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# Global water economy complex

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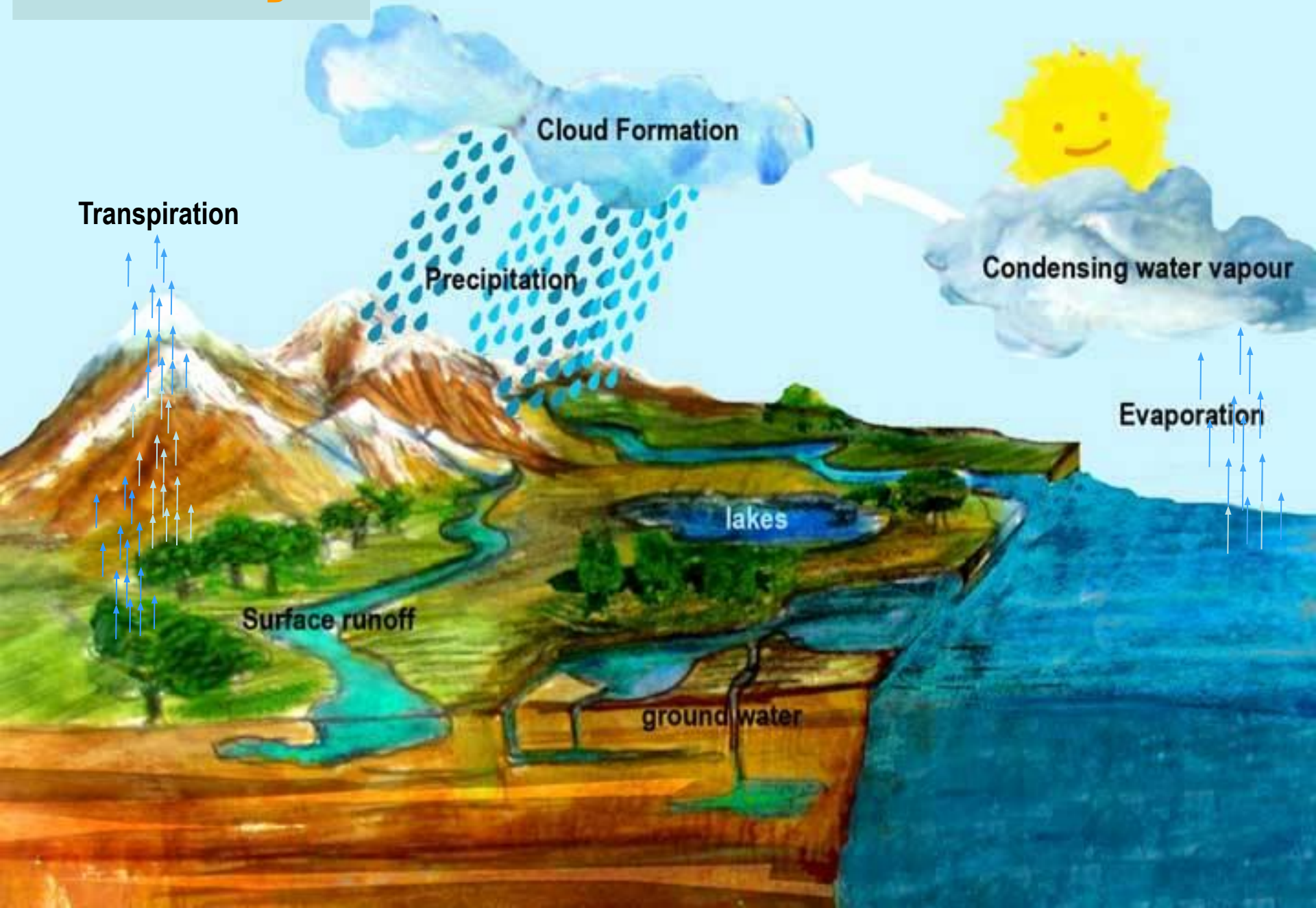
Evaluated by:

***WATER ECONOMY*** **- sector of the economy, dealing with accounting, planning and management of complex use, water management, protection of waters from pollution and depletion, their transportation to the place of destination (consumer).**

