Status Assessment of NAQI on it's first Anniversary

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Introduction:

National Air Quality Index (NAQI) Platform was launched on 6th April 2015 for air quality monitoring across the country on a real-time basis and enhancing public awareness for taking mitigative/preventive actions [1]. In April 2015, Continuous Ambient Air Quality Monitoring Stations (CAAQMS) across 10 cities (Delhi, Agra, Kanpur, Lucknow, Varanasi, Faridabad, Ahmedabad, Chennai, Bangalore and Ahmedabad) were connected to the web based NAQI platform with a plan to expand it to 20 state capitals and 46 cities having more than million population [2]. The platform was designed to provide transparent information for pollutants for which short term National Ambient Air Quality Standards (NAAQS) are prescribed, but all eight may not be monitored at all stations. To compute the overall AQI data for minimum three pollutants out of which one should necessarily be either $PM_{2.5}$ or PM_{10} should be available or the data is considered insufficient for calculating AQI [3]. When NAQI platform was started in April 2015 there were ~ 40 CAAQM [4] and as of October 2015 there were ~612 [5] manual Stations spread across 254 cities/towns in India measuring parameters like PM_{10}, $PM_{2,.5}$, NO_2, SO_2, CO and O_3. The report on the NAQI prepared by IIT Kanpur also highlighted on the limitations and broad guidelines and proposed as follows.

Limitations of NAQI Platform [6]:

1. "For real time AQI, the data is fed directly from the analysers without scrutiny, thus it may not be for statutory purpose.
2. The monitoring and subsequent AQI dissemination involves multiple steps including operation of sensors and analysers, their calibration, data acquisition at local server, transmission to central database using Internet, etc. The functioning of monitoring stations may also get affected due to various technical and operational aspects like long power cuts and maintenance problems. In view of these limitations, it is possible that there may be some disruption in continuous data flow and dissemination. However, in case of breakdowns, necessary actions are initiated immediately for putting the system back into operation within reasonable time period."

Broad Guidelines for Actions during Very Poor and Severe Categories of AQI [7]:

"Regulating Agencies:

The regulating agencies should establish source-receptor relationships in terms of impact of emissions on air quality. In case AQI category is severe or very poor, necessary steps need to be taken by further regulating the emissions which are causing maximum impact to ambient air quality. Specific actions, for example, may include: (i) strict vigilance and no-tolerance to visible polluting vehicles, industries, open burning, construction activities, etc.; (ii) regulating traffic; and (iii) identifying sources contributing significantly to rising air quality levels and actions for reducing emissions from such sources.

Public:

People should maintain vehicles properly (e.g. get PUC checks, replace car air filter, maintain right tires pressure), follow lane discipline and speed limits, avoid prolonged idling and turn off engines at red traffic signals. In addition, during severe or very poor AQI categories, people should minimize travel; avoid using private vehicles and instead use public transport, bikes or walk, and carpool; use smaller vehicles (e.g. avoid SUVs). The uses of diesel generators should be minimized. People, especially those suffering from heart diseases and asthma, may consider avoiding undue exposures."

Assessment:

India has made significant progress in terms of data sharing on public platforms on the air pollution levels and actions to control rising pollution levels over past year, but at the same time the pace of the change is not fast enough ,which is required in such times of health emergency. Additionally, they are not able to meet up to which was already proposed a year back. The table below summarises the gap between what was planned and what is being implemented as on 2nd April 2016.

Table 1: Implementation of planned/proposed actions/measures under NAQI: April 2015 to April 2016

S. No.	What was Planned?	What is the status now?
1	Efforts to be made to connect more cities, where continuous monitoring systems were operated by various State Pollution Control Boards (SPCBs).	As on 2nd April 2016 there are 39 stations connected to the NAQI web portal.
2	It was planned to strengthen the network of monitoring systems in all 46 cities having population more than a million and 20 State Capitals, and networking them to the central AQI portal, in phased manner.	As on 2nd April 2016 there are 23 cities where the CAAQM stations have been connected to NAQI web portal.
3	With regard to manual stations in the 46 million plus cities, SPCBs were advised to use AQI calculator and publicize it with minimum time lag, as required for laboratory analysis.	Latest report available on bulletin of NAPM is from October 2015 and that had summary of AQI calculated from 168 stations spread across 85 cities. On NAQI Platform no real time data is available with time lag of even a week as suggested by IIT Kanpur Study.
4	Each of these cities connected to NAQI was planned to have 6-7 continuous monitoring stations with AQI display boards [8].	Apart from Delhi as of 2nd April 2016 there is no city where 6-7 CAAQM stations are connected to NAQI platform.
5	Ranking of cities was planned to be done every six months on July 1st and January 1st. It is necessary to have data from at-least 3 stations within the city to do the ranking of cities.	The values based on CAAQM stations are presented by CPCB every month but not for manual stations. Also, the coverage in terms of number of stations connected in every city is not as proposed i.e., most of the cities showing less than 3 stations..
6	It was proposed that for CAAQM stations, AQI is reported in near real-time for as many parameters as possible.	As on 2nd April 2016 this has been working with certain deviations where stations are either not measuring PM_{10}, or $PM_{2.5}$ or 3 parameters in total, which are necessary to compute AQI such as IHBAS in Delhi.
7	For manual stations, the daily AQI was planned to be reported with a lag of one week to ensure manual data are scrutinized and available for AQI.	As on 2nd April 2016 there is no such system to present the near real time data on AQI from manual stations.

What can be done?

The debate on air pollution over past year has taken a positive turn and we have seen some concrete actions to curb the rising air pollution as well as increase in transparency of the pollution levels. But, NAQI platform still covers only a limited number of cities and most of the population still does not know what are they breathing in?. The industrial hubs and critically polluted areas in Madhya pradesh, Chhattisgarh, Orissa, Jharkhand etc. still do not have a system to communicate the air pollution levels through NAQI. Even at the places where CAAQM stations are connected to NAQI web platform, people do not necessarily get to know the air pollution levels. There is a need to make the network and the entire platform a bit more user friendly to all kind of audiences and all regions throughout the geography of India. Following are some of the measures which can be taken to strengthen the NAQI platform for effective data sharing and coverage:

- Upgrading manual stations to continuous ambient air quality monitoring stations feeding data to online NAQI portal.
- Expanding the distribution and reach of such real time data to the general public through various mediums, such as TV, Radio, Newspapers, Mobile Apps and Web Portals.
- Issuing real time health advisory with the data on air pollution to the general public suggesting them to take concerned actions and activities with the varying pollution levels.
- Issue directions to the polluting sources for reducing their operations on bad air days (highly polluted days) by adopting a system when Government can issue alert in real time to the industries and general public.
- Including long term and chronic health impacts from air pollution in the health advisory to be issued
- Display the Daily AQI from manual stations with the minimum time lag on the NAQI platform which can technically increase the data sharing from 39 stations and 23 cities to over 650 stations and 250 cities.
- Formulate a robust system for checking the errors in systems, to correct the CAAQ stations as soon as possible if there not functioning well and there are data errors or gaps.
- Currently, the data on the NAQI platform is only being made available on real-time basis, but there is no way for users to look at longer-term averages or trends which is a major deficiency. The platform should grant users access to archive data to permit comparisons between cities and analysis of trends.
- The data made available on the platform clearly shows that air pollution levels in Indian cities far exceed safe levels and national air quality standards, constituting a public health emergency. The government needs to urgently draw together plans to bring the hazardous levels of air pollution down on the national and regional levels.

References:

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