

NCAP SERIES

REVIEW OF ACTION PLAN FOR CONTROL OF AIR POLLUTION IN NON-ATTAINMENT CITIES OF ASSAM

GUWAHATI



Author: Kankana Das

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Editing & Design: Aakriti Shrivastava & Ankit Kumar



N-71, LGF, Greater Kailash 1
New Delhi, 110048
Phone: +91-11-49537774, 41025852
E-mail: Info@lifeindia.net.in
Website: www.thelifeindia.org.in

Summary

Cities with poor air quality across India, that do not match the National Ambient Air Quality Standards of 2009, have been identified as non-attainment cities and ordered to form "city action plans". These plans lay out the roadmap and specific tasks to be performed to reduce air pollution in the city.

This report is a review of such a plan prepared for Guwahati city in Assam. Our analysis finds that Guwahati's action plan does not have a target-oriented approach. In most instances, past policy frameworks and regulations have been repeated, and the authorities have failed to use this opportunity to develop a plan based on specific issues and baseline information. Instead, actions have been formulated without research, making the plan ineffective on many fronts. Overall, the plan largely includes "end of pipe" solutions instead of addressing the pollution problems at their source.

Key Findings:

- The plan has suggested road expansion by covering drains as a measure to reduce vehicular pollution. This is not only ineffective for its desired goal but also causes silt accumulation in drains, ultimately causing flooding.
- There is no regulation proposed on the entry of trucks in the city. No concrete plan for phasing out of old vehicles has been stated in the plan.
- The plan restricts itself to Guwahati city boundaries, even though the neighbouring Kamrup district is a centre for industrial and mining activity and therefore a major source of air pollution.
- While there is mention of a composting plant, segregation of waste has been completely ignored.

Background

The Central Pollution Control Board (CPCB) has identified a list of polluted cities that violate the standards prescribed by the National Ambient Air Quality Standard (NAAQS), 2009. The identification is based on the ambient air quality data obtained under the National Air Quality Monitoring Programme (NAMP) during the period of 2011-2015¹. In 2018, a total of 102 cities were identified as "non-attainment cities" in India based on the non-compliance of NAAQS 2009. Data was also based on the top 10 cities from the list of polluted cities from the World Health Organisation (WHO), released in April 2018².

One of these non-attainment cities was Guwahati. The National Green Tribunal, in its October 2018³ order, directed state governments to constitute Air Quality Monitoring Committees (AQMCs) to prepare air quality action plans for non-attainment cities. The aim was to meet the NAAQS within six months of finalizing the said action plan.

Following this, an AQMC for Assam was constituted on December 19, 2018⁴. This committee was to function under the overall supervision and coordination of the state's Additional Chief Secretary. The committee has formulated action plans for control of air pollution for five non-attainment cities in Assam—Guwahati, Sivasagar, Silchar, Nalbari and Nagaon.

Objective

The present paper reviews the Guwahati city component of the "action plan for control of air pollution in non-attainment cities/towns of Assam". The objective is to critically evaluate the effectiveness and ability of the plan in meeting the NAAQS 2009.

Salient Features of the Action Plan

The proposed "action plan for control of air pollution in non-attainment city/towns of Assam", (hereinafter referred to as "action plan") aims to reduce vehicular pollution, road dust generation, open burning of municipal waste, industrial emissions and restrict the use of biomass/coal as domestic fuel. The action plan also proposes strengthening the air quality monitoring network by installing four Continuous Ambient Air Quality Monitoring Stations (CAAQMS) and four manual stations, to increase public awareness. Strict enforcement of the Construction and Demolition Waste Management Rules, 2016 and the Guidelines on Environmental Management of Construction and Demolition (C&D) Waste issued by CPCB are also under the mandate of the action plan.

Some of the actions proposed for vehicular pollution reduction include public awareness campaigns recommending use of public transport, enforcement of Pollution Under Control (PUC)⁵ norms, widening of roads by covering roadside drains and gradual phasing out of old vehicles (15 years or older). Introducing battery operated electric vehicles and cycle tracks are also included in the steps towards vehicular pollution reduction. The action plan also refers to the 15 electric buses acquired under the first Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) scheme and sanctions procurement of 50 more electric buses in the second phase of FAME scheme. In order to control road dust, plantation along road medians, blacktopping of unpaved roads, pothole management and cleaning of roads and spraying of water on the roads have been proposed.

