Cleaning India - In Search of Alternatives

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What inspired this presentation

- The activities undertaken in various avatars of the Clean India Mission usually talk about dealing with the symptom and not the cause.
- Do we simply do the work which there is already a system in place for?
- Can we do better? Can we identify and address the cause?

The PM's message is symbolic and important, but why do simply repeat this exercise.
Source: `http://teekhimirchi.in/2014/11/bjp-clean-india-campaign/`

This is not the first major campaign for cleaning India.

- 1986: Central Rural Sanitation Programme - first nationwide sanitation programme.
- 1 April 1999: Total Sanitation Campaign.
- 1 April 2012: TSC renamed to "Nirmal Bharat Abhiyan", or NBA.

None of the earlier programmes have been able to meet their objectives. The main difference of the CIM is the huge political push it has received, along with substantial fund allocations.
But will this work?

Why does India need cleaning?

- Pollution, and polluters rarely pay!
- Municipalities unable to cope with the scale of waste
- Impunity across scales; large industries, small enterprises, tourists, you, I. . .

We are equally to blame.
Source: `https://grasshopperfiles.files.wordpress.com/2013/07/img_0661.jpg`

Some causes are more complex

- The capacity of ecosystems to "process waste" is greatly reduced
- Some pollutants have a cumulative effects, discharge from a hectare of paddy can be naturally processed, but not that from a thousand hectares.
- There are consequences to land-use change which we don't anticipate:
  - Ground water withdrawal and aquaculture in coastal deltas increases salinity.
  - Urban agglomerations around lakes fundamentally alter their hydrology - and their nutrient intake.

How to kill a lake.
Source: Biswarup Ganguly - Own work, CC BY 3.0,
https://commons.wikimedia.org/w/index.php?curid=18178073

But is this the only issue?

An unclean India also implies:

- Polluted ground water.
- Ecologically damaged water bodies:
  - Streams and rivers
  - Inland and coastal lakes
  - Backwaters, mudflats and estuaries
- Clogged drains
- And the obvious filth around us

Adyar, one of the most abused rivers in south India.
Source: Arun Ganesh - Own work, CC BY-SA 2.5,
https://commons.wikimedia.org/w/index.php?curid=2437349

Challenges the Swatch Bharat Mission - Urban (SBMu) faces

GoI allocations for FY 2017-18 to Ministry of Urban Development: ₹34,212 cr.
GoI allocations for SBM-U ₹2,300 cr

In cities:

- 70% of our sewage systems are designed to dump raw sewage into water bodies.
- Lack of space makes construction of toilets and public utilities difficult.
- Many states have met less than 10% of targeted construction of toilets.
- Water supply itself is a major challenge.
- Solid waste management remains a challenge due to lack of infrastructure with waste processing just over 20% of targets.
- Municipalities are under-funded and unable to tap into the SBM funds.

Challenges the Swatch Bharat Mission - Gramin (rural) (SBMg) faces

GoI allocations for FY 2017-18 to Ministry of Drinking Water and Sanitation: ₹20,011 cr. GoI allocations for SBM-G ₹13,948 cr

In villages:

- Most disbursements have been for toilet construction in individual homes (over 98%) - but use of toilets remains low.
- Use of funds for information, education and communication remains below 8%.
- Open defecation remains a huge problem and independent estimates show that we are way behind meeting targets. Even official estimates show that in TN 22% of the villages are OD free.

So where does this leave us?

- "The much lauded political will driving SBM, coupled with existing weak institutional capability, is leading to 'premature loadbearing'" http://www.cprindia.org/news/6535.
- The emphasis on twin-pit toilets as opposed to other forms of sewage handling is likely to cause serious issues pertaining to ground water contamination over time.
- There is a tendency:
  - for quick results such as individual toilets as opposed to retrofitting old infrastructure and making room for new infrastructure.
  - to lean on "nominal success indicators" instead of an acknowledgement of the systemic nature of the problem, e.g. the huge disparities in statistics for ODF villages.

Cleaning India will take time

- Attitudes to cleanliness do not change overnight.
- There are social and cultural hurdles in using household toilets - these need to be recognised.
- We need to explore more decentralised approaches which emphasis recycling and reuse, both for solid and faecal sludge such as DEWATS and dry toilets, especially in areas where water supply is limited or where there is a high ground water table.
- The issue of non-degradable waste, mainly plastics, needs to be handled both at the consumer but also at the policy level. For e.g. starch based packing solutions and other bio-plastics.

FERAL demonstrated a number of alterantive approaches for WASH during its UN-HABITAT supported project in 2012.
Source: FERAL, UNHABITAT Project, `http://www.feralindia.org/drupal/node/133`

