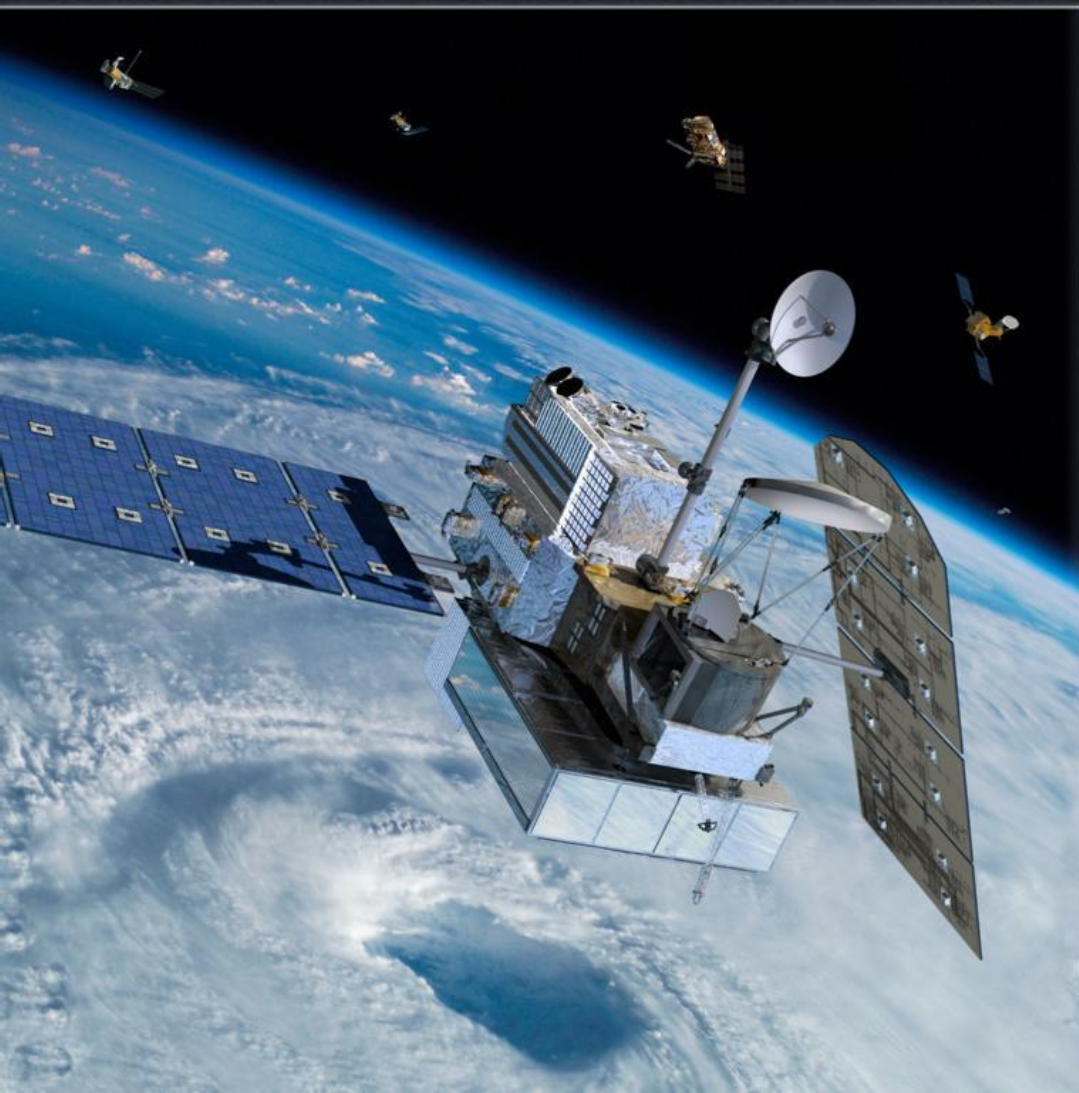




# Freshwater: A Precious Resource



**Developed by the  
Global Precipitation  
Measurement mission  
Education and Public  
Outreach Team**



# Floods submerge 475 Assam villages

## Blue Gold: Have the Next Resource Wars Begun?

## Drought situation is serious, says Centre

New Delhi: Rejecting members' demand for full central control over calamity relief, the government on Friday announced in the Lok Sabha it would provide all possible assistance, including postponement of farm loan recovery in 12 drought-affected states, to mitigate the plight of people.

