

Rishikesh City Air Action Plan

(Revised)



PREPARED BY:
**UTTARAKHAND ENVIRONMENT
PROTECTION AND POLLUTION CONTROL
BOARD, DEHRADUN**



उत्तराखण्ड शासन
APPROVED BY:-
**AMBIENT AIR QUALITY MONITORING
COMMITTEE**
GOVERNMENT OF UTTARAKHAND
**CONSTITUTED IN COMPLIANCE OF HON'BLE NGT ORDER IN
OA NO 681/2018**

Contents

Background	2
Status of Ambient Air Quality in Rishikesh	3
Sources of Pollution	4
Why Clean Air Action Plan?	5
Rishikesh Clean Air Action Plan	7
Financial Layout	11
Monitoring mechanism for implementation	12
Annexures	13
Disclaimer	14
Summary of various issues Addressed in Action Plan.....	15

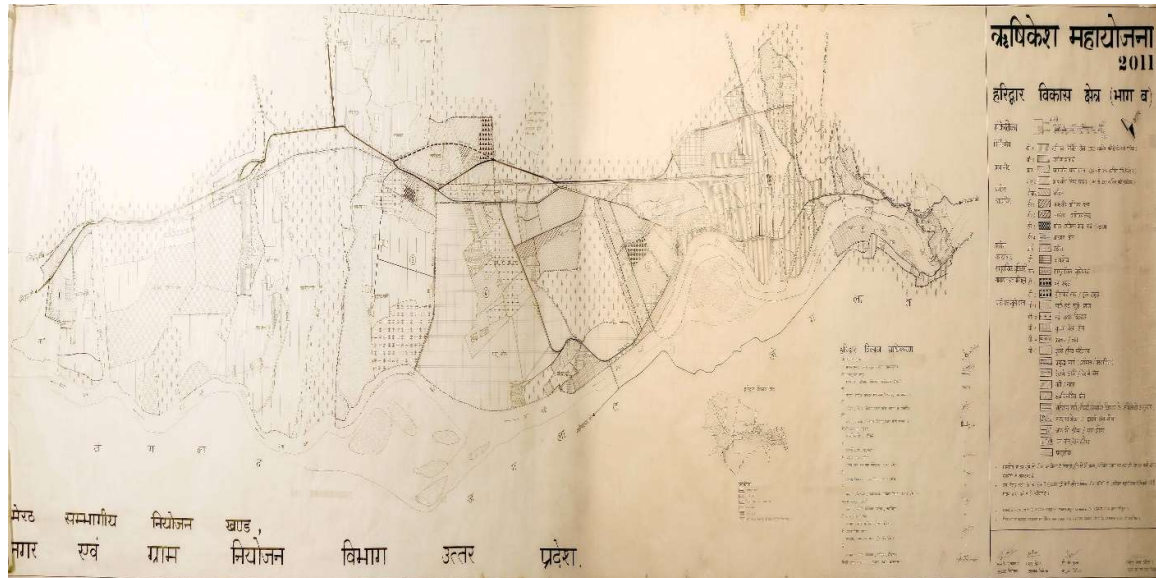


Figure: Rishikesh City

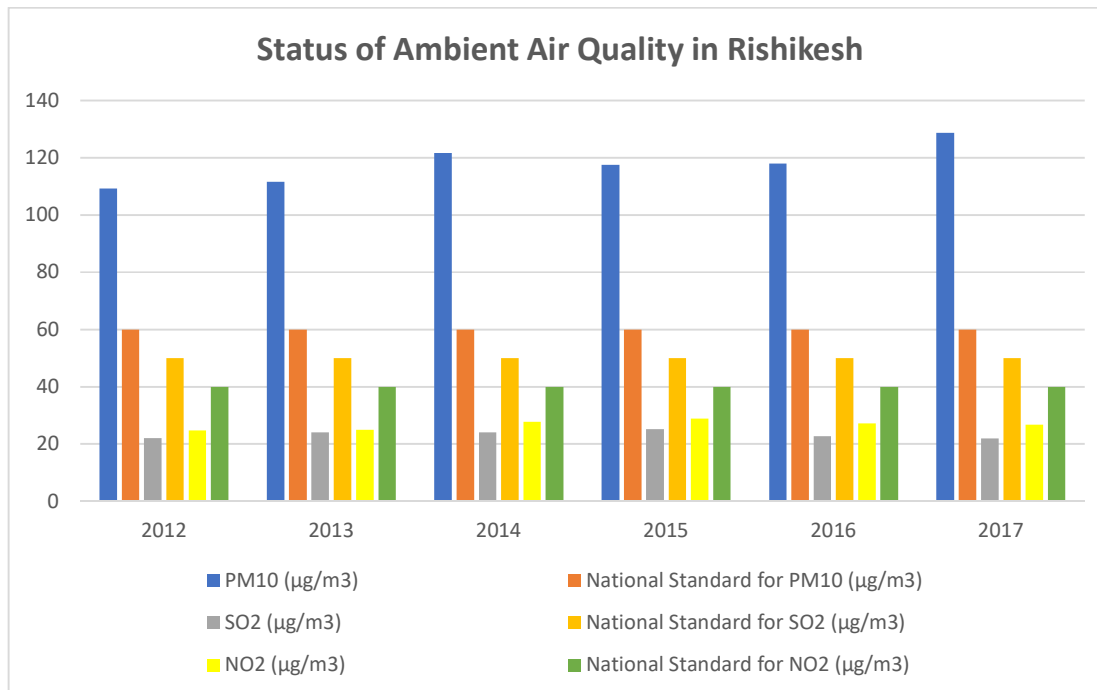
Source: Uttarakhand Housing and Urban Development Authority

Background

Rishikesh is an urban agglomeration in India's northern state of Uttarakhand, on the Himalayan foothills beside the Ganges River. The river is considered holy, and the city is renowned as a centre for studying yoga and meditation. Temples and ashrams (centres for spiritual studies) line the