# Bangalore City – Development Challenges and Potential Solutions

Bangalore has taken giant strides in the 21st century, emerging as the city of technology, industry, enterprise and above all, of opportunity. The growth in the city has been phenomenal in most respects. Between 2001 and 2011, the population of Bangalore **increased by nearly 65%** and now stands at over **8.5 million people**. However, such rapid growth has also posed its own set of challenges before Bangalore – the challenge of making this growth process more sustainable, inclusive and citizen-centric. Based on research carried out by Swaniti, this paper highlights the following as some of the most pressing developmental problems in Bangalore:

- **Solid Waste Management**: Rapid increase in population, rising disposable incomes and the explosive growth of the IT have industry have contributed to making waste management a major challenge in the city.
- **Drinking Water:** Large parts of Bangalore city are facing a water-crisis, especially in the summer months with the Cauvery drying up and demand for drinking water reaching record highs every year.
- **Environment and Tourism:** Bangalore holds great potential in the tourism sector, both for citizens of Bangalore as well as tourists from the rest of the country. However, the growth in Bangalore's population has taken its toll on the environment and places of ecological value, thereby negatively impacting tourism

The following pages highlight these problems in greater detail, and explore ways to address them in a sustainable and participatory manner. It is also possible for some of these solutions to have an impact across sectors. This convergence has also been highlighted.

## A. Solid Waste Management

According to some estimates, Bangalore generates more than 5000 tonnes of solid waste daily, and the waste management infrastructure is still inadequate to deal with it. In the recent past, some initiatives have been taken by state government as well as the Municipal Corporation (BBMP) to tackle this problem. In July 2014, a special scheme called "Kasa Muktha Bengaluru (Garbage-free Bangalore) was launched by the State government. The BBMP introduced the system of segregation of garbage at the source by earmarking different bins for wet and solid waste. Close to 25000 rag-pickers are employed by the BBMP for the purpose of waste collection and transportation. The option of converting such waste to energy has also been explored. Two bio-methanation plants have already been commissioned, which can convert 5 tonnes of garbage into useful gas.

Yet, despite these measures, more than 20% of the waste (1000 tonnes per day) is still not picked up. In some areas of Bangalore, quarries are being used as dumping yards, which could contaminate the groundwater underneath. Therefore, decentralization of waste management with greater involvement of residents needs to be further encouraged. The role of NGOs and other voluntary organizations is critical in this regard. For example, Stree Mukti Sangathan – an NGO in Mumbai - has set up composting pits in housing societies across the city for wet wastes (food wastes). Dry waste is collected and sent to recycling plants.

With the new CSR rules coming into force, the corporate sector in Bangalore could also participate in activities such as setting up composting and recycling plants and organizing awareness drives in residential colonies and housing societies. Lastly, since a lot of the waste is still mixed in nature (not segregated at source), there is great potential for introducing technology which can convert mixed waste into energy. The best example of such a plant is Pune's large-scale plant

based on thermal gasification technology. The plant has been set up in PPP mode, and is capable of generating 1 MW of electricity every hour by processing 70 tonnes of such waste.

The other aspect of the problem of waste management in Bangalore is e-waste. Owing to it being an IT hub, Bangalore generates more than 18000 tonnes of e-waste a year, with Mumbai being a distant 2nd at 10000 tonnes. The total e-waste generated from different sources has been increasing at an alarming rate of almost 20% annually. If organized and scientific ways of disposing of such waste are not encourage, it could prove to be a major health and environmental hazard. 90% of all e-waste is still handled by the unorganized sector in Bangalore. Such scrap dealers often burn components in the open, which can pollute the environment and could have fatal health consequences. They also often dump such material in drains with other material, which can make groundwater toxic.

The only real solution to this problem lies in encouraging organized disposal of e-waste. This can happen only through awareness drives among citizens as well as such scrap dealers. Here again, CSR funds could be effectively leveraged. The IT companies in Bangalore, which account for a major share of the e-waste generated, could play a key role in this.

## B. Drinking Water

Bangalore is today confronted with an acute drinking water problem, with slum-dwellers bearing a major portion of the brunt. Most of these communities are supplied water by private tankers, which charge exorbitant rates without any guarantee of purity. In this summer, the Bangalore Water Supply and Sewerage Board (DWSSB) announced supply of cheap drinking water to households through tankers. However, in the long-run augmenting the total drinking water availability will also be important. Here again, a model of decentralization and innovation has proven to be successful in other parts of the country. Delhi's

The Delhi Jal Board (DJB) in collaboration with the Delhi Urban Shelter Improvement Board (DUSIB) recently launched a pilot project at Savda Ghevra, a resettlement colony in Southwest Delhi. As a part of the project, a decentralised water treatment plant has been installed to extract the ground water which then is purified through reverse osmosis system and then provided to the people through 15 water-ATM kiosks. The residents of the colony are drawing one litre of water from 2 ATMs installed at the plant itself by paying 15 paise and from 13 other kiosks at the cost of 30 paise using smart cards which are called *"Sarvajal"* cards.These water kiosks were installed in this colony by "Sarvajal", a philanthropic initiative of a leading pharma company, after it won a tender floated by the DJB.


Sarvajal has installed such "water ATMs" in 4 states – Delhi, Rajasthan, Gujarat and Maharashtra. Since the relatively inexpensive technology of reverse osmosis is used, the price of water is also very reasonable.

Apart from this, other solutions to the water crisis cut across sectors. These are further explored below.

## C. Environment and Tourism

Ecology has had an important role to play in the attractiveness of Bangalore as a city. Known famously as the "Garden City", Bangalore has been known for its verdant greenery and its lakes. However, the pressure of a burgeoning population has taken a toll on them. While air pollution has been on the rise due to increase in the number of vehicles on the roads, the bigger challenge in Bangalore is that of water pollution and contamination. According to a 2012 study by the Department of Mines and Geology of the Karnataka government, 52% of borewell water and 59% of tap water in Bangalore is not potable. This is primarily because of contamination of groundwater and other sources with sewage.

Presently, 184 lakes exist in Bangalore (this number used to be almost 1000 about 200 years back). Conservation of these lakes and rejuvenating them would provide a boost to tourism in the city. Lakes and other such wetlands also act as carbon sinks, and can help to mitigate the effects of excessive air pollution in Bangalore. Lastly, *if these lakes are interconnected and conserved in a holistic manner, they can significantly improve the groundwater level. This can be a solution to Bangalore's water woes*, especially when the water flow in the Cauvery is inadequate to meet the peak summer demand. Therefore, these lakes can positively impact the lives of Bangalore's residents in multiple ways.

Apart from interconnecting such lakes, their aesthetic and touristic value can be enhanced by provision of basic infrastructure such as benches and by planting more trees along these lakes. Corporates could also be invited for this purpose as part of their CSR obligations. However, this can only be successful if the local community is involved in such initiatives. A "Save Bangalore Lakes" Trust was formed in 2012 to take this cause up.

Organizations like Thomson Reuters and Deloitte have already begun to undertake lake rejuvenation activities as part of CSR. Praxair India had made a commitment to support activities around the Ulsoor Lake for a year.
Under the latest CSR rules, Schedule VII with the list of permissible activities includes "Environment" as a category, in which activities related to "*ecological balance"*, *environmental sustainability*, and *conservation of natural resources* can be taken up.