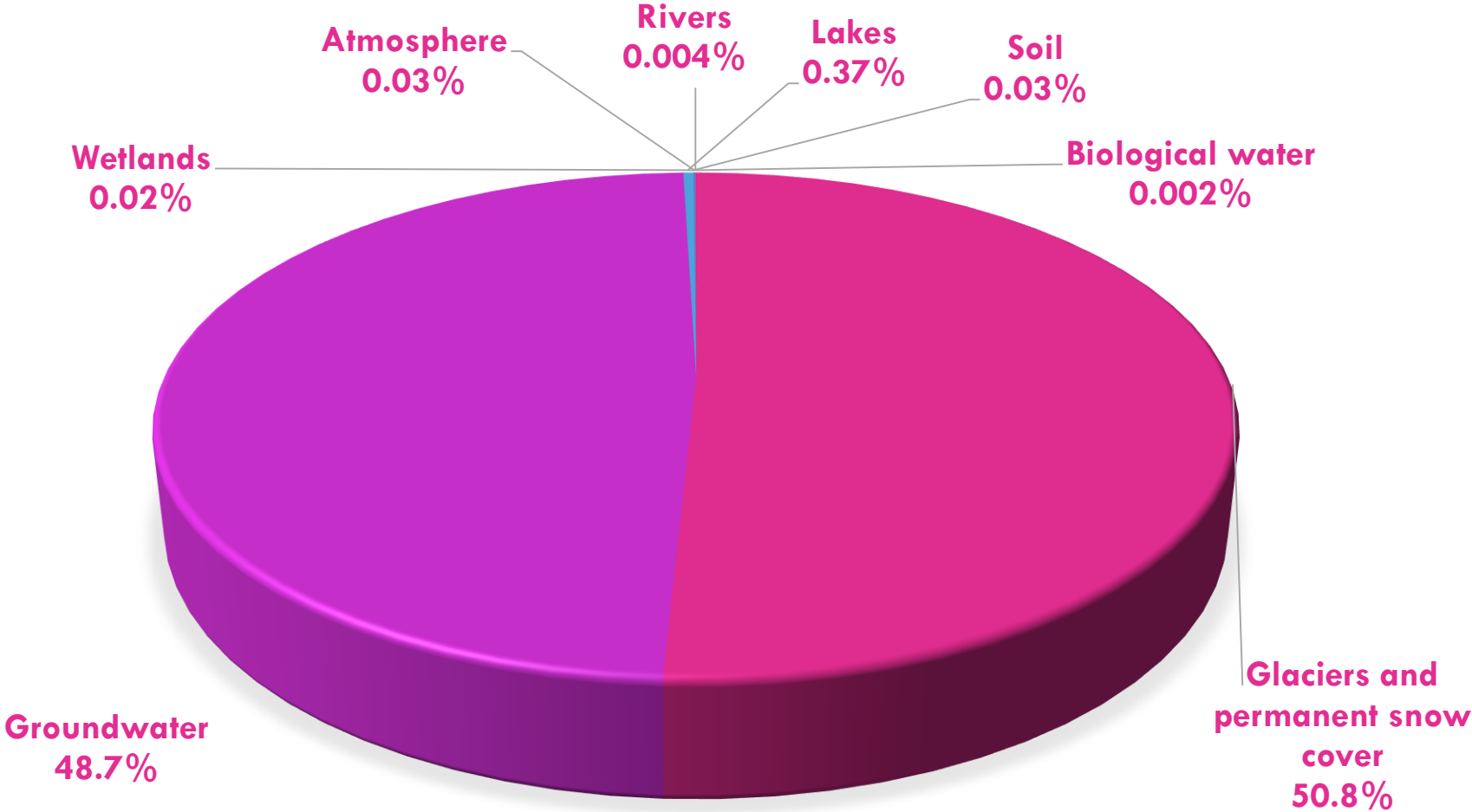


**Water Stores**





# Other Water Stores



# Water Cycle

