



*Water borne: a boy collects plastic from a drainage ditch in Jakarta, Indonesia*

# Keep it clean

As urban populations expand rapidly, especially in developing countries, providing water and sewage services is a serious challenge. By Sarah Murray

**T**HESE DAYS, SOME inhabitants of slums and low-income urban areas in east Africa are able to use something that few in unplanned settlements elsewhere have access to: a clean public toilet.

That such a basic amenity is so rare is testament to the challenge of providing sanitation in poor communities around the world. For David Kuria, an entrepreneur whose Kenya-based company Ecotact is behind what he has branded the "Ikotoilet", a key question was how to keep it clean. The solution was to allow young entrepreneurs to set up small businesses around the toilets – a magazine stand, a shoeshine stall and a booth where people could buy airtime for their mobile phones.

"The toilet stays clean because he figured out that if it is not clean, no one will come to buy the magazines or charge their phones," says David Strelneck, manager of water innovations at Ashoka, which identifies and supports social entrepreneurs such as Kuria.

So far, there are 27 Ikotoilets in Kenya, with plans to roll out the model in Tanzania and Uganda.

This idea is just one of a range of solutions emerging as everyone from small businesses to city officials looks for ways to provide their citizens with access to clean water and adequate sanitation facilities.

Doing so is becoming more difficult as the rapid expansion of urban populations poses monumental challenges for municipal authorities, particularly in developing countries where city slums are now home to more than 1bn people, according to UN-Habitat, the United Nations agency for human settlements.

When it comes to water, even in places where delivery infrastructure is in place, existing systems may be old and in need of repair, which can result in as much as 40 per cent of the water supply being lost through leakages before it reaches consumers.

At the same time, many cities in developing countries lack systems for treating waste water and returning it in an acceptable condition to lakes or rivers, which are often simply treated as dumping grounds.

"Most big cities in Latin America have a river running through them where a lot of the waste water is thrown, along with industrial chemicals, leaving them completely contaminated," says Federico Basañes, chief of the water and sanitation division of the Inter-American Development Bank.

And if the systems supplying water services to poor areas of cities are weak, infrastructure is often non-existent when it comes to sanitation.

"There's an indelible connection between fresh-water availability and sanitation," says Usha Rao-Monari, senior manager for utilities at the International Finance Corporation,

the private-sector arm of the World Bank Group. "Because when you don't treat sewage or industrial effluence, it's looping back and polluting fresh water."

She cites the example of Jakarta, the Indonesian capital, where water reaches roughly 70 per cent of

the population and yet formal sanitation services reach only 1.5 per cent. In Manila, the Philippine capital, despite the presence of one of the region's most successful water companies, which gives 98 per cent of the city's residents access to clean water, Rao-Monari says only an estimated 25 per cent of those

residents have any form of sanitation. "So sanitation is a much more serious issue," she says.

Poorly controlled urban waste water creates more than a smelly, unpleasant environment. It also carries the risk of infectious diseases such as cholera and typhoid, as well as diarrhoea-related and human parasitic diseases.

Sanitary improvements pay off in health terms. WaterAid, an international charity, estimates that while investments in water quality and quantity can reduce diarrhoea-related diseases by 15 per cent, sanitation can reduce them by 36 per cent.

**T**HE DIFFICULTY FOR CITY authorities is that, because new districts are spreading so rapidly, it is difficult to put the necessary infrastructure in place before the settlements become established.

Moreover, because the new settlements are generally home to the poorest residents, it is hard to charge sufficiently high prices for water and sanitation services to attract private-sector investments. "Unless governments come up with an appropriate cost-recovery model that covers both water and sanitation, private investors will not be interested," says Rao-Monari.

A further barrier to investments in better services – whether by the public sector or through concessions to the private sector – lies in the fact many city authorities would rather these settlements did not exist at all.

"As soon as you run a concession and put in pipes, you're acknowledging these informal settlements," says Michael Kubzansky, who leads the work of Monitor Group, a strategy consultancy, on identifying market-based solutions to development challenges. "And that's an acknowledgment some governments aren't ready to make."

Also, slums and informal settlements tend to expand into undeveloped areas

whose topography – often on steep hillsides – makes pumping in water an expensive operation and therefore an even less appealing prospect for private-sector operators.

However, some investments can have unforeseen benefits. In the Colombian city of Medellín – often cited for its progressive approach to delivering water to a large low-income population – the money spent on cleaning up the river running through the city has been the catalyst for urban regeneration.

In the early 1990s, the river was a dumping ground for untreated household and industrial waste. With the help of a loan from the IDB, a clean-up was accompanied by the establishment of treatment plants and the extension of potable water networks.

As well as removing health hazards and increasing access to clean water, the project has created new and highly desirable residential and business areas where local communities participate in the maintenance of new parks and other facilities.

"It needs continuous investment for many years, but it's amazing the kind of change you can get with an investment like this," says Basañes. "We saw the property values around the river increase exponentially – it went from being a place where nobody wanted to live to being a very desirable place."

Community involvement has proved successful elsewhere, too. "One urban model from Ecuador that seems to be succeeding is the establishment of citizen oversight committees," says Ashoka's Strelneck. "Every couple of blocks there are people who will keep

an eye on that water system. When there's a problem, they report it in an organised fashion."

As local authorities recognise they can no longer ignore the problem, hybrid models are emerging that combine municipal utility services with those provided by small businesses.

In some cases, for example, the utility might not install water pipes in a slum but would rent the use of a standpipe at the edge of the settlement to a local entrepreneur, who would then sell on the water to residents.

In other places, smaller operators are providing access to water through decentralised units. In India, the IFC is working with WaterHealth International, a company that makes clean water systems designed for poor communities. Through a \$15m loan to the company, the IFC aims to increase the installation of water purification and disinfection systems across the country.

"Their equipment doesn't need the network," says Rao-Monari. "So it's these distributed services solutions that might work for slum areas or peri-urban areas."

Even large private investors are starting to look at slum populations as potential markets for water and sanitation products. Last year, Tata, one of India's biggest conglomerates, launched a low-cost water filter called the Tata Swach, aimed at poor consumers.

Smaller, entrepreneurial operators

such as Kuria's Ecotact are also playing a role when it comes to providing sanitation for low-income and slum areas in cities.

The Ikotoilet model has proved successful, says Strelneck, because rather than expecting the community or the government to manage the system, the local entrepreneurs and business people have come up with their own solutions.

**S**ome of these models can be scaled up. One example is Sulabh International, a non-governmental organisation that has installed hundreds of household latrines and pay-per-use public toilets across India.

"The high-volume locations such as train stations and the city centres cross-subsidise the other locations, so it ends up being a relatively sustainable model," says Kubzansky. He points out that

it is often easier for companies to develop, manufacture and distribute low-cost water products for poor urban populations than it is to take them out to rural areas. For this reason, he believes water solutions developed for metropolitan

areas could provide models that would serve the broader population.

"There's a clear recognition that urban areas are a market," he says. "These are highly concentrated and low-cost-to-reach markets. So, to the extent that this problem is going to be solved by players like these, urban centres are where it will start." ■

## Hybrid models combine municipal utility services with those provided by small businesses



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