eastern bank around Swarg Ashram, a traffic-free, alcohol-free and vegetarian enclave upstream from Rishikesh town. It has an average elevation of 372 metres (1,220 ft). The Tehri Dam is just 80 km (50 mi) uphill on the way to Gangotri. Rishikesh is the starting point for travelling to the four Chota Char Dham pilgrimage places — Badrinath, Kedarnath, Gangotri, and Yamunotri.

According to Köppen-Geiger climate classification system, the city's climate is humid subtropical. Rishikesh is popularly known as the 'Yoga Capital of the World' and receives a tremendous flow of tourists in the city every year, coming for spiritual activities and adventure sports which puts a lot of pressure on city's natural environment and city administration responsible for maintaining suitable living conditions for all.

Status of Ambient Air Quality in Rishikesh

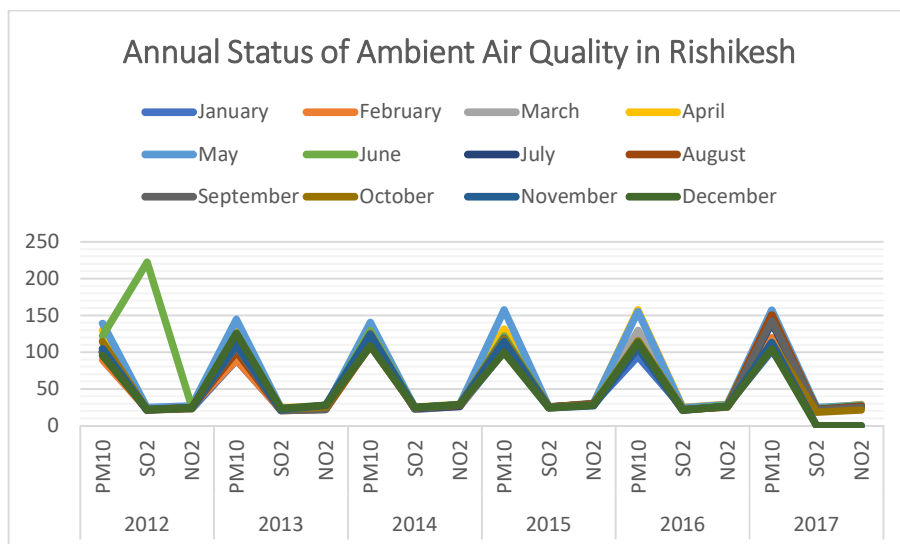


Source: CPCB

Data for the above graph is taken from the Central Pollution Control Board's website, which displays data from manual stations installed in Rishikesh for monitoring air quality.

