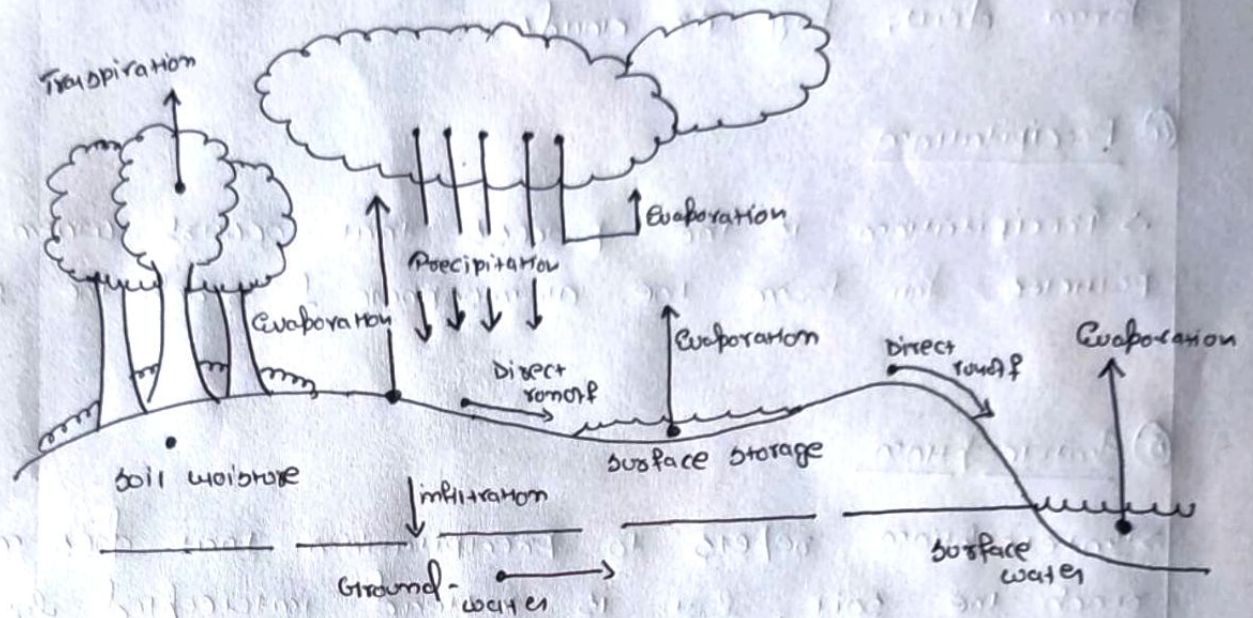


WATER RESOURCE MANAGEMENT

① Hydrological cycle



- The continuous movement of water on or above or below the surface of land
- It's constantly being cycled through the atm., ocean, & land.
- Branch of science to study the movement & charact. of water under or over surface of earth is called Hydrology

Components of Hydrological cycle

① Evaporation

→ Evaporation occurs when water changes from liquid state to gaseous state. Evaporation occurs on water surface like lakes, seas etc...

② Evapo-transpiration

→ Evapo-transpiration is water evaporating from the ground & transpiration by plants.

③ Condensation

→ condensation is the process by which water vapour changes into water. water vapor condenses to form dew, fog or clouds.

④ Precipitation

→ Precipitation is the process that occurs when water particles fall from the atmosphere & reach the ground.

⑤ Interception

→ Interception refers to precipitation that does not reach the soil, but is instead intercepted by the leaves & branches of plants & forest floors.

⑥ Run-off

→ Run-off is precipitation that did not get absorbed into the soil, or didn't evaporate. Runoff causes erosion, & also carry chemicals & substances on the ground surface.

⑦ Infiltration

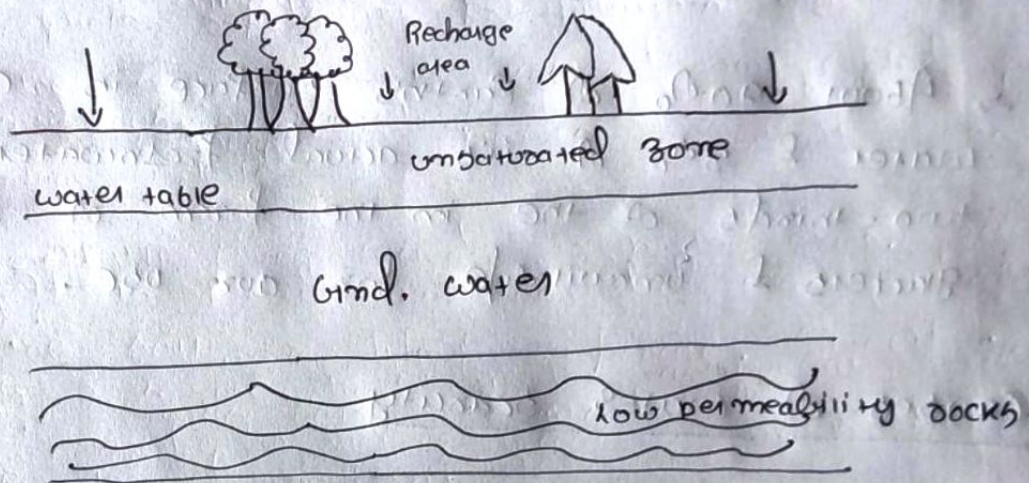
→ Downward movement of water into soil.

