

The Keynote address delivered by Dr M Ramachandran, former Secretary of the Ministry of Urban Development, Government of India, at the "Smart Cities Workshop: Sustainable Urban Development" held in Kochi on September 20, 2019. The workshop was organised by South Asia Institute of Heidelberg University (Branch Office New Delhi), ORF, SPA and IMPRI in collaboration with Centre for Public Policy Research (CPPR). The event was supported by Friedrich Naumann Stiftung für die Freiheit.

It may be recalled that the development of smart cities was considered a key player in the direction of comprehensively developing physical, institutional, social and economic infrastructure of cities, all being important factors in improving the quality of life and attracting people and investments to the city, thereby setting in motion a virtuous cycle of growth and development.

Initially there was a lot of confusion as to what is meant by a smart city, as the canvas left wide open stating that there is no universally accepted definition of a smart city. The conceptualisation of the smart city varied from city to city depending on the level of development, willingness to change and reform, resources and aspirations of the city residents. So in the process of identifying the 100 cities to be in the list, a bottom-up approach to urban planning was adopted. It is worth noting that a total of 15.2 million citizens participated in the preparation of plans at various stages accounting for about 12 per cent of the total population of the proposed participating cities.

Based on the learning from the implementation of the first major urban mission namely the JNNURM, the preparation of smart city proposals has been on a participatory basis. The government did not prescribe any particular model to be adopted by the smart cities. One of the criticisms about the earlier mission was adequately addressed by making it clear that the approach is not one of one-size fits all. Each city had to formulate its own concept, vision, mission and plan appropriate to its local context, resources and levels of ambition. Thus, Bhubaneswar prepared a smart city proposal projecting an investment or expenditure of Rs 4537 cr, with Rs 2563 cr expected to come through PPP. Indore prepared a somewhat ambitious proposal of Rs 9920 cr of which Rs 2004 cr was debt component. Kochi's proposal provided for a total of Rs 2075 cr of which Rs 243 cr was to be in the form of PPP. Pune's total proposal of Rs 3110 cr included 1000 cr to come from Development Rights and Rs 200 cr from the head of user fees.

Various firsts which need to be taken note of as far as the launch of this mission are the following.

For the purpose of selection, first, potential smart cities in each state/UT were identified by giving equal weightage to urban population of the state/UT and number of statutory towns. Thereafter, the selection was made through a process of competition under the guiding principles of cooperative and competitive federalism. Then, the city selection was made through a two-stage competition wherein cities prepared their proposals based on an

extensive exercise of citizen consultation and therefore the proposal truly reflected the hopes and aspirations of the citizens.

Creation of an SPV for implementation was one of the basic requirements of the Smart City mission. This was also based on a learning from the earlier mission implementation where it was felt that with the sudden introduction of a large mission programme, the cities which did not have the capacity struggled a lot to manage affairs within the limited capacity they had. In the process, consultants became active as that was a quick option left. Therefore, it is for the first time that an independent professional mechanism in the form of an SPV was created for the implementation. Though there were some criticisms about the SPVs being not in line with the elected nature of the city councils, it was important that the implementation gets localised, capacities are created and local accountability is ensured. The proposal was to give complete flexibility to the SPV to implement and manage the smart city project and the state or the ULB as relevant, had to undertake measures as detailed in Annex 5 of the mission statement. What has been the performance of these SPVs? Have they come into existence fully, have they been made fully functional, have they been successful in enhancing the paid up capital continuously as per project requirements?

Two more points need to be noted. For the first time, convergence with various other missions of the MoHUA and other ministries, leveraging of resources through various sources like PPP, debts, land monetisation, etc was built into the mission. Also, against the prevalent policy of whole city improvement, an area-based development approach was acceptable under the Mission; the idea being based on the experience gained, a full city implementation could be thought of.

