



Chapter 6

ENVIRONMENT AND ECOLOGY

Environment and Ecology

6.1 Management of waste/pollution

Uttar Pradesh Pollution Control Board (UPPCB) is the nodal agency for the administration and enforcement of Environmental Acts and Rules and is responsible for formulation of policy initiatives for both protection and mitigation of adverse impacts on environment and ecology. It inspects and monitors industries, hospitals, water bodies, waste water, air quality and coordinates with various administrative agencies for initiation of actions as per law. Any person/body violating the provisions of the Acts is liable to be prosecuted by UPPCB.

For organizing a mega event like MKM, environmental protection and pollution control were of utmost importance. Audit observed that no effective planning for protection of environment and pollution control was made for MKM, despite estimation of presence of about 8.5 crore pilgrims and visitors for over 55 days in *Mela* area in Allahabad. Waste/pollution management during the *Mela* was dependent upon the waste management infrastructures/facilities available in Allahabad city. The infrastructure for waste management was not even sufficient for the regular population of the city. No additional arrangement in respect of waste management was planned/made for MKM. The deficiencies noticed in audit regarding management of different kinds of waste have been discussed below:

6.2 Municipal Solid Waste Management

Municipal Solid Waste Management (MSW) includes organic wastes generated by households and commercial establishments. Improper disposal of MSW in the open areas has a direct adverse impact on environment. It also causes spread of communicable and non-communicable diseases and contaminates soil, air and water.

MSW is collected, transported, processed and disposed in accordance with the MSW (Management and Handling) Rules, 2000 (MSW Rules).

For the management of MSW¹ generated during *Mela*, Additional Director, Department of Medical, Health and Family Welfare (AD)² entered into (December 2012) an agreement with a firm. Incidentally, this firm was the same operator with whom Allahabad Nagar Nigam already had an agreement for the management of MSW, generated in city area. AD was required to ensure whether the firm had enough capacity to manage the additional

¹ Estimating that 200 gm MSW would be generated by two lakh pilgrims, staying regularly in the MKM during 14.01.2013 to 15.02.2013. Besides, 1,766 MT, MSW was expected on six bathing dates. As such total estimation was 3,086 MT.

² AD was responsible for making arrangement for MSW in MKM area.

generation of MSW during MKM. Scrutiny of records revealed that the firm did not have the capacity to manage the MSW generated even in the city area. Details are as below:

Table 1: Details of generation and management of MSW in Mela and city areas of Allahabad

(Quantity in MT)

Sl. No.	Month	MSW generated in Allahabad		Total MSW generated	Management of MSW by the firm (per cent)	Unmanaged MSW (per cent)
		City area	Mela area			
1	December 2012	16,740	2,443	19,183	12,196 (64)	6,987 (36)
2	January 2013	16,740	2,529	19,269	12,084 (63)	7,185 (37)
3	February 2013	15,120	2,429	17,549	12,892 (73)	4,657 (27)
4	March 2013	16,740	2,709	19,449	13,163 (68)	6,286 (32)
Total		65,340	10,110	75,450	50,335 (67)	25,115 (33)

(Source: Information collected from the firm and AD, MH&FW)

It would be seen from the above table that due to insufficient capacity, MSW ranging between 27 per cent to 37 per cent of total generation during December 2012 to March 2013, remained unmanaged.

Further scrutiny of records disclosed that for the management of MSW and Construction and Demolition (C&D) waste generated in the city area, Construction and Design Services (C&DS), Uttar Pradesh Jal Nigam (UPJN), on behalf of Nigam, entered into (March 2010) a contract with the firm to establish a processing plant with a capacity to process 600 MT MSW per day on the land provided by the Nigam in *Chaaka* block, Allahabad. Records, however, revealed that the processing plant was not fully operational even upto June 2013 and the firm was managing the MSW of city area partially with its limited capacity.



Unmanaged MSW in Mela area (Between Kali road and Shastri bridge) on 15.2.13.

Thus, AD, ignoring the incapability of the firm to manage the entire MSW generated in city and MKM, engaged the firm for management of MSW generated in the MKM area which resulted in leaving a substantial part of MSW unmanaged.

The Government did not furnish specific reply and merely confirmed (November 2013) the quantum of generation of MSW in the city area as mentioned in Table 1 above.

