

# **Action Plan**

**For**

## **The Control of Air Pollution in .0 Varanasi City**



**REGIONAL OFFICE  
UTTAR PRADESH POLLUTION CONTROL BOARD  
AVAS VIKAS OFFICE CUM COMMERCIAL COMPLEX, JAWAHAR NAGAR,  
BHELUPUR, VARANASI**

## **1. INTRODUCTION**

**Varanasi**, also known as **Benares**, **Banaras** or **Kashi**, is a city on the banks of the river Ganga in the Uttar Pradesh state of North India, 320 kilometers south-east of the state capital, Lucknow, and 121 kilometers east of Allahabad. Varanasi lies along National Highway 2, which connects it to Kolkata, Kanpur, Agra, and Delhi, and is served by Varanasi Junction railway station and Lal Bahadur Shastri International Airport. Varanasi is also one of 72 districts in the Indian state of Uttar Pradesh. At the time of the 2011 census, there were a total of 8 blocks and 1329 villages in this district. The main native languages of Varanasi are Hindi and Bhojpuri.

Varanasi grew as an important industrial centre, famous for its muslin and silk fabrics, perfumes, ivory works, and sculpture. Buddha is believed to have founded Buddhism here around 528 BCE when he gave his first sermon, "The Setting in Motion of the Wheel of Dharma", at nearby Sarnath. The city's religious importance continued to grow in the 8th century, when Adi Shankara established the worship of Shiva as an official sect of Varanasi. During the Muslim rule through middle Ages, the city continued as an important centre of Hindu devotion, pilgrimage, mysticism and poetry which further contributed to its reputation as a centre of cultural importance and religious education. Guru Nanak visited Varanasi for Maha Shivaratri in 1507, a trip that played a large role in the founding of Sikhism.

The Kingdom of Benares was given official status by the Mughals in 1737, and continued as a dynasty-governed area until Indian independence in 1947. The city is governed by the Varanasi Nagar Nigam (Municipal Corporation). Silk weaving, carpets and crafts and tourism employ a significant number of the local population, as do the Diesel Locomotive Works.

Varanasi is known worldwide for its many ghats, embankments made in steps of stone slabs along the river bank where pilgrims perform ritual ablutions. Of particular note are the Dashashwamedh Ghat, the Panchganga Ghat, the Manikarnika Ghat and the Harishchandra Ghat, the last two being where Hindus cremate their dead and the Hindu genealogy registers at Varanasi are kept here.

## **2. ACTION TAKEN BY THE BOARD**

Board has issued directions to Principal Secretary Urban Development, Principal Secretary Forests, Principal Secretary Transport, Principal Secretary Agriculture, Managing Director Central U.P. Gas Ltd., Managing Director Indraprastha Gas Ltd, and Managing Director Green Gas Ltd. under section 31 (A) of the Air (Prevention and Control of Pollution) Act, 1981 regarding prevention and control of air pollution in Varanasi city on dated 05.09.2016 in compliance of directions issued by Central Pollution Control Board, Delhi under section 18(1) (b) of the Air (Prevention and Control of Pollution) Act, 1981. Board has also issued directions under section 31(A) of the Air (Prevention and Control of Pollution) Act, 1981 as amended regarding prevention and control of air pollution in Varanasi city on dated 14.11.2017.

Ambient Air is being monitored regularly by the Board. At source emission monitoring i.e. stack monitoring of industries is also being done regularly and action is being taken accordingly on the basis of analysis report. If any industry is found violating the standards firstly show-cause notice is issued to the industry followed by closure under Air (Prevention and Control of Pollution) Act, 1981.

### 3. ANNUAL AVERAGE DATA OF AMBIENT AIR QUALITY PM<sub>10</sub> (µg/m<sup>3</sup>) OF VARANASI CITY (YEAR 2013-2018)

U.P. Pollution Control Board is monitoring ambient air quality of Varanasi city manually at 05 locations viz Jawahar nagar, Sigra, BHU campus, Saketnagar, Chandpur for PM<sub>10</sub>, SO<sub>2</sub> and NO<sub>2</sub> parameters. Annual Average data of Ambient Air Quality particularly PM<sub>10</sub> (Particulate Matter size less than 10 microns) were observed during the year 2013-18 are as given below.