② Aquifer

- A Aquifer are the region in subsurface where the water can be stored.
- It act as storage medium for ground water.
- There are of two types :-

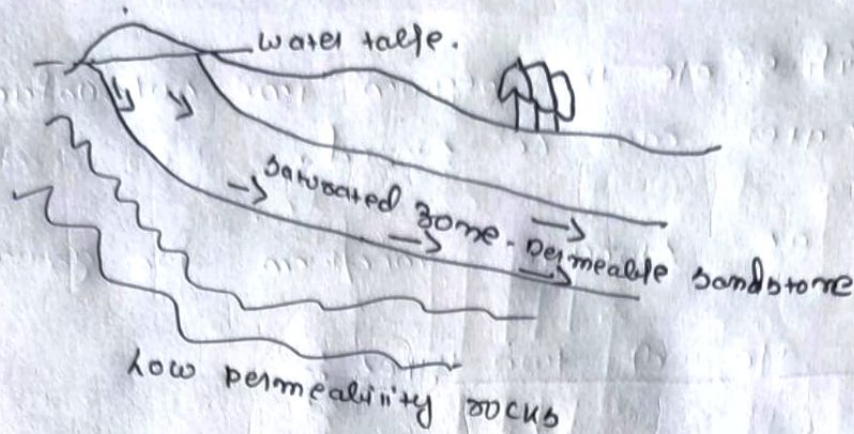
① UNCONFINED :-

Surface of the groundwater (the water table) is at the same pressure as the atmosphere.



② CONFINED :-

→ surface of the gnd. water is constrained by an aquitard. It is under pressure. If the aquifer is tapped, the water level will rise up in response to pressure. The distribution of press. is called the potentiometric surface.



③ Water scarcity :-

→ Water scarcity is the lack of sufficient available fresh water resources to meet water demand.

→ About 70% of Earth's surface is covered with water & 3% of it's actual freshwater. Around two-thirds of the in the form of frozen glaciers & unavailable for our use.

Causes of water scarcity

① Overuse of water :-

→ It's a huge issue that a lot of people are dealing with. It may be overused on people, animal, land, or any other no. of things.

② Pollution of water :-

→ Looking at areas with population & no proper sewage system, water pollution becomes common. As the result, even drinking water gets polluted.

③ Conflict :-

If there is conflict over an area of land, it may be difficult to access the water that is located there. This is the worst case scenario, people could end up dying if they try to access the water in these areas.

④ Distance :-

There are no. of areas throughout the entire world that deal with water scarcity because they just aren't close to anywhere that has water.

⑤ Drought :-

A drought is, in short, an area which is not getting enough rainfall to be able to sustain the life that is residing there.

⑥ Governmental Access :-

In some countries, specifically those with dictatorship, the use of water may be strictly controlled by those in power, causing a scarcity for those who may be located in those areas of world. These gov. use it's as a source of control over those that they are governing, which can be a huge problem.

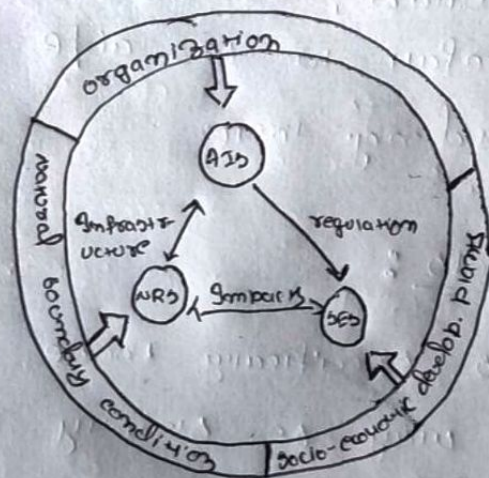
④ Components used in water resource planning.

Water resources management involves influencing & improving the interaction of three interdependent subsystems:

→ The natural river subsystem in which the physical, chemical & biological processes takes place

→ The socio-economic subsystem, which includes the human activities related to use of the natural river system.

→ The administrative & institutional subsystem of administration, legislation & regulation.



