Clearing the Haze
An analysis of air quality improvements in six smart cities in Maharashtra

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Urban air quality is fast becoming one of the prime civic issues in India. 21 out of the world’s 30 most polluted cities are in India\(^1\). It is undoubtedly one of the basic criteria of a liveable city, and its backward linkages to other important urban issues like transportation, waste management, land use planning make it indispensable when it comes to maintaining the quality of life in a city.

The National Clean Air Programme (NCAP) was launched by the Government of India to address the issue of urban air pollution. The main intent of this programme is to reduce particulate matter pollution by 20-30\% by 2024. The program states that this will be achieved by creating public awareness, building capacity for air pollution management and increasing the air quality monitoring data for better mitigation. The programme had initially mandated the 102 non-attainment cities, which have now increased to 122, to prepare Air Action Plans, which will use these principles of the programme to create a city specific plan to reduce air pollution. A city is declared as non-attainment when its air quality fails to meet the National Ambient Air Quality Standards (NAAQS) set by the Central Pollution Control Board (CPCB).

The launch of the Smart Cities Mission in 2015 was as much of a political statement by the newly elected Government as it was an infrastructure development programme. While there were speculations about the Government simply renaming the preceding and ongoing Jawaharlal Nehru National Urban Renewal Mission (JnNURM), the Smart Cities Mission was unveiled as a completely new avatar of urban development. At the launch of the Mission, on June 25th 2015, Prime Minister Narendra Modi said that urbanisation must be viewed as an opportunity to mitigate poverty and that cities are the ‘growth engines’ of our country\(^1\). Among other things, he described the Mission as being people-centric, encouraging bottom up approach, participatory, democratic and enabling devolution of power to urban leadership. While stating that there is no universal definition of a smart city, according to the guidelines\(^3\), the objective 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 lighthouse to other aspiring cities.

The study looks at the six smart cities of Maharashtra, namely, Aurangabad, Pune, Nashik, Nagpur, Solapur and Thane which are also nonattainment cities identified by the CPCB. It intends to find out how Smart Cities have dealt with air quality management and explores where air quality fits in its definition of a ‘smart city’. The smart city proposals of these cities were studied to find out if they had any air quality related components. We also document the progress of these projects, based on information obtained from the Ministry, various reports, meetings with officials and other stakeholders and through RTI applications.

Common Terms
- NCAP - National Clean Air Programme
- SCP - Smart Cities Proposal
- CPCB - Central Pollution Control Board
- SCM - Smart Cities Mission
- SPV - Special Purpose Vehicle
- AAP - Air Action Plan

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City Findings

Meta data at a glance

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
<th>SPV name</th>
<th>Base AQ assessment in SC proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aurangabad</td>
<td>11,75,000</td>
<td>Aurangabad Smart City Development Corporation Ltd (ASCDCL)</td>
<td>2</td>
</tr>
<tr>
<td>Nagpur</td>
<td>24,60,00</td>
<td>Nagpur Smart and Sustainable City Development Corporation Ltd (NSSCDCL)</td>
<td>3</td>
</tr>
<tr>
<td>Nashik</td>
<td>14,86,000</td>
<td>Nashik Smart City Development Corporation Ltd (NSCDCL)</td>
<td>Data not available due to unavailability of proposal annexures</td>
</tr>
<tr>
<td>Pune</td>
<td>31,24,000</td>
<td>Pune Smart City Development Corporation Ltd (PSCDCL)</td>
<td>2</td>
</tr>
<tr>
<td>Thane</td>
<td>18,41,000</td>
<td>Thane Smart City Ltd (TSCL)</td>
<td>2</td>
</tr>
<tr>
<td>Solapur</td>
<td>9,52,000</td>
<td>Solapur Smart City Development Corporation Ltd (SSCDCL)</td>
<td>2</td>
</tr>
</tbody>
</table>

Aurangabad

In terms of monitoring, two sensors have been set up by the ASCDCL, which do not produce any live information. No information related to AQ is displayed anywhere in the city. Projects related to AQ are mostly incomplete, such as the construction of smart bus shelters and the road network. The major project undertaken by ASCDCL to impact AQ has been the initiation of a public bus system, with a fleet of 100 diesel buses. Prior to this, the city is recorded to have had only 25-30 buses operating on 11 routes by MSRTC. Currently, three of these smart shelters are functional, with e-ticketing as one of its smart services. The Air Action Plan of Aurangabad has not delegated any tasks to ASCDCL.

