Comprehensive Action Plan (with Micro Planning) for Clean Air in Non-attainment Cities of Andhra Pradesh

Vizianagaram City

Andhra Pradesh Pollution Control Board

D.No. 33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre,
Chalamalavari Street, Kasturibaipet, Vijayawada – 520 010
Phone No 0866-2436217, Website: https://pcb.ap.gov.in/

Contents

1. Hon'ble National Green Tribunal directions on non-attainment cities

Hon'ble National Green Tribunal, Delhi in its Orders, dated 06.08.2019 in O. A. No. 681 of 2018 on non-attainment cities has issued the following directions to comply with:

1. Actions Plans need to be prepared by States for the additional 20 NACs on the pattern of 102 NACs within three months and after its approval by CPCB within two months, States must initiate time bound action on remediation within next three months.

In this order the Hon'ble National Green Tribunal, Delhi has directed that the "pattern of such plans for 102 cities, already prepared". These earlier plans were made according to the NGT orders, dated 08.10.2018 in O. A. No. 681 of 2018 on non-attainment cities. These have given the following directions to comply with:

1. All the States and Union Territories with non-attainment cities must prepare appropriate action plans within two months, aimed to bring down the air pollution levels to the prescribed norms within six months from the date of finalization of action plans.

2. Action plans may be prepared by six-member Committee comprising of Directors of Environment, Transport, Industries, Urban Development, Agriculture and Member Secretary, State Pollution Control Board or Committee of the concerned State. The Committee may be called Air Quality Monitoring Committee (AQMC). The Committee will function under the overall supervision and coordination of Principal Secretary, Environment of the concerned State or the Union Territory. This may be further supervised by the Chief Secretaries concerned or their counter parts in Union Territories by ensuring intra-sectorial coordination.

3. The action plan will indicate steps to be taken to check different sources of pollution having speedy, definite and specific timelines for execution.

4. The Chief Secretaries of the State and Administrators / Advisors to Administrators of the Union Territories will be personally accountable for the failure to formulate action plans, as directed.

2. Constitution of Air Quality Monitoring Committee (AQMC)

In compliance to the directions of Hon'ble National Green Tribunal, Environment, Forests, Science & Technology Department, Govt. of Andhra Pradesh has issued the G. O. R. T. No. 167, dated 14.11.2018 constituting the Air Quality Monitoring Committee with the following members for preparation/ revision of action plans to control air pollution in the non-attainment cities of Andhra Pradesh. The same committee will look after the newly added eight non-attainment cities.

Table 1: Air Quality Monitoring Committee

S. No.	Member of the Committee	Designation
1	Commissioner, Transport	Member
2	Commissioner, Industries	Member
3	Commissioner & Director, MA&UD	Member
4	Commissioner & Director, Agriculture	Member
5	Member Secretary, APPCB	Member Convener
6	Special Secretary to Government Environment, Forest, Science & Technology Department	Member

3. Newly Added Non-attainment Cities in Andhra Pradesh

Central Pollution Control Board (CPCB) had earlier identified five cities in Andhra Pradesh, namely, Visakhapatnam, Vijayawada, Guntur, Nellore and Kurnool as non-attainment cities. In addition to the above, Central Pollution Control Board (CPCB) has identified additional 08 cities and towns as non-attainment for not meeting the National Ambient Air Quality Standards (NAAQS) for PM10 in Andhra Pradesh. These include Srikakulam, Vizianagaram, Rajamahendravaram, Eluru, Anantapur, Chittoor, Kadapa and Ongole. (see table 2: PM 10 values in the new Non-attainment cities of Andhra Pradesh)

CPCB has issued directions to APPCB under Section 18 (1) (b) of the Air (Prevention and Control of Pollution) Act, 1981 for preparation of action plans, in coordination with stakeholder departments for control air pollution in the said cities and towns.

Table 2: PM 10 values in the new Non-attainment cities of Andhra Pradesh

S. No.	Cities	Particulate Matter (PM 10) µg/m^3							Annual standard
		2014	2015	2016	2017	2018	2019	2020	
1	Srikakulam	-	-	-	68	70	63	57	60 µg/m^3
2	Vizianagaram	-	-	-	63	65	65	59	
3	Rajamahendravaram	70	61	62	65	75	63	56	
4	Eluru	97	79	70	70	70	63	60	
5	Ongole	63	67	65	65	65	60	50	
6	Chittoor	68	69	63	69	61	54	42	
7	Kadapa	-	-	-	69	61	52	43	
8	Anantapur	76	86	85	72	71	67	60	

The Air Quality Monitoring Committee has prepared the multi-sector clean air action plans based on the information available from the concerned departments and implementing bodies.

The AQMC has considered the guiding principles linked with the National Clean Air Programme (NCAP), the Air (Prevention and Control of Air Pollution) Act, 1981 and other concerned regulations in different sectors and the good practices that have bearing on the quality and effectiveness of the plans to meet the NCAP target of 20-30 percent reduction by 2024.

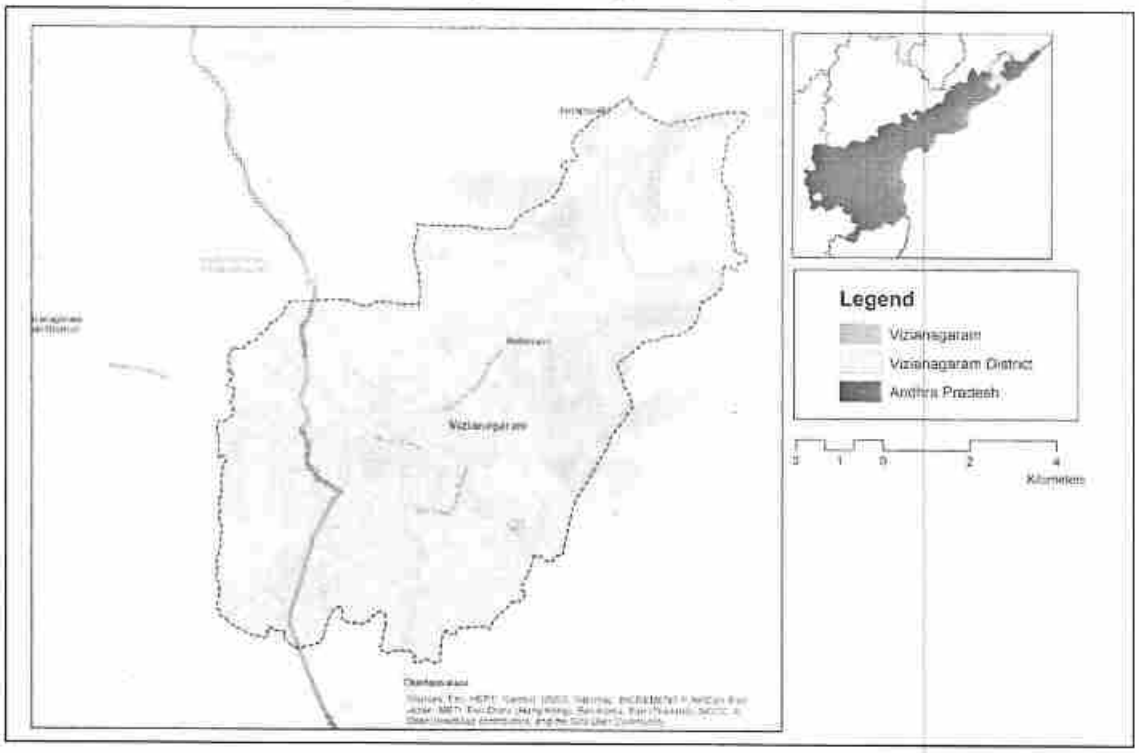
Accordingly, the approved action plans by AQMC for additional eight non-attainment cities namely Srikakulam, Vizianagaram, Rajamahendravaram, Eluru, Anantapur, Chittoor, Kadapa & Ongole in the state of Andhra Pradesh have been submitted to CPCB on 27.12.2019 for further approval. CPCB vide letter dt: 23.01.2020 has issued certain recommendations to revise the action plans.

The multi-sector plans have drawn upon the regulatory requirements in each sector and have sought robust pollution source assessment, monitoring and advanced air quality management strategies for measurable improvement in air quality. Measures that are part of the national and state regulatory requirements are common to all cities. Some measures are unique to a city depending on the local imperatives. The plans also seek to align the budget lines of the different sectors for more effective leveraging of the available resources. The plans include measurable outcomes and service level benchmarks and also indicate the improvement needed in the processes. The plans seek to promote equitous, affordable and innovative solutions. This also seeks air shed approach to reduce the regional influence on local air quality. This has outlined the institutional arrangement for effective implementation.

4. Vizianagaram City and its Air Quality

Vizianagaram is the district headquarters of Vizianagaram district, Andhra Pradesh. The city is situated on the Eastern Coast of Andhra Pradesh. Vizianagaram city is located at 18.12°N 83.42°E.The city has a population of 2.28 lakh as per 2011 census & flourishing with additional population floating into the city every day.

Figure 1: Map of Vizianagaram city limits



APPCB has been monitoring the ambient air quality of Vizianagaram city at three stations under National Ambient Air Quality Monitoring Programme (NAMP) namely APIIC Building, VT Agraharam, Industrial area, Municipal kaspa high school and Vizianagaram Municipal Office. Monitoring at Vizianagaram Municipal office started in 2019. The manual stations are monitoring for the parameters PM10, SO2, NO2, CO and ammonia as against 12 as per Notification No B-29016/20/90/PCI-L dated 18 November 2009 of CPCB. Now, the ambient air quality of Vizianagaram city is monitored by total of three manual monitors. PM2.5 monitoring has started at two locations. (see Table 3: Location and type of monitoring stations in Vizianagaram).

According to the CPCB criteria Vizianagaram has adequate number of manual monitoring stations. But it needs to plan and expand its real time monitoring to generate real time data.

Table 3: Location and type of monitoring stations in Vizianagaram

S. No.	Location	NAMP / CAAQMS	Types of pollutant monitored	Category of station
1	APIIC Building, VT Agraharam	NAMP	PM10, PM2.5, SO_2, NO_2, NH_3	Industrial
2	Municipal Kaspa High School, Kaspa Street, Near Three Lamps Junction	NAMP	PM10, PM2.5, SO_2, NO_2, NH_3	Residential and Commercial
3	Municipal Office, Vizianagaram	NAMP	PM10, SO_2, NO_2, NH_3	Commercial

Source: APPCB, 2020

The NAMP data of four stations including APIIC Industrial Area, Bobbili monitoring station (located within the Vizianagaram district at a distance of 45 km from the Vizianagaram city) indicate the non-attainment status of Vizianagaram. CPCB has included APIIC Industrial Area, Bobbili monitoring station to assess non-attainment status of Vizianagaram. Based on the CPCB Envis centre database, most of the other pollutants are well within the limits, PM10 has continuously been above the standards since 2013 (this was when the APIIC Industrial Area, Bobbili monitoring station was considered). Though NO_2 levels are well below the standards, they have been steadily increasing since 2013, possibly due to industrial activity and higher vehicular movement. The

overall trend in PM10 shows a declining trend (See Annexure I). The air quality within the city is also influenced by the pollution sources around the city. Air quality of the Vizianagaram city (excluding the APIIC Industrial Area, Bobbili monitoring station) is given below.