The data indicates PM 10 is a pollutant of serious concern in the area as it is way above prescribed National Standards. It also indicates that implementation of more stringent air pollution control strategy in the past few years has air quality has improved SO₂ and NO₂ emissions, that are also well under the prescribed national standards. Despite the efforts made by authorities, much more needs to be done to arrest the particulate matter in the prescribed limits.

In parallel, the routine monitoring and assessment of industrial emissions (including technical innovation) including third parties such as CPCB, UEPPCB is a regular practice. For the industries that did not meet the emission standards, UEPPCB issued closure directions to comply.



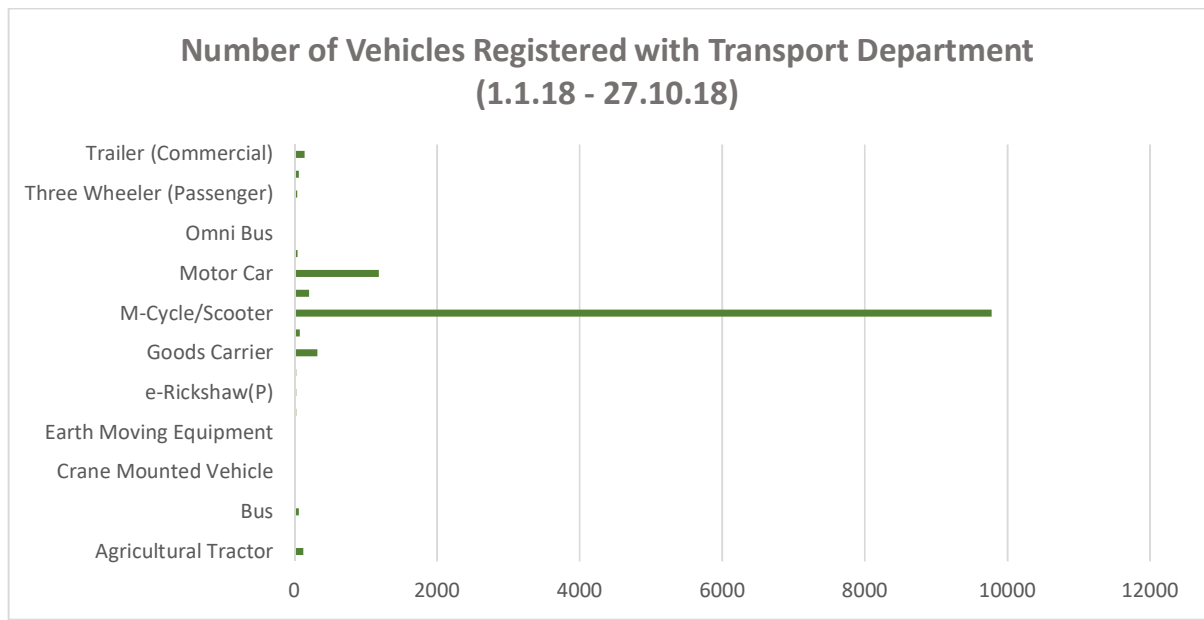
Source: CPCB

The above figure shows monthly data collected of the three pollutants monitored by CPCB installed stations in Rishikesh for a period of 5 years (2012-2017). It shows here that levels of PM 10 have been consistently high in the span of 2012-2017, while the levels of NO₂ and SO₂ are maintained within prescribed limits. The sources of particulate matter present in the air of Rishikesh are discussed further.