Nagpur

An installation of 10 Alcodex low-cost monitors in different locations of the city has been done under the SCM and the data is stored at the COC (Command and Control) at Nagpur. Although 51 Variable Messaging Systems are put up by the Smart City, the air quality related data displayed on it is from CPCB, and not what the monitors record. Plans to disseminate the air quality data through a web/ mobile application is a work in progress.

2. The SCP template requires the cities to rate themselves on a range from ‘scenario -1’ to ‘scenario - 4’, 4 being ideal. They are also required to specify how they arrived at the self assessment
Major projects related to AQ are still to start off like the TenderSURE project for road network in the city, e-rickshaws, electric buses (only 6 out of proposed 30 have been procured). It was proposed to build 10 smart bus shelters. 77 out of the existing 158 bus shelters have been fitted with smart elements.

In the Air Action Plan of the city, NSSCDCL has been entrusted with the task of communication and awareness about air quality. The task seems quite broad based including enforcement of traffic rules, monitoring vehicle emission standards as well as behavioural change in terms of minimising personal vehicle usage.

**Nashik**

Currently one low-cost monitor has been set up on a trial basis by the NSCDCL, and after observing its performance the proposed 26 such monitors will be set up. There seemed no clarity on what would be done with the data received from these monitors.

In terms of road projects, only the pilot road (Trimbak Road) has been taken up, and according to external sources has been ongoing for almost 2 years now. The smart city official said that this is the pilot project and it is proposed under ABD of the proposal to have 176 such roads in the city. The public bicycle system, has also been started two years back and is functional. The Nashik PBS was launched in 2019 with Nashik Smart City. There are 1000 Hexi bikes across 100 dock stations. Construction of one electric crematorium has also been completed. Currently the smart parking project and multi level car parking project is being executed. There are no details on when they will be completed or how much has been completed so far.

**Pune**

50 air quality sensors have been fitted by the PSCDCL. The data from these is collected at the Command and Control Centre, but no details on what is done with the data were found. Under the e-bus initiative, 119 out of 150 proposed electric buses have been deployed on road. The Mobility Initiative under the Pune Smart City proposal focuses on enabling signal synchronisation through junction redesign. However, the guidelines being adhered to are better suited for highways (IRC guidelines), in spite of Pune having its very own Street Design Guidelines. Out of the 125 junctions in the first phase, work has started on 6 junctions, but not one has been completed.

Except for buses and e-rickshaws, there is no clarity on how far other projects have been executed. Applications under the Right to Information were made to the office to learn about the details and status of umbrella terms used such as road projects, footpaths, pedestrian zones and so on. There has been no clarity on where these projects are to be implemented.

It is clearly mentioned that the only task of the PSCDCL is to provide a Command and Control Centre. It is unclear how exactly this will improve air quality in the absence of any elaboration.

**Thane**

As per information received from the Environment Officer of Thane Municipal Corporation, Thane Municipal Transport has a total of 328 buses - 103 are CNG, 225 on diesel. They have contracted 100 e-buses, and 1 has arrived and is running as of now. The charging station, for both - 2 wheelers as well as 4-wheelers will be managed by TSCL. The Command and Control centre is being developed, under which

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5. From Stakeholder Interview
7. From Stakeholder Interview
the traffic signals will be simulated. The Parking Policy is approved but implementation has not happened yet.

Other projects like pedestrian improvement, new suburban station, multi modal facility and Teen Hath Naka junction are all works in progress.

The Air Action Plan of Thane is not approved yet.