Table 4: Air Quality Monitoring Results of Vizianagaram City

S. No.	Parameter	2017	2018	2019	2020	Annual average Standard
1	PM10	63	65	65	59	**60**
2	SO2	8.3	9.5	8.2	7.4	**50**
3	NOx	17.1	20.7	19.2	17.4	**40**
4	NH3	64	73	53	24.9	**100**
Average of no. of stations		2		3	3	--
5	PM2.5	---	--	--	--	**40**
Average of no. of stations		--	--	--	--	--

Note: All values are expressed in $\mu g/m^3$

5. National Air Quality Index and daily emergency response

The non-attainment cities under the NCAP are also required to adopt graded response action plan for short-term emergency response during smog episodes or high pollution days. The Ministry of Environment, Forest and Climate Change (MoEF & CC) had notified the National Air Quality Index (NAQI) and a corresponding health advisory in 2015. Based on this index, daily pollutant concentrations are classified and graded as good, satisfactory, moderate, poor, very poor and severe and color-coded so that the general public can understand the gravity of the problem. The health advisory has also been framed to indicate the expected health outcomes at varying severity of daily air pollution (see Table 5: National Air Quality Index of India and Table 6: Health Advisory at different AQI levels in India). This is designed to control daily pollution peaks and reduce exposure and associated health risk. Smog episodes largely occur when weather is adverse with calm atmosphere or no wind, cold temperature, and lower mixing height of air that traps air and pollution very close to the ground. Short-term policy action can control further loading of emissions and prevent higher smog peaks.

Table 5: National Air Quality Index of India

AQI Category (Range)	PM10 24-hr	PM2.5 24-hr	NO2 24-hr	O3 8-hr	CO 8-hr (mg/ m3)	SO2 24-hr	NH3 24-hr	Pb 24-hr
Good (0-50)	0-50	0-30	0-40	0-50	0-1.0	0-40	0-200	0-0.5
Satisfactory (51-100)	51-100	31-60	41-80	51-100	1.1-2.0	41-80	201-400	0.5-1.0
Moderately polluted (101-200)	101-250	61-90	81-180	101-168	2.1-10	81-380	401-800	1.1-2.0
Poor (201-300)	251-350	91-120	181-280	169-208	Oct-17	381-800	801-1200	2.1-3.0
Very poor (301-400)	351-430	121-250	281-400	209-748*	17-34	801-1600	1200-1800	3.1-3.5
Severe (401-500)	430+	250+	400+	748+*	34+	1600+	1800+	3.5+

Note: Ambient concentration values of all regulated pollutants are compared with corresponding standards and an exceedance factor is used for qualitative assessment of air quality. Air quality for a particular pollutant is defined as good, satisfactory, moderate, poor, very poor and severe if concentration value is < 0.5, between 0.5 and 1.0, >1.0 but <1.5, and >1.5 times the standard value for that pollutant respectively.
Source: Ministry of Environment and Forest and Climate Change

Table 6: Health advisory at different AQI levels in India

AQI	Associated health impacts
Good (0–50)	Minimal impact
Satisfactory (51–100)	Minor breathing discomfort to sensitive people
Moderately polluted (101–200)	May cause breathing discomfort to the people with lung disease such as asthma and discomfort to people with heart disease, children and older adults
Poor (201–300)	May cause breathing discomfort to people on prolonged exposure and discomfort to people with heart disease
Very poor (301–400)	May cause respiratory illness to the people on prolonged exposure Effect may be more pronounced in people with lung and heart diseases
Severe (401–500)	May cause respiratory effects even on healthy people and serious health impacts on people with lung or heart diseases. The health impacts may be experienced even during light physical activity

Vizianagaram City would need to install real time Continuous Ambient Air Quality Monitoring (CAAQM) system for generation of real time air quality data and enable implementation of the air quality index and graded response action plans. Following that and based on the AQI categories emergency action can be defined and codified for implementation. The Air Quality Index (AQI) of all the cities of Andhra Pradesh state is being prepared by APPCB and placed in its website.

6. Air Pollution Sources at Vizianagaram City

As of 2020, pollution source inventory and source apportionment studies have not been carried out for the city. Broad review shows that the major sources contributing to PM10 in Vizianagaram City are emissions from vehicles. The reasons for higher values of PM10 could be attributed to re-suspension of road dust, emissions from vehicle movement, burning of biomass, municipal solid waste & garbage, construction activities, transportation of construction material such as sand, crusher metal, soil, congested roads, vehicle service centers, use of wood & coal for domestic & commercial cooking activities, etc. It is however not possible to assess their relative contribution.

Industrial Emissions

There are few industries within the Vizianagaram Municipal Corporation limits and in the 15 km radius of the city which includes colour granite mine, solvent extraction, steel rolling, ferro alloys, pyrolysis etc in the red category, stone crusher, jute mill, waste oil processing, pulverizer etc in orange category of industries. As per the CPCB Classification, there are 12 red category, 18 orange category, 14 green category and three white category of industries within the city and upto 15 km radius. The city also does not have any major cement plants in the vicinity. Though the district has five cement industries but they are located far away and doesn't influences the air quality of the city. (See Table 7: List of red category of industries within and upto 15 km of the Vizianagaram City).

Though all the major plants are registered under the APPCB, granular data collection on stack emissions, fuel used and status of air pollution control devices is required, along with data on the state of implementation of Continuous Emission Monitoring System (CEMS), management of fugitive emissions and use of clean fuel.

Table 7: List of Red category industries within and upto 15 km of Vizianagaram City

S. No.	Name of the Industry	Line of Activity / Investment	Distance in km
1	M/s. Vizianagaram Railway Station, Vizianagaram	Railway station	1
2	M/s.Seven Hills Solvents Pvt. Limited, Plot Nos. 42 to 46 & 50 to 52, IDA, Nellimarla (V) & (M), Vizianagaram District.	Solvent Extraction	7.6
3	M/s.Vishnu Priya Granites, (2.0 Ha), Sy. No. 146-2/P,148-1,148-2,148-17/P,149-25 and 149-1/P, Appayyapeta (V),Nellimarla (M), Vizianagaram District	Colour Granite Mine	9

4	M/s. Shilpa Medicare Limited (R & D Unit), R. Sy. No. 207/1 & 2, Modavalasa (V), Denkada (M), Vizianagaram District	Research & Development of Pharmaceuticals	9
5	Narayani Steels (P) Limited, Modavalasa (V), Denkada (M), Vizianagaram District	Steel Re-Rolling	10
6	M/s. Sri Sai Industries, Plot No.15, IDA, Nellimarla (V) & (M), Vizianagaram District	Pyrolysis unit	10
7	M/s. Rajyog Minerals Pvt Ltd,(Mining of Colour Granite), (4.466 Ha), Sy.No.133/2, Nellimarla (V) & (M), Vizianagaram District	Colour Granite Mine	11
8	M/s. Sri A. Suryanarayana (5.0 Ha.), (Mining of Colour Granite), R. Sy. No. 272, Mutcherla (V), Gajapathinagaram (M), Vizianagaram District	Colour Granite Mine	14
9	M/s. Bipasa Trade Link Private Limited, Plot No. D-1, IDA, Nellimarla (V & M), Vizianagaram District	Lead Smelting Unit (HW Re-cycling unit).	14
10	M/s. Sri G. Raja Rao (2.0 Ha.) (Building Stone and Gravel Quarry), R. Sy. No. 40, Dannanapeta (V), Nellimarla (M), Vizianagaram District	Road Metal, Building Stone and Gravel Mine	14
11	M/s. Sri G. Raja Rao (1.0 Ha.) (Building Stone and Gravel Quarry), R. Sy. No. 88, Dannanapeta (V), Nellimarla (M), Vizianagaram District	Road Metal, Building Stone and Gravel Mine	14
12	M/s. Anjaney Ferro Alloys Limited, (Formerly M/s. Sri Jayalakshmi Ferro Alloys Private Limited), R. Sy. Nos. 12/P to 16/P, 18/P, 20, 24/P, 33/P, 34/P & 49/P, Pedabantupalli (V), Gurla (M), Vizianagaram District	Ferro Alloys	15

Source: Andhra Pradesh Pollution Control Board.

Fuels containing high levels of sulphur lead to high emission of particulates; and gaseous emissions like SO_x and contribute to 'secondary' particulate load. High-sulphur fuels also contain heavy metals, which add to the toxicity and contamination of the environment. The Supreme Court of India vide order of 24 October 2017 has banned use and sale of petroleum, coke and fuel oil in Haryana, Rajasthan and Uttar Pradesh. Delhi had banned these fuels in 1998. Only the cement, lime kiln, calcium carbide and gasification industries are allowed to use this as feedstock but not fuel. Further, vide order dated 13 July 2018, the Supreme Court has asked for a ban on import of pet-coke into India, with specific exemptions given to these four categories of Industries. The Ministry of Commerce, GOI has issued an order dated 17 August 2018 to this effect. Further, under India's commitments to the WTO, the country's laws are bound to treat imported and domestic pet coke equally. As of November 2018, the Ministry of Commerce & MoEF & CC is considering restricting the usage of all pet coke in India—domestic and imported. Most of the industries use coal in the city. In future, policy instruments such as tax incentives might be explored as an option to incentivize industries to upgrade technologies and fuel that will bring down emissions. Following this CPCB has asked state governments to frame a policy to discourage pet coke and furnace oil as combustion fuels.

In addition, following the Supreme Court order dated 29 January 2018, CPCB notified NOx and SOx standards for 16 groups of industries out of 35 industries as directed by the Supreme Court. This will have to be enforced nation-wide. Accordingly the 16 category of industries need to be identified for implementation.

There needs to be thorough inspection for units to collect granular and transparent data on the following aspects to promote Best Available Technology (BAT):

- Stack emissions
- PM emission load per unit per day
- State of Air Pollution Control (APC) Devices
- State of CEMS monitoring
- Stack height
- Management of fugitive emissions

- Extent of green cover, buffer zones and plantations around major plants
- Paved roads within and around the factories to minimize dust due to freight and raw material transportation
- Detailed Environment Health and Safety norms inventory for all operating units

Address management and disposal of industrial waste in industrial areas that are vulnerable to open burning. Also to address emissions from large number of small and medium scale units adopt detailed mitigation strategies including common boiler policy, and clean fuel and pricing strategy.

Industrial Siting Policy

Like many other states, Andhra Pradesh Pollution Control Board has a siting policy in place. There are specific guidelines[1] for the establishment of cement factories, stone crushers, dairies, LPG bottling units, processing units, rice mills, pesticide units and sponge iron manufactures. All units with investment of Rs. 10 Crores and above must be away from residential areas, educational institutions and national highways. Additionally, they must also have clearly demarcated buffer zones, which can only be used for the following.