Replying to a two-day debate on drought and floods in various parts of the country, agriculture minister Ajit Singh said the onus of controlling, managing and executing such relief was on states as they alone were in a position to identify the areas worst affected by natural calamities.

Termining the drought situation as "very serious", he said among the badly hit were western Uttar Pradesh, Bundelkhand area, Rajasthan, Haryana and Andhra Pradesh.

farmers in affected areas. The minister said the Centre was also ready to release the next instalment of CRF, which would be properly if CRF is inadequate, steps would be taken to provide help under the National Calamity Contingency Fund, he said.

Regarding the demand for waiving and writing off loans, he said he was in the process of discussing the matter with the finance minister as it involved much wider arena and different authorities.

Singh said the Centre had already held a stock-taking meeting with 12 drought-affected states at which it was decided to set up a special



## Many states in state of worry over late rains



### Daily Times-News

#### Little Rain Seen In Near Future

##### 3-Months Prediction Pessimistic



The upper portion of the 10-day period covered by the prediction is expected to be "moderately dry" with "occasional showers" but "not sufficient to meet the requirements of the crop," the report says.

The report also says that the monsoon is expected to be "moderately dry" for the next three months, which is "not sufficient to meet the requirements of the crop."

## Trains battles heavy downpour



Trains in Mumbai were affected by heavy rain on Wednesday, with some services suspended. The rain caused flooding on the tracks, leading to delays and cancellations.

### The Daily Times-News

#### Pros And Cons Presented On Solving City's Water Problem

##### Large Crowd In Present Meeting



Arrangements are underway for emergency water supply in the city. A large crowd gathered for a meeting to discuss the water problem and the proposed solutions.

### The Daily Times-News

#### Emergency Water Lines Available

##### Large Crowd In Meeting



Civil Defense proposes offer for lines, pumps. City officials are offering to provide emergency water supply to residents in the affected areas.

### 'Waterless Tuesday' Project Is Planned

The project aims to conserve water and reduce the strain on the city's water supply during the drought.

## EPIC SURGE



High water overtakes downtown Cedar Rapids, thousands evacuated in unprecedented flood. Power loss widespread; water in short supply.

### SUMMER DELUGE

## Relief pledge to farmers

Emergency services flooded with calls for help. Farmers are seeking relief from the government due to the severe drought conditions.

## Rain rewrites record books

The Big Wet. Rain has broken several records, including the highest rainfall in a single day.

## Grim task for farmers after big downpour

Farmers face the challenge of salvaging crops and repairing damaged infrastructure after the heavy rain.

## Wow! What a washout

The intensity of the rain is unprecedented, causing significant damage and disruption.

