BEFORE THE NATIONAL GREEN TRIBUNAL SOUTHERN BENCH, CHENNAI

Original Application No. 159 of 2021

IN THE MATTER OF

Kankana Das
Kolkata

....Applicant

VS

Union of India
Through its Secretary, MoEF&CC and others

….Respondents

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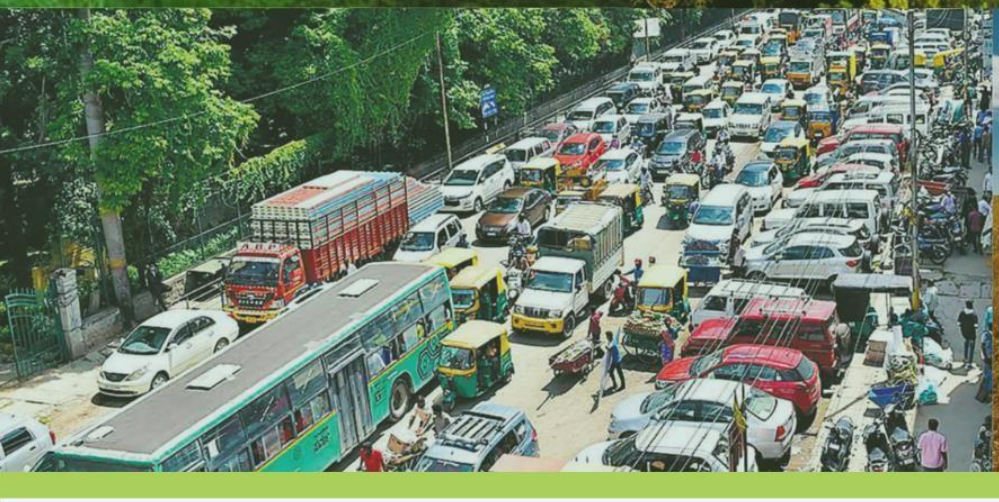
(KSPCB)

STATE ACTION PLAN ON AIR POLLUTION FOR KARNATAKA (SAPAP-K)



Environmental Management and Policy Research Institute, Bengaluru

State Action Plan on Air Pollution for Karnataka (SAPAP-K)

Environmental Management and Policy Research Institute
Department of Forest, Ecology & Environment,
Government of Karnataka

November 2022

Disclaimer

The report "State Action Plan on Air Pollution for Karnataka" Version I, is prepared by compiling the information collected from various line departments and includes the indicative template provided by the Ministry of Environment, Forest & Climate Change, GoI. This report is the depiction of various measures/initiatives **"As is"** undertaken by departments to control air pollution.

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Industrial Emissions

Karnataka State Pollution Control Board
Infrastructure Development and Inland Water Transport Department
Energy Department

Vehicular Emissions

Transport Department
Bengaluru Metropolitan Transport Corporation
Karnataka State Road Transport Corporation
Bangalore Metro Rail Corporation Limited

Construction & Demolition Waste and Road Dust Management

Directorate of Municipal Administration
National Highway Authority of India, Regional Office, Bengaluru
Karnataka State Highway Improvement Project, Bengaluru
Karnataka Forest Department

Emissions from Burning of Waste

Bruhat Bengaluru Mahanagara Palike
Directorate of Municipal Administration

Emissions from Burning of Agro residues

Department of Agriculture
Karnataka Renewable Energy Development Limited

Household Emissions

Food & Civil Supplies Department
Indian Oil Corporation Limited, Karnataka Office
Gas Authority of India Limited

Smart Cities Initiatives

Shivamogga Smart City Limited
Tumakuru Smart City Limited

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List of Abbreviations

Acronym	Expansion
AAQ	Ambient Air Quality
AAQMS	Ambient Air Quality Monitoring Station
AC	Alternative Current
APC	Air Pollution Control
AQMC	Air Quality Monitoring Cell
BBMP	Bruhat Bengaluru Mahanagara Palike
BenSCL	Bengaluru Smart City Limited
BESCOM	Bangalore Electricity Supply Company Limited
BIPV	Building Integrated Photo Voltaic
BMRCL	Bangalore Metro Rail Corporation Limited
BMTC	Bengaluru Metropolitan Transport Corporation
BTX	Benzene / Toluene / Xylene
CAAQMS	Continuous Ambient Air Quality Monitoring Stations
CBG	Compressed Bio Gas
C & D	Construction & Demolition
CEPI	Comprehensive Environmental Pollution Index
CFBC	Circulating Fluidized Bed Combustion
CFE	Consent For Establishment
CGD	City Gas Distribution
CMC	City Municipal Councils
CNG	Compressed Natural Gas
CO	Carbon Monoxide
COP	Conference of the Parties
CPA	Critically Polluted Areas
CPCB	Central Pollution Control Board
CSTEP	Center for Study of Science, Technology, and Policy
DC	Direct Current
DCC	Department for Climate Change
DG	Diesel Generator
DMA	Directorate of Municipal Administration