1. Vehicle parking.
2. Administrative building and security office.
3. Green belt.
4. Electrical Substation / transformers.
5. Fuel Station.
6. Water supply sumps and
7. Other non-industrial activities

Brick Kilns and Stone Crushers

There are no brick kilns within the city limits. There are two hot mix plants and 60 stone and quartzite crushers within the Vizianagaram district. The stone and quartzite crushers are stipulated to provide water sprinklers, elevated closed bunker, closed dust conveyor, cladding to the vibratory screens, metal roads and green belt development for dust suppression.

Thermal Power Plants

There are no power plants located within the city limits and upto 40 km radius from the city limits.

Municipal Solid Waste

The city generates 173 TPD of municipal solid waste out of which 125 TPD is treated through windrow and 42 TPD is composted on-site while the remaining 6 TPD is home composting. Dry and Wet waste segregation takes place at the source. 22 percent of the waste is scientifically treated. Dry waste undergoes MRF whereas wet waste is processed into compost by windrow processing, home composting and On-site Composting. There is one dumping site at Gunupurupeta in the city. There are two machines for composting organic waste and one for dry waste collection at Pala hospital, Gunupurupeta.

There is no biomedical waste management facility within the district. There are no bio-incinerators within the city limits and none are proposed for the near future. 100 per cent processing and treatment of waste and recycling will have to be planned to avoid any possibility of open burning of waste.

Construction and Demolition Waste

Due to a vast number of residential and commercial projects that are ongoing in the city limits, there is a continuous problem of generation and management of construction and demolition waste (C&D). As of 2020, there are about 487 active construction sites within the city limits and about 5 Tonnes per day of C&D waste is generated in Vizianagaram. There is no scientific processing of this waste as of now.

Infrastructure for collection, segregation, in-situ re-utilization in the construction sites, transportation, recycling plants and market uptake of recycled products in the construction industry

will have to be planned according to the Construction and Demolition Rules, 2016. There are two C&D waste sites established at Lower tank bund road and Dasannapeta ramp site.

In the year 2018, the Vizianagaram Municipal Corporation issued a circular, enforcing the implementation of C&D Waste Rules, 2016 within the city limits.

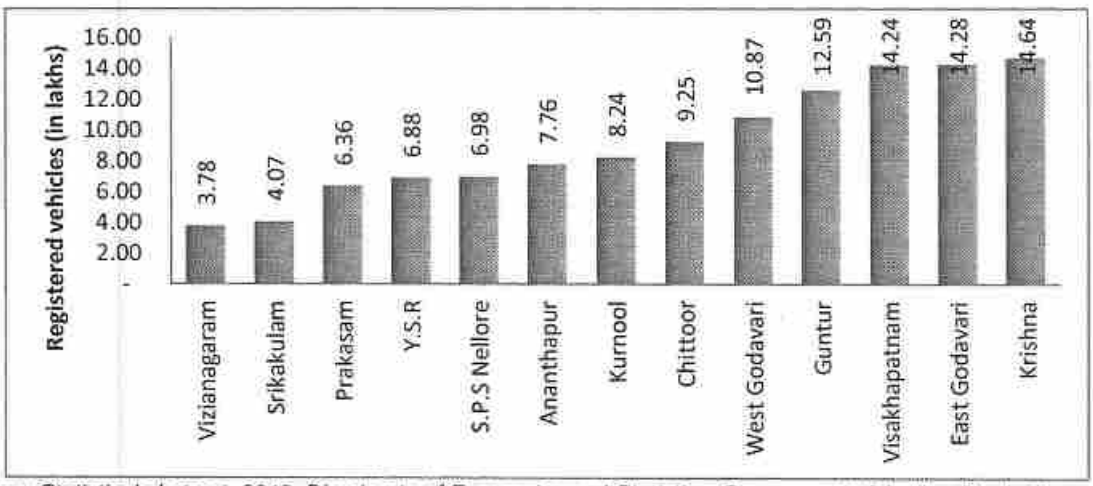
These guidelines are available for dust control from construction. These include adequate covering, barricades at construction sites, sprinkling, washing of vehicles, covering, use of gunny bags while plastering etc Planning secretaries are creating awareness among the Builders, site owners and Building owners about the CPCB guidelines and rules. Those not following the guidelines are penalized, and the building plan approvals are promptly cancelled.

Vehicular Emissions

Vehicles are among the dominant sources of air pollution and are responsible for high toxic exposure. Therefore, mobility strategy is a critical intervention point to control toxic emissions and exposure from vehicles.

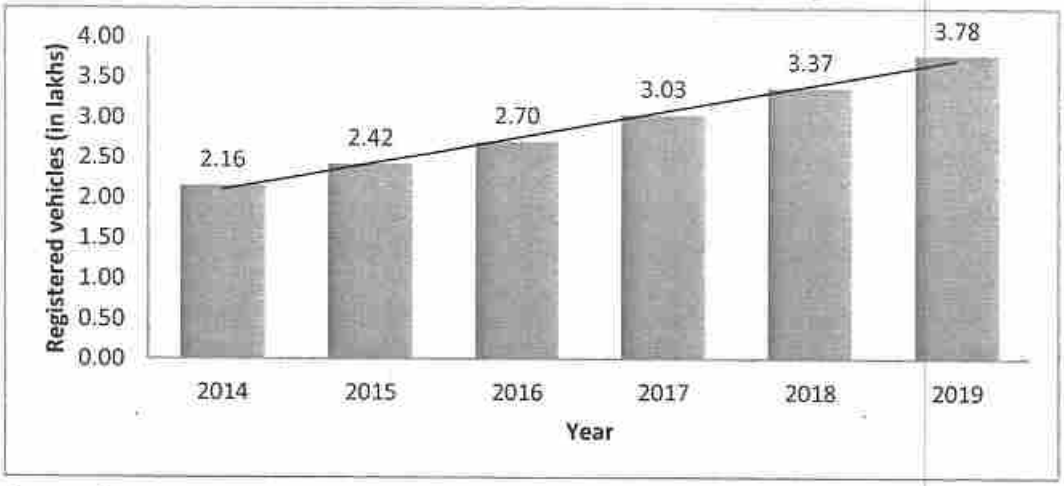
As of March 2019, the Vizianagram district had about 3.2 percent (i.e. 3.78 lakhs) of the total registered vehicles in the state of Andhra Pradesh (i.e. 1.19 crores) *(see Graph 1: District-wise number of registered motor vehicles in Andhra Pradesh [March 2019])*. Between the years 2015-19, vehicles in the district have grown at a rate of 9.3 per cent annually (*see Graph 2: Year-wise growth of registered motor vehicles in Vizianagram district*).

Graph 1: District-wise number of registered motor vehicles in Andhra Pradesh [March 2019]



Source: Statistical abstract, 2019, Directorate of Economics and Statistics, Government of Andhra Pradesh

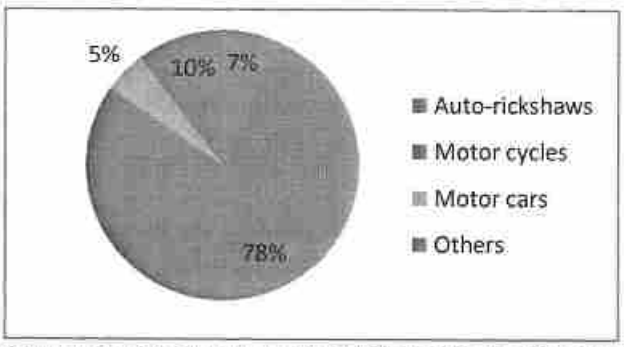
Graph 2: Year-wise growth of registered motor vehicles in Vizianagram district



Source: Statistical abstract, 2014-19, Directorate of Economics and Statistics, Government of Andhra Pradesh.

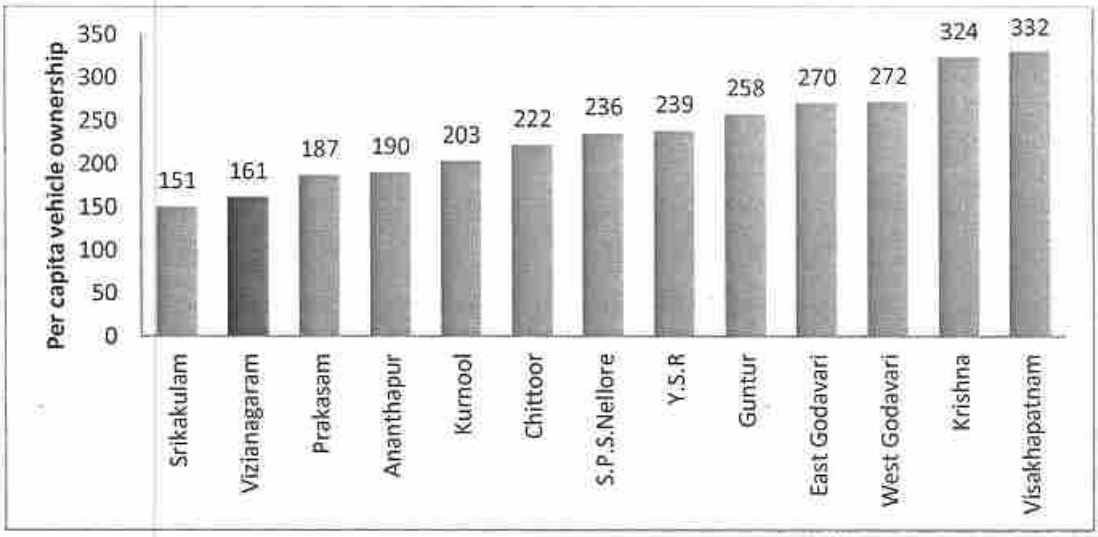
Two wheelers (i.e. motor cycles) dominate the fleet- 78 percent of the total registered vehicles are two wheelers *(see Graph 3: Percentage distribution of registered vehicles as per vehicle category in Vizianagaram district [March 2019])*. The district is lowest in terms of total registered vehicles and second lowest in terms of vehicle per thousand population (i.e. 161) in the state *(and Graph 3: District-wise registered motor vehicles per thousand population [March 2019])*. Vizianagram city has total 67,214 registered vehicles.

Graph 3: Percentage distribution of registered vehicles as per vehicle category in Vizianagaram district [March 2019]



Source: Statistical abstract, 2019, Directorate of Economics and Statistics, Government of Andhra Pradesh

Graph 3: District-wise registered motor vehicles per thousand population [March 2019]



Source: Statistical abstract, 2019, Directorate of Economics and Statistics, Government of Andhra Pradesh

PUC System

There are 12 PUC centres within the municipal boundary of Vizianagaram. These centres are audited once in three months by the transport department. Currently, PUC centres are not linked to the centralised server but then there is a proposal to do the linkages to the transport department server. 100 percent of the vehicles are inspected every year.

At the city level, the traffic police also have a surveillance programme for detecting visibly polluting vehicles. These vehicles are heavily penalized.

