



Centre for Science and Environment
**ANIL AGARWAL
DIALOGUES**
EXCRETA DOES MATTER
MARCH 4-5, 2013 NEW DELHI



Water for growth?

- Cities-industries need water for growth. Where will this come from?
- India will not follow transition of rich world – people move to cities; economies move to service-industry; **water moves with it**
- Water wars will grow
- Already cases of protest and police firing over water allocation to industry or city



Need to reinvent

- **Indian cities need to become prosperous without more water**
- **Indian cities need to grow but not destroy rivers**
- How is this possible?
- This is what **Anil Agarwal dialogue** is about



Water story in cities

1. Planners obsessed with water, not supply

Water sourced from further and further away

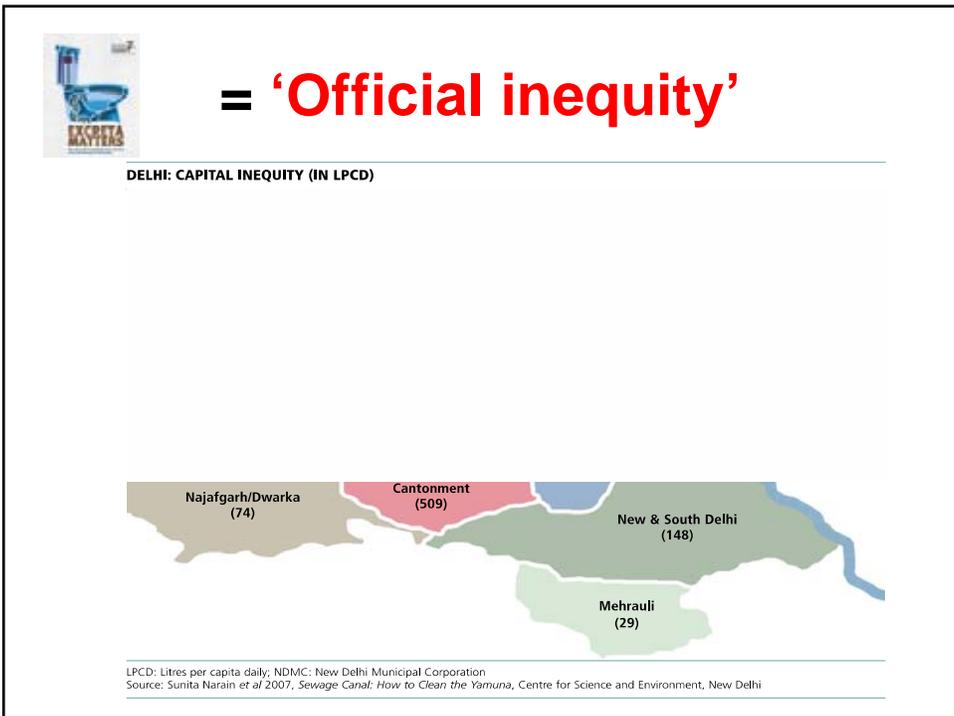
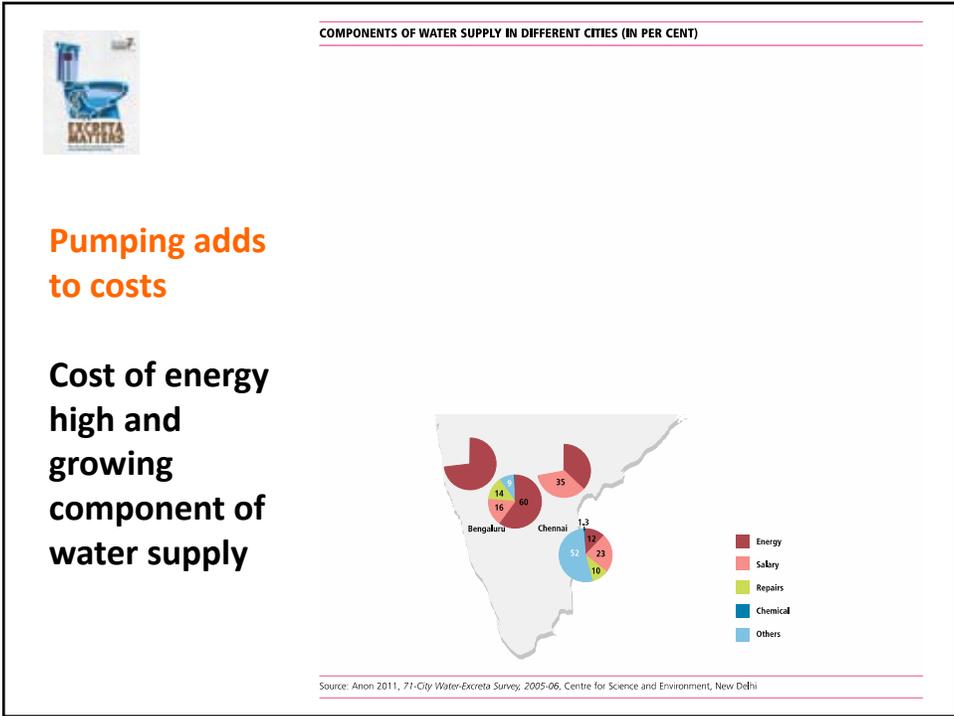
Leads to increasing cost of supply

Leads to high distribution losses

Less water to supply at end of pipeline

Less water means more costly water

Cities not able to recover costs of supply, have no money to invest in sewage





Groundwater: **abused**

**2. Water supply does not reach all, only few.
No alternative but to move to groundwater**

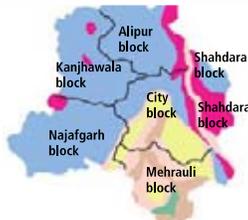
But this is not accounted for
Cities only consider 'official' groundwater use
Millions depend on private wells, tanker mafia,
bottled water

