Modi kick-starts Smart Cities challenge

India's prime minister has officially opened an inter-city race for smart infrastructure funding. The central government's push is not the only opportunity for smart water specialists in the country.

On 25 June, Indian prime minister Narendra Modi unveiled the initial plan for the Smart Cities Mission (SCM), alongside two other initiatives: Housing for All by 2022 and the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), which takes on the JNNURM mantle to fund basic urban infrastructure. Through the SCM, 100 of India's largest cities will be allocated funds to retrofit or redevelop existing infrastructure to 'smart' certifications, and to build new 'smart' infrastructure.

Under the scheme, which specifies water and wastewater as key investment areas, the government of India will provide INR480 billion ($7.6 billion), or almost INR1 billion ($16 million) per city per year over five years, to special purpose vehicles set up for each city development. All states have been asked to put forward cities for funding (*see map, right*) and 20 will be selected in the second half of 2015, with consultants chosen to carry out pre-feasibility studies between November 2015 and April 2016. 40 more cities will follow in 2016, and a further 40 in 2017.

According to N.S.N. Murty, smart cities leader at PwC, all 100 smart cities will fall under the 500 chosen for the AMRUT scheme, and so will be eligible to receive part of the $8 billion AMRUT funding pot. Both schemes will contribute towards the Ministry of Urban Development's ambitious minimum 'service level benchmarks', which include 100% 24x7 water supply and sewerage coverage, 100% water metering, 100% cost recovery, 15% non-revenue water and 20% wastewater reuse.

The central government's contribution to the SCM will be matched equally by a contribution from state funds, with the balance of investment to be sourced from the private sector and municipal fundraising activities such as the issuance of municipal bonds. Several states have set up so-called 'financial intermediaries' to raise funds from the capital markets, and many will hope to tap the INR200 billion ($3.2 billion) National Investment and Infrastructure Fund (NIIF), a new entity proposed by the finance minister to raise debt and invest in the equity of Indian infrastructure firms.

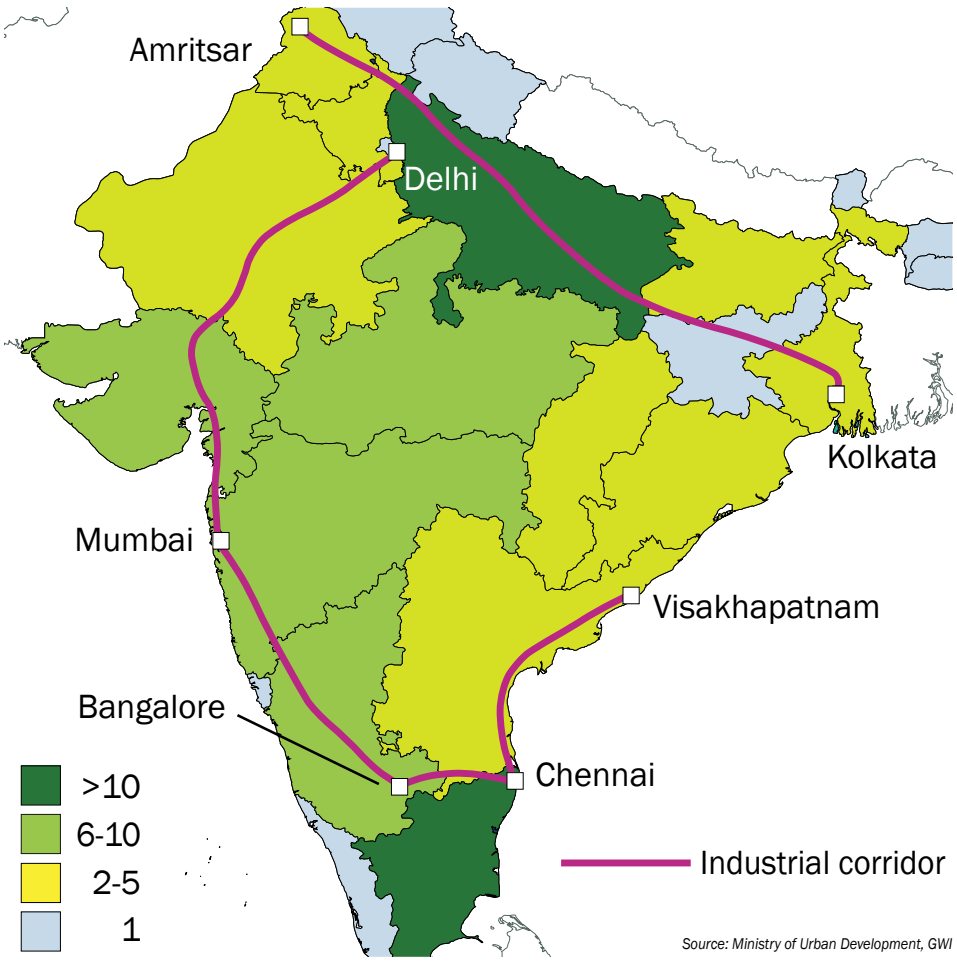
Rishabh Sethi, COO of Indian infrastructure operator SPML Infra, told GWI that "while the allocation will be sufficient for smaller cities, the bigger ones would need to generate revenue through financing to fund the development." Overall, Sethi said, "water and wastewater infrastructure is the core element of the smart city development projects, and our estimate is that it would certainly be about 40% of the total investment." This estimate is based on SPML's latest award, a $50 million DBO contract to create the first of several greenfield industrial smart cities under the Japan-backed Delhi-Mumbai Industrial Corridor (DMIC) initiative, at Vikram Udyogpuri in Madhya Pradesh. Although the 100 cities under the SCM will be brownfield projects rather than greenfield, Sethi is confident that the proportion of water-related investment will remain similar.