| Time  | Temp  | Humidity | Wind |
|-------|-------|----------|------|
| 11:00 | 88.0  | 85       | 10.0 |
| 12:00 | 90.0  | 85       | 10.0 |
| 13:00 | 92.0  | 85       | 10.0 |
| 14:00 | 94.0  | 85       | 10.0 |
| 15:00 | 96.0  | 85       | 10.0 |
| 16:00 | 98.0  | 85       | 10.0 |
| 17:00 | 100.0 | 85       | 10.0 |
| 18:00 | 102.0 | 85       | 10.0 |
| 19:00 | 104.0 | 85       | 10.0 |
| 20:00 | 106.0 | 85       | 10.0 |
| 21:00 | 108.0 | 85       | 10.0 |
| 22:00 | 110.0 | 85       | 10.0 |
| 23:00 | 112.0 | 85       | 10.0 |
| 24:00 | 114.0 | 85       | 10.0 |
| 01:00 | 116.0 | 85       | 10.0 |
| 02:00 | 118.0 | 85       | 10.0 |
| 03:00 | 120.0 | 85       | 10.0 |
| 04:00 | 122.0 | 85       | 10.0 |
| 05:00 | 124.0 | 85       | 10.0 |
| 06:00 | 126.0 | 85       | 10.0 |
| 07:00 | 128.0 | 85       | 10.0 |
| 08:00 | 130.0 | 85       | 10.0 |
| 09:00 | 132.0 | 85       | 10.0 |
| 10:00 | 134.0 | 85       | 10.0 |
| 11:00 | 136.0 | 85       | 10.0 |
| 12:00 | 138.0 | 85       | 10.0 |
| 13:00 | 140.0 | 85       | 10.0 |
| 14:00 | 142.0 | 85       | 10.0 |
| 15:00 | 144.0 | 85       | 10.0 |
| 16:00 | 146.0 | 85       | 10.0 |
| 17:00 | 148.0 | 85       | 10.0 |
| 18:00 | 150.0 | 85       | 10.0 |
| 19:00 | 152.0 | 85       | 10.0 |
| 20:00 | 154.0 | 85       | 10.0 |
| 21:00 | 156.0 | 85       | 10.0 |
| 22:00 | 158.0 | 85       | 10.0 |
| 23:00 | 160.0 | 85       | 10.0 |
| 24:00 | 162.0 | 85       | 10.0 |

## Damage bill mounts as rain goes on

The economic impact of the drought is becoming increasingly apparent as the weather remains dry.