S.No.	Name of Location	Category	2013	2014	2015	2016	2017	2018
1	Jawahar nagar	Residential	145.1	142.2	144.1	195.5	242.1	202.09
2	Sigra	Commercial	150.7	142.7	146.2	203.0	233.4	202.33
3	BHU campus	Residential	-	190.2	178.1	218.1	222.9	171.65
4	Saketnagar	Residential	-	235.3	179.9	254.3	261.0	200.89
5	Chandpur	Industrial	-	239.2	226.7	199.7	294.9	226.65
	STANDARD (annual average)	60 µg/m <sup>3</sup>						

### 4. SOURCES OF POLLUTION IN VARANASI

Based on Spatial and Temporal GIS Based Emission Inventory of Air Pollutants and Green House Gases in Three Major Cities of Uttar Pradesh, the main sources of air pollution in Varanasi city are Vehicular (2%), Road dust (92%), Domestic Cooking (3%), Industries (Point source & Areas source), Garbage burning (2%) & Agriculture waste burning (2%) etc. Data obtained from Continuous Ambient Air Quality Monitoring System (2018) at Varanasi showed values of CO 1.00 (mg/m<sup>3</sup>); O<sub>3</sub> 24.80 (µg/m<sup>3</sup>); NO<sub>2</sub> 45.20(µg/m<sup>3</sup>); SO<sub>2</sub> 9.3 (µg/m<sup>3</sup>); PM<sub>2.5</sub> 95.0 (µg/m<sup>3</sup>); and Benzene 0.9(µg/m<sup>3</sup>), Toluene 1.93(µg/m<sup>3</sup>), Xylene 0.49(µg/m<sup>3</sup>).

### 5. Short term & Long term Action Plan

#### (A) Vehicle emission control

##### (a) Long Term Action Plan: Reduce congestion

Sl. No	Action Points	Timeframe for implementation	Action Required to be Taken by Responsible Departments
i	Plying of electric buses for public transport including establishment of sufficient charging stations.	360 days	Transport Department
ii	Prepare plan for construction of expressways/bypasses to avoid	360 days	N.H.A.I. /PWD

	congestion due to non-destined vehicles.		
iii	Construction of peripheral road around the city to avoid congestion.	360 days	N.H.A.I./PWD
iv	Arrangement of Multilevel Parking Facilities	360 days	Nagar Nigam/Development Authorities
vi	Development/Strengthening of Bike zone/Cycle zone at metro/railways/bus stations from where travelers hire bicycle to reach the destination.	360 days	Nagar Nigam/Development Authorities
vii	Initiate steps for retrofitting of particulate filters in diesel vehicles, when BS-VI fuels are available	360 days	Vehicle Manufacturing Companies/Ministry of Road Transport & Highways (MoRTH)
viii	Use of Bio-Ethanol in the city/urban transport system/waste to energy.	360 days	Transport Department

**(b)Short Term Action Plan**

<b>Sl. No</b>	<b>Action Points</b>	<b>Timeframe for implementation</b>	<b>Action Required to be Taken by Responsible Departments</b>
i	Launch extensive drive against polluting vehicles for ensuring strict compliance	As regular activity	R.T.O/Traffic Police
ii	Launch public awareness campaign for air pollution control, vehicle maintenance, minimizing use of personal vehicles, lane discipline, etc.	As regular activity	R.T.O/ Traffic Police
iii	Prevent parking of vehicles in the non-designated areas	As regular activity	Traffic Police/ Nagar Nigam
iv	Prepare & implement action plan to check fuel adulteration and random	30 days	District Supply Officer/Oil companies

	monitoring of fuel quality data		
v	Prepare & implement plan for widening of roads and improvement of infrastructure for decongestion of road	90 days	Nagar Nigam
vi	Steps for promoting battery operated vehicles including establishment of charging stations.	120 days	Transport Department/Nagar Nigam & Development Authorities
vii	Install weigh in motion bridges at the borders of cities/towns and States to prevent overloading of vehicles	180 days	Transport Department
viii	Synchronize traffic movements/Introduce intelligent traffic systems for lane-driving	180 days	Traffic Police
ix	Installation of remote sensor based PUC system	180 days	Traffic Police

