

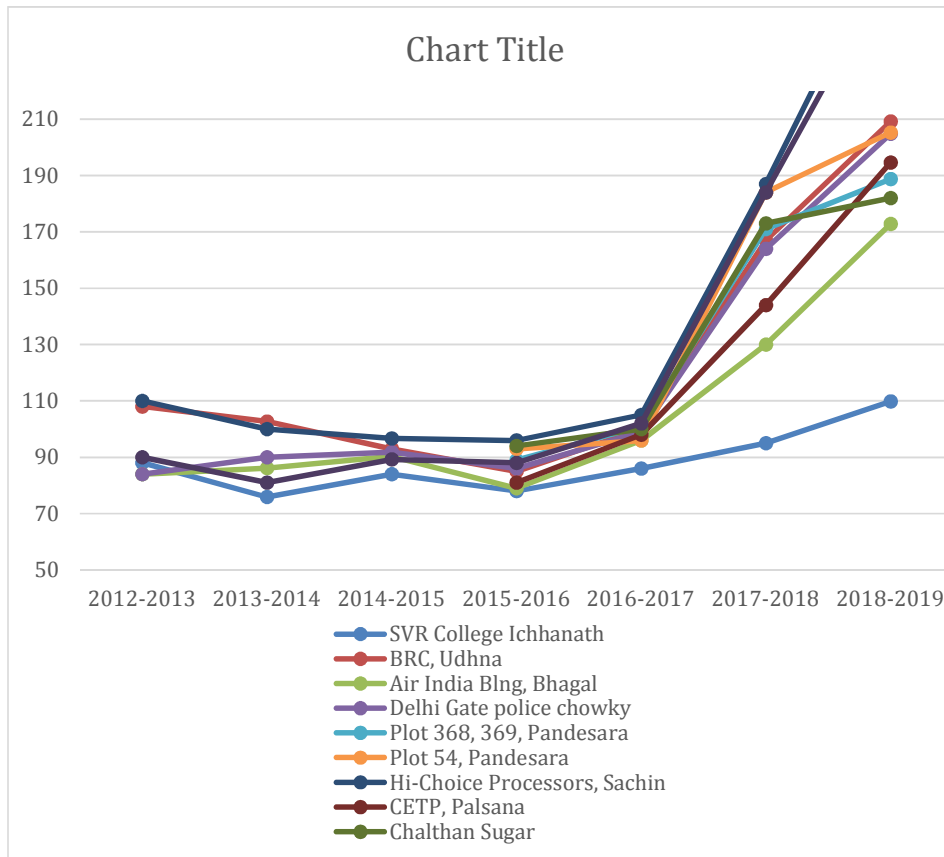
Surat –Air Pollution Control Action Plan

Surat is Gujarat's second-largest city with a population of 4.6 million as per the 2011 census. It is the eighth largest city and ninth largest metropolitan area of India. Surat is the 34th-largest city by area and 4th-fastest developing cities in a study conducted by the City Mayors Foundation, an international think tank on urban affairs. Surat was awarded "best city" by the Annual Survey of India's City-Systems (ASICS) in 2013. Surat is a port city situated on the banks of the Tapti river. The nearest ports are in the Magadalla and Hazira area of Surat Metropolitan Region. The city is located at 21°10'N, 72°50'E. It has an average elevation of 13 meters. The Surat district is surrounded by the Bharuch, Narmada, Navsari, to the west is the Gulf of Cambay and the surrounding districts. 9

The total no. of vehicles registered in Surat district are more than 24 lakhs. Surat is known for diamonds, textiles, and for diamond-studded gold jewellery manufacturing. Surat registered a GDP of 11.5% for the seven fiscal years 2001–2008, the fastest growing GDP in India. The city accounts for 90% of the world's total rough diamond cutting and polishing; 99.99% of the nation's total rough diamond cutting and polishing; 90% of the nation's total diamond exports. Surat accounts for 40% of the nation's total man made fabric production; 28% of the nation's total manmade fibre production; 18% of the nation's total man-made fibre export; and 12% of the nation's total fabric production. Apart from Textile and Diamond sectors, Surat houses Large scale units in Fertilizer, Steel, Petrochemical, Heavy Engineering located in Hazira area.