DPR	Detailed Project Report
DUDC	District Urban Development Cells
DWCC	Dry Waste Collection Centre
EMPRI	Environmental Management & Policy Research Institute
FAME	Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles
FCS	Food & Civil Supplies
FEE	Forest, Environment & Ecology
GA	Geographical Area
GAIL	Gas Authority of India Limited
GoI	Government of India
GoK	Government of Karnataka
GSR	General Statutory Rules
HAM	Hybrid Annuity Mode
IDD	Infrastructure Development Department
IRC	Indian Road Congress
ISO	International Organization for Standardization
ITPL	International Tech Park Bangalore
JSW	Jindal Steel Works
KCDC	Karnataka Compost Development Corporation
KERC	Karnataka Electricity Regulatory Commission
KIABD	Karnataka Industrial Authority Development Board
KL	kilo litre
KMVT	Karnataka Motor Vehicles Taxation
KPCL	Karnataka Power Corporation Limited
KSHIP	Karnataka State Highway Improvement Project
KSPCB	Karnataka State Pollution Control Board
KSRTC	Karnataka State Road Transport Corporation
KSSIDC	Karnataka State Small Industries Development Corporation
KVA	kilovolt-ampere
LPG	Liquefied Petroleum Gas
MDPE	Medium Density Poly Ethylene
MoEF & CC	Ministry of Environment, Forest & Climate Change

MoPNG	Ministry of Petroleum & Natural Gas
MoRTH	Ministry of Road Transport and Highways
MRF	Material Recovery Facility
MSW	Municipal Solid Waste
MT	Metric Tonnes
MTA	Million Metric Tonnes Annually
MTPD	Metric Tonnes Per Day
MVA	Motor Vehicle Act
MW	Mega Watt
NAC	Non-Attainment Cities
NAMP	National Ambient Air Quality Monitoring Programme
NCAP	National Clean Air Programme
NDIR	Non-Dispersive InfraRed
NG	Natural Gas
NGT	National Green Tribunal
NH_3	Ammonia
NHAI	National Highway Authority of India
NIMHANS	National Institute of Mental Health and Neuro-Sciences
NO	Nitrous Oxide
NO_2	Nitrogen Dioxide
NOx	Nitrogen oxides
NTPCL	National Thermal Power Corporation Limited
OCEMS	Online Continuous Effluent/Emission Monitoring System
O_3	Ozone
OPA	Other Polluted Areas
Pb	Lead
PDS	Public Distribution System
PHH	Priority House Hold
$PM_{2.5}$	Particulate Matter of diameter 2.5 microns or less
PM_{10}	Particulate Matter of diameter 10 microns or less
PMUY	Pradhan Mantri Ujjwala Yojana
PNG	Piped Natural Gas

PNGRB	Petroleum & Natural Gas Regulatory Board
PUC	Pollution Under Control
RDF	Refuse Derived Fuel
RMC	Ready Mix Concrete
RTO	Regional Transport Office
RVSF	Registered Vehicle Scrapping Facility
SAPAP-K	State Action Plan on Air Pollution for Karnataka
SCMD	Standard Cubic Meters Per Day
SEZ	Special Economic Zone
SLC	State Level Committee
SO_2	Sulphur Dioxide
SP	Special Provision
SPA	Severely Polluted Areas
SPCB	State Pollution Control Board
SSCL	Shivamogga Smart City Limited
SWM	Solid Waste Management
SZ	South Zone
TD	Transport Department
TERI	The Energy Resource of India
TMC	Town Municipal Councils
TP	Town Panchayat
TPA	Million Tonnes Per Annum
TPD	Metric Tonnes Per Day
TSCL	Tumakuru Smart City Limited
UDD	Urban Development Department
ULB	Urban Local Bodies
mg/m^3	Milligram per cubic metre
$\mu g/m^3$	Microgram per cubic metre

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1. Background

Ministry of Environment, Forest & Climate Change (MoEF&CC), Government of India (GoI) launched the National Clean Air Program (NCAP) on 10th January 2019 as a time-bound National level strategy for pan-India implementation to tackle the air pollution problem across the country in a comprehensive manner.