Sources of Pollution

Identified sources of air pollution in Rishikesh are road dust, vehicular emission, domestic fuel burning, open waste burning, construction activities, etc. Two major Industries namely IDPL and Hindustan National Glass Industries Ltd are situated outer of Rishikesh. Central Pollution Control Board is regularly monitoring the ambient air quality at various cities in Uttarakhand through National Air Quality Management Programme (NAMP) installed at Nagar Palika Parishad, Rishikesh under NAMP.

Particulate Matter (PM₁₀) has been identified as main air pollutant as it is found above the prescribed national standards. This is mainly due to re-suspension of road dust, emission from vehicles, D.G. sets, construction activities, burning of domestic fossil fuels, open burning of solid wastes, transportation of construction materials such as sand, soil etc. without covering and emission from brick kilns located around Rishikesh. This is mainly due to vehicular emissions.



Source: Uttarakhand State Transport Department

There are a total of 3098 no. of diesel driver commercial vehicles which are more than 15 year older and in coming 05 years 3197 no. of such vehicles will come under this category. To ban on these commercial vehicles older than 15 years proposal from State Government will be sent to Government of India. Checking of Pollution level in vehicles is the mandatory activity of Transport department. Checking of pollution level in the vehicles is mandatory activity of transport department. However, at present only 10 no. of vehicle pollution emission checking centres in Rishikesh which is proposed to increase by 20 and also transport department will increase the surveillance by checking 10 % vehicles every year. A sum of 980 challans were made in 2017-18 in violation of vehicles not having PUCs.

Government of Uttarakhand has also formulated "Uttarakhand Anti Littering and Anti Spitting Act 2016" where in challans have been made in Rishikesh and collected Rs 35000 against 71 challans. Also Rs 181500 were collected by making 251 challans for burning of the municipal waste.

Why Clean Air Action Plan?

India with an emerging economic development, faces enormous challenges when it comes to maintaining pace with the burgeoning population and parallel increase in urban development. This has been the scenario not only in mega cities but also in medium and

small sized urban areas for the past many years now. Studies indicate that multiple factors are responsible for air pollution that emerges from sectors like power, transport, industry, residential, construction and waste. Despite having national standards and checks for various sources of emissions, many Indian cities are suffering from alarmingly high rates of air pollution emissions. While India has specified national ambient air quality standards, many cities have not been able to meet these standards. It is in view of this and the growing demand for clean air, the central government under the National Clean Air Programme (NCAP) announced a comprehensive plan to overcome the challenges in over a hundred non- attainment cities.

The objective of the proposed clean air action plan is to meet the prescribed annual average ambient air quality standards in Rishikesh in a stipulated timeframe.

Within the Clean Air Action Plan the NCAP suggests the following actions

- To augment and evolve effective and proficient ambient air quality monitoring network across the country for ensuring comprehensive and reliable database
- To have efficient data dissemination and public outreach mechanism for timely measures for prevention and mitigation of air pollution and for inclusive public participation in both planning and implementation of the programmes and policies of government on air pollution
- To have a feasible management plan for prevention, control and abatement of air pollution.

It has been proposed under the NCAP that the city action plans need to be guided by a comprehensive science-based approach involving

- (i) identification of emission sources;
- (ii) assessment of extent of contribution of these sources;
- (iii) prioritizing the sources that need to be tackled;
- (iv) evaluation of various options for controlling the sources with regard to feasibility and economic viability; and
- (v) formulation of action plans

Rishikesh Clean Air Action Plan

1. The two very significant components of an Air Action Plan for any city that is still growing and developing at a high pace, are;
 - Setting targets/Deadlines: Depending on estimated time for implementation of the action the time periods should be divided into Immediate, Short, Mid and Long-term actions
 - Setting up a steering committee to monitor the progress and implementation of activities under the action plan. A committee like that, should be comprised of high-level state officials from relevant departments.
2. Main Sources: A source apportionment study to identify the key sources of pollution needs to be done to identify the sources of pollution the plan is supposed to target. A study identifying the exact sources is yet to be conducted in Rishikesh
3. Type of Action: The recommended action should be designated as either policy, regulatory or implementation. The plan is colour coded based on these actions. Their explanation is given below:
 - Policy Action: This refers to an action that requires the framing of a new policy at the city or state level.
 - Regulatory Action: This refers to an action that requires better/different implementation of an existing policy or rule.
 - Implementation Action: This refers to an action that requires local execution of an activity.
4. Time period of implementation: Depending on estimated time for implementation of the action the time periods could be divided into Immediate (less than 12 months), Short (6 months to 2 years), Mid (2 years to 5 years), and Long (5 years to 10 years).

