

# Hydrogeology

- The Science of Groundwater



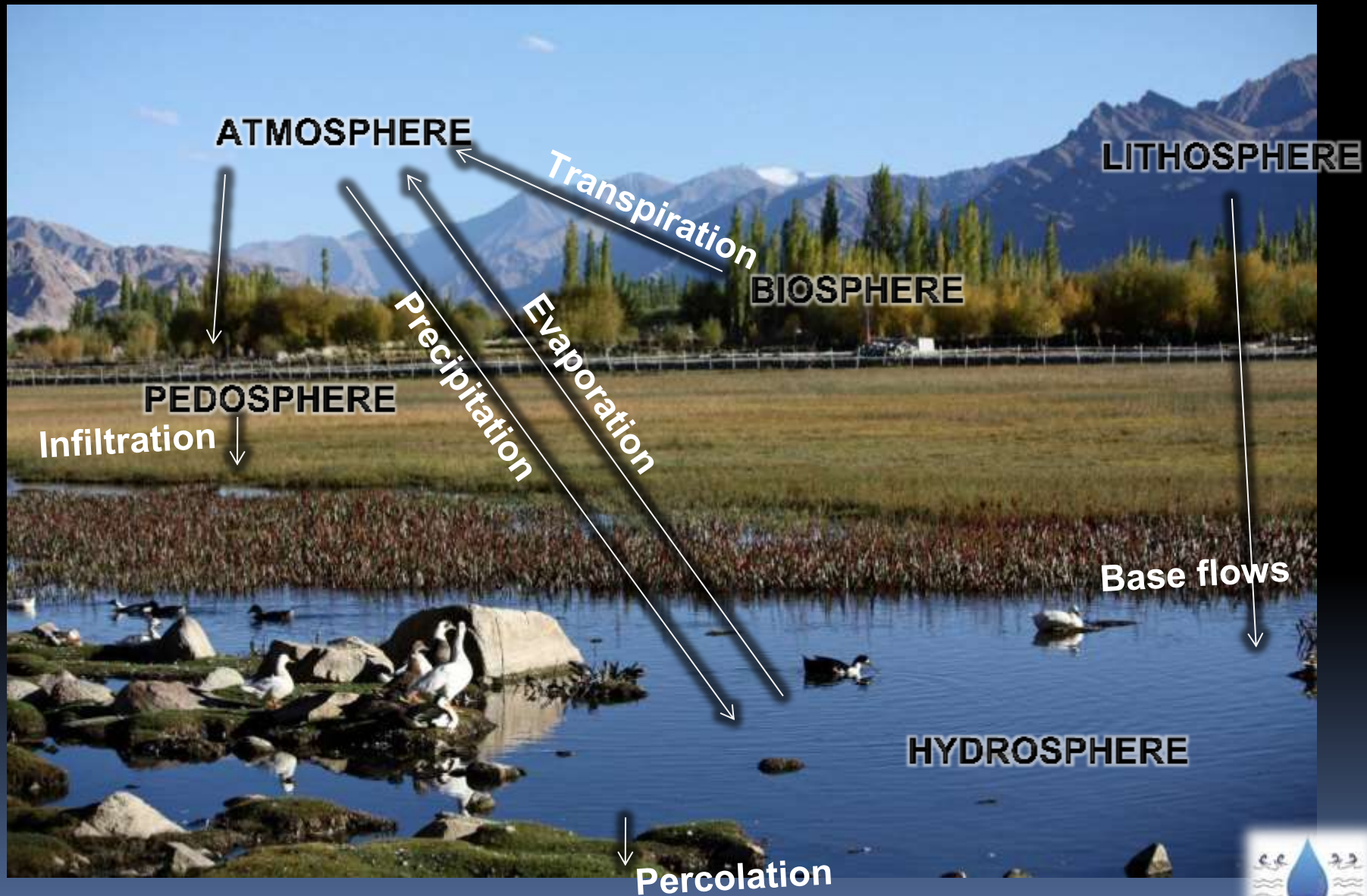
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# The environment is complex.....





# What is Groundwater?



Rocks store groundwater and release it to wells.....

Understanding this process is interesting

# Hydrogeology

- Hydrogeology is a branch of geology... *to study groundwater, one must study the rocks and rock material within which it moves.*
- Hydrogeology is the science that deals with groundwater.
- Hydrogeology includes a scientific study of certain *geology based* parameters.
- These parameters control the *occurrence, movement and distribution* of groundwater within the geological framework of rocks.