6.2.1 Avoidable expenditure on primary collection and transportation of MSW in MKM area

Under the agreement, the firm was to lift MSW from the earmarked dump sites at six³ different points in the city. Door to door collection and transportation of MSW from *Mela* area to the earmarked dump-sites was to be done by AD on its own. A tipping fee⁴ at the rate of ₹ 574 per MT MSW was to be paid to the firm.



MSW dumped on Old G T to Nagvasuki road (right side) on 29.01.13.

As mentioned in paragraph number 6.2, this firm was also entrusted work of regular management of MSW in city area for which the Nigam paid the tipping fee at the rate of ₹ 574 per MT. This tipping fee included both primary & secondary transportation and processing of MSW. Contrary to this, while entering into agreement with the firm for management of MSW for MKM, AD had excluded the work of primary transportation of MSW from the agreement but paid the same tipping fee i.e. ₹ 574 per MT (total payment: ₹ 58.04 lakh). AD paid ₹ 24.40 lakh, on primary collection of MSW in *Mela* area which was not executed by the firm.

Had the agreement with the firm been executed by AD on the lines of the agreement executed by the Nigam, ₹ 24.40 lakh, incurred by AD only on primary collection and transportation of MSW, could have been saved.

No reply has been received from the Government (March 2014). However, AD, while confirming the facts, stated (May 2013) that for the said firm, the dumping sites were the first collection points. The fact remains that avoidable expenditure of ₹ 24.40 lakh was incurred.

6.3 Management of Ground water pollution

During MKM 33903 temporary toilets were constructed. These were connected to temporary pits for collection of human excreta and urine. Pit latrines lack a physical barrier like a concrete between stored excreta, soil and groundwater. Hence contaminants from pit-latrines leach into groundwater, polluting it. Significantly, studies⁵ have held that microbes from pit-latrines contaminate the groundwater. High concentration of faecal coliform is found in domestic wells located near pit latrines. Neither Uttar Pradesh Pollution Control Board (UPPCB) nor *Mela* Administration and the concerned departments planned the alternative⁶ for temporary pits during MKM.

³ Bairhana; Badara -Sunauti; Trivenipuram; Near CMP degree college; Mevalal ki Bagia; and near *pulia* of Amitabh Bachchan road.

⁴ Fee charged by AWPCL for door to door collection and transportation of MSW.

⁵ Study conducted by WHO in 2006.

⁶ There are different models of green biological toilets in use such as Vacuum toilets, Zero discharge toilets, Aerobic and Anaerobic. Zero discharge toilets which work on the principle of solid liquid separation with solid part being stored-evacuated-transferred and dumped into pits for composting and the liquid portion filtered, treated and recycled for flushing purposes.

It was further noticed that AD had planned to dismantle the toilets after MKM and to extract the material used for construction of toilets for further disposal through auction. We noticed that 80,000 running feet PVC⁷ siphon pipe was used in construction of these 33,903 temporary toilets in MKM area. While dismantling these temporary toilets, the siphon pipes were left in the ground. Since PVC pipe is non-biodegradable, these would cause damage to the underground water and also the soil.

No reply has been received from the Government (March 2014). However, AD stated (August 2013) there was no plan for dismantling the toilets and extracting the pipes.

