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Water, the global common: A tragedy that must be averted

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Abstract

The simplest, yet the most complex; the most abundant, yet the scarcest; the showers of mercy and the harshest face of fury-WATER is the driving force of life on earth. Humankind that built kingdoms and civilizations around it and thrived, did not spare a thought about the resource that was sustaining it. In his mad race to build empires, both geographical as well as financial, man continued to brutally exploit this precious element of nature, greatly harming both its quantity and quality. The world has only just woken up to the disaster that is staring it in its face. The shocks that the world is witnessing all over, in the form of droughts and floods, rising sea levels and declining water tables, melting glaciers and expanding deserts have stirred it from its deep slumber and apathy. There is still hope of arresting this decline. It is necessary to treat it as a global common and make collective efforts to save it. The present paper discusses the seriousness of the problem, and attempts to offer possible solutions and suggest the scope of further studies.

Keywords: Water, exploitation, droughts, floods, groundwater, global common

Introduction

Water has been venerated through times immemorial by all civilisations and religions on earth. It has been seen as the seed of all life on the planet. The world, as indeed our own bodies, are made up mostly of water. Our ancients recognized and accepted this and therefore prayed to it.

अप्सु अन्तः अमृतम् अप्सु भेषजम् अपाम् उत प्रशस्तये, देवाः भवत वाजिनः ।

Apsu Antah Amritam Apsu Bhesajam Apam Ut Prashastaye, Devaah Bhavat Vajinah.

(There is nectar in water, there is medicine in water. O sages, be quick in praising/revering such elevated water.)

Water is the main component of all living beings, it sustains our survival and our crops, it regulates global temperatures. In fact, nearly all the 17 Sustainable Development Goals of the United Nations are linked to water.

Water covers 70% of our planet, but more than 97% is salt water, making it unfit for human consumption. Only 3% is freshwater, but two-thirds of this, i.e., 2% of the entire quantity, is locked up in frozen glaciers and snow and is therefore unavailable for use. That leaves less than one percent to be used for drinking and other household chores, irrigating our crops and cooling our power-plants.

69.6% of earth's water (6.44 million trillion gallons) is frozen in ice sheets, glaciers, permanent snow and permafrost; 30.1% (2.79 million trillion gallons) are beneath the ground in soil and aquifers fed by surface seepage, leaving only 0.3% (31.341 trillion gallons) in lakes, rivers and wetlands- this also includes water in plants, animals and the atmosphere. (Source-National Geographic, April, 2010).

This shows how precious this resource is. Rapid growth of population and its increasing demand for food, shelter, housing and energy; as well as tremendous pace of development all have continued to exert tremendous amount of pressure on this already scarce resource. Though water in the seas and oceans was not drinkable nor could be utilized for agriculture, they were fertile hunting grounds for fishing and mining for crude and other economic activities, along with becoming a sink for wastes and plastic, pressurizing and choking it too.

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Since there were no ownership rights over the high seas, they came to be used competitively amongst nations and within nations and among neighbours, the same happened with freshwater. They thus came to be known as Global Commons.

Global Commons

Commons refer to resources used by all without being owned by any and for which no one takes responsibility of maintenance or conservation. There may be two ways to refer to commons- First, based on geopolitics- Global commons refer to areas and their potential economic resources that lie beyond national jurisdiction. These have now been identified as the Atmosphere; the High Seas; Antarctica and Outer Space.

The second is based on economics- it refers to how shared resources may be overused by some people at the expense of others regardless of national jurisdiction.

The theory of Tragedy of Commons was propounded by Garrett Hardin in 1968. It explains how public property may be misused or overused, harming the environment and human beings in the long run. Overcrowding and overuse of common property will lead to continuous decline in the gains derived from it and ultimately lead to the loss of the resource. But, if communities work together and make rules, they will all follow, then the tragedy may be avoided.

Apart from growth of population, rapid advances in science and technology and increasing demand for resources, has lead to rise in activities like bio prospecting, navigation, submarine cable-laying, and large-scale extraction of hydrocarbons, deep sea fishing etc. These along with rising temperatures, climate change deforestation, dumping of waste, etc. are all negatively impacting global commons.