**(B) Suspension of road dust and other fugitive emissions control**

**(a) Long Term Action Plan**

<b>Sl. No.</b>	<b>Action Points</b>	<b>Timeframe for implementation</b>	<b>Action Required to be Taken by Responsible Departments</b>
<b>i)</b>	All the canals/nullah's side roads should be brick lined. Proper plantation also carried out.	360 days	Irrigation Department/ Forest department
<b>ii)</b>	Implementation of maintaining at least 33% forest cover area in the city in master plan.	180 days	Nagar Nigam/VDA/Forest Department

**(b) Short Term Action Plan**

<b>Sl. No.</b>	<b>Action Points</b>	<b>Timeframe for implementation</b>	<b>Action Required to be Taken by Responsible Departments</b>
<b>i)</b>	Prepare plan for creation of green buffers along the traffic corridors. Plantation of	90 days	Forest Department/Nagar

	specific types of species of plants which are helpful in pollution control.		Nigam & Development Authorities
ii)	Maintain potholes free roads for free-flow of traffic	90 days & as regular activity afterwards.	Nagar Nigam/ Development Authorities
iii)	Introduce water fountains at major traffic intersection, wherever feasible	90 days	Nagar Nigam
iv)	Greening of open areas, gardens, community places, schools and housing societies	90 days	Forest Department
v)	Blacktopping of metalled road including pavement of road shoulders	180 days	Nagar Nigam
vi)	Use of treated effluent of STPs in Pollution Control Measure such as watering of Plants, sprinkling for dust suppression purposes.	90 days	Nagar Nigam
vii)	Wall to Wall pavement for control of dust from road. Design the footpath pavement/tiles having capacity to grow grass in between.	180 days	Nagar Nigam

**(C) Control of emissions from biomass/crop residue/garbage/municipal solid waste burning**

**(b) Short Term Action Plan**

Sl. No.	Action Points	Timeframe for implementation	Action Required to be Taken by Responsible Departments
i)	Launch extensive drive against open burning of bio-mass, crop residue, garbage, leaves, etc.	90 days	Nagar Nigam
ii)	Regular check and control of burning of municipal solid wastes and use of fire extinguisher for control of fire in municipal solid waste and bio mass.		Nagar Nigam
iii)	Proper collection of horticulture waste (bio-mass) and its disposal following composting-cum-gardening approach		Nagar Nigam
iv)	Ensure ban on burning of agriculture waste and crop residues and its	180 days	Agriculture Department & U.P.

	implementation		Pollution Control Board
v)	Door to Door collection of segregated waste by agency and then its disposal directly in plant without dumping it on land.	90 days	Nagar Nigam
vi)	Establishment of composting pits in Parks/ residential societies etc for management of biodegradable waste.	90 days	Nagar Nigam/VDA
vii)	No plot should be left open more than 02 years and planting of trees must be mandatory on vacant plots.	90 days	Nagar Nigam/VDA

**(D) Control of industrial emissions**

**(a) Long Term Action Plan**

Sl. No.	Action Points	Timeframe for implementation	Action Required to be Taken by Responsible Departments
i)	Conversion of natural draft brick kilns to induced draft using zigzag technique in a phased manner.	360 days	U.P. Pollution Control Board
ii)	Installation of Electrostatic precipitators and appropriate air pollution control devices in factory units/industries.	180 days	U.P. Pollution Control Board
iii)	Development of mobile facility/van for continuous ambient air quality monitoring for different localities.	360 days	Nagar Nigam

**(b) Short Term Action Plan**

Sl. No.	Action Points	Timeframe for implementation	Action Required to be Taken by Responsible Departments
i)	Identification of brick kilns and their regular monitoring including use of designated fuel, and closure of unauthorized units	60 days	U.P. Pollution Control Board

ii)	Conversion of natural draft brick kilns to induced draft	120 days	U.P. Pollution Control Board
iii)	Monitoring of industrial emission including real time online monitoring through OCEMS (Online Continuous Emission Monitoring System) and live camera feed and to take action against non-complying industrial units	60 days, and thereafter, regular activity	U.P. Pollution Control Board
iv)	Bank guarantee should be taken for the compliance of conditions imposed in CTO/CTE for control of Environmental Pollution from industries. The bank guarantee shall be forfeited in case of any violation. Verification of these conditions to be carried out by UPPCB/selected Third Party Institutions/Quality control agencies etc.	60 days, and thereafter, regular activity	U.P. Pollution Control Board
v)	Installation of web cams and OCEMS in Grossly Polluting Industries.	60 days	U.P. Pollution Control Board

