



Objective thinking, then, is the content of pure science - Georg Wilhelm Friedrich Hegel

EARTH'S WATER CYCLE

STORAGE FLOW

Freshwater in glaciers and snow

Surface runoff

Groundwater storage

Soil Moisture

Precipitation Evaporation

Ice sheets

Freshwater in lakes and rivers

Sea level Water storage in oceans

71% WATER ESSENTIAL TO REGULATE THE TEMPERATURE OF THE PLANET, MAINTAIN THE CLIMATIC CYCLE AND SUSTAIN LIFE

THE BALANCE IS BROKEN!

In 'saving' Blue Water, and neglecting Green Water, humankind has put a dent in the laws of nature, as the water cycle, for the first time in recorded history, has gone off balance

GARGI DESHPANDE

THE Earth as a planet can sustain life, because of the presence of Hydrogen and Oxygen, or in more simple terms, the presence of water. Scientists seek evidence of life on other planets by looking for traces of water.

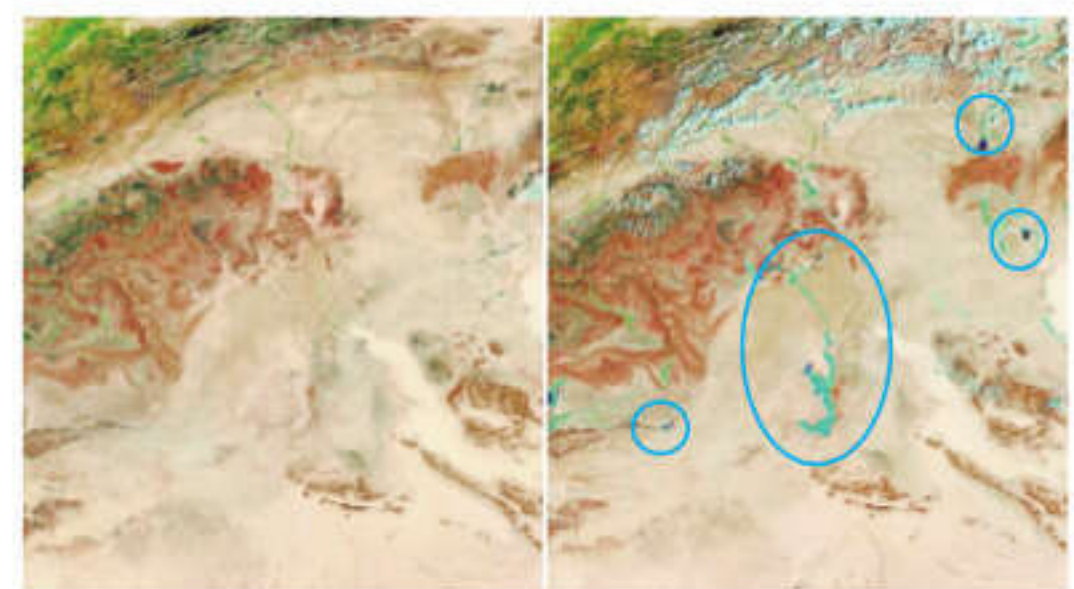
Water evaporates from the ground and rises into the atmosphere, spreading across the world as vapour, before cooling, condensing and returning to the Earth as rain or snow. The cycle is vital for sustaining ecosystems, as it provides freshwater resources for plants and animals, supporting biodiversity.

ing out landscapes, reducing moisture and increasing the risk of wildfires. As global temperatures rise, evaporation rates increase, leading to more moisture in the atmosphere, which can result in more intense precipitation events, contributing to flooding and soil erosion.

Rising temperatures are causing glaciers and polar ice to melt, affecting the availability of freshwater in regions that are dependent on snowmelt for their water supply.

Before understanding the crisis, it is important to understand what is 'hydrological cycle' and why it is essential for the planet's sustenance. The hydrological cycle, also known as the global water cycle, is the continuous movement of water within the Earth and the atmosphere, and it plays an extremely crucial role in maintaining the planet's ecosystems, by regulating the climate and supporting life, humans included.

Earth is composed of 71% water. However, man has been mishandling the land and water resources available for sustenance for decades, which has led to 'unprecedented stress' building up on the planet, which is now reflecting in the simple, most essential and crucial water cycle, the report suggests.



VEGETATION IN A DESOLATE LAND

After an extratropical cyclone drenched a large swathe of Northwestern Africa, NASA had, in September, released a few satellite images of Sahara Desert, showing pockets of plant life popping up all across one of the driest regions on the planet.

The water cycle is driven by solar energy and gravitational forces. Energy from the sun heats up bodies of water, causing evaporation. Water evaporates, cools, and condenses into clouds. Eventually, the accumulated water falls back to Earth as precipitation, replenishing rivers, lakes, and groundwater supplies.

According to the authors, as quoted by media reports, a steady supply of green water is essential for supporting vegetation that can store planet-heating carbon, but the destructive path that humans have taken, including the destruction of wetlands and forests, has led to the depletion of these carbon sinks and is accelerating the rate of global warming.

Disruption in the water cycle is already showing its impact on many areas of the planet, with nearly three billion people already facing water scarcity around the world. Reports suggest that global water scarcity

Food crisis

threatens more than 50% of global food production facing risks, which will, in effect, shave off up to 15% of countries' GDP by 2050. People need a minimum of about 4,000 litres of water a day to lead a comfortable life, but this is more than most regions will be able to provide using only local sources.

Primary Components of Water Cycle

1 Evaporation: The process by which water directly transforms from liquid to vapour. The primary source of this process is the vast oceans

2 Transpiration: Water released in the form of vapour from plants, into the atmosphere

3 Condensation: The process in which water vapour cools down back to liquid form, leading to the formation of clouds

4 Precipitation: Water falls back to the earth's surface, in the form of rain, snow, sleet

5 Infiltration: The process by which water penetrates the soil and becomes groundwater

6 Runoff - The movement of water across the land surface back into major water sources like ponds, lakes, rivers or sea

GOTTFRIED LEIBNIZ CALCULUS AND BEYOND

ABHIJEET KABAD

WHEN doing complex calculations in school, we have fond memories of using a calculator. The credit for this goes to Gottfried Leibniz. Gottfried Leibniz was a renowned German polymath, known as the last 'universal genius'. He made significant contributions to the realms of metaphysics, logic, philosophy of religion, mathematics, physics, geology, jurisprudence, and history.

that Northwest India, Northeast China, and Southern and Eastern Europe are expected to bear the brunt of this crisis. Global warming has already altered the water cycle enough for the world to face a noticeable shift in climatic conditions, as parts of the Sahara Desert have started seeing vegetation, which has raised concerns among eco-scientists as well. But is there anything we can do at all, at this point, to stop, if not reverse the damage that modernisation has set in motion, or have we already crossed the point of no-return?

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