Another aspect highlighted is that financial innovation is incorporated in the design of capital and investment plans. Thus, while 45 per cent of the total mission funds of Rs 2.05 lac cr is the central and state share, 21 per cent each has to come from convergence and PPPs, 5 per cent through debts and loans, 1 per cent through own funds and the rest 7 per cent from others. But against this total provision, it is a matter of concern that the central share released so far amounts to about Rs 17,300 cr, whereas the states share released stands at Rs 9100 cr only.

It is interesting to have an overview of the types of projects that have been taken up. The mission's impact on the lives of citizens has been grouped under four thematic areas. Under the ease of living category, the projects being taken up relate to urban mobility, affordable housing, water & sanitation, safety and security and vibrant public spaces. Under smart governance category come integrated command and control centres, smart card, online services, ITMS and smart poles. The connected communities category covers smart education/class rooms, skill development, public art and built heritage. The fourth category of urban resilience has projects relating to solar and wind energy, waste to energy plants, green buildings and energy management.

Assuming the citizen preferences and views have been amply reflected in the structuring of the mission, one can see that the largest share, close to one-fifth of the total resources, i.e, about 42000 cr has to go for area development. Urban mobility comes on top among

specific sectors with about 34000 cr being earmarked for such projects. The traditional urban sectors of water supply, waste water/sewerage, storm water drainage and SWM together get only about Rs 30000 cr, which apparently seems to indicate that considerable work has already been done mainly under the earlier urban renewal mission and people and cities are now focused on broader area development and improvement in urban mobility.

When we look at the implementation so far, a total of over 3700 projects worth Rs 1,36,000 cr have been tendered, of which 959 projects are reported to have been completed with a cost of about Rs 15260 cr. The coming into existence of smart command and control centres in as many as 17 cities, which use digital technology to integrate different service networks enabling the city administration with a centralised monitoring and decision making capability, is a notable achievement in the direction of smart city management. Sixty projects are reported to have been completed in 25 cities under the smart roads component; 27 smart solar projects in 17 cities, 12 smart waste water projects in 10 cities, 38 smart water projects in 24 cities also have been completed.

The mission has definitely resulted in a process of new ventures, which leverage technology to the benefit of a larger number of city residents. The Bhopal Integrated Command and Control Centre aims to enhance the safety and security of citizens through the implementation of India's first cloud-based Integrated Command and Control Centre which consists of a cloud data centre for all seven smart cities of the state such as Bhopal, Gwalior, Jabalpur, Indore, Ujjain, Satna and Sagar. Also, a cloud-based disaster recovery centre for all smart cities of the state and an integrated command and control centre in each of the above cities with city-based controls and analytics form part of this venture. If as claimed, this has been able to break silos of city operations then this is a positive development.

There is no doubt that expectations will continue to be high even as four years of implementation of the mission are over. Technically, only one more year of the mission is left, still a large number of projects are under implementation. However, the full complement of approvals and expected full mobilisation of the resources are yet to happen. While there cannot be any scope for any outright criticism of the programme at this stage, the fundamental question which needs to be addressed is that as a result of all these, is the city becoming smart and are the citizens deriving full advantage of the intended outcomes?

Rumi Aijaz and Kristian Hoelscher have appropriately referred to this aspect in their paper 'India's smart cities mission: an assessment'. According to a popular definition, they write, "Every city can become smarter. Smart cities start with smart systems, working for the benefit of both residents and the environment. Electric grids, gas distribution systems, water distribution systems, public and private transportation systems, commercial buildings, hospitals, homes – these form the backbone of the city's efficiency, liveability and sustainability. It is the improvement and integration of these critical city systems – done in a step by step manner – that become the cornerstone to making a smart city a reality."

Therefore, the two questions that have to be answered here would be to what extent the projects taken up and the results achieved have made life smarter for the city residents and

what is the sustainability guarantee, especially being conscious of the fact that the required resource availability, subsequent to completion of a project, mainly for O&M and for updating technology often become a casualty in our city systems. It may be recalled that the 2011 Report on Indian Urban Infrastructure and Services had highlighted the point that 'the low spending on O&M of existing assets has further contributed to the problem of service delivery' and it projected the requirement of Rs 19.9 lac cr on O&M cost for catering to all urban infrastructure investment requirements as proposed in the report. Hence, if not effectively addressed, this basic requirement would need to be taken care of in the case of all these projects.