6.4 Management of water pollution

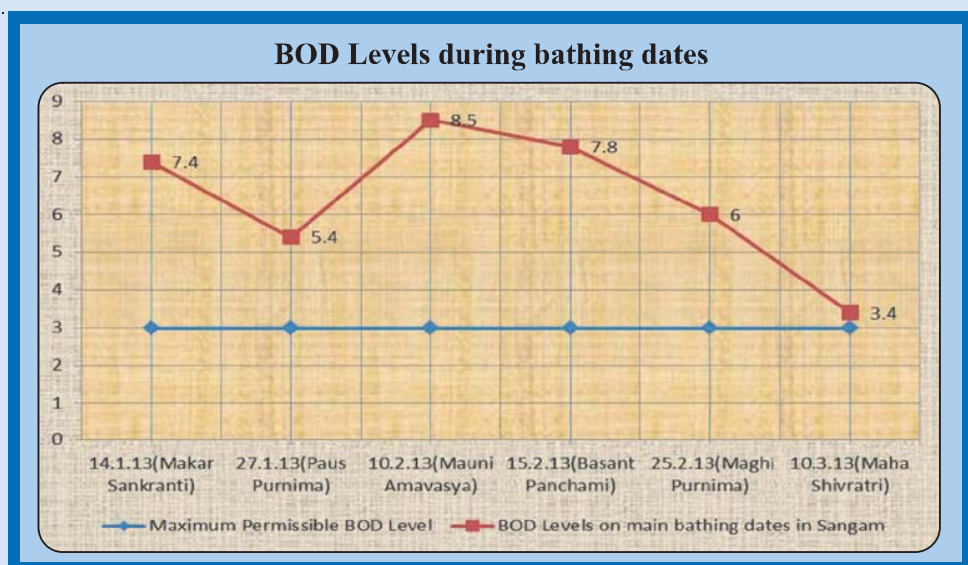
Water pollution denotes the contamination of water or such alteration of the physical, chemical or biological properties of water which is harmful or injurious to public health and to the life and health of animals or plants or of aquatic organisms. The Water (Prevention and Control of Pollution) Act, 1974 and the Rules under the Act provide for managing water pollution.

6.4.1 Quality of water in rivers during MKM

Safe water was to be provided to the pilgrims taking holy dip in the rivers *Ganga*, *Yamuna* and *Sangam* during MKM. UPPCB, responsible for safe water for bathing, had put in place a mechanism to take two samples per day from earmarked nine points in the rivers *Ganga* and *Yamuna*.

(i) Level of Biochemical Oxygen Demand (BOD)

As per IS code-2296-1982 (Class B, Table-02) the parameter of Biochemical Oxygen Demand (BOD) in water is permissible maximum upto 3.0 mg/litre for safe bathing. However, the BOD level at the nine testing points⁸ in the rivers *Ganga* and *Yamuna* ranged between 3.4 to 8.5 mg/litre.



⁷ Poly Vinyl Chloride.

⁸ (1) Upstream (U/S) *Ganga* (Rasoolabad), (2) *Naraini Ganga Ghat* (Shivkuti), (3) U/S Salori, (4) Downstream (D/S) Shastri bridge, (5) D/S Salori, (6) Main *Sangam*, (7) *Saraswati Ghat*, (8) *Arail Ghat* and (9) D/S *Sangam* Mawaiya.

(ii) *Level of coliform (Faecal Bacteria)*

Coliforms and faecal streptococci⁹ are the indicators for possible presence of pathogenic (disease-causing) bacteria, viruses and protozoa which also live in human and animal digestive systems. The most commonly tested faecal bacteria indicators are total coliforms¹⁰ and faecal coliforms.

The permissible limit of total coliform in water for bathing is 500 MPN¹¹/100 ml. For measuring the total coliform level, five measuring points¹² in the rivers *Ganga* and *Yamuna* were earmarked. However, the total coliform level ranged between 3,300 MPN/100 ml. and 39,000 MPN/100 ml. (as against the permissible level of 500 MPN/100 ml.) during MKM as detailed in **Appendix-6.1.**

Increased levels of BOD and coliform in rivers during MKM indicated that water was not safe for bathing in rivers.

No reply was furnished by the State Government (March 2014). However UPPCB confirmed the facts.

6.5 Management of Air Pollution

Air can be contaminated by a range of very different particles such as dust, pollen, soot, smoke and liquid droplets. Many of these can harm us, especially very small particles that can enter deep into the lungs. Particles are either directly emitted into the air by sources such as factories, vehicles and windblown dust or formed in the atmosphere by transformation of emitted gases. The Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987, regulates management of air pollution.

For prevention and control of air pollution in city, UPPCB was required to prepare a comprehensive plan of action and secure its execution by effective co-ordination with the concerned Government departments and agencies to control air pollution within safe limits. Central Pollution Control Board (CPCB) prescribed the National Ambient Air Quality Standard (NAAQS) in respect of air pollution.