**(E) Control of air pollution from constructions and demolition activities**

Sl. No.	Action Points	Timeframe for implementation	Action Required to be Taken by Responsible Departments
i)	Enforcement of Construction & Demolition Rules 2016. Fine should be imposed on defaulting units.	15 days , and thereafter, continue as regular activity	Urban Development/Development Authorities
ii)	Control measures for fugitive emissions from material handling, conveying and screening operations through water sprinkling, curtains, barriers and dust suppression units;		Urban Development/Development Authorities
iii)	Ensure carriage of construction material in closed/covered vessels		Development authorities/ Regional Transport Department
iv)	Environmental aspects should be included during preparation of master plan for development of city.	Proposed Master Plan for Varanasi City 2021	Urban Development/Development Authorities



v)	Builders should leave 33% area for green belt in residential colonies. Plantation should be done as per Office order No. H16405/220/2018/02 dated 16.02.2018 available on website of the Board .i.e.,www.uppcb.com.	Within a reasonable timeframe	Urban Development/Development Authorities/ housing companies
vi)	All construction areas must be covered to avoid dispersion of particulate matter	30 days	Nagar Nigam/ Traffic Police
vii)	Street vendors are to be controlled strictly in respect of removing their wastes and debris before leaving the site of operation	30 days	Nagar Nigam/ Traffic Police
viii)	Street vendors are to be controlled strictly in respect of removing their wastes and debris before leaving the site of operation	30 days	Nagar Nigam/ Traffic Police

**(F) Other Steps to control Air Pollution**

**(a) Long Term Action Plan**

(G)

<b>Sl. No.</b>	<b>Action Points</b>	<b>Timeframe for implementation</b>	<b>Action Required to be Taken by Responsible Departments</b>
<b>i)</b>	Dead Bodies of Animals should be disposed through proper treatment facility like rendering plant etc	360 days	Nagar Nigam
<b>ii)</b>	Installation of CAAQMS by polluting units/institutions etc. under "Polluters Pay Principles".	360 days	U.P. Pollution Control Board

**(b)Short Term Action Plan**

<b>Sl. No.</b>	<b>Action Points</b>	<b>Timeframe for implementation</b>	<b>Action Required to be Taken by Responsible Departments</b>
<b>i)</b>	Air Quality Index to be calculated and disseminated to the people through website and other media (on maximum fortnightly basis for manually operated monitoring stations and real time basis for continuous monitoring stations)	15days, and thereafter, continue as regular activity	U.P. Pollution Control Board
<b>ii)</b>	Establish an Air Quality Management Division at SPCB/PCC Head Quarters to oversee air quality management activities in the State and interact with CPCB	30 days	U.P. Pollution Control Board
<b>iii)</b>	Set-up and publicize helpline in the city/town as well as SPCB/PCC HQ for complaints against reported non-compliance	30 days	U.P. Pollution Control Board
<b>iv)</b>	Engage with concerned authorities on continual basis for maximizing coverage of LPG/PNG for domestic and commercial cooking with target of 100% coverage	30 days	District Supply Officer
<b>v)</b>	Monitoring of DG sets and action against violations. Fine should be imposed on defaulters.	30 days	U.P. Pollution Control Board/ Nagar Nigam
<b>vi)</b>	Street vendors are to be controlled strictly in respect of removing their wastes and debris before leaving the site of operation	30 days	Nagar Nigam /Development Authorities
<b>vii)</b>	Complete ban on littering of streets with municipal solid wastes (MSW). Segregation & source collection at source of MSW to be implemented.	30 days	Nagar Nigam /Development Authorities
<b>viii)</b>	If Air Quality Index found severe or above grade, ensure availability of masks to public for protection.	90 days	Nagar Nigam