**SOLID**



**LIQUID**

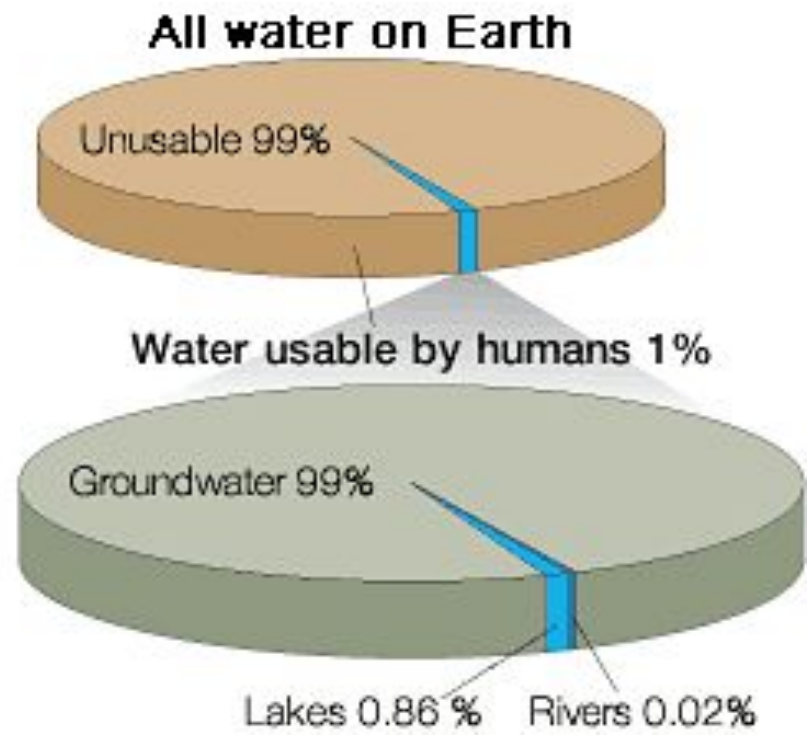


**GAS**

## How much of Earth's water is freshwater?

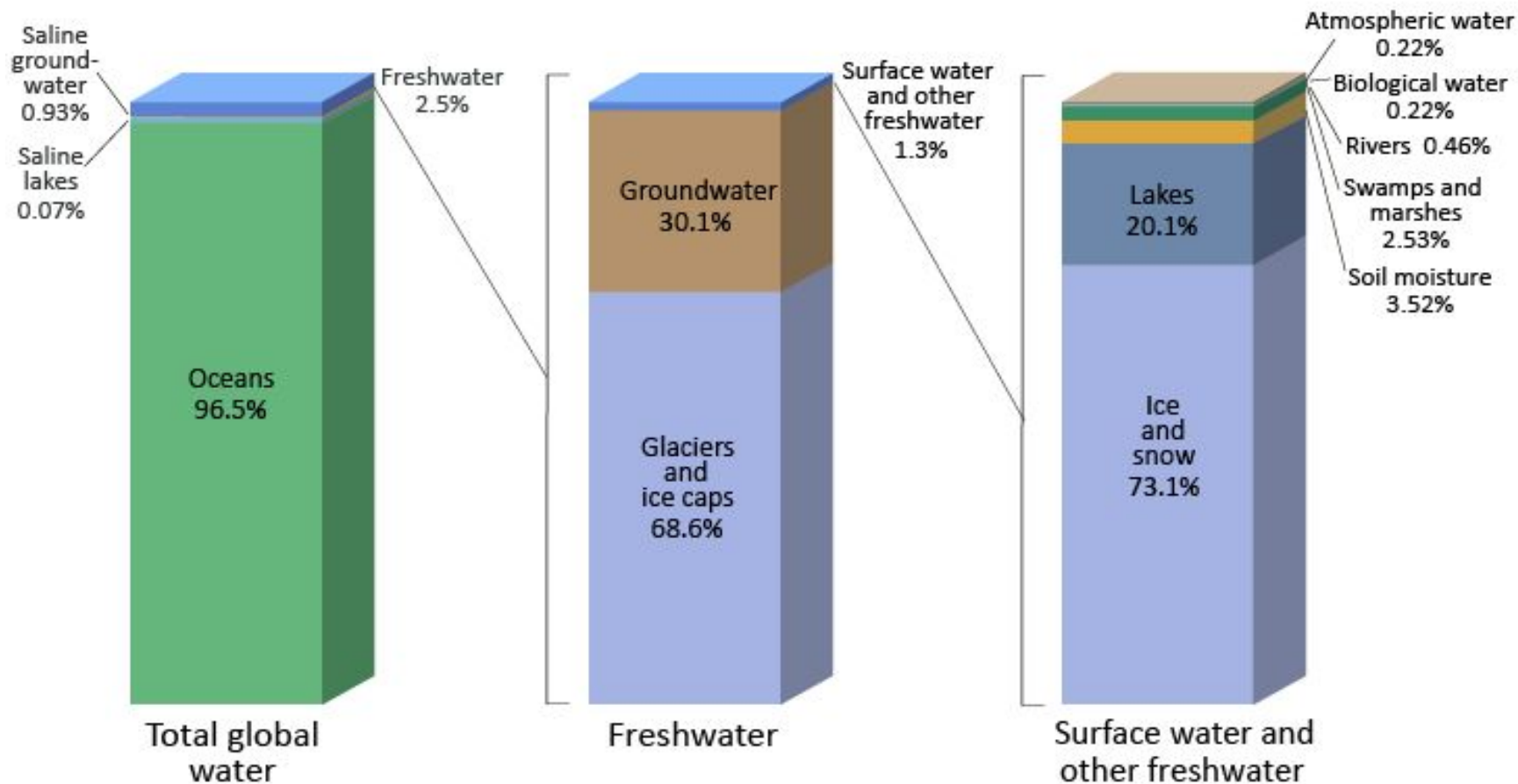
*We will make a model of Earth's freshwater.*

1. Take the plastic cup, and imagine that the cup is a model of Earth's surface.
2. Fill up ~ 75% with water. This represents how much of Earth's surface is covered with water.
3. Take out one eye-dropper of water, and place it in the small medicine cup. This represents how much of Earth's water is freshwater- ~ 2.5%
4. Take one drop of this water- this represents how much freshwater is easily accessible to us!



!