What could be the Environmental Sustainability Framework for smart cities? The USGBC-TERI combine had proposed such a framework to the Ministry towards the end of the year 2014. The proposal was that smart cities in India should strive to achieve sustainability goals sector wise.

For the energy sector, it would be reducing energy demand through the introduction of energy efficiency and conservation strategies in buildings, industries, municipal services, etc. and meet at least one-third of the energy demand by renewable energy-integrated smart grid.

For the water sector, the goal would be reducing water demand by effective management, supplementing the municipal supply with recycled waste water and rain water harvesting combined with the adoption of sustainable drainage systems and restoration of water bodies.

When it comes to waste, ensuring clean and hygienic sanitation facilities for all with 100 per cent collection of segregated/unsegregated municipal solid waste, treatment of at least 50 per cent wet waste, recycling of waste, provision of common facilities for electronic waste, provision for hazardous as well as medical waste disposal, provision of facility for separate disposal of C&D waste and conversion of existing dump sites to sanitary landfill, including closure plans, will have to be aimed at.

To improve liveability, measures required would be improving air quality in a consistent manner, creating green jobs and moving towards a green economy. An ambitious target would be to make cities safe, clean and liveable with zero crime rate.

With regard to the transportation sector, the goal should be the provision of basic facilities and amenities in neighbourhoods at comfortable walking distance of 300 to 400 metres and 100 per cent arterial and sub-arterial road network in the city having footpaths and cycle tracks. Dense networks of public transport would need to be provided to ensure high accessibility of public transit stations from any point in the city with a target set for 50 per cent modal share of public transit systems. Also, the aim should be to encourage transition of at least 10 per cent of private vehicles and 50 per cent of city and public transport fleet to electricity from renewable sources. If not planned and adequately incorporated, city-wide actions on all these would need to be thought of as the continuing next phase of the smart city.

When citizen participation was taken up while formulating city-specific smart plans, improvement in mobility emerged as a more prominent requirement in many places. It even ranked among some of the basics like water, waste management, etc. That shows how concerned people were about better mobility, reducing congestion and pollution and saving time. Even after the NUTP 2006 laid down a detailed framework for cities to adopt, even today only a few Indian cities have organised and regulated public transport systems and definite infusion of funds under different government programmes. However, buses still continue to fall short of requirement, even after taking up metro rail projects in some more cities, and the public transportation systems across the country continue to be inadequate to meet the mobility requirements of a growing urban population.

As per one World Bank study, about 80 million trips per day need to be catered to in our cities, but the available public transportation systems manage to provide only about 37 million trips per day. Rapid modal shift to privately owned vehicles due to a variety of factors is a big challenge. Expanding city boundaries, increasing urban population and rapid increase in the number of personalised motor vehicles has had an adverse impact on the share of public transport systems in the overall urban transport matrix, highlighted the background paper prepared for an International Conference on Smart Mobility for Smart Cities in 2015. Therefore, at a time when the share of public transport in India is exhibiting a declining trend, unless public transport systems are augmented to keep pace with the rapid urbanisation and substantial increase in travel demand, the challenges brought about by increasing use of private motor vehicles – like acute road congestion, rising air pollution and a high level of accident risk – will only intensify. However, it is encouraging to note from a report that ITMS in the cities of Ahmedabad, Surat and Visakhapatnam is making travel within the city seamless and more efficient.

Urban mobility improvements being taken up in smart cities essentially comprise street redesign/complete street projects with focus on improving utilisation of road space through public transport, barrier-free pedestrian and cycling infrastructure, public bike sharing schemes, investments in public transport vehicles, promoting e-mobility and smart solutions for improving efficiencies in traffic management.