Ambient air quality monitoring is carried out in Surat City and surrounding industrial areas at Seven locations while at total Ten locations in Surat District, as per the CPCB guidelines under NAMP and SAMP programmes. Surat Municipal Corporation is in process of installing Two CAAQMS in Surat City. GPCB has also decided to install CAAQMS in Surat.

The AAQ trend of monitoring location in Surat City showing concentration of PM10 is given below:



Ambient Air Quality trend showing PM10 levels in Surat
 (Concentration of PM10 in microgram per cubic meter)

The AAQ trends show that the PM10 levels are exceeding the National Standards for average annual concentrations. Ambient Air Quality data of last five years is given in Annexure- 1(A). $PM_{2.5}$ levels are observed to be within the National Standards for average annual concentrations. Particulate Matter in ambient air of urban areas is mainly contributed by vehicular emission, fuel quality, MSW management, road conditions etc. Textile processing industries located in and around the city of Surat are also sources of PM emission. The Air Pollution Control Action Plan is framed to control the respirable particulate matter (PM10) emission caused by vehicular and industrial sources in Surat city.

Surat – Air Pollution Control Action Plan

1. Name of the City: **Surat**
2. Air Pollution concern: **PM₁₀, PM_{2.5}, NO₂**
3. Air pollution levels: **Pl. refer Annexure-1(A)**
4. Months with high pollution levels: **November to May**
5. **Action Plan:**

Source Group	ACTION	Implementation Period (Short/ Mid/ long-term)	*Time Target for implementation	Financial allocation (Cr)	Responsible Agency(ies)	Any other information
Vehicles	1. Restriction on plying and phasing out of 15 years old commercial diesel driven vehicles	Mid term	2 years		Transport department	Policy will be finalized within six months.
	2.Launch extensive drive against polluting vehicles for ensuring strict compliance.	Ongoing	Committee will be formed and will be reviewed in three months.		RTO, Traffic Police	PUC Centres- Petrol-71 Diesel- 38 Action taken by RTO against PUC violation:20 15-16: cases: 18941
	2. Launch public awareness campaign for vehicle maintenance, minimizing use of personal vehicles, lane discipline etc.	Mid term			RTO, Traffic Police	
	3. Prevent parking of vehicles in non-designated areas.	long term	2 years		SMC, Traffic Police	Revised parking policy is prepared and implemented within 2

						years. Multi level parking, Designated Parking areas by SMC
	4. Introduction of BS-VI fuels in vehicles in metro cities	Long Term	2020		RTO, Transport Department	
	5. Prepare Action Plan to check fuel adulteration and random monitoring of fuel quality data	Ongoing	Committee will be formed and will be reviewed in three months.		DSO (Civil Supply Dept)	Periodical checking of petrol pumps by DSO
	6. Prepare plan for widening of road and improvement of infrastructure for decongestion of road.	Long Term	2024	500	SMC, Traffic Police	River Bridge-9, Under Construction-1 Railway Bridges: - ROB/RUB-12 Fly Over Bridge-19 Creek Bridge- Flyovers at all junctions of NH-8 completed Constructing Road Dividers-186.68 kms Restrictions on movement of heavy vehicles and buses implemented by Traffic Police. Proposed

						works: River Bridge-2 Railway Bridges: - ROB/RUB- 3 Fly Over Bridge- 2 Creek Bridge- 2
	7. Prepare plan for construction of diversion ways/ bypasses to avoid congestion due to non-destined vehicles.	Long Term	2023	50	SMC, NHAI, R&B Dept.	National Highway passes about 15 kms away from the City and non-destined vehicles does not pass through city.
	8. Steps for promoting battery operated vehicles like E-rickshaw/E-Cart	Long Term	2-5 years	128	SMC, RTO, Transport Department (GoG)	Transport Department (GoG) will prepare a policy within 6 months. Electric Vehicles registered-115
	9. Synchronize traffic movements/Introduce intelligent traffic system for lane-driving	Mid Term			SMC, Traffic Police	Constructing Traffic Islands/Channelizers:- By sponsors: 116, By S.M.C: 78 Count Down Timers- 242 nos. Traffic Timer systems, gradation of cross roads and traffic points carried out, traffic management is carried