This is an opportunity to expand the CNG programme especially for the public transport, intermediate public transport like autos and taxis, and small commercial vehicles. This requires a roadmap for targeted replacement of existing fleet with the vehicles on alternative fuels.
The State Government has also issued guidelines for levying "green tax"[ii], wherein older polluting vehicles are taxed higher to discourage them to ply. Vehicles over a certain age have to pay green tax, in accordance to the polluter pay's principle. Vehicles operating on LPG, CNG, Battery or Solar Power are exempt for paying green tax. This is expected to accelerate fleet renewal and phase out older vehicles. It must be noted that the green tax currently is very low (Transport vehicles are expected to pay only Rs 200 per annum after 7 years of registration and non-transport vehicles are expected to pay between Rs 250-500 for five years after 15 years of registration). It is recommended to incorporate a scrappage policy for older vehicles and implement green taxes more strictly.

Electric Mobility[iii]

The Andhra Pradesh government notified the electric vehicle policy in the year 2018. The policy emphasizes on manufacturing of Electric Vehicles (EV) and its components, charging infrastructure, hydrogen generation and refuelling infrastructure, demand creation for EVs, research and development.

The policy aims to achieve the following targets:

- Attract combined investments of over INR 30,000 crore in the next 5 years across the electric mobility ecosystem with an employment potential for 60,000 people.
- Target to bring in manufacturing units of high density energy storage of at least 10GWh capacity in the next 5 years to cater to both domestic as well as export market.

- Target to convert 100 per cent of APSRTC bus fleet of over 11,000 buses into electric buses by 2029, with the first phase of 100 per cent conversion of bus fleet in top 4 cities by 2024.
- Phase out all fossil fuel based commercial fleets and logistics vehicles in top 4 cities by 2024 and all cities by 2030.
- All forms of government vehicles, including vehicles under government corporations, boards and government ambulances etc. will be converted to electric vehicles by 2024.
- Target to have 10 lakh EVs, combined across all segment of vehicles, by 2024.
- Target to have 1,00,000 slow and fast charging stations by 2024.

This is an opportunity to scale up zero emissions mobility in polluted cities. The state level policy may be complemented by a city level electric vehicle policy with targeted electrification over the next five years. Vizianagaram city can set the milestones in terms of charging infrastructure and targeted electrification of three-wheelers, two-wheelers, small commercial vehicles, feeders and delivery fleet.

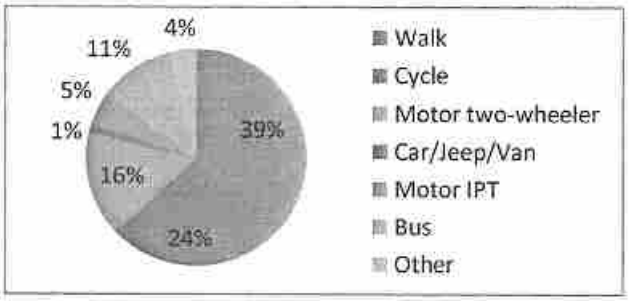
City Connectivity and Mobility

The city is well connected to Visakhapatnam (60 km away) via National Highway (NH) 43 & NH 5, to Vijayawada (394 km away) via NH 5, to Raipur (526 km away) via NH 59, to Hyderabad (664 km away) via NH 5 & NH 9 and to Chennai (416 km away) via NH 5. Government is planning to construct a 17 km bypass road with Rs 470 crore to ease the traffic in the town[iv]. The total road length in Vizianagaram town is 284 km[v].

The Vizianagaram railway station is on the Howrah-Chennai main line. The station is well connected to major cities such as Visakhapatnam, Hyderabad, Chennai, Raipur, Mumbai, Tirupati, Bhubaneswar, Howrah and many others. The Visakhapatnam International Airport is only 60 km from Vizianagaram and is connected through NH 43 & NH 5. The Visakhapatnam port which is one of the busiest major ports in the nation is 64 km from the town.

At the district level, according to the 2011 Census, 63 percent of the total work trips in urban areas of the district are being made by walk and bicycle followed by motor two-wheeler and others *(see Graph 4: Modal share in urban areas of Vizianagaram district)*.

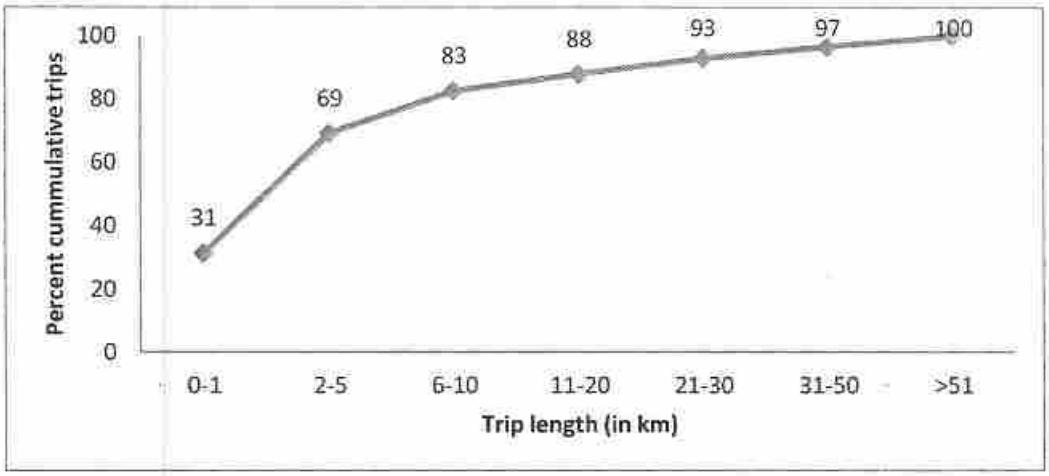
Graph 4: Modal share in urban areas of Vizianagaram district



Note: Data does not include "no travel" and "distance not stated" category in Census statistics
Source: Census of India 2011

The distribution of trips as per trip length shows that more than 50 per cent of the trips end within bicyclable distance which shows a potential to attract people towards bicycling provided adequate infrastructure is made available *(see Graph 5: Distribution of trip length from place of residence to workplace as per trip length in Vizianagaram district)*.

Graph 5: Distribution of trip length from place of residence to workplace as per trip length in Vizianagaram district



Note: Data does not include "no travel" and "distance not stated" category in Census statistics
Source: Census of India 2011

Public Transport Service

Vizianagaram city does not have dedicated bus transport system and is served by the buses of Andhra Pradesh State Road Transport Corporation (APSRTC) that runs inter-city bus service in the state. Based on the travel pattern, road network pattern, and road inventory of the city, intra-city bus transport can be introduced. For a city size of Vizianagaram, mini /midi buses can be used for operation. This service should have routes that penetrate within the city and should be in accordance to accepted level as per MOUD service-level benchmark

Para Transit System

There exists only unorganized Intermediate Para Transit (IPT) in form of auto-rickshaws. The bulk of the public transport service in the city is provided by IPT systems including autos and shared services. These are low occupancy but high frequency services that meet the local requirement and provide efficient connectivity including the last mile connectivity. Vizianagaram city should reorganize and modernize this system and upgrade these services with GPS, route rationalization, service level benchmark. This is an important opportunity to reduce dependence on personal vehicles. These vehicles can also be linked with electric vehicle programme.

Walking and Cycling

The condition of existing footpath is poor which forces pedestrians to walk on the carriage way. On street vendor encroachment, electric transformers, irregularly placed dustbins etc., are few reasons to name. The existing hawking activities should be accommodated with design such that they do not encroach upon the road side walking space. Also, the roads lack zebra markings and other safety measures that increase accident risk. But given the fact that walking and cycling share constitutes 63 per cent of the modal share and more than 50 per cent trips end within bicyclable distance in urban areas Vizianagaram district, this presents an immense opportunity to promote infrastructure for walking and cycling to move towards zero emissions. This is an opportunity to reduce dependence on motorized travel for short distances. This can promote clean and active mobility for clean air.

Parking Strategy to Reduce Traffic Volume

Rapid motorization, haphazard development, and unorganized parking are all contributing to traffic congestion in the city. Most of the city roads are encroached with haphazardly parked vehicles. The hawking activities are not regularized. The city needs to adopt a city wide parking policy and rules at the early stages that will enable adoption of parking area management plan. This will help to identify the legal parking area and lead to demarcation in all land uses enable enforcement against

illegal parking, allow parking charges to manage demand and reduce parking pressure, and prevent parking from happening in green areas, parks, on footpaths and near intersections. This can help to improve integrated management of off-site and on-site parking management, maximise utilisation of the available parking spaces. This can help to promote park and walk strategies. This city wide approach can reduce parking chaos, congestion and pollution. Parking management is considered an important demand management and pollution reduction measure.

Traffic Management

The city has total 8 major junctions out of which 6 are signalized and 2 are un-signalized. These traffic signals are controlled by Vizianagaram municipality. CCTV cameras are available on 10 road junctions. To ease traffic congestion on major arterials, the Vizianagaram Municipality has taken up widening of 14 major roads with an estimated budget of about Rs. 50 crores. Alongside road widening works, the municipality is taking up junction improvement projects of 7 junctions at an estimated budget of Rs. 1.5 crores[vi]. The city has two bypasses which are used to divert the non-destined traffic in the city. Awareness campaigns are conducted in main traffic junction through public addressing systems.

Road Dust

The city has about 69 percent metalled and 31 percent unmetalled roads. The municipal corporation has one mechanical sweeping machines which covers approximately 62.2 km of distance.

Most roads have end to end paving with green buffers along major traffic corridors, totaling a stretch of 15 km. However, a detailed plan is needed for metaling of the rest of the road network, green barriers, and paved footpaths to control dust generation.

7. Comprehensive Clean Air Action Plan (CAP) for Vizianagaram city

This pollution source-wise comprehensive action plan has been developed for Vizianagaram city to meet the NCAP objective of 20-30 percent reduction in particulate pollution by 2024. This plan indicates the nature, scale, scope and depth of action needed for effective reduction in different sectors.

This plan has integrated the on-going action of the state government in each sector and has further built upon that based on good practices. Sufficient indicators are included in the plan to define the nature and scope of each strategy.

This plan has identified the agencies responsible for implementation of each action point and has also indicated the timeline for implementation. This can be monitored for reporting and compliance.

This section deals with department-wise clean air action plan and compliance strategy to meet clean air standards. The following tables indicate the short, medium and long-term action along with agencies responsible for implementation of the action points in the city of Vizianagaram. This plan indicates short term as six months; medium term as up to one year and long term 1-2 years.

Comprehensive Action Plan (CAP): Short, medium and long-term measures Source-wise clean air action plan and compliance strategy for non-attainment cities to meet clean air standards.

