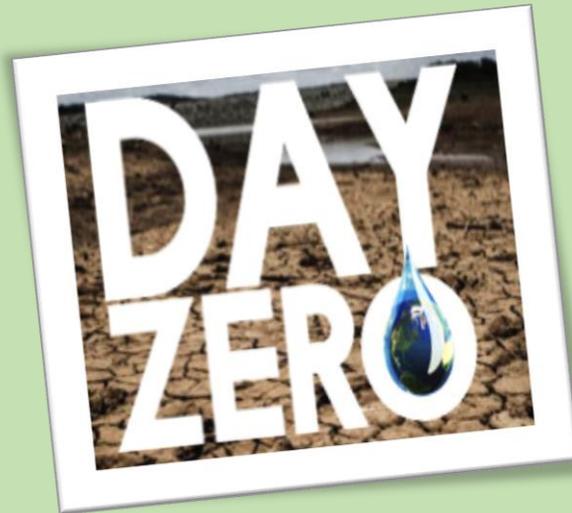


## Environment & Ecology: Cape Town-like situation.

### GS Paper 3: Bio-diversity – Conservation, environmental pollution and degradation, environmental impact assessment, disaster & disaster management.

India's booming cities could face a situation like South Africa's Cape Town did earlier this year if it does not put in place proper water management plans. The country's urban centres are hitting the headlines for water rationing months before the lean period. Not only the quantity but the quality of water is under stress. With there being a lack of proper implementation of water conservation measures and polluted surface and groundwater, Indian cities could soon face Day Zero.



### Water shortage

In India, the agriculture sector has the biggest demand for water, followed by industries, the power sector and domestic consumption. Shortage of water will invariably prove to be disastrous for agriculture and food security. It will also have serious impacts on the income of sharecroppers and farm labourers. When it comes to industries, water shortage may affect industrial growth. A recent media report shows that the industrial sector is likely to suffer in terms of production in view of water shortage, especially with water level dipping in reservoirs and dams. Water shortage can severely hit major industries like textiles, food products and beverages, paper mills, cold storage facilities and ice production.

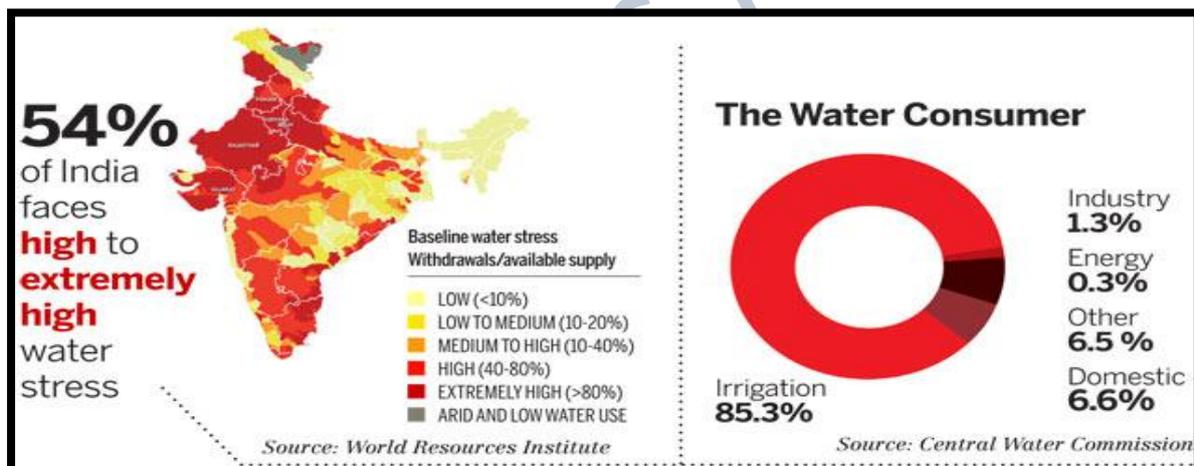
### Status of the Indian rivers

Our rivers are dying. So are the ecosystems that feed them. The rivers are not only affected by the pollution load but also diversion of flows, disappearing biodiversity, sand mining and loss of catchments. Other open water bodies like lakes, ponds or tanks are either

encroached or a receptacle of sewage and waste dumping. The news of toxic foam from the Bellandur and Vathur lakes of Bengaluru has hit the headlines several times in the recent past due to untreated sewage and industrial effluents entering into them.