						out accordingly.
	10. Installation of remote sensor based PUC system	Long Term	2 years		Transport Department (GoG) RTO	Policy will be finalized within six months by Transport Department (GoG). Work of fully automated vehicle fitness certification centre is in progress
	11. Augmentation of Public Transport in the city	Mid Term and Long Term (Metro rail)	2027	1700	SMC, Transport Department (GoG)	BRTS has been made operational on Nine corridors. 120 buses ply on 102 km length of BRTS network. BRTS ridership- about 55,000 passengers/ day 187 city buses ply on 23 routes covering distance of 285 km. City Buses ridership- about 85,000 passengers/

						<p>day</p> <p>For Metro Rail- The preparation of detailed project report (DPR) for feasibility of Surat Metro Rail is awarded to Delhi Metro Rail Corporation (DMRC) through MEGA Co. Ltd.</p>
	<p>12. CNG infrastructure for auto gas supply in the city and transition of public transport vehicles to CNG mode</p> <p>Introduction of e-buses for Public transport in metro cities</p>	Long term	2 years		<p>Transport Department (GoG) Gujarat Gas Co.Ltd SMC RTO</p>	<p>Policy will be finalized within 6 months. 54 CNG stations in and around Surat (33 within SMC limit) Out of 54 stations, 47 (including all CNG stations located within SMC limit) are Online Stations / Mother Stations and 7 are Daughter/ Daughter Booster Stations.</p> <p>Auto rickshaw registered only on</p>

						<p>CNG mode Regd. CNG Auto rickshaws - 88594 CNG Private buses- 246 LPG LMV- 23486 LPG Motor Cycle- 12939</p> <p>Total CNG dispensing capacity- 9.87 lakhs scmd</p>
	13. Monitoring on vehicle fitness	Ongoing			Transport Department, Traffic police	At present, monitoring of 100 % vehicle fitness is obtained but conversion into electrical manner checking is yet to be achieved.
Road Dust	1. Regular cleaning of road dust	Ongoing	2020	5	SMC	By introducing 21 mechanical sweepers.
	2. Prepare Plan for Creation of Green buffers along the traffic corridors	Ongoing	2021	100	SMC, SUDA	SMC has developed green belt, plantation along BRTS routes in the city and work is ongoing.
	3. Maintain pothole free roads for free-flow of traffic.	Short Term			SMC	Regularly carried out by SMC.
	4. Introduce	Long Term	2023	10	SMC	SMC has

	water fountain at major traffic intersection wherever feasible.					initiated vertical gardening at major traffic intersection- Athwa Gate.
	5. Greening of open areas, gardens, community places, schools and housing societies.	Ongoing			SMC	<p>In the last four years itself, the following work carried out by SMC Garden Department:</p> <p>45 Nos. of gardens, & 6 Nos. of lakes are developed in different zones.</p> <p>2,67,237 Nos. of trees are planted along the road side & road divider.</p> <p>3,28,778 Nos. of trees are planted in large open space as mass plantation for shelter belt & Green belt.</p> <p>Children traffic Park & Skating rink are developed for citizens.</p> <p>Musical Sound</p>

