Natural Infrastructure for Water Problems

What is the issue?

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- The small-scale bottom-up water conservation movements have only helped locally.
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- There is need for non-invasive large-scale schemes to address India’s huge water problems.
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What is the looming threat?

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- Building artificial infrastructure eventually kills natural infrastructure.
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- Forests, rivers, mountains, aquifers and soil are being lost at an alarming rate.
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- Notably natural infrastructure is a result of ages of evolution and cannot be engineered in short span.
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- India now is in the midst of a suicidal water crisis as urban and rural landscapes go thirsty.
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What were the measures?

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- Over the years, various stakeholders have been working on bottom-up schemes.
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- There have been efforts to revive and rejuvenate lakes, wetlands, streams

and other small water bodies.
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- These movements have brought about a significant change at the local level.
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- But the scale of India's water problems is much larger than these local efforts.
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What are the concerns?

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- **Demand** - Cities are now the centres of rising demand for water, food, energy and other resources.
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- High densities of cities do not allow for water harvesting to fill the gap.
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- Schemes like dams to service these large cities and the huge needs of agriculture have caused extreme ecological devastation.
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- **Market** - Natural resources are living evolutionary resources that are constantly renewed by natural cycles.
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- They provide perennial value as long as they are used with natural wisdom.
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- But products and services derived from natural infrastructure have often led to terminal loss of the source itself.
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- The global free market and the resultant scale of human intervention exceed the scale of the planet.
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- So loss of forests, mountains, floodplains and rivers are in most cases long-term loss for short-term gain.
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What are the possible sustainable measures?

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- **River floodplains** - Floodplains are formed over millions of years by the flooding of rivers.
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- These are formed by deposition of sand on riverbanks and are exceptional aquifers.
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- So any withdrawal of water is compensated by gravity flow from a large surrounding area.
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- Some floodplains, such as those of Himalayan rivers, contain up to 20 times more water than the virgin flow in rivers in a year.
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- This could potentially be conserved and used as a source of providing water to cities, and can be a self-sustaining aquifer.
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- E.g. the Delhi Palla floodplain project on the Yamuna
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- Piezometers and a control system have been installed.
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- These help monitoring water levels and other parameters, to ensure sustainable withdrawal.
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- Besides, it provides huge revenue to the Delhi Jal Board.
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- Requirement - Preserving the floodplain in a pristine condition is essential for this scheme to work.
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- Land on the floodplains can be leased from farmers in return for a fixed income from the water sold to cities.
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- The farmers can be encouraged to grow orchards/food forests to secure the ecological balance of the river ecosystem.
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- **Natural mineral water** - Forested hills sit on a treasure of underground aquifers.
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- Rains falling on the forest seeps through the various layers of humus and cracked rock pathways.
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- In the course, they pick up nutrients and minerals and flows into underground mineral water aquifers.
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- The natural mineral water could be a better alternative for the mineral water currently brought from faraway mountain springs.
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- The huge pressure that this puts on the mountains could be avoided.
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- Water in underground aquifers is comparable to several international natural spring mineral waters.
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- With a proper scheme, a forest like Asola Bhatti in Delhi could be sustained as a mineral water sanctuary.
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- Likewise Aravalli forested hills can provide mineral water to all major towns of Rajasthan.
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- Quality natural mineral water can be provided from a local forest tract for 20 times less than the market price.
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What is the way forward?

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- These non-invasive, large-scale ‘conserve and use’ projects should become part of the living scheme.
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- These schemes can
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i. provide perennial supply of water to large populations in cities and towns
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ii. engage the natural landscape
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iii. sustain ecological balance
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iv. have major economic and health benefits
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- Unlike large-scale dams, these projects work with nature rather than against it.
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Source: The Hindu

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