1. Chapter 5 of National Clean Air Programme – Non Attainment Cities

2. Chapter 5 of National Clean Air Programme – Non Attainment Cities; https://www.who.int/airpollution/data/aap_air_quality_data-base_2018_v14.xlsx?ua=1

3. In matter of News Item Published in "The Times of India" authorized by Shri Vishwa Mohan Titled "NCAP with Multiple Timelines to Clear Air in 102 Cities to be released around August 15" (OA 681 of 2018)

4. Vide Notification No.ENG.7/2017/5 dtd 19/12/18

5. PUC – Pollution under Control

Observation

Restricted within city limits

The proposed action plan is limited to Guwahati city and does not take into account the nearby industrial belt of Jorabat and Byrnihat (Meghalaya), only 20-30 kms away. Byrnihat, a Critically Polluted Area (CPA) with a Comprehensive Environmental Pollution Index (CEPI) score of 78.31⁶, has industries like ferroalloy, smelters, cement plants, coke oven plants, integrated steel plants that require coal or furnace oil as fuel. This obviously leads to emissions of Sulphur oxides (SO_x) and particulate matter. According to Delhi-based think-tank Urban Emissions' report "India-Air Pollution Knowledge Assessment (APnA) City Programme", several industrial units such as Guwahati Refinery, an LPG bottling plant, a cement manufacturing unit and a fertilizer manufacturing facility, located near the city have contributed to its emission inventory (Guttikunda, 2019). On the other hand, Jorabat in Kamrup metropolitan district is known for earth cutting, extraction and blasting of stone, increasing the dust concentration in the ambient air. It is clear that neighbouring Meghalaya also hosts several polluting activities. Therefore, the action plan should take a comprehensive regional approach instead of focusing only on city-level activities.

Actions to reduce vehicular pollution

The proposed action plan has suggested widening of roads for decongestion and ease of vehicular movement. This includes removal of unauthorised roadside vendors and other establishments and covering roadside drains⁷.

There are a few points to be noted here. Firstly, road widening is likely to increase vehicles on the new road, leading to "generated traffic". Generated traffic refers to the additional peak-period vehicle traffic that results from a road improvement, particularly urban roadway expansions (Litman, 2020). Initially, it seems that new road provides lesser travel time and better traffic flow, thereby solving the congestion problem. However, the new road facility also attracts new drivers, which ultimately leads to new traffic. An example of the North Sea Channel section of the Amsterdam Ring Road can be quoted here (Assel et al., 2019)⁸.

Secondly, the clean air programme cannot become a license to expand roads by covering drains. Covering drains often leads to flooding of streets, lanes and by-lanes during the rainy season. According to a study by the Department of Civil Engineering, Indian Institute of Technology (IIT) Delhi, covered drains affect the desilting of drains under the covered portion and the rest of the drain as well (IIT Delhi, 2018). Inadequate desilting of drains often leads to waterlogging in the nearby areas (Gupta, 2005). It is worth mentioning here that Guwahati is particularly prone to floods each year. The city also has the Guwahati Drainage Improvement subproject to improve South Guwahati's storm water drainage and reduce artificial flooding and waterlogging, as per the Assam Urban Infrastructure Investment Programme website⁹. The said subproject will cover approximately 260 square kilometres under Guwahati Metropolitan area including about 65 square kilometres of adjacent new towns, for which the estimated cost is \$40 million¹⁰. Clearly, there is a complete lack of long term vision or coordination among departments in the city planning process. Action proposed for vehicular pollution will cause flooding, adding to the problems of another department in flood control, instead of working in synergy with one another.

6. According to a report submitted by CPCB at the NGT, in the matter of News item published in "The Asian Age" Authored by Sanjay Kaw Titled "CPCB to rank industrial units on pollution levels" (OA No. 1038/2018), indicating the latest CEPI scores for 100 polluted industrial areas/clusters monitored during 2018

7. Action point No. 1 (iii) under Action to Reduce Vehicular Pollution of the City Action Plan of Guwahati

8. One year after its opening, the total number of trips increased by 8%, of which 5% was the result of new drivers accumulated due to improved transport infrastructure, which is considered to be induced demand

9. <http://auiip.nic.in/swd.html>

10. <http://auiip.nic.in/swd.html>

The action plan proposes to stop vehicle parking in non-designated areas¹¹. However, it does not list any actions for this except training of traffic personnel. Mere training is grossly inadequate for the ever-increasing traffic of Guwahati city. A Supreme Court order in the matter of *M.C.Mehta Vs Union of India & Ors*¹² on Delhi's parking issues is of relevance here. The Court directed a set of actions for solving the parking problem, including¹³ a proper assessment of parking needs for the next 25 years while granting permission to build any structures; the immediate notification of the draft Delhi Maintenance and Management of Parking Places Rules 2019; viability and effectiveness of introducing RFID¹⁴ tags, parking guidance and information systems; last-mile connectivity from parking spaces to commercial areas, institutions, etc. On these lines, Guwahati Metropolitan Development Authority (GMDA) and Guwahati Municipal Corporation (GMC) should come out with a detailed and comprehensive parking policy based on its own requirement.