## Distribution of Earth's Water



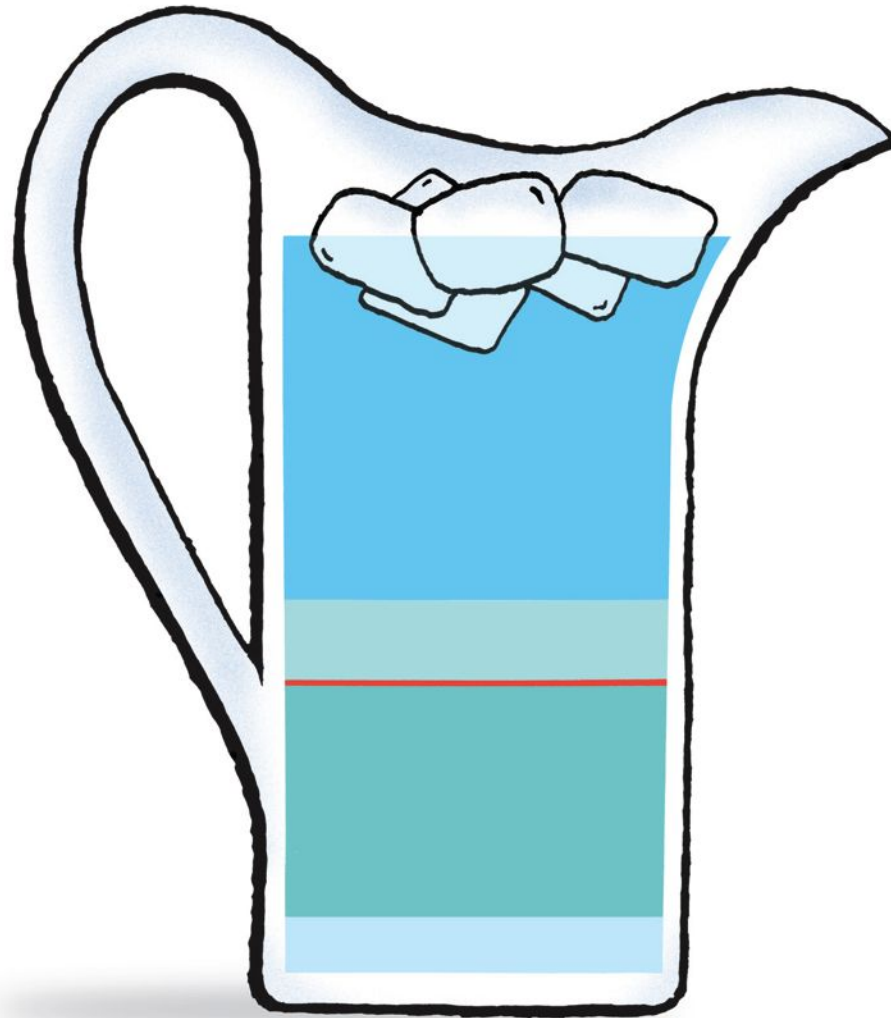
Source: Igor Shiklomanov's chapter "World fresh water resources" in Peter H. Gleick (editor), 1993, *Water in Crisis: A Guide to the World's Fresh Water Resources*.



In addition to home use, freshwater is used for transportation, agriculture, heating and cooling, industry, livestock, and many other purposes. That one percent of water is primarily used in eight different ways, or categories:

- *Domestic*. Residential home indoor and outdoor use, such as drinking, cleaning, and watering lawns
- *Public supply*. Public and commercial buildings, such as schools and restaurants
- *Irrigation*. Watering systems for farms that grow food