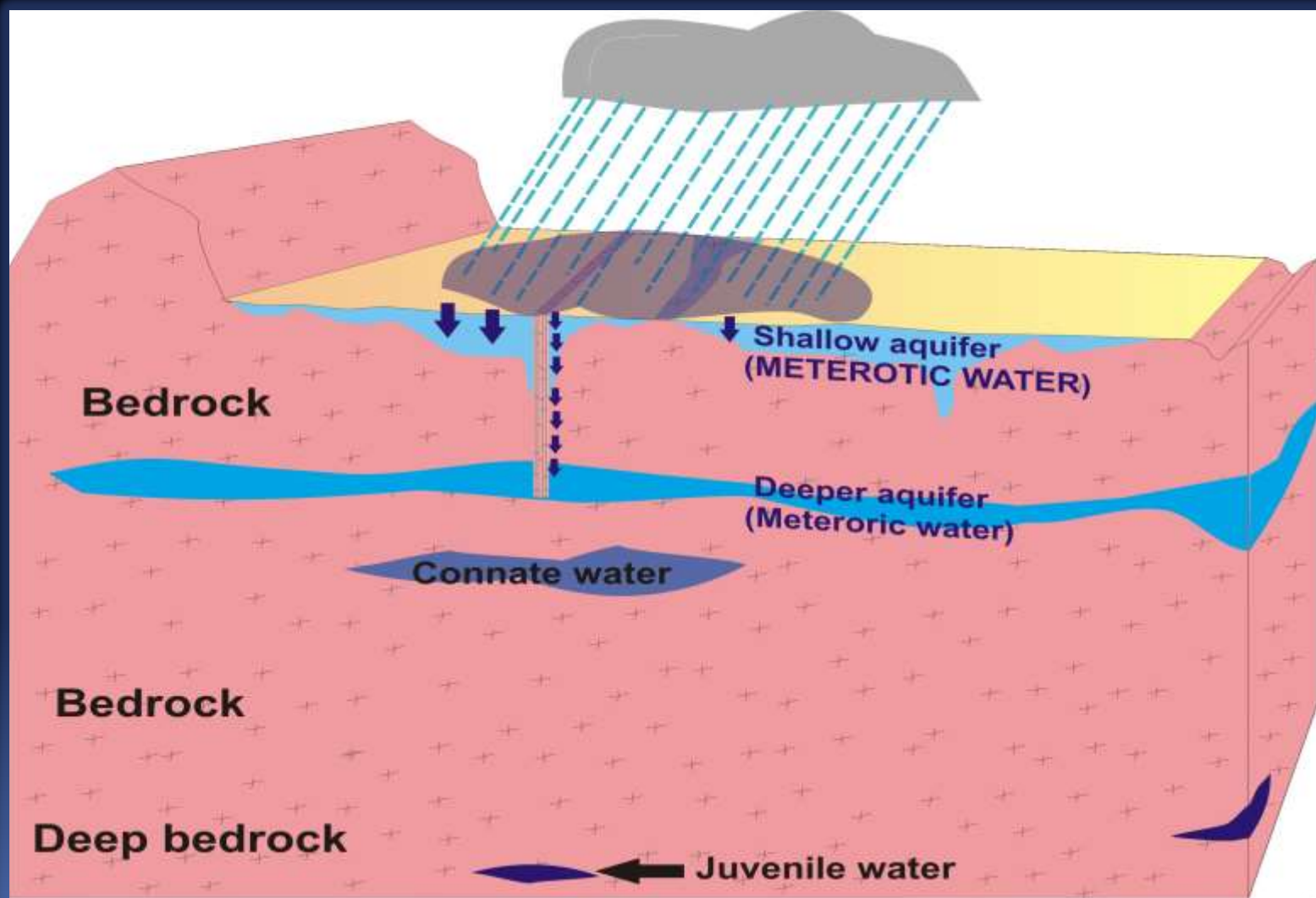




Its about rocks but keeping in mind how (ground)water would behave in it



# Origin of groundwater



# Global water resources

- Groundwater forms a major source of water supply all over the world.
- It forms the largest source of fresh water.
- It exceeds by great quantity, all the developed surface water resources put together.
- Unlike surface water, groundwater may be obtained even in your own backyard!!



# Global fresh water resources

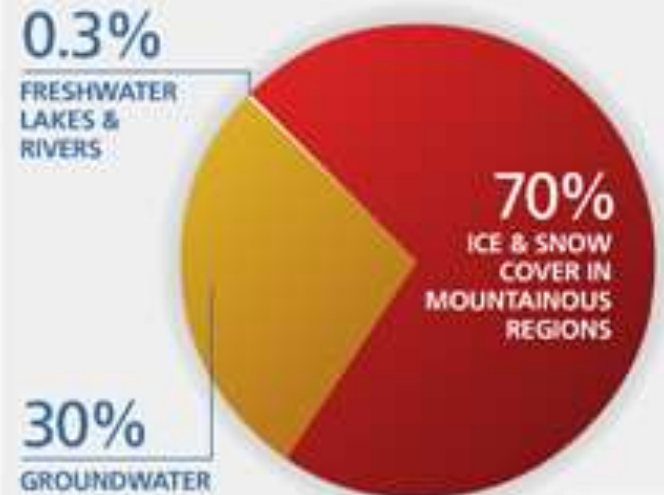
- 85 % of the rural needs
- 50 % of the urban needs
- > 25 million wells

[www.unwater.org](http://www.unwater.org)

Total World Water



Breakdown of freshwater resources





# A few more facts on groundwater

Groundwater is transmitted within the subsurface through a natural *carrier system* of rock or rock material openings.

Groundwater has its own natural filtration system... and hence, is generally of good quality.

The temperature of shallow groundwater is fairly constant, although it may vary somewhat with the air temperature.



# So, what is groundwater,...again!

- It is a unique resource, with its own set of properties.
- It is precious because of its widespread use for potable supplies, irrigation and in the industry.
- It is, on very small scales and in isolated cases, also used to produce geothermal energy.
- It is a fragile resource, sensitive to rampant abuse.

HENCE, IT BECOMES NECESSARY TO STUDY ITS SCIENTIFIC ASPECTS SUCH AS ITS PROPERTIES AND DISTRIBUTION BELOW THE EARTH SURFACE.





**OBSERVATION**

**MEASUREMENTS**



**CALCULATIONS**