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Q14

"The ideal solution of depleting ground water resources in India is water harvesting system." How can it be made effective in urban areas?

UPSC Civil Services Mains 2018 · GS I · 15 marks · Women, Population and Urbanisation

Role of women and women's organization, population and associated issues, poverty and developmental issues, urbanization, their problems and their remedies.

Core demand of the question

- Treat water harvesting as the stated ideal response to depleting groundwater
- Explain how to make it effective in urban India, not only in villages

Revision summary

City aquifers fall because pumping is high and paved catchments block recharge.

Harvesting of roof and plot rain, plus lake revival, is the fitting structural reply.

Urban success needs bye-law checks, silt traps, storm-sewage separation, and greywater reuse.

Public plots must lead, and slums need community catchments, not only private roofs.

Harvesting complements, but does not replace, bulk river and reuse systems in a drought year.

Flow diagram

Urban rain -> Roof plot lake harvest

Roof plot lake harvest -> Recharge aquifer

Paving sewage mix -> Runoff flood depletion

Bye-laws meters RWAs -> Roof plot lake harvest

Recharge aquifer -> Less tanker and deep pumping

Conclusion

- Tie floor-area permission to a working recharge test, restore urban lakes as infrastructure, and publish ward-wise groundwater depth so harvesting is scored like any other civic work.

Water harvesting is the sound urban answer to falling groundwater if roofs, pits, lakes, and clean storm drains work together. Effectiveness is enforcement, desilting, sewage separation, and fair access in slums, not a one-time pipe on an elite terrace.

Facts & figures

CGWB assessment

National mapping of groundwater units, including over-exploited urban and peri-urban blocks.

Tamil Nadu rooftop mandate

Long-standing state push to require rainwater harvesting in buildings, often cited as an urban model.

Chennai tanks and 2019 stress

Temple tanks and lakes as urban storage; the 2019 water crisis showed what happens when they are neglected.

Bengaluru lakes

A chain of tanks that once recharged the city and now need revival against encroachment.

CGWA / extraction permits

Regulatory frame for commercial groundwater use that can make illegal borewells costlier than harvesting.

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