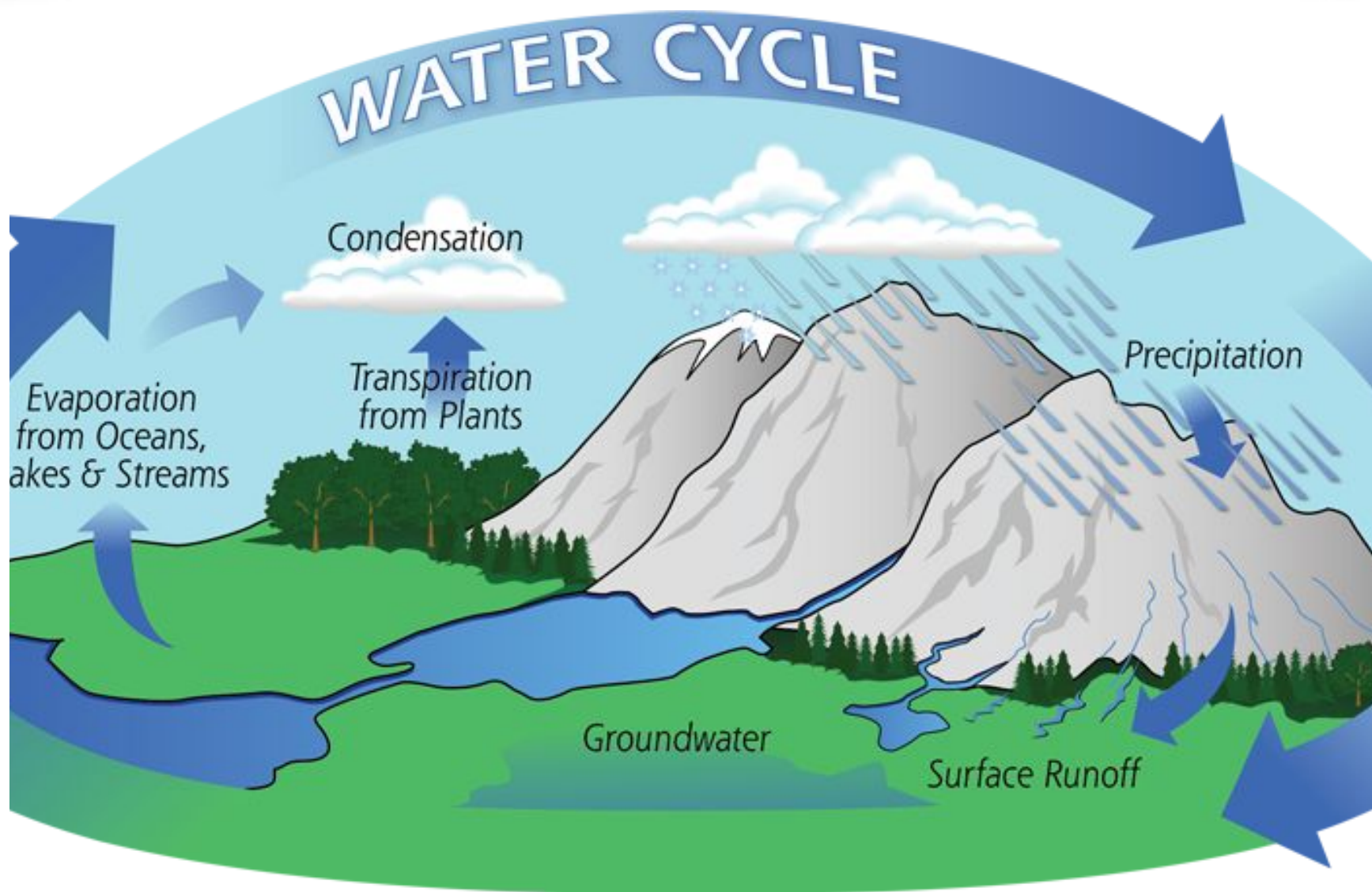
Thermoelectric 49%

Public Supply 11%

Domestic 1%

Irrigation 31%

Other- 8%: Mining 1%, Industrial 4%, Aquaculture 2%, Livestock 1%



- Rain gauges- not evenly distributed, none over oceans, measures at local level which varies widely
- Weather radar- ground-based, not evenly distributed, not over oceans, measures at local level
- Satellites: operational and research, global level  
NOAA, NWS- operational: predicting, forecasting  
NASA- research:
  - Impact of climate change on freshwater availability
  - Impact of global rainfall on natural disasters: drought, tropical cyclones, landslides, etc...
  - World health concerns: water-borne disease, water availability, etc...