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# How India's cities came to drown in sewage and waste

Sewage and waste infrastructure has failed to keep up with urban expansion, leaving India to 'drown in its excreta'

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Keya Acharya in Bangalore for IPS, part of the Guardian Environment Network  
guardian.co.uk, Wednesday 1 August 2012 15.35 BST

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A man walks by the Arabian Sea coast piled with garbage, mostly plastic waste, in Mumbai, India, on July 30, 2012.  
Photograph: Rajanish Kakade/AP

Almitra Patel, a civil engineer by qualification, says she was first alerted to India's huge problem of inadequate waste disposal when she noticed that the frogs in the marshlands near her farmhouse, on the city's outskirts, had stopped croaking.

Seeing that the frogs had died from sewage and garbage being dumped in the wetlands, she petitioned the Supreme Court in 1996 to intervene and get the city fathers to take responsibility for safe waste handling.

Investigations showed that less than half of the sewage produced by this global information technology hub was being managed in modern treatment plants, with the rest ending up as raw, untreated sewage in the city's lakes and wetlands.

Patel won her suit to make the safe disposal of waste a municipal responsibility, but management of solid waste and sewage remains a national problem.

"The marshlands (around Bangalore) have now turned into a deep, black stinking river of sewage that flows in an open channel through dense habitation to an expensive power-guzzling treatment plant," Patel told IPS.

Impressed by her work, the court appointed Patel, now 75, as member of a waste management committee tasked to report on conditions countrywide with a view to having a policy formulated.

In 2000, India finally framed a solid waste policy based on the committee's report, requiring all cities to devise comprehensive waste-management programmes that include household collection of segregated waste, recycling and composting – but this was never implemented.

The Energy and Resources Institute in New Delhi has estimated that by 2047, waste generation in India's cities will increase five-fold to touch 260 million tonnes per year.

Bangalore's municipality recently collected funds to clean and conserve its once-splendid wetlands, now shrunk from 262 in 1962 to just 17 in number. But, a study by the Indian Institute of Science, located in this city, says that the built-up area has simultaneously expanded by 466 percent over the same period.

"Municipalities are garnering funds for building these power-consumptive plants, but don't have the money to pay their expensive electric bills, or the infrastructure to bring the sewage to them," Patel told IPS. "Most such plants are not working".

A report by the non-government organisation, Centre for Science and Environment (CSE), Delhi, based on surveys of wastewater profiles of 71 Indian cities, highlights lack of infrastructure and neglect of sewage with less than 30 percent of the country's officially recorded sewage being treated in proper facilities.

The CSE survey, released earlier this year, shows that 70-80 percent of India's wastewater was ending up in its rivers and lakes. "We are drowning in our excreta," Sunita Narain, director of CSE, told IPS.

According to the World Health Organisation, more than 87 percent of people in India's cities (compared with 33 percent in rural areas) now have access to a toilet, but leaking and incomplete sewage systems contaminate rivers and lakes.

Currently, some 340 million people live in Indian cities; by 2030 the number is estimated to double, presenting a frightening spectacle of imploding sewage in its cities, several of which suffer water scarcity and pollution problems caused by encroachments into lakes and water bodies.

The northwestern city of Ahmedabad has built over 65 of its officially recorded 137 lakes, while the southern city of Hyderabad has a new airport built into the catchment area of Himayat Sagar, a major lake.

With recycling of wastewater still a pipe dream in most cities, almost all water is let out into drains that carry untreated sewage and end up in the country's lakes and rivers.

Old pipeline infrastructure has not kept pace with India's ever expanding cities, resulting in large urban areas being devoid of planned water supply and sewage treatment.

The cities of Delhi and Mumbai account for 40 percent of the country's entire sewage-treatment capacity, leaving other urban settlements with woefully inadequate infrastructure.

Inequity of water and sewage disposal infrastructure between rich and poor areas is another phenomenon rife in Indian cities, with high-income zones cornering most of the available amenities.

Only five percent of piped water reaches slum areas in 42 cities and towns, including New Delhi, the country's capital city.