**Solapur**

Integration of three pre-existing monitors with the Integrated Command and Control Centre is proposed under the mission. ICCC project is kept on hold by SCDCL due to lack of funds.

No response was received when asked about the current status of projects for improvement of AQ. The projects ranged from greening of spaces, to building market areas, development of roads, waste management and so on. No explanation was received on asking for the linkages or expected outcome/impact of these projects on air quality. There is also no dedicated website of the smart city corporation for further details.

City visits confirmed that presently there are 30 diesel buses run by Solapur Municipal Transport, and there are 35 electric buses proposed. For a population of 9,52,000 a meagre fleet of 30 buses is hardly sufficient.

The Air Action Plan of Solapur has a list of actions to be taken up by the SSCDCL. Most of those items are to be completed.
Data Gap and Transparency

Unavailability of information about projects in cities, their current status, location, expenditure and other such basic information was evident and quite a roadblock for anyone trying to study or know more about the mission. It isn’t surprising that in all cities visited, citizens and even civil society representatives hardly knew what the mission was doing in their cities.

This issue also meant that in the absence of open accessible data, any kind of independent appraisal becomes difficult, if not impossible. Alternatively, the mission itself has no visible mechanism of appraisal, which could act as a source of data.

Perception of air quality and mitigation found in the proposals

It was observed that while air quality was an important criteria in all proposals, one on which all cities were required to assess current status and propose measures for improvement - the quality of projects proposed reflected a very superficial approach to air quality. This indicates two kinds of gaps - one is the gap in the mission’s proposal formulation itself, which doesn’t mandate any sort of quantification of results. The other gap is the city’s lack of both capacity and understanding in proposing measures which may or may not be the most efficient ways of addressing air pollution. In air quality management, focus has largely been on displaying air quality as a single numerical entity and a color code at most, setting up low-cost monitors, generating data - but not necessarily thinking about how to use this data to come up with a plan to tackle air pollution. The same is true of the city action plans made by cities under the National Clean Air Programme\(^8\) (NCAP). The actions based on these are very generic - and not city specific.

It is surprising that none of the proposals mention concepts such as source apportionment studies, air modeling and action plans\(^9\) to deal with air pollution.

Capacity of the mission and the cities to handle air quality

It was also found from interviews with officials and civil society organisations that cities are not really equipped to undertake holistic action against air pollution. Some cities have an environment officer in the municipal corporation and air quality management is one of the many issues in the mandate of urban environment. Officials generally voiced the opinion that merely having one environment officer for the whole city, without a support team was insufficient\(^10\). They are often overburdened with work, as environment is an umbrella term for so many civic issues like air pollution, water pollution, green cover and so on. In the absence of sufficient manpower and expertise and a strong mandate to enforce decisions, the scope of his work is reduced to merely producing the Environmental Status Report\(^11\) for the city and other disconnected tasks which do not address the larger air quality scenario.

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10. From Stakeholder interview
11. The ESR is an annual report statutorily required to be published by all Municipal Corporations
It was also found that while the smart city corporations set up air quality sensors, there is little clarity of what is to be done with the data that will accumulate from these sensors. There seems to be a lack of capacity to intelligently analyse this data and use it strategically for AQ improvement.

No convergence with existing efforts

The Smart Cities Mission was also about convergence of different existing schemes like the Swachh Bharat Mission, AMRUT and so on. In keeping with this approach, the National Clean Air Programme (NCAP) also speaks of working through the mission to address the issue of air pollution in the 43 smart cities. The NCAP mandates city specific action plans to be formulated for implementing mitigation actions. Cities have already prepared action plans approved by the Central Pollution Control Board (CPCB). No specific guideline on how to achieve convergence between these two programmes exists. Some city action plans have delegated some measures for pollution mitigation to smart city corporations in their cities, while some action plans have no mention of the smart city corporation at all.

The action plans submitted by the cities under the NCAP are hardly being implemented. There are no deadlines for its implementation, made worse on account of the general lethargy about air quality improvement in cities.