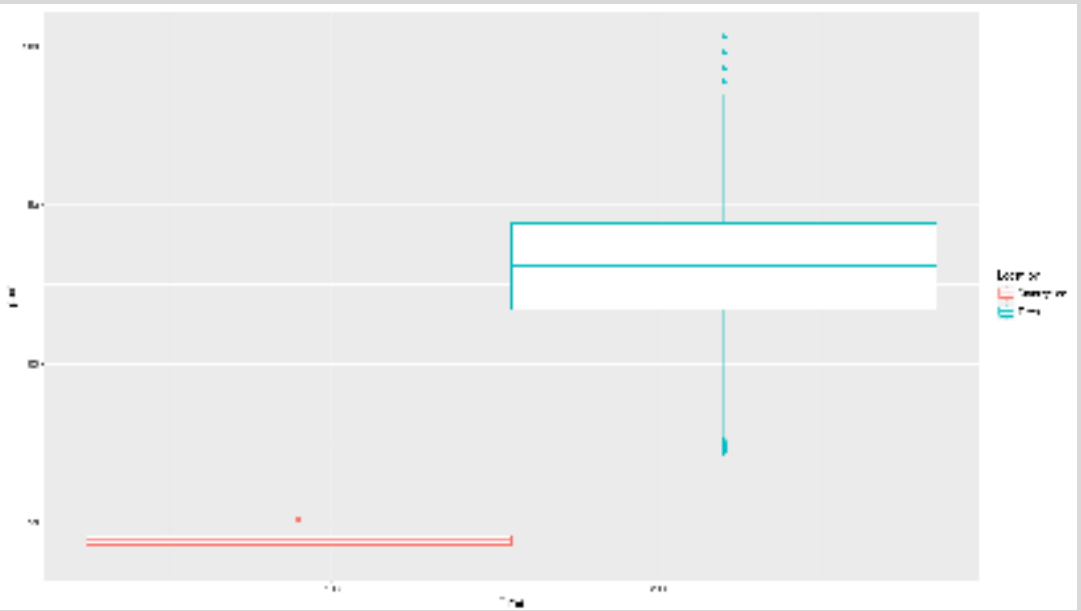
What do we do as citizens?

Recycle our waste, or ensuring it is recycled by the designated agencies:

- Segregation.
- Pot or garden vermi-composting.
- DEWATS (decentralised waste-water treatment systems) in housing societies.
- Re-use of secondary treated sewage for gardening/toilets (increasingly common in Bangalore)

Citizen Sensing

The CitSense initiative is a new initiative that FERAL is part of where we are trying to bring together various stakeholders to monitor, discuss and manage their own environment. It has huge potential in the urban setting.



A test run of an air quality monitoring system showed that a residential area in Pondicherry had 10 times the pollution load of the FERAL campus which is located on a farm in Morattandi, merely 5km away from the Rajaji Nagar site. Imagine the difference during Diwali or Bhogi? Equipment used to measure this cost about Rs.3000 in all.

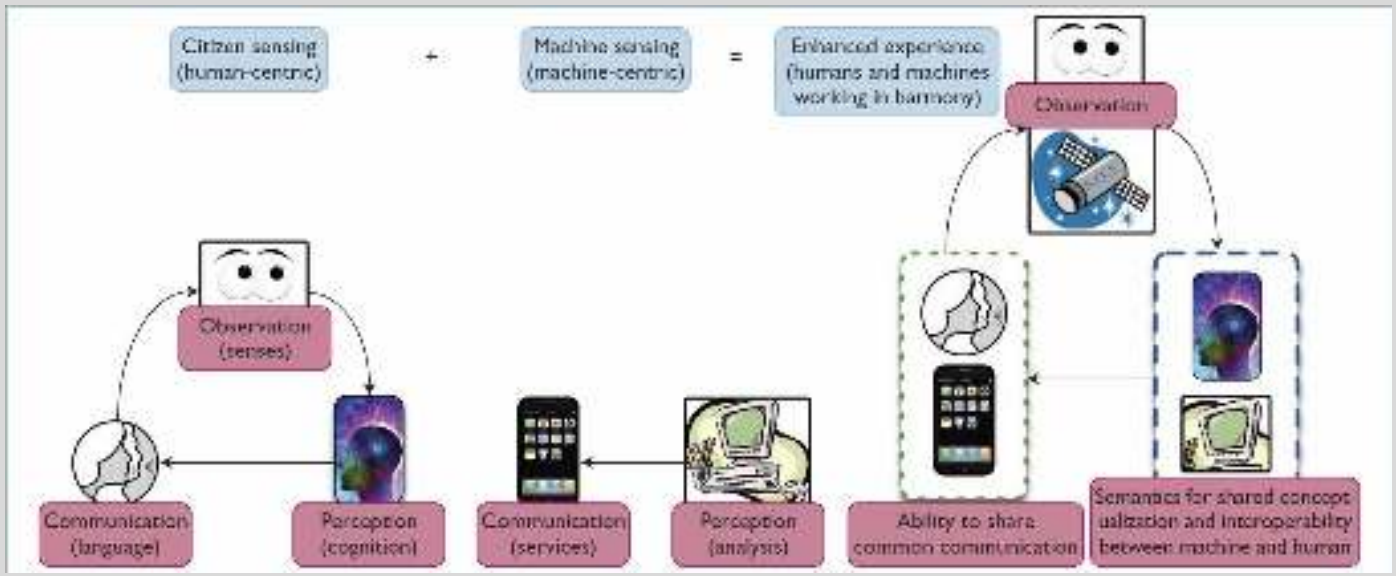
Citizen Sourcing or Crowdsourcing

Last November we ran a workshop for NGOs and researchers on using smartphones to collect geo-tagged audio/visual data and fill in structured forms. This is one of the many ways to involve stakeholders in the collection of structured and verifiable data.

Why these initiatives

We cannot expect government agencies to monitor and manage pollution at the local scale. Citizen centred approaches allow us to:

- Take environmental monitoring into our own hands.
- Directly identify and quantify the scale of the problem.
- Use the data for long term and broader scale research and innovation.



Citizen sensing or crowdsensign is changing the way we monitor and regulate our environment. We are trying to work with youngsters, academics and stakeholders like yourselves, to test out some simple sensors for monitoring the quality of your environment.
Source: `http://wiki.knoesis.org/index.php/Citizen_Sensing`.

Thank you for your attention

I'm happy to take questions.