The National Clean Air Programme (NCAP) 2019 is being implemented primarily in urban agglomerates and specifically in 132 non-attainment cities concerning PM_{10} identified by Central Pollution Control Board (CPCB) based on the monitoring results from 2010 to 2015 across India. City actions plans for 4 non-attainment cities of Karnataka (Bengaluru, Hubli-Dharwad, Davanagere, and Kalaburgi) were prepared by the Air Quality Monitoring Cell (AQMC), as per the programme objectives, approved by CPCB and are under implementation in these cities intending to reduce the Particulate Matter emission by 20 to 30% by 2024.

Further in this regard, the Hon'ble NGT (SZ), Chennai in the matter of OA No. 159 of 2021 issued an order dated 29.07.2021, which inter-alia states that:

"The Central Pollution Control Board and State Pollution Control Boards of Tamil Nadu, Karnataka, and Telangana and the respective State Governments through their Environment Secretary are directed to file independent statements and reports regarding the action taken by them for preparing the State Action Plan as envisaged by in National Clean Air Programme (NCAP) Plan Program and what is the present stage of its implementation and how it is being effectively monitored and implemented by the regulators and if there is any gap, what is the action taken by the respective State Governments for filling the gap and fully implement the scheme within the respective States".

According to the guidance document of NCAP, a State Action Plan (SAP) for addressing air pollution is to be prepared. As per the NCAP document in Appendix-VI: NCAP agencies and timelines at Sl. No.1.13 mentions the State Action Plan for Air Pollution detailed below:

Sl. No	Component/Activities	Level for funding	Level for implementation	Agencies	Timelines
1.13.1	A preliminary state action plan for air pollution is to be formulated for all 23 states, which harbour 102 non- attainment cities	Centre	State	SPCB,CPCB & MoEF&CC	2020

1.13.2	SAP for air pollution is to be taken up for implementation by the state government and city administration	State	State	State	2020
1.13.3	The guidelines for the preparation of the SAP to be formulated	Centre	Centre	CPCB & MoEF&CC	2020

The guidelines are to be formulated by the Centre (MoEF&CC and CPCB) as mentioned in 1.13.3. CPCB communicated the State Action Plan template through mail dated: 15.11.2021.

In the background, a meeting was held on 08.04.2022 with the line Departments under the chairmanship of Additional Chief Secretary, Department of Forest, Ecology & Environment, Government of Karnataka (GoK), wherein it was decided to entrust the work of preparing the State Action Plan on Air Pollution for Karnataka to **Environmental Management and Policy Research Institute (EMPRI)**, **Bengaluru.** EMPRI was directed to form a committee involving experts and the Institutes of Repute. The line departments: Karnataka State Pollution Control Board (KSPCB), Industries, Directorate of Municipal Administration (DMA), Bruhat Bengaluru Mahanagara Palike (BBMP), transport, Gas Authority of India Limited (GAIL), Indian Oil Corporation Limited (IOCL), agriculture, Bengaluru Development Authority (BDA), Food & Civil Supplies (FCS) and, Forest Department are required to share the necessary data/information and for preparation of State Action Plan on Air Pollution and to nominate a nodal officer for coordination with EMPRI.

EMPRI constituted the following Committee for the preparation of the State Action Plan on Air Pollution for Karnataka (SAPAP-K) vide OM No. EMPRI/CR-02/CCC/2022-23/372 dated: 22.06.2022.

1. Shri Vipin Singh, IFS, Director, EMPRI
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The Meeting of the committee for preparation of the "State Action Plan on Air Pollution-Karnataka (SAPAP-K)" was held on **29.06.2022 at EMPRI**.

The committee deliberated on the agenda items and the following decisions were taken:

Agenda 1: Status of the nomination of Departmental Nodal Officers.

Decision: Follow-up needs to be done via phone and a few additional departments such as Forest and Energy Department and Corporations such as NHAI, KSHIP, BMTC, KRSTC, and KRDCL are required to be added to the list of line departments.

Agenda 2: Template provided by MoEF& CC to be used to collect the required data.

Decision: The committee decided to host a consultative workshop tentatively on 11th July 2022, with the nominated departmental nodal officers to explain the template and the information that needs to be provided by them.

Agenda 3: Framework for preparation of the action plan.