# The water cycle



# Water Resources

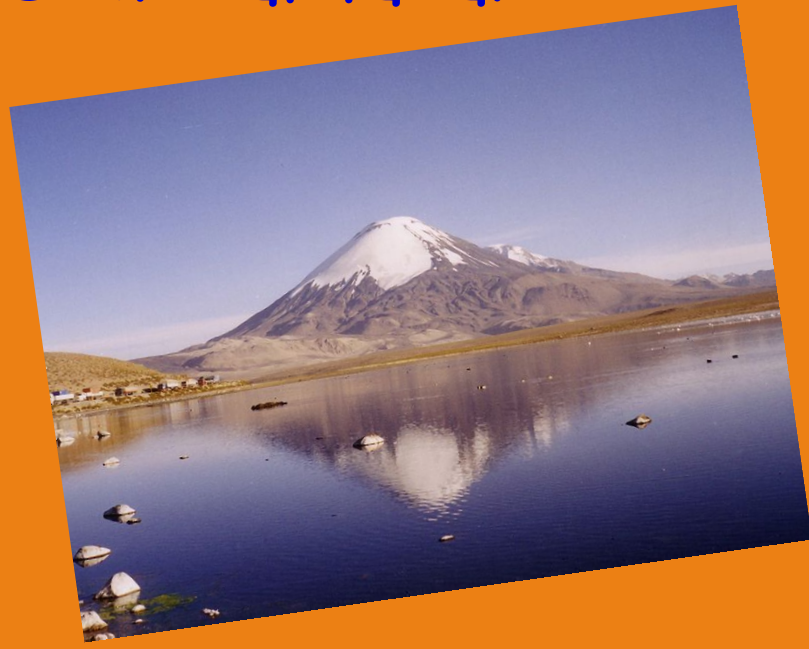
- . Uses of water include agricultural, industrial, household, recreational and environmental activities. Virtually all of these human uses require fresh water.


Fresh water is renewable resources like soil and air. The worlds is supplied by clean and fresh water and it is decreasing. Water is one of our most critical resources, but around the world it is under threat.

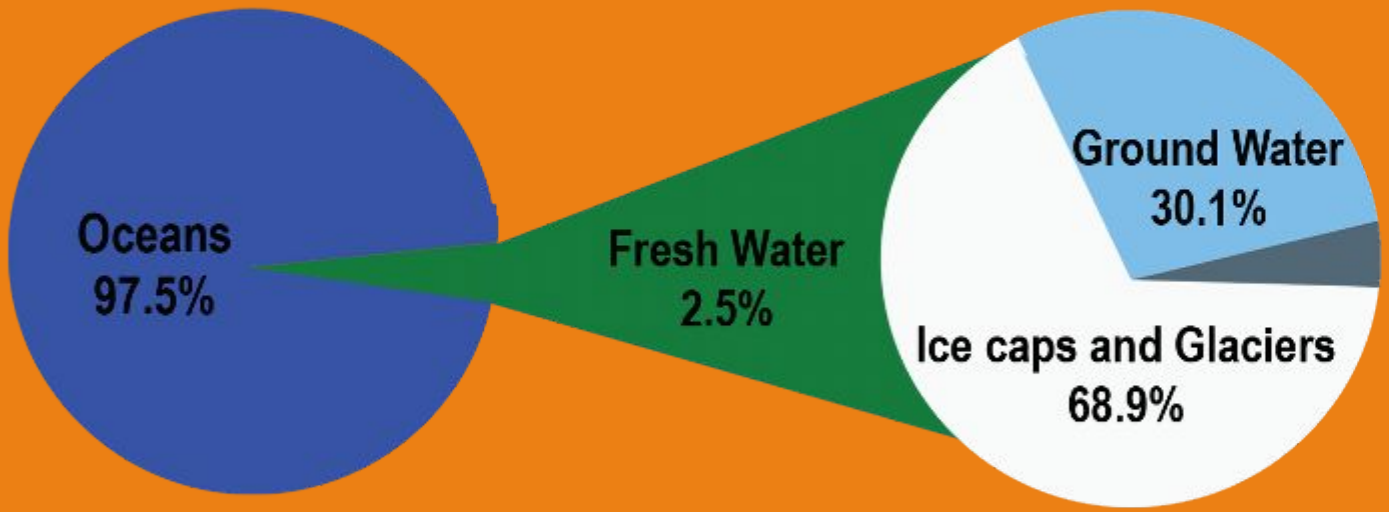
Water demand already exceeds supply in many parts of the world and as the world population continues to rise, so too does the water demand.