Cities hoping to cash in on the government funding offered under the SCM will be judged according to their track record of reform (including NRW reduction), institutional capabilities, and their ability to self-finance. Prospective smart cities will be looking carefully at the model of investment and the tendering processes in the DMIC, which is the first of five industrial corridors intended to make India a global manufacturing hub (*see map, above*) – a process that will see the creation of up to 40 smart industrial regions.

SPML's Vikram Udyogpuri contract encompasses a three-year design and construction period and a five-year operating term, and involves water, wastewater, solid waste, transport, power, and ICT infrastructure. Companies with this kind of ability to work across multiple sectors, and to find synergies between them, are likely to have a distinct advantage in the development of infrastructure for small cities, although larger cities are expected to split development into sectors and projects.

IL&FS has been another early mover in the smart city space in India. The company is currently developing the Gujarat Inter-

Cities per state allocated under the Smart Cities Mission



Source: Ministry of Urban Development, GWI

national Finance Tec-City (GIFT) through a 50/50 joint venture with the state-owned Gujarat Urban Development Company. This small but exclusive financial hub was a 'pet project' of Modi when he was chief minister of India in 2007, and is considered a key reference for the SCM. When completed, GIFT is expected to feature 100% wastewater recycling and 24x7 water supply via a digitally optimised system that will serve the financial services industry as well as up to 80,000 residents.

While IL&FS has invested equity in the GIFT project as a developer, most greenfield smart cities are expected to tender out their infrastructure projects as DBOs in the first instance, largely because of the lack of established clients to pay for services. In the Dholera Special Investment Region, a 450km^2 greenfield industrial city in Gujarat which will host heavy industry and up to 2 million residents, AECOM has designed a 100% wastewater reuse and 24x7 water supply system using brackish water desalination. The development is staggered in three 150km^2 phases over 30 years, and the first 22km^2 activation area of the initial phase is now underway. The first water facilities – a 20,000m^3/d municipal WWTP and a 35,000m^3/d industrial WWTP – will be procured under 5-year DBO contracts in the second half of the year, and a similar contract for the 40,000m^3/d BWRO plant is expected in summer 2016.

For smart technology providers looking to sell into the Indian market, there are also potential clients outside of the SCM. The Ministry of Shipping is planning to upgrade 12 port cities with smart infrastructure, while Singapore is helping to fund Amravathi, the new, greenfield smart capital of Andhra Pradesh. Meanwhile, the USTDA and the cities of Barcelona (Spain) and Kyoto (Japan) have each selected their own municipalities to sponsor.