Decision: The committee suggested considering the framework used by the State of Gujarat and Telangana for the preparation of SAPAP-K and improvising the framework if necessary.

Decisions on other aspects of SAPAP-K:

1. The committee agreed to submit the first draft of the report after the compilation of the data (as per the template prescribed by MoEF & CC) as Phase-1. Further, prepare and submit the State Action Plan as phase II.

2. The committee suggested EMPRI, KSPCB, and CSTEP nominate three personnel to collect information by dividing the departments among the three.

3. The committee opined to include all the smart cities of Karnataka for the collection of necessary data.

2. Karnataka State

Karnataka is situated in the south western region of India. It is one of the most prosperous states in India. Karnataka has made tremendous progress in the fields of education, industry, agriculture, literature, and tourism. Bengaluru is the capital of Karnataka, known as the Silicon Valley of India due to its flourishing Information Technology industry. Karnataka was formed on 1st November 1956 when the States Reorganisation Act came into effect. At that time Karnataka was known as the State of Mysore. It was renamed Karnataka in the year 1973.

Karnataka is the seventh largest state in India in terms of area. It has 31 districts. Karnataka is bounded by the Arabian Sea and the Laccadive Sea (Lakshadweep Sea) on the west, Goa on the north-west, Maharashtra on the north, Telangana on the north-east, Andhra Pradesh on the east, Tamil Nadu on the south-east and Kerala on the south-west.

The major rivers flowing through Karnataka are Cauvery, Kabini, Krishna, and Tungabhadra. There are three distinct geographical regions in Karnataka: the Coastal Plains, the Western Ghats, and the Deccan Plateau. Karnataka covers about 750 km from North to South and about 400 km from East to West. The coastline of Karnataka stretches for about 320 km.

Karnataka ranks ninth in terms of population in India. The population density of the state is 319 per sq. km. The decadal growth rate of Karnataka's population is 15.7%. Karnataka's population was recorded as 61.13 million as per the 2011 Census of India. Out of this, 61.43% reside in rural areas.

The climate changes from place to place due to the region's altitude, topography, and distance from the sea. Karnataka receives a mean annual rainfall of around 1355 millimetres. The southwest monsoon brings maximum rainfall to the state. The district of Udupi gets the highest average rainfall while the districts such as Chitradurga, Koppal, and Vijayapura receive the lowest rainfall.

3. Ambient Air Quality Monitoring Program

Karnataka State Pollution Control Board (KSPCB) is monitoring the Ambient Air Quality (AAQ) at 70 locations in the state. The monitoring of AAQ is carried out through Continuous and Manual stations under two programs called as National Air Monitoring Program (NAMP) and Board Air Monitoring Program (BAMP).

No. of Ambient Air Quality Monitoring stations under			**Total No. of stations**
NAMP	**BAMP**	**CAAQMS**	
30	**13**	**39**	**82**
RSPM(PM_{10}), FPM($PM_{2.5}$), SO_2, NO_2, NH_3, Pb, Ni	RSPM(PM_{10}), FPM($PM_{2.5}$), SO_2, NO_2, NH_3, Pb, Ni	RSPM (PM_{10}), FPM ($PM_{2.5}$), SO_2, NO, NO_2, NOx, NH_3, CO, O_3, C_6H_6, CH_4, NMHC, THC, Eth-Benzene, Toluene, Xylene & Meteorological parameters like Temp, RH, WS, WD, SR, BP, VWS	

(Source: KSPCB)

Ambient Air Quality Monitoring Stations in Karnataka

Manual Stations	**Bengaluru**	**Other than Bengaluru**	**Total**
NAMP	09	21	30
Board Program	06	3	9
NCAP	0	4	4
Total	**15**	**28**	**43**

(Source: KSPCB)

CAAQMS	**Bengaluru**	**Other than Bengaluru**	**Total**
Existing	07	24	31
Additional	04	04	08
Total	**11**	**28**	**39**

(Source: KSPCB)

Total No. of Stations in 29 Districts of Karnataka State = 82 (43 Manual + 39 CAAQMS)

