Bellandur & India’s Urbanisation Woes

What is the issue?

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- The ever surging foam & pollutants in Bellandur lake in Bengaluru has triggered much debate.
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- The lake is just one of the many victims of our reckless hapzard urban planning & development.
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What is the problem with Bellandur Lake?

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- During rains, the stinking froth and foam rises as high as 10 to 12 feet from Bellandur.
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- It spread onto the streets, endangers traffic and enters shops and homes across the road, causing huge inconvenience to those living in the area.
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- This is due to a mix chemicals and untreated sewage mixing in the lake.
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- A few months earlier, the area was engulfed in smoke as garbage dispersed around the lake was set ablaze.
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- In 2015, the lake itself was on fire, creating enormous fear and anxiety in the minds of the people.
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- The Central Pollution Control Board - (CPCB) had opined that the sustained inflow of untreated sewage and industrial effluents as the principal forces behind the phenomena of froth and fire.
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- Out of 480 million litres per day (MLD) of wastewater discharged to the lake, only 308 MLD is treated.
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What action has been taken?

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- An expert committee set up by the state government submitted its report on rejuvenation of the lake in October 2016.
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- The National Green Tribunal -NGT has also issued a number of directions for removal of silt from the lake, treatment of municipal sewage going into it and closure of polluting industries.
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- Dumping of municipal solid waste and mixing untreated sewage by private entities around the lake were banned.
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- The capacity for sewage treatment plants in Bengaluru is 51% of the total generation but actual treatment was only a mere 37%.
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- This is still higher than the 30% average for all Indian cities and towns, which forces us to look at the bigger picture.
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What is the science behind the Bellandur phenomenon?

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- As untreated sewage finds its way to waterbodies, it feeds the excessive growth of water-weeds (like hyacinth in Bellandur), which blankets the enire water surface.
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- There two inter-dependent phenomenon that arise out of this.
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- **Eutrophication -** Excessive presence nutrients in a body of water, which causes a dense growth of plant life is called europhication.
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- This also leads to the excessive growth of microbs (that eventually

decompose organics) which in turn increases the Biological Oxygen Demand (BOD) and depletes the dissolved oxygen content.
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- Deplection of dissolved oxygen kills aquatic life.
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- **Foam Formation –** when organic matter naturally breaks down, it releases fatty acids that float to the surface.
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- These act as natural surfactants, facilitating bubbles formation which often persist for a long time resulting in a foamy surface.
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- Also, most surfactants in Indian detergents are not biodegradable and end up in the untreated sewage mix as potent foam generators.
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How did the US deal with foaming in their lakes?

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- **Surfactants Control –** In the late 1950s in the US - lakes, rivers, and sewage treatment plants experienced foam formation, caused by synthetic laundry detergents.
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- Now, the foaming agent of all detergents in the market are legally bound to be biodegradable in the US.
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- Hence, quickly lose their ability to cause foaming and are unable to produce long-lasting foam.
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- **Nutrient Regulation –** The problem of excessive nutrients in water was first identified when Lake Erie, on the US-Canada border, turned green due to algal bloom.
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- It is phosphorus in detergents entering wastewater acts as a nutrient that promotes the growth of water plants.
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- Both countries rapidly responded with an international treaty in 1970 which, has since 1973, limited the phosphorus content in their detergents to a maximum of 2.2 per cent.
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- While the European Union followed suit thereafter, India is yet to limit phosphorus content in detergents and laundry bars, even as demand for them has grown at the rate of 10-11% annually.
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What could be done?

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- A holistic waste management plan that accounts for solid waste (garbage), liquid waste (sewage), and acquatic waste is needed.
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- We need to learn from the best practices & the regulatory framework elsewere as well as evolve our own in that context.
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- Safeguarding our freshwater catchment areas & natural drains which replenish ground water and prevent flooding are primary concerns.
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- Encroachments on river banks, lakes & wetlands needs to be kept under check, particularly in the current phase of rapid urbanisation.
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Source: IndianExpress

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