Source group	Action	Implementation period (Immediate / Short/ Mid /Long-term)	Time target	Responsible agency(ies)	Remarks
Vehicles	1. Restriction on plying and phasing out of 15 years old commercial diesel driven vehicles. Type of Action: <u>POLICY</u>	--	--	Transport Department	Presently 3098 commercially driven Diesel Vehicles and this number will increase up to 3197 in next 05 year. However, Ban on diesel driven vehicles is under the preview of the Central Government.
	2. Use of cleaner fuels (CNG/LPG) for commercial vehicles Type of Action: <u>IMPLEMENTATION</u>	Mid	March 2023	Transport Department & Oil companies	After introduction of CNG/LPG driven vehicles, old diesel driven vehicles will be replaced in phased manner.
	3. Regular checking of vehicles and Establishment of adequate number of Pollution Checking Centres to issue PUC (Pollution Under Control Certificate) Type of Action: <u>REGULATORY</u>	Mid	March 2023	Transport Department & Traffic Police	Present numbers of PUC checking centres are 10. These numbers of PUCs will be increased up to 20. Every year at least 10% of vehicles will be challaned. It is policy of Transport Department to allow to run PUC centres at no cost if the person willing to do it with its own resources. Transport Department will make it mandatory that the all Government Departments must have to have their vehicles checked and get PUC in time. Also, surveillance will be increase. After increase in demands, the number of PUC centres will automatically be increased. Transport Department will also do the vehicle checking by Mobile Laboratories. Which are to be procured.
	4. Increase in Penalty of Rs 1000 to Rs 5000 in case of violation of PUC. Type of Action: <u>POLICY</u>	--	--	Transport Department	As the penalty to be increased by the Central Government, so the proposal from State Government will be sent to Government of India for the same.
	5. Integration of all Pollution Checking Centres with Single web based software for ensuring control & monitoring of polluting vehicles. Strengthening facility for enforcement regarding the vehicles involved in pollution emission. Type of Action: <u>REGULATORY</u>	Short	March 2021	Transport Department	Software for this action is ready. Testing and Customization will be done in the given time frame
	6. Promotion and operationalization of E-rickshaw	Short	March 2021	Transport	At present only 51 E-Rickshaw are registered in Rishikesh. Promotion of E-

	Type of Action: <u>IMPLEMENTATION</u>			Department	Rickshaw will definitely help in reducing the pollution level.
	7. Monitoring on vehicle fitness of Commercial Vehicles Type of Action: <u>REGULATORY</u>	Immediate	15.10.2019	Transport Department & Traffic Police	
	8. Periodic calibration test of vehicular emission monitoring instrument Type of Action: <u>REGULATORY</u>	Short	March 2021	Transport Department	
Road Dust	1. Daily cleaning of road dust Type of Action: <u>IMPLEMENTATION</u>	Immediate	15.10.2019	Nagar Nigam	Nagar Nigam will procure vacuum road sweeping machines
	2. Water spraying on road through tankers Type of Action: <u>IMPLEMENTATION</u>	Short	March 2021	Nagar Nigam	
	3. Construction of pucca pavement along the roads Type of Action: <u>IMPLEMENTATION</u>	Mid	March 2023	Nagar Nigam and PWD	
	4. Tree plantation along the roads Type of Action: <u>IMPLEMENTATION</u>	Short	March 2021	Nagar Nigam and Forest Department	
	5. Development of green belt in open areas, gardens, parks/ community places, schools & housing societies Type of Action: <u>IMPLEMENTATION</u>	Mid	March 2023	Nagar Nigam and Forest Department	
Construction and Demolition Activities	1. Covering of construction site Type of Action: <u>IMPLEMENTATION</u>	Immediate	15.10.2019	Nagar Nigam and Development Authority	Firstly Will be implemented at sites having more than 10,000 sq. Mt. Covered area
	2. Transportation of construction materials like sand, soil, stone chips etc. in covered system Type of Action: <u>IMPLEMENTATION</u>	Short	March 2021	Transport Department, District Adm. & Traffic Police	
	3. Restriction on storage of construction materials along the road Type of Action: <u>POLICY</u>	Short	March 2021	Nagar Nigam and Development Authority	

