Water Smart

"If there is magic on this planet, it is contained in water"- Loren Eiseley

We live in a world that is growing rapidly and the 7 billion plus human population today is predicted to swell to 9.6 billion by 2050. For the first time in history, more than half the world's population is living in cities. As consumerism proliferates, these urban spaces are responsible for more than 70 percent of greenhouse gas emissions globally. It is a disconcerting fact that in 1800 A.D, only 3 percent of humanity lived in cities! At present almost all population growth takes place in cities. According to UN projections, 70 percent of humanity will be living in cities by 2050. This article focuses on the gap visible between core infrastructure services like water supply in smart cities and rising urban population in these cities. It also highlights case studies of India and Singapore comparing the large gap between generation and treatment of water in India and ability of Singapore's public utilities agency to adopt a holistic approach where the city currently receives more than half of its water supply from the unconventional sources making it fully self-sufficient in water.

Zoom down to India and we find that the number of metropolitan cities having a million plus population has increased from 35 to 53 as per the 2011 census. As urbanization expands and transforms more and more landscapes across the globe the demands on the water resources the planet provides will unarguably grow too. Water is at the core of life -food production accounts for around 70 percent of water use and 30 percent of energy use globally. Also, 45 percent of freshwater use in industrialized countries is for energy generation. As urbanization spreads its wings the need and demand for energy will only keep growing and so will the demand for water. Then most importantly, there is drinking water and global freshwater demand is projected to exceed current supply by more than 40 percent. Hence, water resources have multiple contenders vying for a share and every single living organism is dependent on water for its existence.

The objective of the government's 'Smart Cities' Mission is' to promote cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and application of 'Smart' Solutions. The focus is on sustainable and inclusive development and the idea is to look at compact areas, create a replicable model which will act like a light house to other aspiring cities. The salient infrastructure constituents for a city to qualify as smart have been designated as follows and the first element is

i. **adequate water supply**
ii. assured electricity supply
iii. sanitation, including solid waste management
iv. efficient urban mobility and public transport
v. affordable housing, especially for the poor
vi. robust IT connectivity and digitalization
vii. good governance, especially e-Governance and citizen participation
viii. sustainable environment
ix. safety and security of citizens, particularly women, children and the elderly, and
x. health and education

It is evident from the above listing that elements ii, iii, viii and x are not possible without a sustained supply of water! So cities can only be smart if they are smart about water. ***Water is life– it connects many environmental issues – pollution, biodiversity, food, energy, and climate regulation. The usage, management, wastage, or pollution of water defines the sustainability of our environment.***

As India's urbanization gathers speed it has the potential to absorb investments worth INR 120-150 Trillion in the next ten-eleven years till 2025. Amongst the 'Ten Commandments' of infrastructure development quoted above , last mile connection of utilities like power and water are evidently paramount. Currently, both the delivery of clean water and sewage disposal are next to free in our country resulting in a breakdown of urban utilities. Whilst the urban rich can afford to pay for high priced water tankers the urban poor who do not have access to public water supplies bear the brunt of this inequity. They pay through their nose for this precious

commodity and suffer a big drain on their meagre budgets. Likewise, sewage clearance in the poor and lesser developed sections of cities is deplorable resulting in unhygienic living conditions and the toll it takes on the population's health, again making a hole in their already marginal incomes. The cost of this lack of health on productivity and loss of employment when calculated would be very significant.

An adequate water supply remains a distant dream when one takes stock of the current situation. Though our National Water Policy 2002 gives top priority to drinking water it allows for a reprioritization if a situation so demands this. The situation of failed water utilities has led to the privatization of water. Not only do our utilities under-price water they also fail to collect their dues! Across India, water utilities suffer from water theft and abysmal revenues in comparison to costs incurred. Add to this the woe of water leakage and you have a recipe for disaster. Water leakage costs water utilities worldwide US$14 billion every year. The loss of the water utilities has been the gain of the packaged water industry and the outcome has been the hapless consumer who has to spend money to clean up the water that utilities supply to his home. Cities where millions of Indians spend huge amounts to have access to clean drinking water are far from smart and we have many lessons to learn from countries where this has been addressed and you can drink straight from the tap! Drinking straight from the tap in India would be a guaranteed invitation to some or the other water borne disease.

Nor do we treat our waste water and this untreated water when released into water bodies pollutes both surface and ground water. Out of about 38000 million litre per day of sewage generated, treatment capacity exists for only about 12000 million litre per day. Thus, ***there is a large gap between generation and treatment of wastewater in India and even the extant capacity does not work to full potential owing to operational and maintenance lacunae***. The operational plants do not meet the requirements established by the Central Pollution Control Board and hence have an adverse effect on the environment.

Juxtapose with this Singapore, a densely populated city-state on an island lacking fresh water lakes. Singapore's water story is exemplary and it has become a trail blazer in water management. Thanks to the award-winning holistic work of its public utilities agency, the city currently receives more than half of its water supply from the unconventional sources of rainwater collection (20 percent), recycled water (30 percent), and desalination (10 percent). The long-term plan is to become entirely self-sufficient in water. That is what one would call a smart city! Our smart cities mission must designate top priority to water and its management and distribution without this happening the mission will remain ,as so many of our national missions , a reality on paper.

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