And, as freshwater sources dry up, water is increasingly being pumped across great distances, from lakes and rivers into the cities.

In Bangalore, the municipality has been increasingly relying on the river Cauvery, 100 km away from the city, and already this is insufficient to meet the city's demand.

"Things are constantly getting worse," Gaurav Gupta, chairman of the Bangalore Water Supply and Sewerage Board told IPS. "This is because the river Cauvery itself is drying up."

Groundwater, not surprisingly, is now depleting rapidly in many areas as citizens sink more bore wells and authorities are yet to map the consumption of this resource.

A survey of groundwater in 27 cities, completed in 2008 by the Central Pollution

Control Board (CPCB), had warned that untreated sewage flowing in open drains was causing serious deterioration of groundwater quality.

The CPCB then called for proper underground sewage systems to be laid in all inhabited areas and recommended that a proper system of collection and transportation of domestic waste be developed.

Carrying water to cities across great distances has resulted in leakages and theft en route as well as conflict with rural communities that are left with insufficient water for their own needs in the rivers and lakes that have served them for generations.

"The speed with which water is shifting from rural to urban areas is faster than the rate of industrialisation happening in India," says Narain. "The challenge is to manage this through a 'water-prudent' society."

Patel states that there are easier and cheaper ways to treat wastes locally. "Surat city's municipality has been producing its own electricity from sewage gas since 2004. There are solutions," she said.

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**Mauryan**

1 August 2012 5:10PM

Those in power are not being held accountable. Alternatives

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elected do not offer any better solutions. Everyone is busy trying to grab power and then once in power, trying to hold on to it. They have no time for the welfare of the public. Indifference has set in. People have become inure to the negative changes around them. Most people want to live a good life and have a clean environment. But no one knows where to start and how to go about accomplishing it. Leaders are being elected for that purpose, but leaders have no awareness of their responsibility. Everyone is waiting for someone to come and clean up the mess around them. The culture of India is one where changes are driven by large scale social movements, driven by charismatic leaders. People like Anna Hazare, the various Babas and gurus have that power to influence and involve the public in social programs. Such leaders must come forward and force the changes needed from within. If the gurus said river pollution has to be curtailed, people will do what they can to make it happen. This is the only thing that has worked. Gandhi followed a spiritual path similar to what I mentioned to set up the freedom movement that spread across the whole region. India needs selfless leaders who can rally the masses behind them to make the changes from within in peaceful ways. Politicians, elected leaders and bureaucrats are not going to offer any solutions. They have made things worse. India is in need of a grass-root level movement that focuses on poverty, social work, maintaining cleanliness, teaching civic responsibilities, community involvement and so on to change the country from within. That is the only way India can come out of all the mess it is in. Ethics and morality have disappeared into thin air. People must be made to feel for others and help each other out. India has been a land of Godmen and gurus. I am sure someone will come and help us out. That is the only way out of all this mess.

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**thechrist**

1 August 2012 5:14PM

sometimes,it feels like a nightmare. but,the situation around the world is no different. Americans are facing drought,while some countries are facing floods...the Chinese are facing the same water crisis...while the skeptics still debate about the validity of

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global warming theory,when we'll we ever learn. the melting of ice caps,to record level of emissions. clearly, the western model of building the society has failed, while the Chinese have 1/10 of per capita gdp of US,they have already become the largest polluters in quest for prosperity.  
the whole system will have to change now, from bottom to up.



**Ayodhy**

1 August 2012 5:14PM

**How India's cities came to drown in sewage and waste**

Indian commonwealth organiser Kalmadi: "this is our standard".

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**Dendros**

1 August 2012 5:45PM

Not one mention of overpopulation. Not one

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**Ayodhy**

1 August 2012 5:52PM

**Seeing that the frogs had died from sewage and garbage being dumped in the wetlands,**

Does that mean even frogs cannot live there?

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**Ayodhy**

1 August 2012 8:03PM

Response to [thechrist](#), 1 August 2012 5:14PM

But in all those countries you referred frogs don't boil in sewage and die. They are safe, healthy and breeding exponentially.