Biomass and garbage burning	1. Restriction on open burning of municipal solid waste, Biomass, plastic, horticulture waste etc Type of Action: <u>IMPLEMENTATION</u>	Immediate	15.10.2019	Nagar Nigam	
	2. Immediate lifting of solid wastes generated from de-silting and cleaning of municipal drains for its disposal Type of Action: <u>IMPLEMENTATION</u>	Short	March 2021	Nagar Nigam	To be lifted within 48 hrs
	3. Transportation of municipal solid wastes, construction materials and debris in covered system Type of Action: <u>IMPLEMENTATION</u>	Immediate	15.10.2019	Nagar Nigam	
	4. Ensuring promotion & use of cleaner fuel for commercial purposes like local Dhaba/ eateries Type of Action: <u>IMPLEMENTATION</u>	Mid	March 2023	District Adm, Nagar Nigam and Forest Department	To be implemented in the geographical area of Nagar Nigam.
	5. Replacement of Wood which is used as Domestic Fuel Type of Action: <u>IMPLEMENTATION</u>	Mid	March 2023	District Adm, Nagar Nigam and Forest Department	To be implemented in the geographical area of Nagar Nigam.
Industrial Emissions	Installation and operation of advance air pollution control systems and Continuous Ambient Air Quality Monitoring System at M/s Hindustan National Glass Industries Ltd, Rishikesh. Type of Action: <u>REGULATORY</u>	Mid	March 2023	UEPPCB	
	1. Restriction of new industries which are based on Solid fuel like wood and coke Type of Action: <u>POLICY</u>	Mid	March 2023	UEPPCB	
Strengthening of AAQ monitoring	1. Installation of CAAQMS Type of Action: <u>IMPLEMENTATION</u>	Short	March 2021	UEPPCB	01 CAAQMS to be installed
	2. Increasing Number of Manual Ambient Air Quality Station from 01 to 03. 3. Type of Action: <u>IMPLEMENTATION</u>	Short	March 2021	UEPPCB	Already 01 Monitoring station is in operation at Rishikesh. This number will increase from 1 to 3
	4. Source apportionment study Type of Action: <u>IMPLEMENTATION</u>	Mid	March 2023	UEPPCB	
Public Awareness	1. Issue of advisory to public for prevention and control of air pollution, Vehicle fitness, maintenance and minimise use of personal vehicles etc Type of Action: <u>REGULATORY</u>	Immediate	15.10.2019	UEPPCB and Nagar Nigam, transport Department	

	2. Involvement of school and other academic institution in awareness program Type of Action: <u>IMPLEMENTATION</u>	Short	March 2021	UEPPCB	
Others	1. Compliance of guidelines on D.G. sets regarding use of retrofitted emission control system (PM captured efficiency 70%) capacity equal to or above 800 KW Type of Action: <u>REGULATORY</u>	Short	March 2021	UEPPCB, Industry Department, and Dist Admin.	
	2. Removal of Open DG sets Type of Action: <u>REGULATORY</u>	Mid	March 2023	UEPPCB, Industry Department, Nagar Nigam and Dist Admin.	
	3. Public Grievance Redressal Portal Type of Action: <u>IMPLEMENTATION</u>	Immediate	15.10.2019	UEPPCB	Portal will be created on the web site of Board for redressal of public complaints on air pollution along with a supervisory control for the disposal of complaints All such complaint will be addressed and disposed in a month time.