Planning scales

① Top-Down Planning & management

→ These plans typically consists of a series of reports, complete with numerous appendices

→ In these documents, alternative structural & non-structural management options are identified.

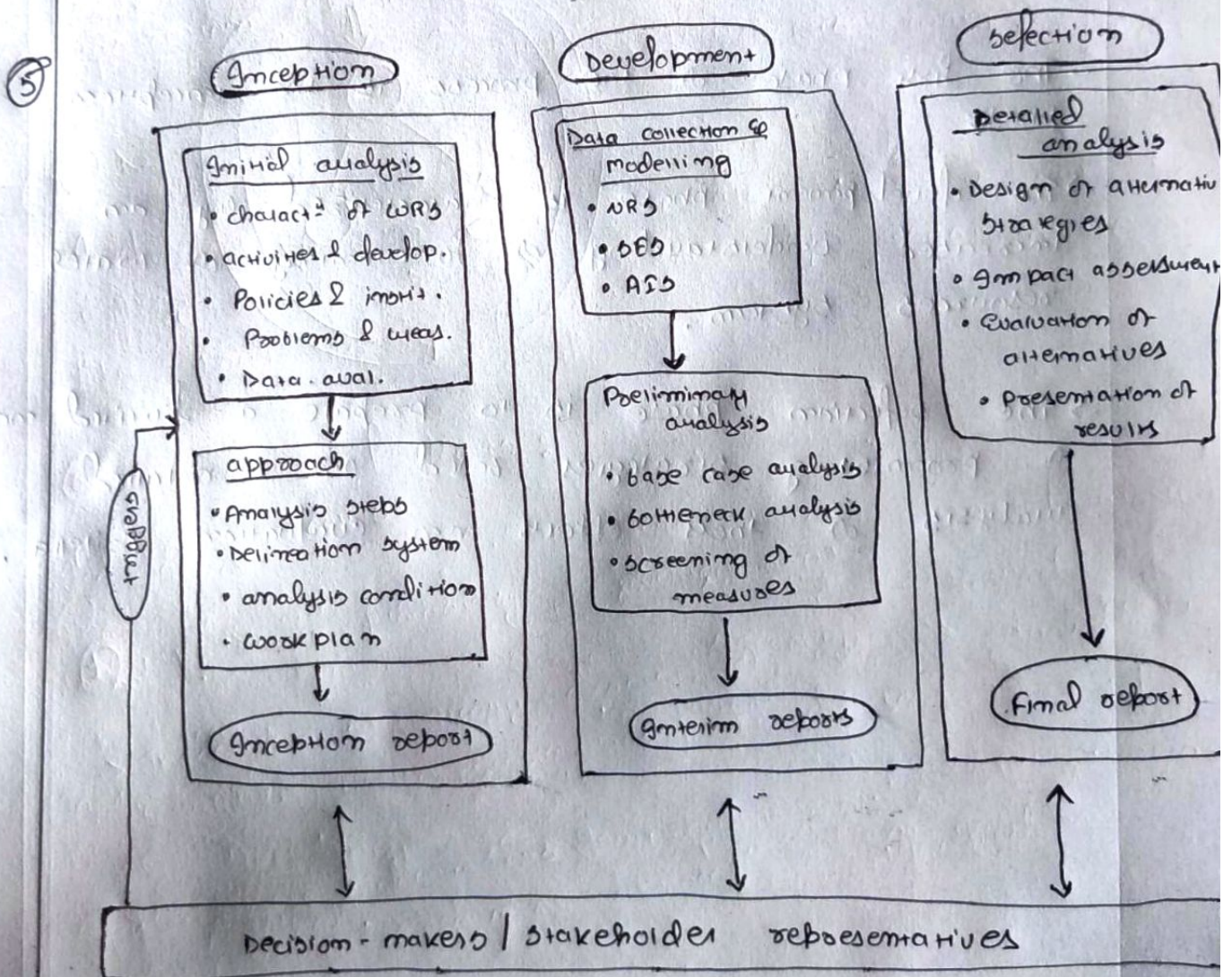
→ on the basis of these evaluation, the plan is presented

(2) Bottom-up planning & management

→ Plans are being created from the bottom up rather than top down.

→ They must become part of that process, not merely as spectators.

→ This will help gain their cooperation & commitment to plans adopted.



The three elementary phase of framework are:

- Inception
- Development
- Selection.

→ During each phase, the processes have a cyclic components comprehensive cycle. Interaction with the decision makers, or their representatives, is essential throughout the process. Regular reporting through inception & interim reports will improve the communication.

→ The first phase of the process is the inception phase

→ The development phase is characterized by an increased understanding of functioning of water resources system.

→ The selection phase is to prepare a limited no. of promising strategies based on a detailed analysis of their effects on evaluation criteria.