# Water resources are divided:

- Water resources are divisible into two distinct categories : the surface-water resources and the ground-water resources. Each of these categories is a part of the earth's water circulatory system, called the hydrologic cycle, and is derived from precipitation, which is rainfa plus snow.



# DISTRIBUTION OF GLOBAL WATER




Other Ice And Snow
0.97%

Lakes
0.26%

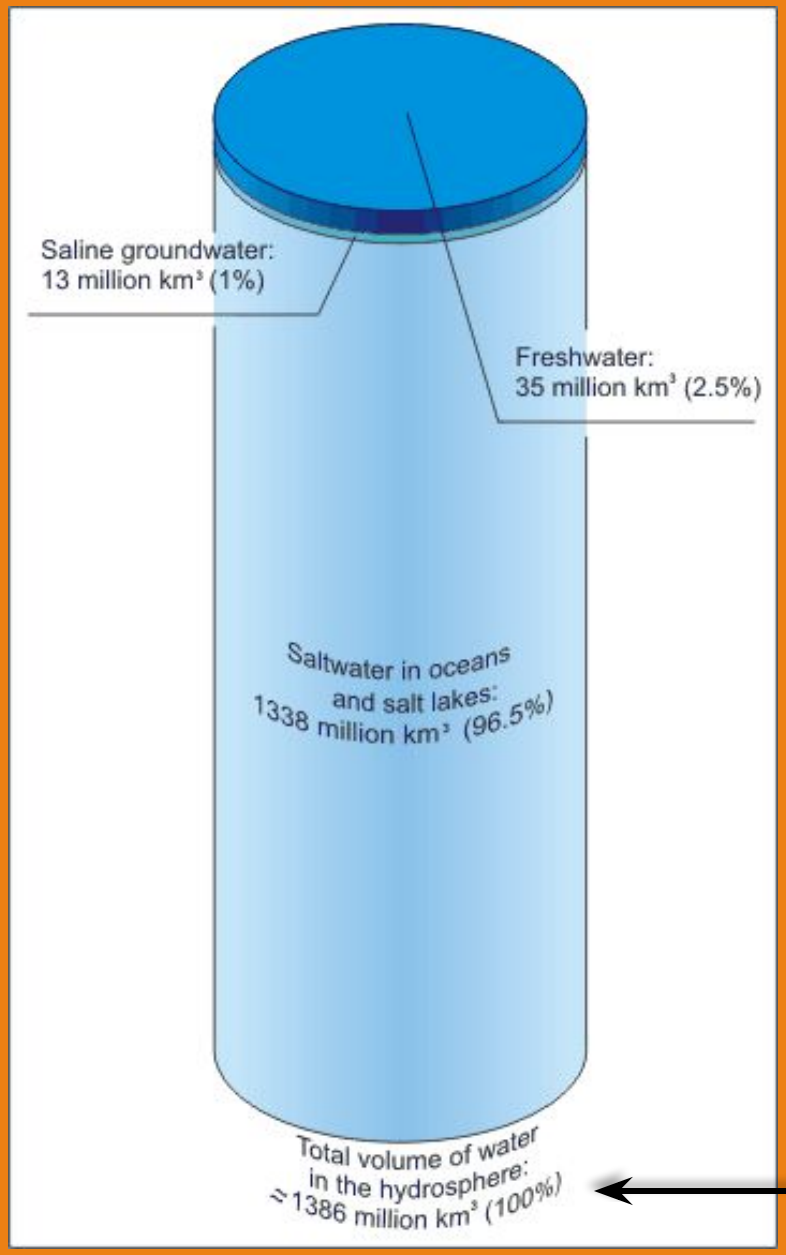
Soil Moisture
0.047%

Atmospheric water
0.037%

Marshes
0.33%

Rivers
0.006%

Biological Water
0.003%




This is another graphic about the world's water and how it is distributed.