1. Air Quality

S. No.	Source	Action Points	Micro level Action points	Present status	Agency responsible	Timeline	Budget
1.1.	Air quality monitoring and assessment	Installation and commissioning of CAAQM stations as per CPCB criteria.	Install and commission one or more CAAQM station as per CPCB criteria as real time monitoring is needed for GRAP. All stations should monitor parameters as specified in NAAQS, 2009 and weather parameters to have real time data.	There are 3 manual monitoring stations. Need minimum 1 real time station	APPCB and CPCB	One year	Departmental funds/ NCAP funds
1.2.	Air quality monitoring and assessment	Reporting daily air quality data to public	Plan for public dissemination— web-based, billboard-based, through audio visual media, etc. Adopt as per graded response action plan.	The AQI data is available on APPCB website and Paryavaran app.	APPCB	Continuous	Departmental funds/ NCAP funds
1.3.	Air quality monitoring and assessment	Quality control and quality assurance system for air quality data.	Ensure all monitors are functioning and recording data. Adopt detailed protocol for transparent reporting of CEMS data (wherever applicable) for industrial emissions monitoring and NAMP data	The NAMP data is being uploaded in the CPCB website for public dissemination.	APPCB	Continuous	Departmental funds
1.4	Air quality monitoring and assessment	Adopt satellite-based monitoring to complement ground-based air quality monitoring	Adopt an airshed approach for rural and peri-urban areas as recommended by NCAP and MoEF & CC Explore application of sensor based monitoring for areas where there is no regulatory monitors and cover unmonitored areas and agricultural burning/forest fires that impacts urban air quality.	To be initiated	APPCB, CPCB, India Meteorological Department (IMD), Ministry of Earth Sciences (MoES)	One year	Departmental funds
1.5	Air quality monitoring and assessment	Adopt protocol for assessing annual and daily air quality trend for reporting compliance with the NAAQS and NCAP targets.	Adopt detailed protocol for transparent reporting of CEMS data (wherever applicable) for industrial emissions monitoring and NAMP data	The CEMS data of industries is connected to central server at APPCB head office and is being monitored for any abnormalities.	APPCB, CPCB	Six months	Departmental funds
1.6	Assessment of pollution sources	Source apportionment and Emission inventory studies to be carried out for the city	The SA study may be directed to a competent institution. The SA study must include the surrounding airshed along with a Health Impact Study incorporating exposure impacts.	National Knowledge Network (NKN) act as an advisory board to the CPCB.	APPCB, CPCB	One year	Departmental funds/ NCAP funds

S. No.	Source	Action Points	Micro level Action points	Present status	Agency responsible	Timeline	Budget
				CPCB along with the advisory board identified the Institute of Repute (IoR) to carry out the SA& EI studies in all the states of Non-attainment cities.			
1.7	AQI forecasting	Adopt pollution forecasting system for implementation of graded response action plan.	This will also require monitoring of weather data and prior support from MOES and IMD. The system to be adopted could be on the lines of SAFAR	-	Department of Environment, APPCB, CPCB, MoES	One year	Departmental funds/ NCAP funds

2. Industries

S. No.	Source	Action Points	Micro Level Action points	Present Status	Agency responsible	Timeline for action	Budget
2.1	Industrial emissions	Implement SOx and NOx standards	Standards notified by MoEF & CC on 29 January 2018 for 16 categories of industries in and around the city – as applicable.	Under implementation	APPCB	Six months	Nil
2.2	Industrial emissions	Management of emissions from MSME sector	Inspection and monitoring surveillance of small, medium and large-scale category of industries and necessary penal action for violation of standards	Regular and random inspections are being taken up by the APPCB	APPCB, CPCB	One year	Departmental funds
2.3.	Industrial emissions	Introduction of Clean Fuels Notify approved fuel list for the state and ban use of pet coke and furnace oil.	• Notify approved list of fuels for the state • Ban use of pet coke and furnace oil • Ensure conversion to CNG/PNG from pet coke/ furnace oil • Strict enforcement against use of high sulphur content fuels and levying fines on the violators. • Implement phase-in plan to promote clean fuels in industry like natural gas.	A condition of not to use pet coke in industries is being included in the CFO as per Hon'ble NGT order.	APPCB	One year	Nil
2.4	Industrial emissions	Use of CEMS	• Enforce monitoring of polluting industries within urban air-shed zones via CEMS. • Check for installation, upkeep and data collection.	The CEMS data of industries is connected to central server at APPCB head office and is being monitored for any abnormalities.	APPCB	Six months	Nil
2.5	Industrial emissions	Control of fugitive emissions across all industries	Implementation of control measures during various industrial processes (in ancillary units, material transfer and handling etc). Construction of paved roads around all major industrial belts and estates; Installation of dust	All the required conditions are kept in the CFO and are being implemented by the concerned industries.	APPCB	Six months	Nil

S. No.	Source	Action Points	Micro Level Action points	Present Status	Agency responsible	Timeline for action	Budget
			suppression system and green belt				
2.6	**Chemical Industries and Pyrolysis units**						
2.6.1	Industrial Emissions	Control and monitoring of stack emissions	Ensure to comply with the NAAQS, 2009 outside the premises and stack/ chimney emissions as specified in the CFO order. Install and operate Air Pollution Controlling Equipment or Devices (APCE)	All the required conditions are kept in the CFO and are being implemented by the concerned industries. Industries not complying with the conditions are issued with notices, closure orders and reviewed in the Task Force Committee Meetings.	APPCB	Continuous	Nil
2.6.2	Industrial Emissions	Control of Fugitive emissions	Maintenance of internal roads and material transport need to be done in covered vehicles Raw materials should be stored in covered sheds and closed conveyors are to be used Ensure good housekeeping practices Solid waste generated should be disposed as specified in the CFO and avoid dumping in open areas. Greenbelt needs to be developed all along the boundary of the industry.	All the required conditions are kept in the CFO and are being implemented by the concerned industries. SOPs conditions are kept in the CFO and are being implemented.	APPCB	Continuous	Nil
2.7	**Mining of Minerals**						
2.7.1	Emissions from mine site	Control of Fugitive emissions from the mine site	Maintenance of internal roads and regular water sprinkling on haul roads to suppress the dust generation Development of greenbelt along the boundary and internal roads Ensure to avoid overfilling of vehicles and spillages on transportation routes. Ensure to transport mined material in covered vehicles	All the conditions required to achieve good mining practises are included in the CFO of the mining industries.	APPCB	Continuous	Nil
2.7.2	Solid waste management	Management of Overburden	Avoid dumping of overburden outside the mine site. Ensure to stabilise the dump sites with vegetation/ green cover to avoid further dust generation	The mining industries are being directed to handle the overburden as per the mining plan only.	APPCB	Continuous	Nil
2.8	**Ferro Alloys**						
2.8.1	Industrial	Air pollution control	APCDs such as spark arrestors, bag houses	-	APPCB	Six months	Nil

S. No.	Source	Action Points	Micro Level Action points	Present Status	Agency responsible	Timeline for action	Budget
	emissions	devices	and wet scrubbers either alone or in combination for the control of emission generated from the furnace ,must be deployed				
2.8.2	Industrial emissions	Furnace emissions	Spray scrubber, wet scrubber, air curtain or air jet must be installed	-	APPCB	Six months	Nil
2.8.3	Industrial emissions	Fugitive emissions from tapping, Material handling and mechanical operation	To use the control system installed for controlling the furnace emission. To control dust arising from crushing and screening (dust suppression or dust extraction system), conveyor belts to be covered, sprinkling of water while transportation and covering them.	-	APPCB	Immediately	Nil
2.9	**Steel re-rolling industries**						
2.9.1	Industrial emissions	Control of pollution from small coal fired furnace	• Installation of cyclone, multi cyclone, bag filter, wet scrubber or electro static precipitator (ESP) depending on the heating capacity. • On all furnaces using liquid fuel or coal, height of the stack to be governed by flow rate of sulphur dioxide emissions. However, in no case the stack height will be less than 11 meters. • The type of air pollution control equipment required to be installed, emission standards to be complied and procedure for calculating the stack height is governed as per EPA Notification.	-	APPCB	Six months	Nil
2.9.2	Industrial emissions	Control of emissions from DG sets	• Adequate stack height to be provided on the DG sets depending on its capacity. • Emission Regulation part-IV published by CPCB has given the formula for working out the stack height. • For regulation of stack emissions of D.G sets of capacity more than 0.80 MW, separate standards are laid down vide GSR 489 (E) dated 9.07.2002 which needs to be complied with.	-	APPCB	Six months	Nil

3. Hot mix plants and Stone crushers

S. No.	Source	Action points	Micro level Action points	Present status	Agency responsible	Timeline	Budget
3.1	Hot mix plants	Use of clean fuels	Establish a protocol to use cleaner fuels & technology for asphalt mixing and minimizing the number of hot-mix plants. Keep buffer	To be initiated	MoRTH, Municipal Corporation, APPCB	One year	Departmental funds
3.2	Hot mix plants	Emissions monitoring	Stack heights of these plants should be atleast 25 meters (as prescribed by Haryana government) or prescribed by MoEF&CC should be maintained	To be initiated	APPCB	One year	Departmental funds
3.3	**Stone crushers**						
3.3.1	Stone crushers	Relocation of stone crushers	Remove stone crushers that are close to the city; adopt stringent dust control measures and greening as applicable. Green buffer zone should be maintained with a minimum width of 10 meters shall be maintained	To be initiated	Local administration, APPCB, Department of Industries, Commerce and Enterprises, MSME	One year	Departmental funds

4. Vehicles

S. No.	Source	Action Points	Micro level action points	Present status	Agency responsible	Timeline	Budget
4.1	Vehicular emissions	Emission standards and fuel quality for new vehicles	Ensure implementation of Hon'ble Supreme Court order of October 24, 2018 and subsequent Central Government notification by MoRTH- Only BS VI compliant fuels and vehicles to be registered after April 1, 2020.	Only BS VI complaint vehicles are being registered after April 1, 2020. Regular / random checks are being conducted by RTO's to ensure the implementation of Hon'ble Supreme Court order.	Transport Department and Auto Industry Associations	Ongoing	Nil
4.2	Vehicular emissions	Gaseous fuel programme for vehicles	Shifting/ replacement of petrol/diesel driven vehicles viz., auto rickshaws, taxis and buses to CNG/LPG based vehicles.	-	Transport Department, Department of ICE, MoPNG	1 year	Nil
4.3	Vehicular emissions	Encourage clean fuels	Introduce favorable fiscal measures such as reduction in road tax to promote clean fuels and vehicles.	The State Government has issued guidelines to exempt levy of green tax on vehicles operated by LPG, CNG, battery and solar power.	Transport Department	1 year	Nil
4.4	Tail pipe emissions	Strengthen periodic auditing and over- sight of PUC centres and calibration of equipment	1. Ensure PUC centers are upgraded to be capable of testing all the notified parameters and vehicles including BS VI. 2. Ensure further strengthening of ongoing	Currently, there are 12 PUC centres in the city. Communication has made to the MoRTH for taking	Transport Department	1 year	Departmental Funds.