No recognition of this water source; **no respect**
for its management



ANOTHER ABUSE: FALLING GROUNDWATER

Where
pipeline
does not
reach
People
depend on
groundwater
Falling
groundwater
levels tell us
about
inequity



LPD: Litres per capita daily
Source: Central Ground Water Board, 2002



Lakes: **Present lost**

3. **Groundwater is not considered as critical for water supply, recharge is neglected**

Land is valued, **water is not**

No legal protection for city lakes, catchment and drainage systems

Sponges of cities being destroyed. **Deliberately**



Lakes: **Future lost**

- Climate change is new threat
- Extreme rainfall events will grow
- More rain, fewer rainy days
- Cities need sponges to capture rain, recharge for scarcity
- But not considered in planning
- Cities **see land**, not water



Water=waste

4. Cities plan for water, forget waste

80% water leaves homes as sewage

More water=more waste

Cities have **no accounts** for sewage

Cities have **no clue** how they will convey waste of all, treat it, clean rivers



Excreta: **sums**

- 2009:

Sewage generated = 38,255 mld

Capacity to treat = 11,788 mld (30%)

Sewage actually treated = 8,251 mld (22%)

Delhi and Mumbai alone have **40 per cent** of sewage treatment capacity in the country

78 % sewage is officially untreated and disposed off in rivers, lakes, groundwater

We flush, we forget



Planning for hardware

5. Cities plan for treatment not sewage

- Treatment plants are not simple answers
- Can build plants to treat, but there is no waste being conveyed for treatment
- Most cities do not have underground sewage But engineers sell pipe-dreams of **catching up with infrastructure**
- Politicians buy pipe-dreams
- We lose rivers. Generations of **lost rivers**



Cities do not have drains
New growth cities are growing without drains
Backlog and front-log impossible to fix
As cities fix one drain, another goes under

71-CITY SURVEY: AREA COVERED BY CLOSED DRAINS SHOWS REAL STATE OF SEWAGE COLLECTION

% of area covered

0-10	Cuttack, Guwahati, Jabalpur, Jammu, Ranchi, Thane, Aizawl, Bathinda, Bhilwara, Siliguri, Srikakulam
10-30	Agra, Alwar, Aurangabad, Indore, Mathura, Meerut, Puducherry, Thiruvananthapuram, Dehradun, Dewas, Hubli-Dharwad, Jhansi, Kozhikode, Lucknow, Solapur, Tumkur, Udaipur, Ujjain, Dhanbad
30-50	Allahabad, Bengaluru, Bhopal, Delhi, Lucknow, Patna, Srinagar, Amritsar, Bhubaneswar, Jodhpur, Mumbai
50-70	Faridabad ² , Hyderabad, Jaipur ¹ , Kanpur, Kolkata, Nagpur, Gwalior, Mussoorie, Nainital, Rajkot, Vadodara, Yamunanagar
> 70	Chennai, Pune, Surat, Gurgaon ²

<10

Guwahati, Jabalpur, Jammu, Ranchi, Thane, Aizawl, Bathinda, Bhilwara, Jammu, Jabalpur, Siliguri, Srikakulam

¹Claims 80% coverage in CSE survey, 65% in City Development Plan for JNNURM; ²Faridabad and Gurgaon: only old-city within municipal limit included
 Source: Anon 2011, 71-City Water-Excreta Survey, 2005-06, Centre for Science and Environment, New Delhi



Bengaluru: **not** reaching

- 3610 km of sewage pipes
- 14 sewage treatment plants = **781** mld
- Generates 800-1000 mld of sewage
- **But treats only 300 mld**
- Rest does not reach
- Now plans to build 4000 km more
- **Builds, grows and more lines need repair**
- Catch-up that does not catch-up



Partial treatment=**p**ollution

6. Cities do not control pollution

The current water-sewage is both capital intensive and resource intensive

Cities cannot build new sewage systems or refurbish old systems

As a result sewage is treated partially or not at all

This leads to pollution

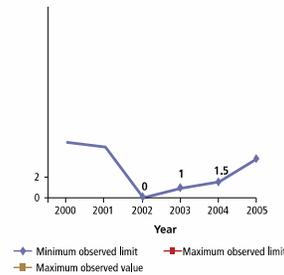
High cost to human health and environment



Agra: will spend more on treating water than it costs to treat sewage

144 mld
water treatment plant
Capital cost: Rs 1 crore/mld
Operation costs: Rs 3-4/kl

Cities forget:
we all live downstream



mg/l: milligramme per litre; DO: Dissolved Oxygen
Source: Sunita Nairam et al 2007, 'Sewage Canal: How to Clean the Yamuna', Centre for Science and Environment, New Delhi



Generation of **lost** rivers

- Delhi knows only Najafgarh – a dirty drain of Yamuna
- Delhi does not remember that this was Sahibi – which once flowed from the Aravalli into a jheel
- Mumbai knows only Mithi – a dirty drain. It even calls it a drain. But this was its river
- Ludhiana knows Budha Nullah as a drain. But this was a darya – a river

Generation of lost rivers. **How many more will we have to lose before we remember**



7. Reform agenda

1. Plan to cut costs of water supply
2. **Invest in local water systems:** learn and innovate on decentralised water supply
3. Reduce water demand
4. Spend on sewage not on water
5. **Cut costs on sewage systems:** innovate on redesign of the sewage system
6. Plan to recycle and reuse every drop



We all live down