						<p>System, Musical dancing fountains and other fountains are installed.</p> <p>Zoological park named "Nature Park" (Phase - I) has been opened for public from 26th April 2003, where as Phase-II work in progress with 6 animal moated enclosure, reptile house and walkway in butterfly park.</p>
	6. Blacktopping of metaled road including pavement of road shoulders.	Ongoing	Ongoing	65	SMC	Regularly carried out by SMC.
Biomass and Garbage Burning	1. Regular check & control of open burning of bio-mass, plastics, garbage, leaves etc.	Ongoing			SMC	MSW is collected and transported in form of Primary Collection System and Secondary Collection System. 95% SMC
	2. Regular collection and control	Long Term	Max. 2023	223	SMC	

	of municipal solid wastes.					area covered.
	3. Proper collection of horticulture waste (biomass) and its disposal following composting –cum- gardening approach.	Short Term			SMC	<p>Primary Collection System comprising of Door to Door collection system from about 12 lakh households, Container Lifting System and other modes like Night scraping-brushing, Hotel Kitchen Waste collection etc. All the primary collecting vehicles reaches to transfer station from where secondary transportation vehicles are loaded for the purpose of transferring it to disposal site.</p> <p>There are 6 nos. Refuse Transfer Stations located in the different zones of the city.</p> <p>600 TPD</p>

						composting plant has been installed and made operational phase wise by SMC contracted agency. It has also initiated process for establishing RDF plant.
	4. Ensure ban on burning of agriculture waste and crop residues and its implementation	Ongoing			SMC, SUDA	No such activity of significance observed in SMC area or upwind surrounding areas.
Industries	1. Identification of brick kilns and their regular monitoring including use of designated fuel and closure of unauthorized units.	Short Term			GPCB	No major brick kilns in SMC area and outgrowth areas. Brick Kilns in rural hinterland are regularly monitored.
	2. Conversion of natural draft brick kilns to induced draft.	Short Term			Brick Kiln Units, GPCB	No major brick kilns in SMC area and outgrowth areas of Surat.
	3. Ensuring installation and operation of air control devices in industry.	Short Term			GPCB	Industries, mainly textile processing units have obtained consent

						<p>from GPCB. Monitoring as per the prescribed frequency and based on complaints. Pilot project of Emission Trading Scheme (ETS) which includes installation of PM CEMS (Continuous Emission Monitoring System) is under implementation in phased manner. Auto fuel firing systems provided by textile processing units</p> <p>Actions taken under the Air Act</p> <p>During 2016-17 Direction of closure- 13 Notice- 76</p> <p>During 2017-18 Till June 17 Direction of closure- 29 Notice- 58</p>
Construction & demolition	1. Enforcement of Construction and Demolition	Short Term			SMC	SMC has allotted land plot for recycling of C&D wastes

Activities	Waste Rules,					to contracted agency. It has obtained authorization under C&D waste Rules and are going to start on trail basis.
	2. Control measures for fugitive emissions from material handling-conveying and screening operations through water sprinkling, curtains, barriers and dust suppression units.	Short Term			SMC	SMC has incorporated conditions in this regard in its development permissions and monitoring the same.
	3. Ensure Carriage of construction material in closed/ covered vessels.	Short Term			SMC, RTO	
Strengthening of AAQ Monitoring	1. Source apportionment study	Mid Term	2024 (max)	7	GPCB SMC	SMC has collaborated with TERI with consultation of GPCB.
Other Steps to control air pollution	1. Air Quality Index to be calculated and disseminated to the people through	Mid Term			GPCB SMC	Total 10 nos. of AAQ stations operational in Surat District. Out of which 7

	<p>website and other media (on maximum weekly basis for manually operated monitoring stations and real time basis for continuous monitoring stations.</p>					<p>stations are under NAMP</p> <p>One CAAQMS to be installed by GPCB in Surat.</p> <p>Two sensor based CAAQMS are installed by SMC in Surat at Varachha area and Limbayat area. 12 more station are proposed by SMC as per CPCB specification and guidelines.</p>
	<p>2. Engage with concerned authorities on continual basis for maximizing coverage of LPG/PNG for domestic and commercial cooking with target of 100% coverage</p>	<p>Mid Term</p>			<p>DSO</p>	<p>GOI has floated Ujjwala Scheme for facilitating use of LPG as domestic fuel instead of burning wood, cow dung cakes, coal etc.</p>
	<p>3. Compliance of guidelines on DG sets and action against violations.</p>	<p>Ongoing</p>			<p>GPCB</p>	<p>By and large, due to uninterrupted power supply in the city, DG set operations</p>

						are only for stand by purpose as & when required.
	* Time Target for implementation is being decided in consultation with respective stakeholders					