Elinor Ostrom was awarded the Nobel prize for Economics in 2009 for her work in identifying effective principles for better management of common resources. They may briefly be stated as-

- Well defined boundaries needed to be set for users of the resources;
- Information is needed by the users on the state of the resource, how they work and how their actions will impact them;
- Persuasion of users to know that it is more beneficial to own responsibility collectively than to suffer the costs incurred;
- While making rules, users must be given some autonomy in decisions and in management;
- To reduce the problem of free-riding, monitoring and sanctions are necessary;
- Effective implementation also calls for fast and cost-effective resolutions of conflicts;
- Relationship building is the key to enhance trust among the stakeholders.
- The arrangements made should be sanctioned by the government to ensure its seamless working. (Global Commons Alliance)

In 2009, Johan Rockström and a group of scientists identified 9 'planetary boundaries' that regulate the stability of Earth and if taken care of would prevent such tragedies from arising and will enable future generations to survive and flourish.

The nine planetary boundaries are:

- Stratospheric ozone depletion.

- Atmospheric aerosol loading.
- Ocean acidification.
- Biochemical flows (phosphorous, nitrogen)
- Freshwater use
- Land system change.
- Biosphere integrity (functional diversity, genetic diversity)
- Climate Change

We have already transgressed 5 of these boundaries- climate change, biosphere integrity, land system change, biochemical flows, and now the fifth-novel entities. Freshwater use is now fast hurtling towards the same fate, unless immediate action is taken.

Internationally. Climate change, bio diversity loss and toxic pollution compounded with increasing population, rising levels of consumption and trade has brought the world on the brink of planetary crisis. These needs coordinated action and policy making. Therefore, water must be declared as a global common and global governance should be ensured for its conservation.

Signs of water tension

- Nearly 2 billion people across the globe have no access to safe and clean drinking water, (OECD);
- 2.7 billion people face water scarcity for at least one month every year, (WWF);
- Lack of sanitation facilities (also linked to unavailability of water) exposes about 2.4 billion people annually to the risk of diseases like cholera, typhoid fever, diarrhoea and other water borne diseases (WWF);
- Agriculture uses 72% of the freshwater available on earth and nearly 60% of this is wasted due to leakages;
- Presently nearly 800 million people in the world are hungry; by 2050 foodgrain production across nations will have to be raised by at least 50% to meet the food demands of the estimated more than 9 billion global population. (FAO; IFAD; UNICEF; WFP; WHO, 2017);
- Food production and supply chain account for almost 30% of total global energy consumption (FAO,2011);
- 90% of global power-generation is water-intensive (UN, 2014);
- By 2030, water withdrawals for energy production may rise by 20% and consumption by 85% (IEA, 2012);
- Power plant cooling accounts for almost 43% of the total fresh water withdrawals in Europe alone, about 50% in the United States and more than 10% in China (UN, 2014).
- At least 2 billion people all over the globe use drinking water contaminated with faeces. This microbial contamination poses the biggest risk to the health of these e. It is estimated to cause around 485,000 diarrhoeal deaths every year (WHO, 2022);
- Nearly 2.3 billion people across the world lack basic handwashing facilities at home. (UN,2023)
- In 2017, nearly 220 million people required treatment for schistosomiasis- an acute and chronic disease caused by parasitic worms contracted through exposure to infested water; (WHO, 2022);
- Global water demand is projected to increase by 20-30% by 2050 (UN., 2018).

- There looms the prospect of an almost 40% shortfall in freshwater supply by 2030.
- Almost three-quarters of recent disasters were water related.
- Acidification of oceans is increasing at a rapid rate and the major cause is anthropogenic emissions of CO₂.
- The facts given above highlights the value of the precious resource of freshwater and the need for urgent action to preserve it.

Water as a Human Right

The highly unequal access to fresh water between nations and regions within nations is a tragedy that needed immediate redressal. The poor and marginalised sections of society were the worst sufferers. While those with means and access were overusing, wasting and even degrading it. Since there was no jurisdiction over it- it being a global common- it has been exploited mindlessly. Therefore, it became necessary to now treat it as a Human Right. The UN has accepted access to clean water and sanitation as a human right. In a statement issued ahead of the UN 2023 Water Conference (22-24 March 23), it said, *“The human rights to water and sanitation are clear illustrations of the indivisibility, interrelatedness and interdependency of human rights and are vital for achieving an adequate standard of living. Whether looking at physical security of women and girls, discrimination against indigenous peoples, peasants, minorities or to the human rights to health, adequate housing, a clean, healthy and sustainable environment, education and many others, all are ultimately linked to water and sanitation.”*

Thus, international and national standards of human rights have to be framed accordingly. But, as of now such commitments and policies have not been adopted universally. Thus, water policies need global governance systems for its sustainable use.