S. No.	Source	Action Points	Micro level action points	Present status	Agency responsible	Timeline	Budget
		and third-party checks.	linking of PUC centers with NIC vahan server to eliminate manual intervention in PUC testing. 3. Ensure all vehicles obtain valid PUC certificate vehicles without PUC certificates are not allowed to ply. Link PUC certificate with annual vehicle insurance.	necessary action in this matter. 100% vehicles turn up for the PUC testing every year. Integration with NIC vahan software is initiated. PUC program in place, though all not linked to e-Vahan server			
4.5	Tail pipe emissions	Ensure universal linking of PUC centres with remote server and eliminate manual intervention in PUC testing.	Implement testing of all notified emissions parameters including Lambda testing for petrol cars as notified by MORTH in 2004.	-	Transport Department	6 months	Nil
4.6	Tail pipe emissions	Integrate on-board diagnostic (OBD) system fitted in new vehicles with vehicle inspection.	As per the MORTH advisory PUC centres have to check malfunctioning indicator light on dash boards of vehicles. If the light is found on vehicles to be sent back for testing in authorized workshops. Additionally, PUC centres need to check if the OBD is functioning properly.	Presently there is no OBD system within the city.	Transport Department	6 months	Departmental funds
4.7	Tail pipe emissions	Ensure availability of ammonia based urea for BS VI diesel vehicles	Ensure availability of the auto grade urea for the vehicles fitted with SCR system (selective catalytic reducing system) for NOx control in BS VI vehicles in coordination with the oil companies.	Steps will be taken to ensure availability of ammonia based urea in fuel stations as and when BS VI fuels available in the market.	Transport Department, Department of Civil Supplies and Oil companies	6 months	Nil
4.8	Tail pipe emissions	Penalising the visibly polluting vehicles	Remove/impose penalty/ challans, and launch extensive awareness drive against visibly polluting vehicles.	Traffic department is imposing and collecting the penalties from owners of visibly polluting vehicles.	Transport Department	Continuous	Nil
4.9	Tail pipe emissions	Set up modern centralized vehicle inspection centres for upgraded emissions	Ensure annual fitness and road worthiness tests for commercial vehicles and diesel vehicles are conducted in well-equipped centralised testing centres. These centres can cater to the region	Transport department is regularly conducting the fitness checks to phase out vehicles which are 15 years & above and or completing the 2,50,000 km	Transport Department	6 months	Departmental funds
4.10	Emissions from older vehicles	Green Tax And Vehicle labelling or	Ensure measures to increase the green tax on petrol and diesel vehicles to encourage the LPG, CNG and battery operated vehicles.	The State Government has issued guidelines to exempt levy of green tax on vehicles	Transport Department	6 months	Nil

S. No.	Source	Action Points	Micro level action points	Present status	Agency responsible	Timeline	Budget
		sticker programme to phase out old vehicles	Ensure phasing out of old vehicles with the help of color coded sticker programme and age linked road tax policy. Set up scrapping infrastructure for scientific dismantling and disposal of old vehicles and material recovery as per the CPCB guidelines. Set up recycling units that are authorized with proper environmental guidelines and integrate the current informal scrapping units	operated by LPG, CNG, battery and solar power. Green tax need to be paid by Transport vehicles and Non-transport vehicles based on the age cap from the date of their registration.			
4.11	**Freight Transport**						
4.11	Emissions from trucks	Diversion of truck traffic	• Rationalise movement pattern of heavy-duty trucks, and their routes and logistic infrastructure, spacing of warehouses/wholesale marts etc, entry points and timing to reduce exposure levels • Provide truck rest areas/parks along national and state highways to prevent entry of trucks into cities during the day time or peak hours to continue. • Local trucks can shift to LNG/CNG • Use of off-peak passenger travel times to move freight and restrict the entry of heavy vehicles into cities during the day to continue.	The city has two bypass which helps in diverting non-destined traffic in the city.	District and local administration, Municipal Corporation and PWD, NHAI	6 months	Nil
4.12	Emissions from trucks	Ensure fitness of trucks	Ensure fitness and road worthiness of trucks and compliance to set standards. Install weigh in motion bridges in all city entry points to control overloading		Transport Department	6 months	Departmental funds
4.12	**Fuel Quality and Clean Fuel standards**						
4.12.1	Poor fuel quality	Fuel quality testing to check adulteration	Ensure to create system to carry out regular/ periodic checks for fuel adulteration and monitoring the fuel quality through surprise fuel testing for all transport and non-transport fuels.	Department of Civil Supplies is ensuring the regular fuel checks through oil companies. Total 423 Retail Outlets were inspected and 524 Petrol & 580 Diesel samples were tested by Oil Industry Mobile Labs in 2019-20 in Andhra Pradesh.	MoPNG, Oil marketing companies, Department of Civil Supplies	Continuous	Departmental funds
4.12.2	Poor fuel quality	Emission control at Fuel Stations	Install vapour recovery systems in fuel outlets to reduce benzene and VOC emissions to	There is no monitoring system for VOC emissions in the city.	Department of Civil Supplies, Transport	6 months	Nil

S. No.	Source	Action Points	Micro level action points	Present status	Agency responsible	Timeline	Budget
		Install vapor recovery systems in fuel refueling outlets to reduce benzene and VOC emissions in cities.	comply with the Hon'ble NGT directions in respect of installation of stage I and Stage II vapour recovery system in all new retail outlets with capacity 300 KL MS per month in cities with population more than 1 lakh.		department, State Oil Coordinator		
4.12.3	Poor fuel quality	Adopt favourable taxation policy for clean fuels	Reduce VAT and cess on CNG	-	Transport Department	6 months	Nil

5. Urban Mobility

S. No.	Source	Action Points	Micro level action points	Present status	Agency responsible	Timeline	Budget
5.1	**City Bus Service Improvement**						
5.1.1	Vehicular emissions	Ensure setting up of Public transport intra city bus services	• Implement intra-city bus services based on travel demand of city population. For a city size of Vizianagaram, mini /midi buses can be used for operation • Service level benchmark of Ministry of Housing and Urban Affairs should be followed to decide fleet size and network for adequate city penetration • Implement phase wise requirement of bus fleet, transit infrastructures i.e. depots, terminals and bus queue shelters etc. • Ensure adoption of EV buses through FAME II and notified state EV Policy. • Use modern technologies like Global Positioning Device (GPS), Public Information System (PIS) etc. to manage the services, locate buses and also to make it more attractive to commuters. • Introduction of Electronic Ticketing Machine for ticketing purposes. It helps to record and manage trip details, number of users, and other trip characteristics of public transport users.	Presently, city does not have a dedicated bus service	Bus Transport Undertaking	1 - 2 years	Departmental Budget
5.2	**Intermediate Para Transit (Autos, Shared IPT, Taxis, and electric rickshaws)**						
5.2.1	Vehicular emissions	Regularization operation of IPT through	• Implementation of IPT operation plan and IPT route network connecting residential areas to	IPT system is un- organized.	RTO, Transport Department GoAP,	1 – 2 Years	Departmental Funds

S. No.	Source	Action Points	Micro level action points	Present status	Agency responsible	Timeline	Budget
		registration and planning	important nodes (transport nodes, shopping areas, or other areas with high footfall) • Implement well planned dedicated parking and pick-up and drop-off points for IPT • Shared IPT/Autos – specify route, fix fare and carrying capacity. These should be mostly provided to connect very high footfall areas for easy pick-up and drop-off • Install GPS in autos for monitoring • Plan and enforce safety standards for IPT vehicles for driver safety and safety in driving etc to improve service		Urban Local Bodies		
5.3	**Non-Motorized-Transport Network**						
5.3.1	Vehicular emissions	Build adequate street network that is walkable, cyclable and provides safe mobility for all road users	All major arterial and sub-arterial roads should be redesigned to have dedicated/protected space for walking, cycling. Earmark street vending activities with respect to complete street principles and universal accessibility *(For good street design, refer to Design Standards can be followed from Indian Road Congress (IRC): 103-2012, or improved draft IRC code on road design, or any other adopted standards and good practices. Street design Guidelines document in Delhi, published by UTTIPEC can also be considered as a base document for improved road design needs)*	The condition of existing footpath is poor which forces pedestrians to walk on the carriage way. Also, the roads lack zebra markings and other safety measures that increase accident risk.	Urban Local Bodies	1 year	Departmental Funds
5.4	**Traffic Management**						
5.4.1	Vehicular emissions	Enforcement and monitoring of traffic movement to prevent congestion and ensure road safety	• Ensure installation of traffic signals at all major junctions within the city. Levying and collection of hefty fines for traffic violation • Ensure removal of encroachments along the road stretches within the city • Explore use of Intelligent Transport Management System (ITMS) based monitoring for effectiveness and enforcement • Periodic safety audits of all the junctions within the city to ensure better planning, improvement and implementation	The city has total 8 major junctions out of which 6 are signalized and 2 are un-signalized. These traffic signals are controlled by Vizianagaram municipality. CCTV cameras are available on 10 road junctions.	Traffic Police and Urban Local Bodies	6 months	Departmental Funds

S. No.	Source	Action Points	Micro level action points	Present status	Agency responsible	Timeline	Budget
5.5	**Parking Management**						
5.5.1	Vehicular emissions	Implement city-wide Comprehensive Parking Policy and Parking Area Management Plans (PAMP) (Examples/Reference documents – Delhi parking Rules 2019, Punjab Parking Policy for Municipal towns of Punjab 2017)	• Physically identify, demarcate and delimit on-street and off-street parking areas in all municipal wards based on local area assessment • Ensure no parks and green spaces are converted into parking and all streets have at least one lane available all the time for free flow of traffic especially emergency vehicles. • Introduce strict fines for Illegal parking of vehicles in non-designated areas. • Introduce variable parking fees as per the location and time duration in all commercial and mixed use areas • In areas where both on-street and off-street parking is available, on-street parking charge should be higher than off-street parking charges • Wherever MLCP exists, it should be integrated with area level parking plan • On-street parking price should be higher than MLCP to maximize use of MLCP • Introduce residential parking permit for residential areas • Implement commuter information system on availability of parking spaces in off street parking facilities. • Identify streets for parking/night time parking of commercial vehicles	In the city there are no designated paid parking areas. As of now parking is free of charge. And Most of the city roads are encroached with haphazardly parked vehicles.	Urban Local Bodies	1 year	Departmental Funds

Adoption of Electric Mobility

S. No.	Source	Action Points	Micro level action points	Present status	Agency responsible	Timeline	Budget
5.6	**Adoption of Electric vehicles *(Implement the state's notified EV policy)*** *(As EV technology is new and continuously evolving, the ideas may change further to comply with most updated technology)*						
5.6.1	Vehicular emissions	Implementation of Electric Mobility policy notified by State Government.	• Identify vehicle segment like IPT, buses, Two-wheelers – for targeted electrification • Ensure provision of required infrastructure like charging stations, maintenance depots/places, availability of spare parts, etc.	The electric vehicle policy is yet to be implemented. The electric vehicles are not much in use and public	Transport Department, Urban Local Bodies, New and Renewable Energy Development	1-2 year	Departmental Funds