Here also you could see that the total volume in the hydrosphere of water is 1.386 km2 (100%)

If all the world's water could fit into a bucket

Water available for drinking would be less than a teaspoon

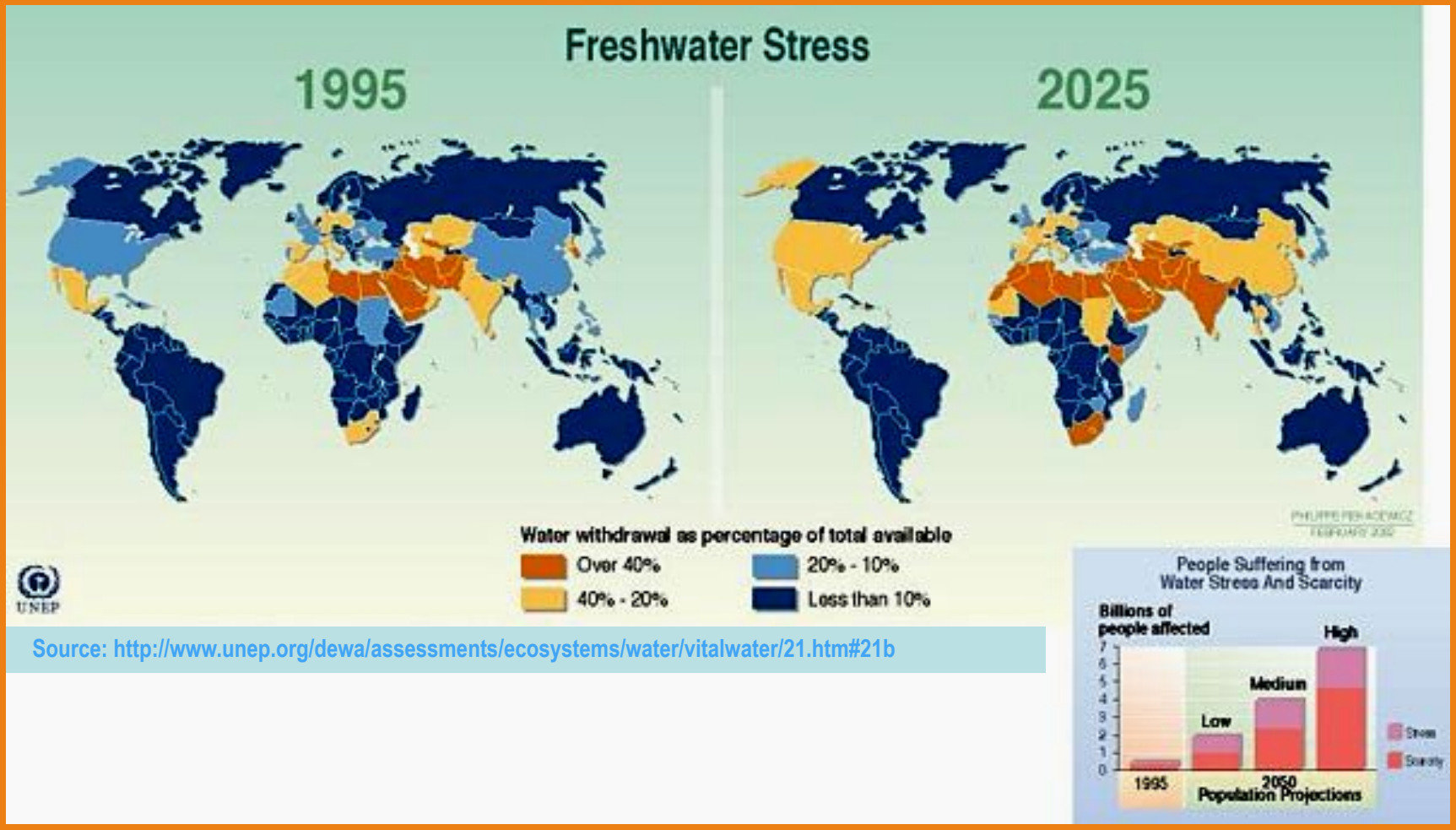
Salt Water = 97.5%

Sustainable freshwater supply for human use = 0.01%

Recommended activity - A drop of water

# Fresh Water Stress

Mismatch between regions of large population and available freshwater resources




Source: http://www.unep.org/dewa/assessments/ecosystems/water/vitalwater/21.htm#21b

**By 2025**

2 / 3 of the world's population estimated to be underwater-stress conditions.
3 billion people may be affected by water scarcity.

# Sources of Fresh Water

- **Surface water:**

Surface water is water in a river, lake or fresh water wetland. Surface water is naturally replenished by precipitation and naturally lost through discharge to the oceans, evaporation, and sub-surface seepage.

## Ground Water:

Sub-surface water, or groundwater, is fresh water located in the pore space of soil and rocks. It is also water that is flowing within aquifers below the water table.