The action plan has proposed introducing battery-operated e-vehicles in the city, but the transport department claims this task has already been implemented¹⁵. In reality, the e-vehicles have been introduced only in the Assam State Zoo cum Botanical Garden, which is far from the replacement of polluting vehicles across the city. This is a cosmetic introduction and most zoos use battery-operated vehicles to reduce noise pollution. No other quantifiable target is given for battery-operated vehicles across the city.

According to the action plan, 15 electric buses have already been procured. Another 50 buses will be procured under the FAME II scheme¹⁶ for the city as part of its plan for "intensifying" public transport across the city¹⁷. It remains to be seen if this number is sufficient. There is no assessment of the number of polluting buses in the city at present or how many of these need to be replaced. According to a 2018 announcement, the transport department was to scrap vehicles older than 15 years¹⁸, however there is no publicly available information on 15-year-old vehicles in the city. In the absence of baseline information, introducing electric buses is unlikely to make any difference. There is no surety on whether these 65 buses will be able to cater to the city's need once the older vehicles are replaced. Without prior assessment and phasing out of older vehicles, electric buses will only add to the number of vehicles on the roads. The proposed action plan is also silent on the movement of trucks carrying coal and other minerals. Guwahati city is a transit hub for freight trucks to several north-eastern states. There is no restriction on time of day, year of vehicle make, registration etc., for the movement of such heavy vehicles.

The action plan does not mention any measures to restrict the movement of polluting trucks. There is no proposed restriction on the entry of trucks coming from other cities. For context, eight minor mineral projects (sand, stone and ordinary minerals) were granted clearance in the neighbouring Kamrup district. As per data for five of these projects, there will be a capacity addition of 90,000 m³. This will directly lead to increased truck movement in Guwahati and surrounding area. Additionally, recent data from the Directorate of Geology and Mining (DGM) shows approval of new mining leases within Kamrup district, which will increase truck movement in the near future. Given this, there should have been additional regulation to tackle increased truckload; however, the issue finds no mention in the plan.

11. Action point No. 1 (vii) under Action to Reduce Vehicular Pollution of the City Action Plan of Guwahati

12. Writ Petition (Civil) No. 13029 of 1985

13. Supreme Court Order dated 2nd September 2019

14. RFID - Radio Frequency Identification

15. Action point No. 1 (vi) under Action to Reduce Vehicular Pollution of the City Action Plan of Guwahati

16. FAME Scheme - Faster Adoption and Manufacturing of Hybrid and Electric Vehicles

17. Action point No. 1 (v) under Action to Reduce Vehicular Pollution of the City Action Plan of Guwahati

18. <https://www.apnnews.com/more-than-15-years-older-vehicles-to-be-banned-in-guwahati/>

An emission inventory study titled "India-Air Pollution Knowledge Assessment (APnA) City Programme" by Delhi-based think-tank Urban Emissions for PM_{2.5} emissions for the year 2018-2030 substantiates this further. According to the study, transport sector contributed 35% of the total PM_{2.5} emissions in 2018, which is projected to increase to 44% by 2030 (Guttikunda, 2019).

Control of open burning

The action plan discusses the provisions for composting plant, Refuse Derived Fuel (RDF) plant, sanitary landfill, door-to-door collection of waste, among other measures to control open burning¹⁹. However, nothing is specified about the end use of the RDFs produced. No mention of segregation of waste at source was there in the plan. Notably, household waste largely comprises of biodegradable waste, making it suitable for composting. Non-biodegradable portion of this waste such as plastic, paper, etc., can be diverted towards recycling or other applications.

Suitability of refuse derived fuel plant

The action plan discusses the provision for RDF plant among other measures to control open burning²⁰.