It is essential to note the different markets for the adoption of smart water technologies in greenfield and brownfield projects. IL&FS had the luxury in the GIFT project of being able to combine all utility pipelines in a digitally monitored 8-by-6-metre tunnel beneath the pavement. On the other hand, Ashok Natajaran, CEO of Tamilnadu Water Investments Corporation (TWIC; a joint venture between the government of Tamilnadu and IL&FS), explained that "to get an underground sewage system in congested cities is probably going to take a decade or more. There is not a single city in India which can claim to be delivering water completely by using smart technologies or giving uninterrupted water," he told GWI.

Although Natajaran sees huge opportunities for TWIC in the SCM, he also sees challenges in implementation.

"The investment is not in line with what is required to address various issues in 24x7 water supply and effective wastewater treatment," he said. "Making these projects bankable is a very big challenge, and this may be a reason why they have put up so many cities initially. Many of them will not be viable.

"You are not going to get smartness into your system just by rehabilitation or introducing metering," Natajaran said, adding that "legislation will have to be brought in to apply smart water technology and to ensure the ability to be billed on volumetric consumption, so that demand management also improves." Despite the challenges, however, he is convinced that "people are willing to pay if continuous water supply is assured," implying that PPPs are likely to be viable in the long run.

Nonetheless, the effectiveness of this initiative will very much depend on the capabilities of state and urban local bodies (ULBs). Natajaran claims that the level of maturity in Tamilnadu, which has already made inroads in the fields of GIS mapping, hydraulic modelling and wastewater reuse, should mean that cities there can migrate relatively quickly. Against this, utilities in some states in the north and east – where water stress has never been a serious issue – lag behind in terms of sophistication.

This might not always be a bad thing, according to Murty from PwC. In some cases, less developed cities may actually outstrip the more advanced cities by being able to "leapfrog" infrastructure issues with the help of technology.

Grundfos realigns in Asia to streamline growth

A year into office, Grundfos' new CEO for the Asia Pacific market has split his business along regional lines and taken India away from the Middle East and Africa in a bid to double revenues by 2020.

Danish pump manufacturer Grundfos has split its Asia Pacific business into four regional clusters to streamline production and sales as it aims to double revenues in the region by 2020. Aftersales services are a key element of the strategy.

The Asia Pacific region, headquartered in Singapore, contributes in the range of 15-20% of Grundfos' total net turnover, which totalled €3.2 billion for the year-ending 31 December 2014. According to Okay Barutçu, CEO of Grundfos Asia Pacific, the revenues in three of its new clusters are of a very similar size, while the East Asia cluster is about a third larger.

The new regions are split as follows: East Asia (Japan, South Korea, Philippines and Taiwan); South Asia (Indonesia, Malaysia and Singapore); Oceania (Australia and New Zealand); and Indo-China (India, Thailand, Vietnam, Sri Lanka, Bangladesh, Bhutan, Nepal, Cambodia, Laos, and Myanmar).

While China is managed as its own region because of the market size, Grundfos has yet to realise all its growth potential in India, hampered partly by a proliferation of copycat pump suppliers undercutting its products. "India is unique in many ways – a huge country with a huge population – but it is also a huge challenge in terms of competition and rules and regulation," Barutçu told GWI. "In the future, I can see a scenario where India and the surrounding countries become their own cluster."

Across the Asia Pacific region, the business is split into three distinct segments: industrial solutions (40% of revenues), domestic and commercial building services (40-45%), and water utilities (15-20%).

By 2020, however, Barutçu is aiming for revenue to be split equally among the three individual segments.

While large-scale treatment infrastructure build-outs in countries such as Indonesia and Vietnam will contribute significantly to the catch-up growth on the utility side, Thailand's revived flood control programme and development ambitions in Sri Lanka, Myanmar and Bangladesh will also stimulate new business.

Despite this, Barutçu believes that maintenance will be key to sustaining long-term growth in the utility segment. "We would like to promote services almost as a business in its own right in the region," he explained. "In an ideal scenario, that would represent at least 25% of our turnover."

While uptake of 'smart' products has been slow outside of East Asia and Oceania, Barutçu sees a pivotal energy crisis at work: "they cannot subsidise [energy] forever. It's unavoidable – smart technology will come."