Water Stress

It has been observed that many of the water systems all over the world, that has been supporting thriving ecosystems and populations have become stressed. Hydrologists have categorised various levels of stress according to its severity. Countries where annual water supplies drop below 1700 cubic metres per person are said to be suffering from water-stress. Those where supplies are below 1000 cubic metres are facing water scarcity and those where supplies are below 500 cubic metres are confronting absolute water scarcity. According to UNDESA, approximately 700 m people in 43 countries are suffering from water scarcity; by 2025, 1.8 b will be living in absolute water scarcity and two-thirds of the world will be facing water stress. This will also displace between 24m to 700 m people.

The causes are not far to seek. Human beings, in their bid to harness natural resources like water have build dams, large irrigation systems, etc., but natural aquifers, rivers and lakes are now stressed and are drying up. Climate change is a big driver towards building up stress. Increase in global temperature have led to water scarcity on a large scale. Widespread pollution in waterbodies have made them unfit for consumption besides harming flora, fauna, and life in all its forms. Agriculture is the biggest guzzler of freshwater. It also wastes water the most. It adds to pollution in a big way through pesticides, chemical fertilisers, etc. A big role in promoting inefficient and wasteful use of water has been

played by ‘water subsidies’, which have been biased in favour of the well off and against the poor, Population in the world has more than doubled over the last 50 years, and the accompanying activities related to food production and economic development along with rising demand for and production of energy, has exerted a lot of pressure on water. It is now being referred to as ‘The water-food -energy nexus’, with the two latter being highly water intensive. It is estimated that 41% of the world’s population lives in river basins that are under water stress. As the stress on water keeps increasing, the world’s goal of achieving the SDG targets seems to get farther away.

How South Asia and India fare

South Asia, comprising of countries like India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan, Maldives, Afghanistan and Iran, is home to over 2 billion people, accounting for 24.89% of global population, with India alone having a population of 1.38 billion. The population in South Asia is expected to rise to 2.4 billion by 2050. 33.4% of the world’s extreme poor live in this region. These countries are facing major water related problems, exacerbating the difficulties of the deprived. Most of the population, and the poor, draw sustenance from agriculture, which is primarily dependent on the monsoons. Climate change, inadequate freshwater availability, impact on food production, lack of sanitation, etc, are likely to aggravate the impending crisis due to anthropogenic causes like the building of large dams and irrigation projects, barrages, river embankments, and human activities along river banks. These are already showing effects on-

Monsoon- Significant changes are being witnessed in inter-annual and intra-seasonal patterns of monsoon, and these will increase in coming years if global temperatures continue to rise. It is expected that dry areas will get drier and wet areas will get wetter.

Droughts- Number of dry days are expected to grow as a result of change in the patterns of precipitation. Anthropogenic causes are leading to rapid expansion of areas becoming drought prone. India, too has been witnessing rise in desertification. Overexploitation of scarce water resources through canal or well irrigation for growing ‘thirsty crops’ has converted large tracts of land into deserts. Floods- Countries like, India and Bangladesh regularly suffer from floods. Global warming, deforestation, rapid industrialisation, etc have contributed to a sharp rise in the incidence of floods as well their severity, causing massive deaths and damages.

Glacial Melt- Himalayan glaciers have been receding in recent years at an alarming rate. Most major rivers including the Ganga, Indus and Brahmaputra, in the region, depend on glaciers and are the source of sustenance of the vast majority of the population. The three river systems provide water to approximately 750 million people. As snow covers also melt, reliable freshwater availability will decline.

Sea level- Sea water levels are rising as snow cover is melting. A number of countries of South Asia have long stretches of coastline. Sea water is projected to rise by about 60-80 cm. in a 2 °C world by the end of the 21st century. Deltaic regions and coastal cities are particularly exposed to risks. The most vulnerable areas are Maldives, Bangladesh and cities like Kolkata and Mumbai in India.