Out of India's 36 states and union territories, 31 have polluted river stretches. The state of Maharashtra has the highest number of polluted river stretches at 53, followed by Assam, Madhya Pradesh, Kerala, Gujarat, Odisha, West Bengal, Karnataka, Uttar Pradesh, Goa, Uttarakhand, Mizoram, Manipur, Jammu & Kashmir, Telangana, Meghalaya, Jharkhand, Himachal Pradesh, Tripura, Tamil Nadu, Nagaland, Bihar, Chhattisgarh, Andhra Pradesh, Sikkim, Punjab, Rajasthan, Puducherry, Haryana and Delhi.

The Ganga, India's national river, is right now the focus of debate. The pollution levels recorded across years put a question mark on the efforts shown in cleaning the stretches. In August this year, the NGT, which is closely watching the progress of Ganga cleaning programmes asked the CPCB to mark on Ganga, stretches fit for bathing and drinking. The Board came up with a map which showed water in the main stretch of the river as being highly unfit in quality.



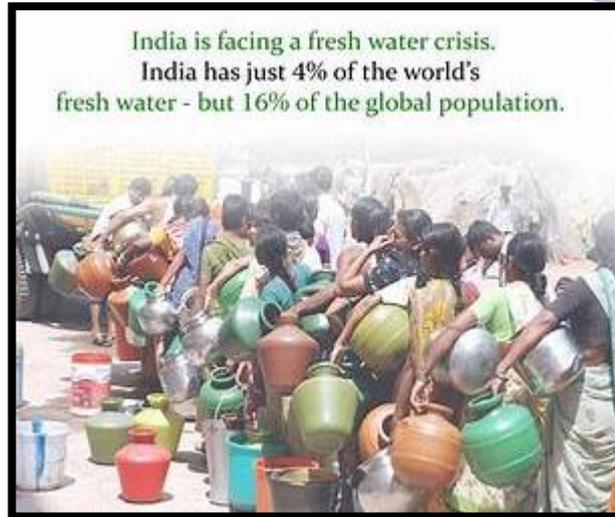
## Aquifers in India

With the pollution of surface water, groundwater has emerged as the primary democratic water source and poverty reduction tool. Due to its low capital cost, it is the most preferred source of water in India. Generally, groundwater should get less contaminated when compared to surface water but in our country, a variety of land- and water-based human activities are causing pollution to groundwater. Its over-exploitation is causing an increase in contaminants in certain cases and sometimes, unscientific methods of extraction may itself

cause an increase in contaminants in groundwater. The major issues of quality in groundwater are related to salinity, Chloride, Fluoride, Nitrate, Iron and Arsenic.

## “A Master Plan for Artificial Recharge of Groundwater”

Research has shown that the levels of fluorides, arsenic, salinity/hardness can be reduced on the principle of dilution of groundwater by rainwater. The issue here is that strong recharge schemes or policies have to be implemented on a war footing. “A Master Plan for Artificial Recharge of Groundwater” has been developed by the Central Ground Water Board in 2013. According to this plan, around 85,565 Million Cubic Metres will be recharged in rural and urban areas in a phased manner for ten years. Technically feasible methods to clean polluted water often do not exist due to highly toxic substances in trade effluents, as seen in a case in Rajasthan where a sulphuric acid manufacturing unit rendered the drinking water source in 22 villages useless.



## Previous Year Questions

1. Not many years ago, river linking was a concept but it is becoming a reality in the country. Discuss the advantages of river linking and its possible impact on the environment. (2017)
2. The frequency of urban floods due to high intensity rainfall is increasing over the years. Discussing the reasons for urban floods. Highlight the mechanisms for preparedness to reduce the risk during such events. (2016)
3. With reference to National Disaster Management Authority (NDMA) guidelines, discuss the measures to be adopted to mitigate the impact of the recent incidents of cloudbursts in many places of Uttarakhand. (2016)