6. Monitoring Mechanism for implementation:

The aforesaid action plan shall be implemented by Gujarat Pollution Control Board with co-ordination of Department of Environment and Forest, Govt. of Gujarat, Urban Development & Housing Department, Govt. of Gujarat, Transport Department, Ahmedabad Municipal Corporation, Traffic Police and District Administration. Gujarat Pollution Control Board shall regularly review the implementation of aforesaid action plan.

A State level Air quality monitoring committee for non-attainment cities has been constituted as per the NGT order dated: 08/10/2018.

A District Level Task Force under the Chairmanship of District Collector has been constituted and all the implementing agencies are members of the Task Force while Regional Officer, GPCB is Member Secretary of the Task Force. Review of implementation of the Action Plan is being carried out by the Task Force.

Annexure-1(A)

SURAT - AMBIENT AIR QUALITY					
ANNUAL AVERAGE 2018-19 (FROM APRIL- 2018 TO Nov- 2018)					
SR.	LOCATION	PM ₁₀	PM _{2.5}	SO ₂	NO _x
NO.		ug/m ³	ug/m ³	ug/m ³	ug/m ³
	<i>National Std. for Annual average</i>	60	40	50	40
	<i>National Std. for 24 hourly average</i>	100	60	80	80
1	SVR College, Ichachhanath	109.82	36.49	18.68	23.05
2	BRC, Udhana	209.19	62.27	23.52	28.79
3	Air-India Bldg., Bhagal	172.82	58.36	18.88	22.98
4	Delhi Gate Police Chowki	204.84	65.05	20.61	24.89
5	Plot 368,369, Pandesara	188.75	57.70	20.32	26.80
6	Plot 54, Pandesara	205.24	61.61	20.44	25.59
7	Hi - Choice Processors, Sachin	275.74	80.25	26.87	36.60
8	CETP, Palsana	194.62	57.25	20.91	25.35
9	Chalthan Sugar	182.01	51.97	20.29	26.88
10	Garden Silk Mills, Kadodara	264.18	76.59	20.62	24.18

SURAT - AMBIENT AIR QUALITY					
ANNUAL AVERAGE 2017-18 (FROM APRIL- 2017 TO MARCH- 2018)					
SR.	LOCATION	PM ₁₀	PM _{2.5}	SO ₂	NO _x
NO.		ug/m ³	ug/m ³	ug/m ³	ug/m ³
	<i>National Std. for Annual average</i>	60	40	50	40
	<i>National Std. for 24 hourly average</i>	100	60	80	80
1	SVR College, Ichachhanath	95	33	15	23
2	BRC, Udhana	167	53	23	32
3	Air-India Bldg., Bhagal	130	42	18	27
4	Delhi Gate Police Chowki	164	54	23	31
5	Plot 368,369, Pandesara	171	55	19	29
6	Plot 54, Pandesara	184	55	20	29
7	Hi - Choice Processors, Sachin	187	55	23	34