Financial Lay out

Following Financial Lay out is being given for execution of Air Action Plan for Rishikesh :-

S. No.	Name of Action Point	Financial Layout in Rs
1	Paving of shoulders along the urban roads.	1.1 crore
2	Tanker and tractor required for water spray on road (02 nos)	0.09 crore
3	Vacuum road sweeping machines	(01 nos) 0.75 crore
4	Small vacuum cleaning machines for smaller roads	(02 nos) 0.24 crore
5	Mobile vehicular checking labs/ PUC centres (02 nos)	0.3 crore
6	Emission inventory and source apportionment study	1.0 crore
7	Installation and AMC for 05 years for CAAQMS	2.5 crore
8	Installation of additional 02 manual air quality monitoring stations	0.25 crore
9	I & E activities	0.5 crore
	Total	6.73 Crore

Monitoring mechanism for implementation

The baseline emission from traffic being too high because of rapid economic growth counter balancing the control measures. At the beginning of 2011, heavy smog covering the Rishikesh region arose public concern about air pollution. Immediately, by taking remedial and regulatory measures by UEPPCB the PM level is rectified and presently the level of PM 10 is around 100-130 $\mu\text{g}/\text{cubic meters}$. Air Quality data is shown in the table 2 (Annexure).

Annexures

Table-1: Status of Ambient Air Quality, Rishikesh

Status of Ambient Air Quality, Rishikesh																						
S.No	Month	2012 to 2018																				
		2012			2013			2014			2015			2016			2017			PM ₁₀	SO ₂	NO ₂
		PM ₁₀	SO ₂	NO ₂	PM ₁₀	SO ₂	NO ₂	PM ₁₀	SO ₂	NO ₂	PM ₁₀	SO ₂	NO ₂	PM ₁₀	SO ₂	NO ₂	PM ₁₀	SO ₂	NO ₂	PM ₁₀	SO ₂	NO ₂
1	January	99.73	22.48	23.38	89.41	21.86	24.63	114.69	22.46	26.17	101.55	25.08	29.02	94.15	23.87	27.6	101.82	20.14	27.63	10.237	IF	IF
2	February	89.5	22.14	26.1	89.48	21.61	24.03	116.43	22.78	26.92	103.97	25	28.44	109.68	24.16	27.33	119.63	21.73	28.6	119.87	IF	IF
3	March	115.8	22.19	24.55	105.31	22.14	24.09	133.8	23.03	28.0	117.35	25.3	29.1	129.5	24.33	27.76	112.79	22.68	28.52	138.61	IF	IF
4	April	129.73	21.73	25.33	133.88	24.76	26.02	130.3	25.06	29.09	131.29	25.48	29.67	157.5	24.5	28.99	143.83	23.71	28.2	171.76	IF	IF
5	May	139.22	24.52	27.24	144.81	23.73	25.33	140.43	24.52	28.89	157.37	25.37	30.33	154.96	24.15	28.89	157.06	24.65	28.0	173.34	IF	IF
6	June	122.28	22.21	25	101.34	23.12	25.52	129.05	24.35	28.23	121.84	25.53	29.73	114.3	21.87	27.95	147.01	23.03	27.49	171.29	IF	IF
7	July	101.02	20.91	24.6	104.18	21.82	23.78	119.59	23.4	26.43	116.41	25.17	29.49	107.33	21.12	26.67	139.29	21.98	26.54	132.08	IF	IF
8	August	99.75	22.22	24.74	100.6	20.76	22.41	109.28	24.15	27.55	111.08	25.73	29.35	107.19	21.5	25.96	150.53	21.86	26.19	105.31	IF	IF
9	September	99.85	21.59	24.08	107.52	20.79	22.35	125.05	24.04	28.13	118.6	25.05	28.37	107.14	21.7	25.96	142.34	21.46	24.62	109.24	IF	IF
10	October	114.11	21.17	23.51	125.14	22.57	25.6	108.97	24.59	27.76	116.82	25.18	27.87	115.34	21.95	25.49	112.96	18.32	21.47	108.56	17.51	20.78
11	November	104.8	21.7	24.32	110.28	21.85	27.72	123.13	24.69	28.32	114.57	24.51	27.16	106.11	21.91	26.09	112.96	IF	IF	112.01	21.51	25.55
12	December	95.32	21.9	24.36	125.44	23.39	27.78	108.5	24.49	28.37	99.74	24.08	27.81	112.74	21.34	26.37	104.22	IF	IF	107.62	31.65	26
	Avg	109.25	22.06	24.76	111.53	22.36	24.93	121.61	23.96	27.82	117.55	25.12	28.86	118	22.7	27.08	128.7	21.76	26.73	129.33	20.22	24.11
Standard		PM₁₀: 60µg/m3 Annual, SO₂: 50µg/m3 Annual, NO₂: 40µg/m3 Annual																				

