



# **URBAN WATER SCARCITY: Challenges and Actions**

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# Presentation Outline

- Urbanizing India and water needs
- Water sector challenges
- Competing water uses
- Water needs for construction
- Future water scenario
- Future actions

# Urbanizing India and water needs


- India is urbanizing
  - **377 million** in 2011 (Census) expected to rise to **600 million** by 2031 (UN estimate)
- Challenges of urban growth - providing jobs, housing, energy and infrastructure, and protecting urban environment
- Basic Infrastructure and services – water supply, wastewater, solid waste management, drainage



- India's total water resources potential on an average during a year is:
  - 1869 BCM – natural run off in rivers
  - Of which only 1121 BCM (60%) can be put to beneficial use
  - And only 690 BCM (37%) is utilisable – being surface water resources

Source: Central Water Commission



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- National per capita annual availability of water:
    - 1816 cu m in 2001
    - 1544 cu m in 2011
    - 1140 cu m in 2050 - estimated
  - Availability of less than 1000 cu m per capita is considered by international agencies as scarcity conditions.

Source: Central Water Commission

# Water sector challenges

- Growth in population, changing life styles, ambitious economic growth rate will add to demand for water

## Challenges:

- Pollution of water sources – surface and ground water
- Depletion of ground water sources due to over exploitation



- Providing water to all and at specified norms
- Inefficiencies in managing water - water losses, lack of maintenance
- Climate change – additional stress on water availability



# Competing uses

- India's Water Policy gives priority to water use for survival of human beings and ecosystem
- Availability of adequate water for all uses – domestic, agricultural and industrial
- Agriculture uses 80-90% to total water resources





- Drinking water demand is about 4-6% of total water demand
- Industry uses the remaining
- An ambitious GDP growth rate of 8% or more will put tremendous pressure on water resources
- Sustaining animals will also add to water demand



# Water needs for construction


- In India, the real estate sector contributes almost 10 per cent of the country's GDP
- Increasing population in cities will demand more housing, commercial and institutional spaces
- To meet the growing demand, India will have to build 700 to 900 million sq. m of residential and commercial space a year within the 2030 timeframe (McKinsey)

- Construction sector will require huge quantities of water
- Demand for water for industrial uses does not consider construction industry separately
- Construction sector uses mostly ground water and this will further deplete ground water resources



# Future water scenario


- Increase in water demand will require more investment in infrastructure
- With sewerage systems planned in most cities, water will have to be provided at 135 lpcd
- Pollution has rendered water sources closer to urban centres unusable or has reduced their yield
- Cities will go ever further to obtain water – adding to capital cost of infrastructure, and power cost for operations

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- Changing lifestyles will demand more water
  - Climate change will reduce water available for use, but add to flood problem
  - Inter-state river water disputes will need to be resolved
  - Water and energy nexus will need to be understood better

# Future Actions

- Judicious use of water through better management, improved maintenance, and appropriate tariff
- Use of better material and technology to reduce water losses
- Re-use of wastewater – as more wastewater will be generated from domestic use
- Rainwater harvesting not only in buildings, but also in parks and open spaces



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- Recharge of aquifers should become a part of development of real estate
  - New ways should be found to use flood waters – recharge aquifers?
  - Construction industry should promote better methods and technologies for using water efficiently
  - Awareness creation across sectors to optimize and conserve water



**THANK YOU**