S. No.	Source	Action Points	Micro level action points	Present status	Agency responsible	Timeline	Budget
		Integrating EV Infrastructure to create EV ecosystem (*facilitate EV adoption through integrating EV in infrastructure changes through amendment in existing byelaws and regulations)*	• Amendment of Model building byelaws and state level building byelaws and design code to integrate these changes w.r.t electric vehicle ecosystem. • Introduce charging facilities at residential locations by installing a dedicated metering system in accordance with electricity and energy board • Implement based on ground assessment dedicated parking facilities or priority parking of electric vehicles in designated parking areas	awareness programmes needed to be planned.	Corporation of Andhra Pradesh Ltd. (NREDCAP).		
5.6.2	Battery waste	Management and Disposal of Batteries	• Develop and implement a policy for safe disposal of batteries after completion of their life time as per the Waste Management Rules, 2016 issued by MoEF & CC. • Notify the potential and authorised recycling facilities within the city	The electric vehicle policy is yet to be implemented.	APPCB, Transport Department, and New & Renewable Energy Development Corporation of Andhra Pradesh Ltd. (NREDCAP)	1 year	Nil
5.6.3	Vehicular emissions	Enhance EV adaptation in IPT segment which is an important mode of public transport	• Incentives/schemes to IPT owners to transition from ICE vehicles to EV such as road tax rebate, concession on charges, credit on transition to EV, etc. • Provide registration for e-rickshaws	-		2 years	Nil
5.6.4	Vehicular emissions	Priority parking for EV*(Provision of dedicated on-street parking spaces for commercial and personal electric vehicles)*	• Carry out inventory of area where dedicated EV parking is feasible • Implement incentives like waiver of parking fees for electric vehicle among others.	-	Transport Department, Urban Local Bodies, APERC	1 year	Nil

6. Waste Management

S. No.	Source	Action Points	Micro level Action points	Present Status	Agency responsible	Timeline	Budget
6.1	Municipal Solid Waste	Ensure Implementation of Solid Waste Management Rules, 2016 notified by MoEF & CC.	• Implement a plan for collection and management of waste based on the quantity of solid waste collected daily. Quantify waste stream for each municipality and peri urban areas to plan infrastructure for collection and recycling.	The Vizianagaram Municipal Corporation has issued a circular to implement Solid Waste Management Rules, 2016 in city limits.	Municipal Corporation, Office of the District Magistrate	6 months	Nil

S. No.	Source	Action Points	Micro level Action points	Present Status	Agency responsible	Timeline	Budget
			• Implement household level segregation, segregated transport, recycling facilities and composting facilities • Ensure GPS tracking of waste collection and transportation vehicles to dump yards and mobile spot check squads for enforcement. • Implement a plan to monitor garbage burning within city limits through sanitation team. • Levy and collect hefty fines from the violator's viz., dumping of solid waste in open areas or unauthorised places, burning of solid waste/ biomass and other waste. • Stringent implementation of amended by laws and collect fine from the violators • Mapping of all waste dumping grounds in the region as well as mobile spot check squads for enforcement.	Regular inspection is done by Ward Sanitation and environment secretaries to control open burning of solid waste. Garbage burning is significantly under control.			
6.2	Municipal Solid Waste	Management of Dumping yards and treatment facilities	• Plan to convert the dumping site at Gunupurupeta into processing facility to ensure further processing of municipal solid waste. • The processing facility should be planned and grounded in a time bound manner to avoid further open dumping of the collected solid waste • Ensure safety measures and management at dump yard to avoid spontaneous fire at the site. Use landfill management techniques based on CPCB guidelines.	The solid waste collected from the household is being dumped at the Gunupurupeta dumping site. Water facility is provided to arrest the fire in emergency situations.	Municipal Corporation, Office of the District Magistrate	1 Year	Departmental Funds.
6.3	Municipal Solid Waste	Zero landfill policy	• Adopt roadmap for zero landfill policy by promoting decentralized waste segregation, reuse and recycling.	The city generates 173 TPD of municipal solid waste out of which 125 TPD is treated through windrow and 42 TPD is composted on-site while the remaining 6 TPD is home composting. Dry and Wet waste segregation takes place at the source. 22 percent of the waste is scientifically treated. Dry waste goes to MRF center	Municipal Corporation, APPCB	1 Year	Departmental funds

S. No.	Source	Action Points	Micro level Action points	Present Status	Agency responsible	Timeline	Budget
				whereas wet waste is processed into compost by windrow processing, home composting and On-site Composting. There are two machines for composting organic waste and one for dry waste collection at Pala hospital, Gunupurupeta.			
6.4	Solid Waste	Control of burning of biomass and crop reside and	• Ensure proper collection of horticulture/ garden waste (bio-mass) from parks and open areas and its disposal through composting within the premises. • Ensure ban on burning of agriculture waste and crop residue and its implementation.	Extensive programmes were launched by agriculture department like Polambadi & Polam pilustondi, for creating awarenss in Farming Community not to burn agricultural waste/ Stubbles	Agriculture department, MA & UD	6 months	Departmental Funds.
6.5	Municipal Solid Waste	Installation of waste to energy plant.	• Ensure to avoid installation of Waste to Energy plant if the city is having an efficient waste segregation system in place. • If required develop a proper plan with strong siting policy to locate the Waste to Energy plant away from habitation and sensitive areas including neighbourhoods of low-income groups. • Ensure stringent emission norms and real time monitoring of the emissions data through CEMS; Use of state-of-the-art technology and provide real time emissions data to APPCB.	No waste to energy plant is located either within the Vizianagaram city	Municipal Corporation, Office of the District Magistrate and APPCB	1 year	Departmental funds
6.6	Incinerators	Siting policy and CEMS	Develop a siting policy for biomedical incinerators. Implement CEMS for incinerators and provide data on emissions on an open platform progressively.	CPCB siting guidelines are in force and no incinerators planned at this stage	CPCB, APPCB	1 year	Departmental funds

S. No.	Source	Action Points	Micro level Action points	Present Status	Agency responsible	Timeline	Budget
6.7	Construction and Demolition waste	Ensure implementation of Construction & Demolition Waste Management Rules, 2016 and its subsequent amendments.	• Provide a C&D waste management facility for segregation and disposal of collected waste from the construction sites across the city. • The Waste Management Plan should be combined with building permits and made compulsory before any construction/demolition/remodeling activity by the bulk waste generators. • Adopt and implement dust control measures for all types of construction - buildings and infrastructure. • Undertake control measures for fugitive emissions from material handling, conveying, and screening operations through water sprinkling, curtains, barriers, and dust suppression units. Introduce steeper penalties for non-compliance in all construction sites. • The preventive measures as mentioned in CPCB guidelines[vi]. Construction agencies to be made liable. Impose penalty for non-compliance.	Around 5 TPD of C&D waste is being generated and there is no recycling plant as of now. No scientific processing of waste is happening. Only two C&D waste sites are established at Lower tank bund road and Dasannapeta Ramp site.	Municipal Corporation & APPCB	6 months	Departmental funds
6.8	Construction and Demolition waste	Zoning of construction activities	Enforce restrictions on construction activities within urban airshed zones during high pollution period.	Guidelines were issued by the Municipal Corporation in line with the C&D Waste Management Rules, 2016 with respect to the dust generation and its management at the construction sites.	Municipal Corporations	6 months	Departmental funds
6.9	Construction and Demolition waste	Notify rules to segregate construction and demolition waste in accordance to the C&D waste management rules notified in 2016 by CPCB.	Provide a network of decentralized &D waste segregation and collection sites across the city. For material handling, construction and demolition, it should be obligatory on part of the developers to provide evidence of debris on-site recycling and/or disposal at designated sites.	A notification was issued by Municipal Corporation, Vizianagaram for handling of C&D waste within the city limits.	Municipal Corporations	1-2 years	Departmental funds
6.10	Construction and Demolition waste	Set up facilities to recycle construction and demolition waste	Quantify C&D waste generation from both building and infrastructure construction. Mandate certain percentage of the material for	Construction & demolition waste is being utilized for low level filling and road forming.	District and local administration, Municipal	1-2 years	Departmental funds.

S. No.	Source	Action Points	Micro level Action points	Present Status	Agency responsible	Timeline	Budget
			new construction to be recycled construction waste. Implement provision of Central regulations for construction and demolition waste management rules of 2016.		Corporation, APPCB		

7. Household emissions and other miscellaneous sources

S. No.	Source	Action Points	Micro level Action points	Present Status	Agency responsible	Timeline	Budget
7.1	Renewable Energy Policy and Household Emissions	Maximum access of LPG by low-income neighbourhoods, as well as roadside eateries/dhabas/ restaurants etc.	• A targeted programme towards 100 percent coverage of LPG supply to all the households and commercial activities like road site eateries/ dhabas/ restaurants, etc. • Mandate and link commercial license to clean fuels. • Create schemes like PMUY for low turnover eateries to access LPG	As of Q1 of 2020-21 total 1.38 Crs LPG Connections are released in Andhra Pradesh which is 110% penetration of HHs as per 2011 Census. Additionally, Non-Domestic LPG connections are released by Oil Companies on continuous basis.	Department of Civil Supplies and Oil Companies	1 Year	Departmental Funds.
7.2	Gensets	Control of emissions from Diesel Generator (DG) sets.	• Ensure all the DG sets are meeting the emission norms and provided with acoustic enclosures. • Ensure power supply of 24/7 in the city to prevent usage of alternate power generating equipment. • Curtail use of DG sets in social events by providing temporary electric connections • Explore rooftop solar programme to reduce dependence on DG sets. • Ensure to obtain power connection prior to construction of large construction projects to avoid use of DG sets.	There is no or rare power cut in all over the state of Andhra Pradesh. In Vizianagaram district the power is being generated from renewable sources like solar power. The installed capacity of solar power (Grid Connected Net metering Solar Systems) is 926 KWp. Rest the city has solar power plant at Dwarapudi of 1MW capacity which is not working. There are also solar street lights and solar pumpsets	APPCB, APTRANSCO, APGENCO	Immediate	Departmental funds
7.3	Multiple Sources	Public Awareness Campaign	• Organizing the continuous public awareness campaigns engaging the schools, colleges and other academic institutions. • Organizing deeper public engagement and	-	APPCB in collaboration with a local Civic Society Organization	6 months	Departmental Funds.

S. No.	Source	Action Points	Micro level Action points	Present Status	Agency responsible	Timeline	Budget
			forums for public consultation for public understanding of the nature of solutions needed to address the complex problem of sustainable industrial development and urban mobility.				
7.4	Others	Public Grievance Redressal Portal (PGRP)	• An online portal need to be created to register the complaints by public on air pollution along with a supervisory mechanism for its disposal at time bound manner. • Ensure to publicize about the online portal and its usage to all the citizens for deeper and better improvements. • Create a a portal or a citizen's charter on APPCB website	A PGRP system has been established in the APPCB website and concerned officers are attending the complaints lodged by the public.	APPCB and other concerned departments.	6 months	Departmental Funds.
7.5	Others	Urban Green and Forests	• At least 15 – 20 % of the area in new development projects in urban areas should be developed as green cover. • Urban planning to provide for green roofs and vertical greens linked to infrastructure development. Green walling with plantations around dust generators and also to be dust barriers to be integrated with the Urban forestry and forest policy.	There is no forest land within the municipal limits though there are 75 parks identified.	Forest Department, Municipal corporations	1 year	Departmental Funds.
7.6	Episodic events: All kinds of fires, leakages and explosions	Use satellite-based monitoring and on-ground enforcement to control such episodes.	• An online platform needs to be developed to integrate the meteorological and air quality data of the city for prompt and immediate actions from the emergency response system/ disaster management authority.	Andhra Pradesh State Disaster Management Authority is in the process of developing an online system for emergency situations.	APSDMA and APPCB	1 Year	Departmental Funds.
7.7	Seasonal/ Episodic events	Firecrackers during festival season	Ensure to regulate and control usage of fire crackers including restrictions on timing as per the Supreme Court and CPCB and PESO guidelines.	During Diwali festival PESO is taking steps to observe the safety like awareness programmes in public interest through print and electronic media, providing licenses for sale of the local fireworks and regular inspections to the ensure only licensed vendors are selling the crackers.	District and local administration, Police Department, APPCB, RWAs, Supported by Chief Controller of Explosives, Petroleum and Explosive Safety Organization (PESO)	Immediate	Departmental Funds.

a. Graded Response Action Plan (GRAP) proposed for Vizianagaram City

The proposed Graded Response Action Plan is meant to be temporary measures for duration of smog episodes and is implemented according to the severity of the daily air pollution levels. Once the levels come down and stabilize, measures are withdrawn. The objective of the GRAP is to prevent pollution from getting worse when adverse weather conditions trap and spike pollution.