Table-2: Status of Ambient Air Quality, Rishikesh

S. No	Parameters	Annual Average Concentration							Standards for residential, Rural and other Areas (Annual)
		2012	2013	2014	2015	2016	2017	2018	
1.	PM ₁₀	109.25	111.53	121.61	117.54	117.99	128.70	129.33	60 µg/m ³
2.	SO ₂	22.06	23.96	23.96	25.12	22.7	21.95	20.22	50 µg/m ³
3.	NO ₂	24.76	24.93	27.82	28.86	27.12	26.72	24.11	40 µg/m ³

Disclaimer

This plan is prepared by Uttarakhand Environment Protection and Pollution Control Board in alliance with Clean Air Asia.

Summary of Various Issues Addressed in the Action Plan

Policy level Issues

1. Restriction on plying and phasing out of 15 years old commercial diesel driven vehicles. Ban on registration of Diesel driven auto-rickshaw /Tempo: to be referred to Central Government
2. Increase in Penalty of Rs 10000 to Rs 5000 in case of violation of PUC: to be referred to Central Government
3. Restriction on storage of construction materials along the road
4. Adoption of cleaner fuel and phase out of solid fuel like wood, coal in the industries
5. Restriction of new industries which are based on Solid fuel like wood and coke

Regulatory Issues

1. Regular checking of vehicles and Establishment of adequate number of Pollution Checking Centres to issue PUC (Pollution Under Control Certificate)
2. Integration of all Pollution Checking Centres with Single web based software for ensuring control & monitoring of polluting vehicles. Strengthening facility for enforcement regarding the vehicles involved in pollution emission.
3. Monitoring on vehicle fitness of Commercial Vehicles
4. Periodic calibration test of vehicular emission monitoring instrument
5. Installation and operation of advance air pollution control systems and Continuous Ambient Air Quality Monitoring System at M/s Hindustan National Glass Industries Ltd, Rishikesh.
6. Issue of advisory to public for prevention and control of air pollution, Vehicle fitness, maintenance and minimise use of personal vehicles etc.
9. Compliance of guidelines on D.G. sets regarding use of retrofitted emission control system (PM captured efficiency 70%) capacity equal to or above 800 KW.
10. Removal of Open DG sets.

Issues Related to Implementation

1. Use of cleaner fuels (CNG/LPG) for commercial vehicles
2. Promotion and operationalization of E-rickshaw
3. Daily cleaning of road dust
4. Water spraying on road through tankers
5. Construction of pucca pavement along the roads
6. Tree plantation along the roads
7. Development of green belt in open areas, gardens, parks/ community places, schools & housing societies
8. Covering of construction site
9. Transportation of construction materials like sand, soil, stone chips etc. in covered system
10. Restriction on open burning of municipal solid waste, Biomass, plastic, horticulture waste etc
11. Immediate lifting of solid wastes generated from de-silting and cleaning of municipal drains for its disposal
12. Transportation of municipal solid wastes, construction materials and debris in covered system
13. Ensuring promotion & use of cleaner fuel for commercial purposes like local Dhaba/ eateries
14. Phase out of Pet coke from industries
15. Installation of CAAQMS
16. Increasing Number of Manual Ambient Air Quality Station from 01 to 03
17. Source apportionment study
18. Involvement of school and other academic institution in awareness program.
19. Public Grievance Redressal Portal