Surface water- As temperatures rise, the rate of evaporation is increasing. Thus lakes, ponds, wetlands and artificial

reservoirs -which are used for drinking, irrigation, industrial use and cooling of power plants, -are drying up fast. Increasing demands from agriculture are posing a major challenge to freshwater in this region.

Per capita water availability- As population grows and climate change and anthropogenic causes put stress on water, per capita availability of water in the region is likely to go down further. Per capita freshwater withdrawal in South Asia was 1,065 cubic metres in 2019 compared to the world average of 5,555 cubic metres. In India, per capita water availability which was about 1820 cubic metres per year in 2001, had gone down to 1045 cubic metres in 2019. In rural areas of India, Nepal, Bangladesh, Pakistan and Sri Lanka, 10% of the population still does not have access to even a low amount of 20 litres of water for drinking and other household chores per capita per day.

Water conflicts- As freshwater gets scarcer, access to it has dwindled, leading to increasing water conflicts among nations, regions within nations and people living in an area. India has various states involved in such water conflicts over water of major rivers like Ravi and Beas. Narmada, Krishna, Cauvery, Godavari, Mahanadi, Vamsadhara, Mahadayi and Periyar.

Energy supply-This region produces energy from two forms of power generation-thermal and hydropower. Declining water resources is likely to severely impact the process creating energy shortages.

The challenges are many indeed but, there exists a large potential to utilise and conserve current and build additional capacity in this region. Better water management techniques and participation of all stakeholders will ensure a better future. But the time to act is now.

The way ahead

In an interdependent, interconnected and globalised world, resources such as water have become global commons and therefore need global concern and global action. They are our global responsibility and are essential for a more equitable world and indeed for our very survival.

The world has now acknowledged this and attempts are being made to gradually right the wrongs of centuries. The world can do a lot in this direction-

- Water supplies must be treated as a common good by policy makers.
- Water- values must be incorporated into decision-making, to ensure its efficient and egalitarian use among people.
- Access to safe and clean drinking and household water should be declared a human right in all countries
- The poor must be offered support while under-pricing water must be done away with for others who are better off.
- Water subsidies should be gradually phased off on a case-to case basis without harming the needy.
- Efficient methods of agriculture must be adopted for sustainable cultivation Crops and cropping patterns and methods of irrigation must be planned ahead in accordance with water availability.
- Steps like reforestation, capturing run offs from arable land, etc. will go a long way in preventing water wastage as well as replenishment of water bodies and groundwater.
- Water conservation and reclamation efforts should be stepped up, including actions like, recycling of

industrial and urban wastewater, discouraging cultivation of 'thirsty crops', recharging depleted water bodies, etc.

- Governments must rapidly increase the production of renewable energy sources, such as wind, solar and geothermal energy to reduce stress not only on non-renewable sources but also on water. This will also significantly reduce greenhouse gas emissions and reduce the rate of temperature rise on the planet.
- Better access to information and data is a must to plan ahead as well as keep a track of water availability and use, enabling policy improvements and corrections on a continuous basis.
- Water standards may be incorporated in trade agreements to ensure implementation of water rules.
- Large corporations and energy companies must be encouraged to adopt water-balance as a matter of policy.
- The governments must work in close cooperation with local communities in planning and implementing new rules, methods and techniques to enable the desired results to fructify.
- Financing of all the methods is a big concern, particularly for low and lower middle income countries. Efforts have to made globally to arrange for funds with the idea of water being a global common, any improvement will benefit all.
- Partnerships at all levels public, private, rural, urban, indigenous people, youth and among multi - stakeholders are vital to the successful implementation and management of water goals.
- Finally international cooperation and commitment holds the key to avail any gain for the desired objectives.

Conclusion

The seed of all creation on earth, the spring of life, is itself in danger, so how can life survive? Human kind has to realise this simple fact and prepare to start the process of reversal. The freshwater reservoirs, and surface water sources have to be conserved by people at all levels in society. Individual action is the key to bringing about a positive change. International efforts will ensure that nations follow the regulations and this will percolate down to the masses. Indeed, international environmental laws must factor in economic concerns too. Public- private partnerships and participation of all stakeholders is absolutely essential to begin the process and maintain the momentum, so that our future generations may live in a water- secure world. Water, the global common is the lifeline that binds all of mankind, and indeed all living organisms on earth. The global bond that exists must be strengthened for an equitable, just and safe world and prevent the global commons, like water from becoming a global tragedy.

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