Is any smart city closer to all that should be there regarding smart transportation? Ease of commute can transform the economic and social landscape of a city. Integration of transport systems will be a difficult task to accomplish, but it is critical for a smart city. Integrated city transport infrastructure can no doubt help reduce travel time and cost. ICT can be used to discipline unruly traffic. Use of common transport card can ensure hassle-free commute. Smart city will be able to provide more options to the commuters. For them, making available the info on route planning, change over and last mile connectivity on mobile phone, Internet or change over points through display boards will make a big difference. Online availability of the info on parking spaces and implementation of proper parking policy is also important.

When the smart cities launch consultation was held with states in 2015, the importance of innovative financing tools so as to make urban bodies self reliant was stressed. How far

have we moved with regards to a good number of smart cities' floating municipal bonds is a concern.

Is there a regular credit rating/upgrading mechanism in position for all cities? Has the practice of capturing some clearly identified source of revenue of a municipal body in an escrow account started? How many state governments have been able to provide security by pledging to meet debt obligations in case of municipal borrowers not being able to meet them? What about having Business Improvement districts in commercial areas where property owners and traders organise themselves to provide public services? What about raising of funds through tax increment financing options, a place-based strategy used by urban local bodies to finance local economic development, pooled finance mechanism, accessing the NIIF, PPP routes, etc.?

One of the essential stated features of the smart city plans is that at least 80 per cent of buildings should be energy efficient and green buildings. One has not seen any concrete development in this regard. In the overall context of smart cities, it has been mentioned that there are likely to be increasing opportunities for the public sector to drive investment in smart technologies in the low carbon and environmental goods and services sector, which could include retrofitting of public sector buildings, smart energy grids and broadband access, electric vehicle charging infra, installation of heat networks, onsite renewable energy generation and involvement in general adaptation/mitigation initiatives.

In this context, among the global examples, one could refer to Kuwait introducing energy efficiency programme to support loans to private owners for energy efficient refurbishments. These are low interest loans and grants for investment in residential buildings. The London Green Fund was launched in 2009 to support the city's ambitious climate change objectives including a target to achieve a 60 per cent reduction in carbon emissions by the year 2025. This fund has two major areas of energy efficiency in buildings and financing of waste to energy and recycling facilities in the waste infra area.

In another global example, it may be recalled that New York City introduced NYC Digital, a new entity for city-wide digital strategy that engages, serves and connects the public, making government more efficient and citizen-centric. And the City government is considered a pioneer in digital government, engaging over 4 million people every month through the combined online reach of nyc.gov, 311 online, NYCityMap, social media such as Facebook and Twitter, mobile apps, open data initiatives, videos, newsletters and crowd sourcing. These technologies enable the City government to provide a more streamlined experience of engaging with the city, by helping citizens through digital channels that are most accessible and relevant to their daily lives. The question is, beyond initiatives like innovation ecosystem in smart cities, promotion of smart cities digital payment, Indian urban data exchange, data smart cities and NUIS, have the cities been able to move closer to a totally citizen-centric system as evolved in important global cities. Many cities launching apps for two-way communication is probably the farthest these cities have been able to go.

There are two other points of importance as well. Has the area-based approach matured to a level that it can be replicated all over the city? How inclusive has the entire programme been

or has it remained confined to the more affluent ones and more tech-savvy residents? Is it benefiting only the influential groups of private companies? How effective is the convergence arrangement and how structured is it rather than remaining confined to a small number of urban schemes only.

The mission programme itself does not lay emphasis on reforms to be achieved, though the past track record of reforms has been taken into account at the initial stage. What has been the performance of these cities in terms of bringing in the much needed further reforms in the city systems? Have these cities been able to move substantially ahead in achieving the objective of transformation of cities into places of sustainable habitation?

We may remind ourselves that 'the smart cities mission requires smart people who actively participate in governance and reforms. Citizen involvement is much more than a ceremonial participation in governance.' Platforms like this could help take stock as to how smart the people of today are and how active is their participation today both in governance and reforms.

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