## •Desalination:

Desalination is an artificial process by which saline water (generally sea water) is converted to fresh water.

## ● Frozen Water:

Several schemes have been proposed to make use of icebergs as a water source, however to date this has only been done for novelty purposes. Glacier runoff is considered to be surface water.

## •Under River flow

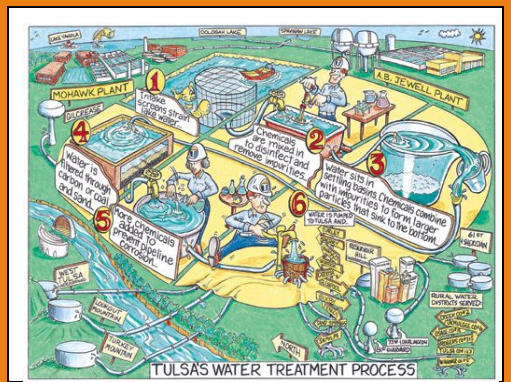
# How do people use Water Resources?

Divide

## Household

- Washing dishes
- Fill the car with water
- Watering the plants
- Putting out the fire
- Give water for the cows
- Watering the grass
- Washing the car

Picture:




## Personal

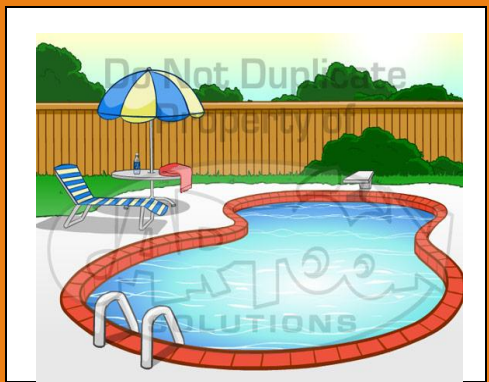
- Washing the teeth
- Drinking water
- Take a shower
- Going to the bathroom
- Walk in the pool for recovering health

Picture:

## Recreational

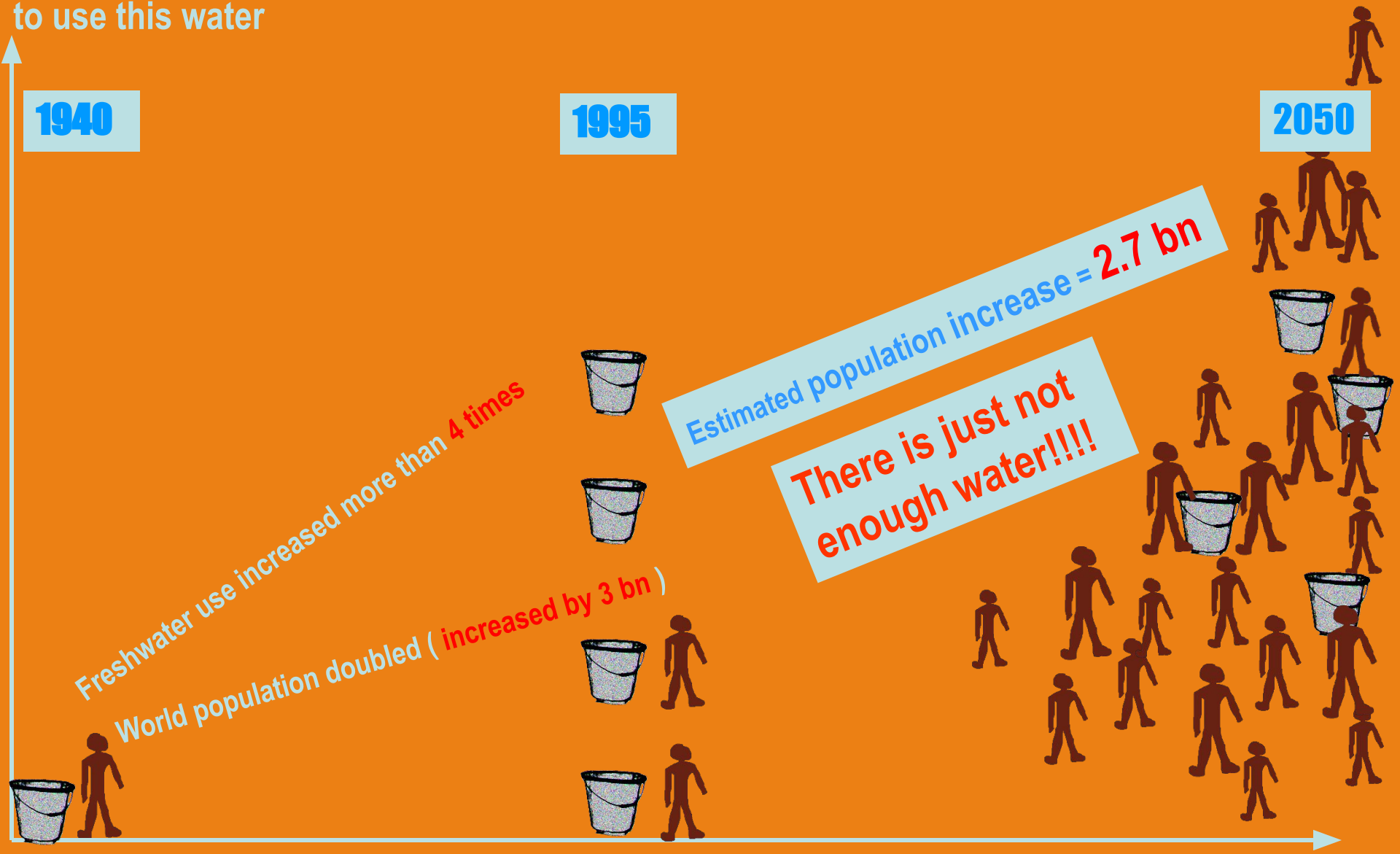
- Go to the pool.
- Go to the beach.
- Walk in the pool for recovering health.
- Skiing in the mountains.
- Fish in the lakes.
- Play with a ball in the river.
- Surfeit in the ocean.