8	CETP, Palsana	144	48	19	26
9	Chalthan Sugar	173	50	17	26
10	Garden Silk Mills, Kadodara	184	53	19	27

SURAT - AMBIENT AIR QUALITY					
ANNUAL AVERAGE 2016-17 (FROM APRIL- 2016 TO MARCH- 2017)					
SR.	LOCATION	PM₁₀	PM_{2.5}	SO₂	NO_x
NO.		ug/m³	ug/m³	ug/m³	ug/m³
	<i>National Std. for Annual average</i>	60	40	50	40
	<i>National Std. for 24 hourly average</i>	100	60	80	80
1	SVR College, Ichachhanath	86	29	13.5	22.3
2	BRC, Udhana	100	34	15.4	26.3
3	Air-India Bldg., Bhagal	96	32	14.2	27.7
4	Delhi Gate Police Chowki	99	34	15.8	28.5
5	Plot 368,369, Pandesara	101	34	18.1	30.4
6	Plot 54, Pandesara	96	33	17.9	30.0
7	Hi - Choice Processors, Sachin	105	36	18.2	32.8
8	CETP, Palsana	98	34	16.2	26.9
9	Chalthan Sugar	100	34	14.0	27.4
10	Garden Silk Mills, Kadodara	102	35	15.1	27.2

SURAT - AMBIENT AIR QUALITY					
ANNUAL AVERAGE CONCENTRATION DURING 2015-16 : APRIL - 2015 TO MARCH - 2016					
SR.	LOCATION	PM₁₀	PM_{2.5}	SO₂	NO_x
NO.		ug/m³	ug/m³	ug/m³	ug/m³
	<i>National Std. for Annual average</i>	60	40	50	40
	<i>National Std. for 24 hourly average</i>	100	60	80	80
1	SVR College, Ichachhanath	78	25	11.2	19.5
2	BRC, Udhana	85	29	17.2	25.4
3	Air-India Bldg., Bhagal	79	27	11.5	20.6
4	Delhi Gate Police Chowki	86	30	12.7	23.3
5	Plot 368,369, Pandesara	89	32	19.3	27.1
6	Plot 54, Pandesara	93	32	14.1	21.5
7	Hi - Choice Processors, Sachin	96	34	33.9	30.6
8	CETP, Palsana	81	29	13.0	22.9
9	Chalthan Sugar	94	38	13.0	25.3
10	Garden Silk Mills, Kadodara	88	30	14.5	24.9

AMBIENT AIR QUALITY MONITORING ,SURAT				
ANNUAL AVERAGE FROM APRIL - 2014 TO MARCH - 2015				
STATION	PM10	PM2.5	SO2	NOx
	ug/m3	ug/m3	ug/m3	ug/m3
SVR College, Ichachhanath	84.00	29.08	13.82	21.05
DARSHAN,BRC, UDHANA	93.00	33.25	14.73	21.27
AIR INDIA, KOTSAFIL ROAD	90.33	31.58	13.82	20.60
DELHI GATE	91.83	31.92	14.03	20.76
HI - CHOICE, SACHIN	96.67	33.42	16.87	22.70
Garden silk mills, KADODARA	89.25	31.33	13.88	20.87

AMBIENT AIR QUALITY MONITORING ,SURAT				
ANNUAL AVERAGE FROM APRIL - 2013 TO MARCH - 2014				
STATION	PM10	PM2.5	SO2	NOx
	ug/m3	ug/m3	ug/m3	ug/m3
NAMP STATIONS				
SVR College, Ichachhanath	75.92	25.33	11.24	17.21
DARSHAN,BRC, UDHANA	102.67	30.50	15.81	20.40
AIR INDIA, KOTSAFIL ROAD	86.17	26.92	12.21	18.37
DELHI GATE	90	28	13	19
HI - CHOICE, SACHIN	100	31	17	23
Garden Silk Mills, KADODARA	81	27	14	20

AMBIENT AIR QUALITY MONITORING ,SURAT				
ANNUAL AVERAGE FROM APRIL - 2012 TO MARCH - 2013				
STATION	PM10	PM2.5	SO2	NOx
	ug/m3	ug/m3	ug/m3	ug/m3
NAMP STATIONS				
SVR College, Ichachhanath	88	28	13.99	23.32
AIR INDIA, KOTSAFIL ROAD	84	30	15.09	24.27
DARSHAN,BRC, UDHANA	108	35	19.52	28.93
DELHI GATE	84	27	13.66	24.09
HI - CHOICE, SACHIN	110	36	75.49	23.94
KADODARA	90	29	14.17	24.66