Scrutiny of records revealed that instead of making any comprehensive plan to mitigate the impact of air pollution during MKM, UPPCB merely engaged *Motilal Nehru* National Institute of Technology, Allahabad (MNNIT) for measuring air pollution. MNNIT selected three points in the city (*Alopibagh* crossing, *Johnstonganj* crossing and *Parag Dairy Rambagh*) for measuring Respirable Suspended Particulate Matter (RSPM) and Suspended Particulate Matter (SPM) in the air. The readings were to be taken every day. From the partial information made available by Uttar Pradesh Pollution Control Board

⁹ Members of two bacteria groups.

¹⁰ Total coliforms are a group of bacteria that are widespread in nature. The usefulness of total coliforms as an indicator of faecal contamination depends on the extent to which the bacteria species found are faecal and human in origin.

¹¹ MPN: Most Probable Number.

¹² (1) U/S *Ganga* (Rasoolabad), (2) D/S *Ganga* Shastri Bridge, (3) Main *Sangam*, (4) D/S *Sangam* Mawaiya and (5) *Saraswati Ghat*.

(UPPCB), we observed that MNNIT did not take measurements on any of the bathing dates. The position of RSPM and SPM, measured by MNNIT on the day following the bathing dates, in one of the busiest area of city, was as below:

Table 2: Position of RSPM and SPM at *Johnstonganj* crossing

Sl. No.	Date of measurement	After bathing of	RSPM (Permissible limit: 60 µg/m ³)	SPM (Permissible limit: 100 µg/m ³)
1	15.01.13	<i>Makar Sankranti</i>	241.33	341.94
2	29.01.13	<i>Paush Purnima</i>	362.61	467.43
3	12.02.13	<i>Mauni Amavasya</i>	348.80	546.93
4	19.02.13	<i>Basant Panchimi</i>	360.50	410.53
5	26.02.13	<i>Maghi Purnima</i>	265.90	545.76
6	12.03.13	<i>Maha Shivratri</i>	264.05	431.65

(Source: Information provided by UPPCB, Regional Office, Allahabad)

As is evident from above table the level of RSPM and SPM was far beyond the permissible limits. No action was taken by UPPCB to regulate the levels of RSPM and SPM within permissible limits.

Further, scrutiny of information collected from the SP (Traffic), Allahabad revealed that no special drive was conducted for checking of vehicular emission during December 2012 to March 2013¹³ ignoring the safety of pilgrim from excess vehicular emissions.

The Government did not furnish reply (March 2014). However, SP, traffic had confirmed (August 2013) that no special drive in respect of checking of vehicular emission was conducted during MKM.

6.6 Construction and Demolition (C&D) Waste Management

Construction and Demolition (C&D) waste comprises concrete, plaster, bricks, metal, wood, plastics etc. C&D waste became a big challenge over last two years (2011-12 & 2012-13) as massive construction works- roads, sewage etc. for MKM and Jawaharlal Nehru National Urban Renewal Mission (JNNURM) were underway. Scrutiny of the records of Allahabad Nagar Nigam revealed that no arrangement for management of C&D waste, generated during massive construction activities for MKM and JNNURM, was made.

The Government did not furnish (March 2014) any reply in this regard. However, Allahabad Nagar Nigam, while accepting the fact, replied (August 2013) that C&D waste was managed by its own resources but did not make available the details of the arrangements made in this regard.

6.7 No arrangement for eco-tourism

Apart from religious significance, *Magh Mela/MKM* in Allahabad, also attracts people from all over the world for eco-tourism. Siberian Cranes and

¹³ During this period movement of vehicles increased manifold.

Gangetic Dolphin attract visitors. Every year a large number of Siberian birds migrate from Siberia in winter and make *Sangam* their home.

We observed that no planning was made in respect of preservation and promotion of eco-tourism despite spending crores of rupees for MKM. In effect, eco-tourism was completely ignored.

6.8 Recommendations

- *Effective, target oriented arrangements should be adopted for minimizing pollution, preventing/mitigating damage to environment & ecology due to huge congregation of people during Mela;*
- *Adequate and effective arrangements for Solid Municipal Wastes, water pollution, air pollution etc. should be put in place adhering to the extant laws and UPPCB should ensure compliance;*
- *Green toilets should be provisioned to protect contamination of ground water through leaching owing to absence of physical barriers in the toilets; and*
- *Stringent steps should be taken for maintaining Bio-chemical Oxygen Demand and Coliform level in the rivers for providing safe bathing water to pilgrims.*