Picture:



# Population and water Resources

The total amount of water in the world is the same, but there are more people wanting to use this water



# CAUSES FOR WATER STRESS

Increase in Population

## Domestic

bathing, flushing, washing, cooking, drinking…

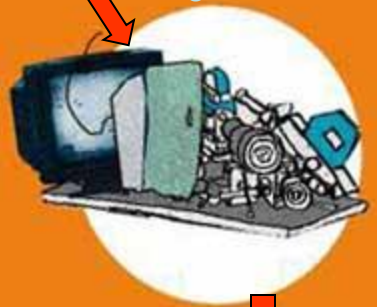
## Agriculture

People require food to eat

Extensive farming.
High usage of water

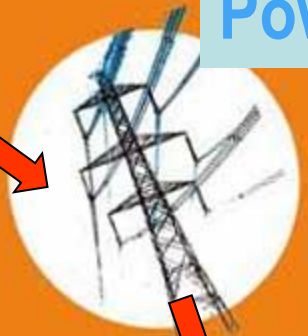
## Industry

Increased demand for goods



Every item that we use needs water for production

## Power

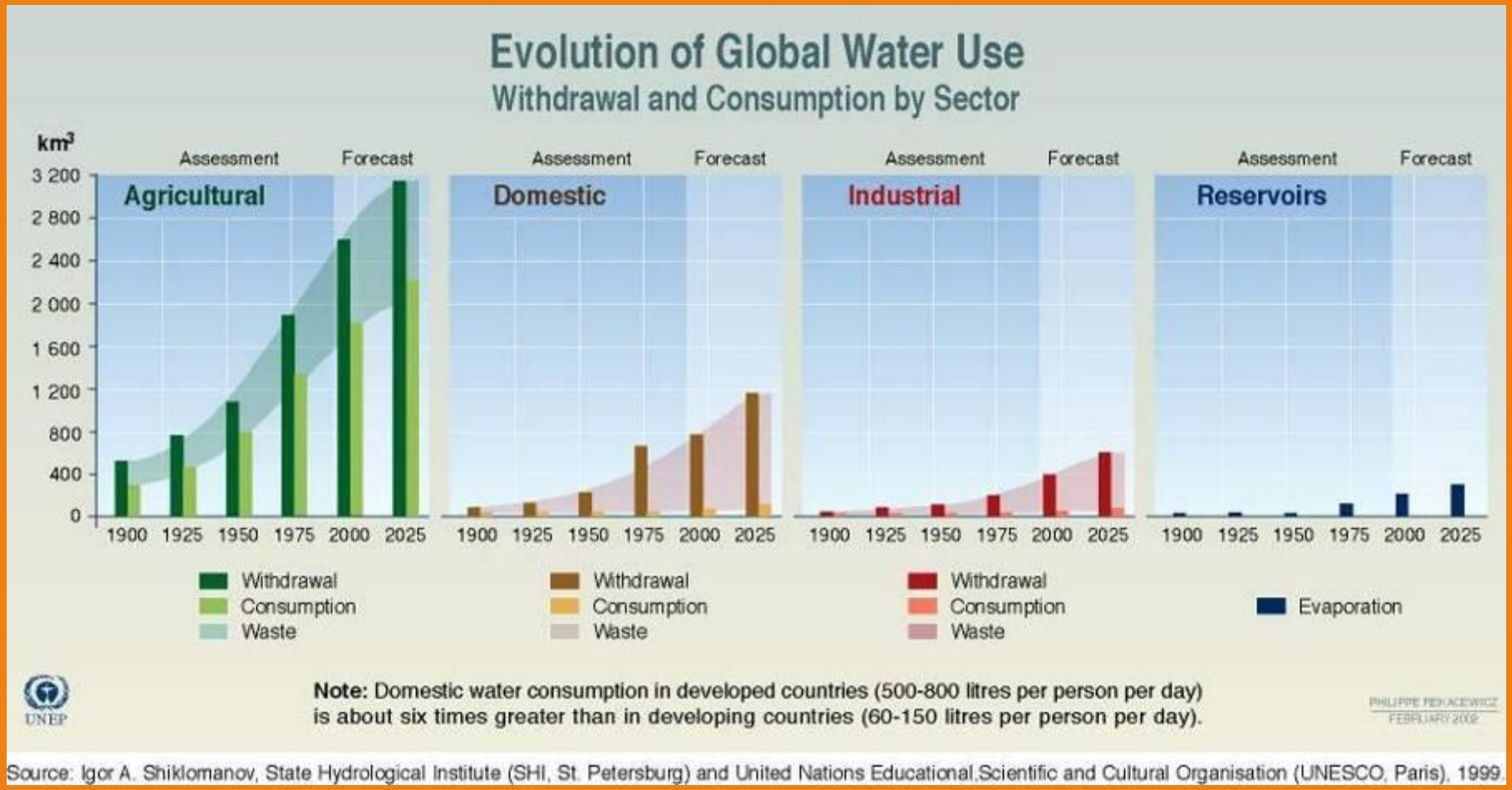


Water evaporation from reservoirs of large hydro power projects

**Water stress!!!!**

# Global water use by Sector

## Evolution Of Global Water Use




Source: Igor A. Shiklomanov, State Hydrological Institute (SHI, St. Petersburg) and United Nations Educational,Scientific and Cultural Organisation (UNESCO, Paris), 1999

Source: http://www.unep.org/dewa/assessments/ecosystems/water/vitalwater/15.htm, accessed November 2008

# Uses of water

- **Agricultural:** It is estimated that 69% of worldwide water use is for irrigation, with 15-35% of irrigation withdrawals being unsustainable. Aquaculture is a small but growing agricultural use of water.

- **Industrial: It is estimated that 15% of worldwide water use is industrial. The distribution of industrial water usage that is varies widely, but as a whole is lower than agricultural use.**


This is the process of irrigation

# Agriculture

India, with more than a billion people, needs a lot of water to grow food for its population


Source: http://www.unep.org/dewa/assessments/ecosystems/water/vitalwater/15.htm

- **Recreational water:** use is usually a very small but growing percentage of total water use. Recreational water use is mostly tied to reservoirs.

- **Household:** It is estimated that 15% of worldwide water use is for household purposes. These include drinking water, bathing, cooking, sanitation, and gardening.

**Environmental: Explicit environmental water use is also a very small but growing percentage of total water use.**

# It's not just increased consumption...

Soaps
Detergents
Chemicals

Untreated
municipal sewage


Run off
from agricultural
fields

Pesticides
Fertilizers

Untreated
industrial
wastes


Chemicals
Smoke

Smoke
from the
exhaust


Air pollutants
Dissolve in
rainwater

Increasing pollution of freshwater sources
( surface and groundwater )

For more details refer to the presentation on 'Water pollution'.

# THANK YOU

FOR YOUR ATTENTION