The proposed GRAP includes set of measures to be implemented with greater vigor and stringency to prevent and avoid high level of air pollution in cities. This is linked to the national air quality index that categorizes daily air quality as good, satisfactory, moderate, poor, very poor, severe, and emergency. All actions suggested for each category are cumulative and add up to the level of emergency as air quality worsens. For implementation of GRAP, the scientific Task Force under APPCB will advise the District Level monitoring committee on the daily pollution levels and forecasting based on real time monitoring. Accordingly, the Committee may issue notices to the city authorities to implement the pre-defined action. Each implementing department will appoint a nodal officer to facilitate implementation. The action notified for moderate and poor categories that are largely about stringent enforcement in different sectors can become default action for continuous implementation throughout the year. Additional measures meant for very poor and severe may be notified which such situation develops especially during calm and inversion conditions.

This will require daily air quality data reporting on the SPCB website and public dissemination system on air quality and health alert.

Graded Response Action Plan (GRAP) for Reducing Air Pollution in Non-attainment Cities of Andhra Pradesh

Moderate to poor **Poor - When PM2.5 levels are between 91-120 µg/m3 or PM10 levels are between 251-350 µg/m^3** **Moderate - When PM2.5 is between 61-90 µg/m^3 or PM10 is between 101-250 µg/m3**	
Action to be taken	**Agency responsible**
Stringently enforce/stop garbage burning in landfills and other places and impose heavy fines on person responsible	Municipal Corporations
Close/stringently enforce all pollution control regulations in brick kilns and industries	State Pollution Control Board
Stringently enforce pollution control in thermal power plants through Pollution Control Board monitoring	State Pollution Control Board
Do periodic mechanized sweeping on roads particularly in roads with heavy traffic and water sprinkling every two days	Municipal Corporations, Traffic Police, PWD
Strict vigilance and no tolerance for visible emissions – stop plying of visibly polluting vehicles by impounding or heavy fine	Department of Transport Traffic Police
Stringently enforce rules for dust control in construction activities and close non-compliant sites	District Administration, Police
Deploy traffic police for smooth traffic flow at identified vulnerable areas	Traffic Police
Divert non-destined truck traffic	Municipal Corporations, Traffic Police
Strictly enforce Supreme Court orders on firecrackers	SPCB, District Administration in consultation with Chief Controller of Explosives, Petroleum and Explosive Safety Organization (PESO); Police
Ensure fly ash ponds are watered every alternate day during summer months (March-May)	Plant in charge of Power Plants
Information dissemination, social media, mobile Apps should be used to inform people about the pollution levels, contact details of control room, enable them to report polluting activities/sources to the concerned authorities, and actions that will be taken by government based on the level of pollution.	State Pollution Control Board District Administration

Very Poor When PM2.5 levels are between 121-250 µg/m3 or PM10 levels are between 351-430 µg/m3	
Action to be taken	**Agency responsible**
Control use of diesel generator sets by improving electricity supply	State Pollution Control Boards
Restrict parking and enhance parking fee by 3-4 times in commercial areas to reduce usage of personal vehicles	Municipal Corporations
Augment public transport services by increasing frequency and ensure adequate para transit services	Department of Transport State Transport Corporation
Stop use of coal/firewood in hotels and open eateries	Municipal Corporations
Alert in newspapers/TV to advise people with respiratory and cardiac problems to avoid polluted areas and restrict outdoor movement.	State Pollution Control Board

Severe When PM2.5 levels are above 250 µg/m^3 or PM10 levels are above 430 µg/m^3	
Action to be taken	**Agency responsible**
Close brick kilns, Hot Mix plants, Stone Crushers and other highly polluting units or as applicable locally	State Pollution Control Board District Administration Police
Shut down / minimize operation of coal based polluting industrial units and plants, if emissions are found to be beyond permissible limit; Allow plants on cleaner fuels like natural gas, electricity etc.	State Pollution Control Boards
Intensify public transport services. Introduce differential rates to encourage off-peak travel.	Transport Department State Transport Corporations
Increase frequency of mechanized cleaning of road and sprinkling of water on roads. Identify road stretches with high dust generation.	All road owning agencies including Municipal Corporations, Public Works Department and National Highway Authority of India
Restrict movement of trucks inside the coal field mine areas	State pollution control board, Department of Steel and mine

Severe + or Emergency When PM2.5 levels cross 300 µg/m3 or PM10 levels cross 500 µg/m3 (or 5 times above the standard) or persist for 48 hrs or more.	
Action to be taken	**Agency responsible**
Stop entry of diesel truck traffic into city (except essential commodities)	Traffic Police Municipal Corporations
Stop construction activities	Pollution Control Board Municipal Corporations
Introduce some form of vehicle restraint measures for private vehicles based on license plate numbers (odd/even scheme) or introduce low emissions zones in the city to stop entry of polluting vehicles (old and ageing and polluting diesel vehicles etc).	Transport Department Traffic Police
State Pollution Control Board Task Force to take decision on any additional steps including shutting of schools	SPCB

Action to be taken by public

While the National Air Quality Index (AQI) and health advisory will inform people about the dangers of exposure, people are also expected to take precautionary measures to protect themselves. Suggested actions by public are listed below:

Level according to AQI	Action
Very poor, severe	Those suffering from heart diseases, asthma, and other respiratory disease may consider avoiding undue and prolonged exposure
	Schools to suspend all outdoor activities and sport events
	Report visible emissions from vehicles, industries, power plants, garbage burning, and other non-compliances to the respective control rooms
	Do not use diesel and kerosene generators

Level according to AQI	Action
	Maintain vehicles properly (PUC certificate, replace car air filter, maintain right tire pressure)
	Minimize unnecessary travel, use public transport & avoid using private vehicles

b. Monitoring Mechanism for Implementation

As per the directions of the Hon'ble National Green Tribunal, dated 08.10.2018, the Air Quality Monitoring Committee (AQMC) with six members has been constituted by the Govt. of Andhra Pradesh, vide G.O. Rt. No. 167, dated 14.11.2018 for the preparation of Action Plans. The Committee, as directed will function under the overall supervision coordination of Principle Secretary, Environment. This will further be supervised by Chief Secretary by ensuring intra sectorial coordination.

MoEF & CC vide its Letter No. D.O.No. Q-16017/12/2019-CPA Dated: 24.04.2019, requested to constitute three committees at state level for effective implementation of NCAP. Accordingly Govt. of Andhra Pradesh, vide G.O. Rt. No. 46, dated 11.06.2020 has constituted three committees namely **Steering Committee**: Headed by the Chief Secretary, **Monitoring Committee:** Head of the Departments and **Implementation Committee:** District Head/ In-charge for effective implementation of NCAP to control air pollution in the 13 Non-attainment cities and towns of Andhra Pradesh.

These Action Plans will further be communicated to all the stakeholders for compliance for control of ambient air quality in Vizianagaram city. Regular meetings will be convened by Implementation Committee to ensure implementation of the action plans at District level and the Compliance of the Action Plan points by the concerned stakeholder departments will be reviewed at regular intervals by the Principal Secretary, Environment & the Chief Secretary, Government of Andhra Pradesh.

MEMBER SECRETARY

Annexure I - Vizianagaram City: Ambient Air Quality monitoring data - PM10 values

2017															
S. No.	Stations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual average	Standard
1	APIIC Building, VT Agraharam	Monitoring was not started			74	73	67	59	59	58	65	63	61	64	60
2	Municipal Kaspa High School				63	71	64	57	59	59	71	59	58	62	
	City Average				69	72	66	58	59	59	68	61	60	63	
2018															
S. No.	Stations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual average	Standard
1	APIIC Building, VT Agraharam	65	66	67	66	66	67	68	68	72	73	70	72	68	60
2	Municipal Kaspa High School	59	62	61	61	61	60	59	60	59	60	72	62	61	
	City Average	62	64	64	64	64	64	64	64	66	67	71	67	65	
2019															
S. No.	Stations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual average	Standard
1	APIIC Building, VT Agraharam	72	69	70	70	73	74	65	61	58	62	65	67	67	60
2	Municipal Kaspa High School	60	62	64	65	71	69	65	59	59	63	55	65	63	
3	Municipal Office, Vizianagaram	62	61	63	67	74	67	67	61	53	63	67	62	64	
	City Average	65	64	66	67	73	70	66	60	57	63	62	65	65	
2020															
S. No.	Stations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual average	Standard
1	APIIC Building, VT Agraharam	64	66	70	37	51	55	60	60	65	62	75	74	62	60
2	Municipal Kaspa High School	63	62	60	37	51	51	60	59	58	58	66	61	57	
3	Municipal Office, Vizianagaram	75	60	60	38	50	54	54	57	60	56	66	67	58	
	City Average	67	63	63	37	51	53	58	59	61	59	69	67	59	

Annexure II - Air Quality monitoring in the region

Andhra Pradesh Pollution Control Board (APPCB) is the regulatory body to oversee all air pollution activities all over the state. As per the provisions of the Air (Prevention and Control of Pollution) Act, 1981, APPCB is monitoring ambient air quality in cities and important towns including district headquarters of the State of Andhra Pradesh. Details of the cities and towns monitored for ambient air quality are as follows:

Table 8: Number of monitoring stations across Andhra Pradesh

S. No.	City/town	NAMP	SAAQM	CAAQMS	Total
1	Visakhapatnam	9	1	2	12
2	Vijayawada	9	---	1	10
3	Guntur	4	---	---	4
4	Vizianagaram	4	1	---	5
5	Kakinada	4	---	---	4
6	Rajamahendravaram	4	---	1	5
7	Eluru	4	---	---	4
8	Srikakulam	4	---	---	4
9	Ongole	4	---	---	4
10	Nellore	4	---	---	4
11	Tirupati	4	---	1	5
12	Tirumala	1	---	1	2
13	Chittoor	4	---	---	4
14	Anantapur	4	---	---	4
15	Kurnool	4	---	---	4
16	Yerraguntla	1	---	---	1
17	Eluru	4	---	---	4
18	Amaravati	---	---	1	1
	Total	**72**	**2**	**7**	**81**

Source: APPCB, 2020
Note: NAMP – National Ambient Monitoring Program; CAAQMS: Continuous Ambient Air Quality Monitoring Station; SAAQMS: State Ambient Air Quality Monitoring Program

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