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**Ayodhy**

1 August 2012 8:08PM

Response to [Dendros](#), 1 August 2012 5:45PM

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**[vakibs](#)**

1 August 2012 11:11PM

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The mass migration of the population in India from villages to cities is taking its toll on the limited infrastructure. The people in charge are completely ignoring this problem and are busy laundering real estate. With the real estate mafia running the show, there is absolutely no urban planning. Consequently, the living standards of many urban poor are turning even worse than the terrible livelihoods they left behind in the villages. Dozens of people sleeping under a single roof is becoming common. More than 50% of the citizens in a city are living in slums with conditions like these, where sanitation facilities are non-existing.

This scary thing is this is getting worse, and the same problem is repeating throughout the developing world. I recommend the excellent book by Mike Davis "[The planet of slums](#)" for a detailed analysis on this issue. This is a complex problem and there are no easy solutions. But the principal culprits are as follows

- 1) The mass transfer of land ownership in the villages, as subsistence farmers cannot compete with larger land-owners who use large machinery for farming. Industrialization is actually happening first in villages, and not in cities. This is making people jobless and making them migrate to cities (where there is not necessarily a promise of industry to absorb the surplus labour).
- 2) The complete non-existence of urban planning, and lack of democratic oversight on the development of urban areas. People are not consulted before the wealth of the commons - such as lakes, parks and green areas - are dismembered and distributed to the real estate mafia.
- 3) The rapid explosion of metropolitan cities, as they expand beyond their peripheries. This severely constrains water resources - far more fresh water is being used in cities than what

is permitted naturally in the neighborhoods. The rise of cities should ideally follow the Dutch model, with each city growing to a medium size and a network of fast roads and railways connecting neighboring sister cities. Instead, most of the urban growth in India (or other developing countries) is following the model of Paris or London, which is not sustainable.

So far about the necessity of urban planning. Now about the problem of waste management and recycling. India should invest immediately in the [Plasma-arc converters](#) for large scale e-waste recycling. India not only produces a lot of e-waste, but also is the destination for international hazardous waste - where ships and toxic products are dismembered. This has to be automated and performed through plasma arc converters. It is the only way India would avoid massive landfills.

The issue of sanitation is not related to recycling, but tightly coupled with the management of fresh water. It is not possible to have a London-style growth of cities without suffering something akin to the "[The Great Stink](#)". The only way out is through the development smaller medium-sized cities. But that is not as profitable to the real-estate mafia, so they have to be put in place first.



**[Veekayar](#)**

2 August 2012 7:06AM

Sewage Treatment Plants are expensive to install. They are power guzzlers. Expensive to run and maintain.

Many of them pack up for want of funds. I know a bioformulation called 'BIOSHUDH' available in Chennai & Bangalore, INDIA which stops bad odor from sewage instantly and turns it fit for gardening or for letting into canals/rivers or sea after 12 hours of retention time. No mechanical aeration and hence, no power needed. More details can be had direct from [bbchem2010@gmail.com](mailto:bbchem2010@gmail.com) This is not an ad for the product but is for general info. only.

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**[utkarsh356](#)**

2 August 2012 7:10PM

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Change yourself before changing others is what Mahatma Gandhi said.

And before I speak out about the system and other such cliched topics I must ask myself- Am I 'Water Prudent'? Do I do my bit to keep the environment clear?

Now that obviously does not change anything tomorrow. But had this been the attitude we would have been much better of 60 years after independence.

Our problem is a problem of a generally indifferent society. And the easiest thing to do is preach about the inadequacies of the government and continue to be do your bit to damaging the environment.

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**[SpookyAction](#)**

3 August 2012 12:54AM

"Sewage and waste infrastructure has failed to keep up with urban expansion, leaving India to 'drown in its excreta'"

But but but these are democratic excreta! Let's celebrate!!!!

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**[quillendaniel](#)**

3 August 2012 8:46AM

Like somebody above said no mention of overpopulation; what sort of life are you leaving for your children.....coming from South Asia , I know this is a problem over entire South Asia.....this is not the way to live.....

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