According to a study titled "Solid Waste Management in India", 51% of total waste in India is biodegradable, 10% is plastic, 7% is paper and 32% is other waste including textile, glass, metal, drain silt, street sweepings and inert (Patel, 2019). Another survey conducted by CPCB and National Environmental Engineering Research Institute (NEERI) in 2004-05, found that Guwahati's solid waste has high moisture content (61%) and very low calorific value (1,519 Kcal/Kg), which means the waste is more suitable for composting than burning. The same report shows that 53.69% of waste is compostable and 23.28% is recyclable in the city of Guwahati (CPCB, 2007). All these features ultimately point to the fact that promoting RDF will be a misuse of city's recyclable and compostable waste. The latest Annual Report by CPCB on "Status of Implementation of MSW Rules for the year 2017-2018" also reiterates the need for segregation of waste at source for ensuring its safe disposal. The report states that wet waste should be composted and dry waste should be recycled/recovered (CPCB, 2017-18).

Due to its ever-increasing solid waste, Guwahati's Deepor Beel, which is a "Ramsar site" or a wetland of international importance, has become a dumping ground. Despite this, no action-oriented approach has been formulated for segregation of waste at source. The mandatory implementation of Solid Waste Management Rules 2016 has merely been reiterated in the action plan. In the age of circular economy and bio-mining from existing landfills, the plan should have focused on enforcement mechanism for the Solid Waste Management Rules 2016, instead of merely mentioning it.

Construction activities

One of the main achievements in streamlining C&D waste will be to build a C&D waste processing facility within the city. Currently, the city does not have any such facility, as per a response by the Guwahati Municipal Corporation (GMC)²¹ in a query under Right to Information (RTI) Act 2005. There was also no mention of constructing such a facility in the action plan. The Construction and Demolition Waste Management Rules notified four years ago in 2016 require a C&D processing facility.

19. Action point 3 (i) and 3 (ii) under Action to Control of Open Burning in the City Action Plan of Guwahati

20. Action point 3 (i) and 3 (ii) under Action to Control of Open Burning in the City Action Plan of Guwahati²¹.

21. Reply from GMC under the RTI Act 2005 vide Letter No : GMC/RTI/01/06-07/Pt-III/13902, dated 31-10-2019

Without this facility in place, steps like temporary restriction of roadside storage of C&D waste²² would not give any long term benefits of dust reduction from handling of C&D waste. Even if the waste is collected from one area, waste dumping will take place in another part of the city.

Implementation of the *Construction and Demolition Waste Management Rules 2016* was mandatory as the Rules fall under the Environment (Protection) Act, 1986. According to the Schedule III (to be read with Rule 13) of the Construction and Demolition Waste Management Rules 2016, cities with population of one million and above have to ensure commissioning and implementation of the facility within 18 months of the notification of the Rules, that is, by September 2017. Guwahati falls under this population slab²³ and therefore the facility should have been commissioned by September 2017.

Conclusion and Recommendation

The entire action plan seems to be prepared in a very casual manner. In fact, Guwahati has been stated as the capital city of Assam, which is factually incorrect. The action plan lacks planning and a target-oriented approach. The actions proposed are only a compilation of various existing regulatory frameworks, meant to deal with pollution mitigation and/or restricting pollution-causing activities. It seems the policymakers and regulators refuse to learn from past failures. Most importantly, the clean air programme cannot become a license to expand roads which may lead to cutting of trees or covering drains, as this is nothing but ecological suicide. Instead, there should be actions including:

- A carrying capacity study must be conducted before proposing activities like expansion of roads or construction of elevated corridors etc.
- Alternative options like one-way traffic system or restricted and staggered timing system with limited vehicular movement on any particular stretch of roads and staggered timing for various activities should be explored and implemented phase-wise.
- Cosmetic actions like introduction of battery-operated vehicles only in Assam Zoo cannot be an aspirational intervention. Instead, a need assessment study should be carried out to assess the number of e-vehicles needed across the city.
- Instead of a city-specific approach, pollution causing activities and industries in the critically polluted area 20kms to 30kms from Guwahati should also be considered.

Moreover, the policymakers should redirect their approach and look at pollution at the source instead of proposing "end of pipe" solutions.

22. Action point no. 8(i) to 8(iii) under the Construction Activities in the City Action Plan of Guwahati

23. Population of Guwahati as per census 2011 is 988073

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PRINCIPAL OFFICE
N-71, LGF, Greater Kailash 1
New Delhi – 110048
Phone: +91-11-49537774,
41025852
E-mail: Info@lifeindia.net.in
Website: www.thelifeindia.org.in

REGIONAL OFFICE
AC-160, Sector-1, Salt Lake,
Kolkata - 700064
Phone: 033-40607481