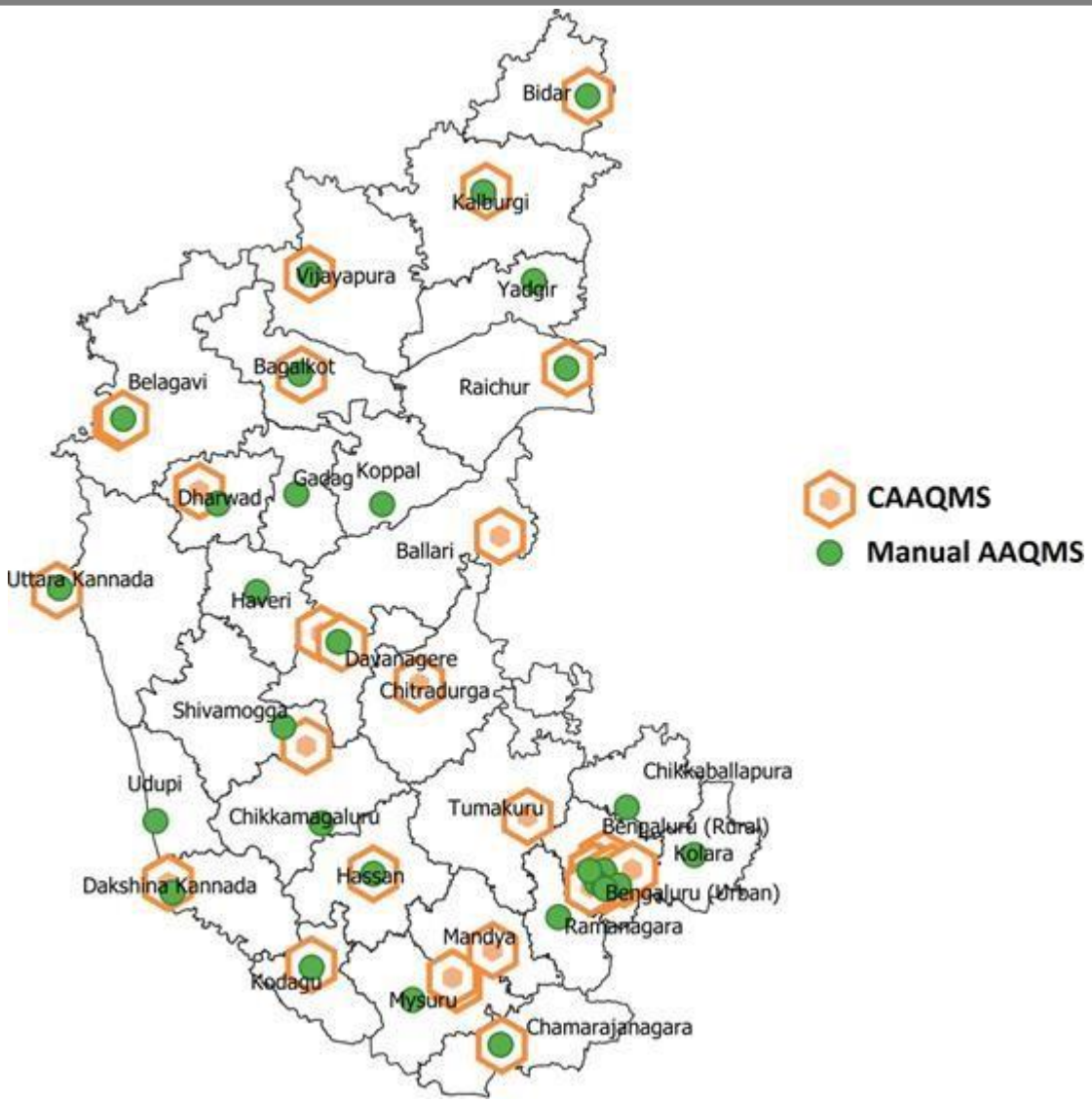

Figure 1: Map showing the Network of AAQ stations in Karnataka State *(Source: KSPCB)*

Continuous Ambient Air Quality Monitoring Stations (CAAQMS)

The KSPCB has established a total of 31 numbers of CAAQMS for 8 parameters in Karnataka in a phased manner. There are 24 CAAQM Stations in other cities of Karnataka and the Compiled Statistical Data is sent to CPCB, New Delhi electronically and also uploaded to the Board Website (https://kspcb.karnataka.gov.in/) and displayed to the public.

- There are 7 CAAQM stations established in Bengaluru and 24 CAAQM Stations in other cities of Karnataka.
- In 2022, 4 new CAAQM stations under National Clean Air Programme. In each non-attainment city viz., Hubli-Dharwad, Kalaburgi, and Davangere, for each district one CAAQM station, the said stations are functioning.
- Chikkaballapur, Ramanagar, Udupi, Haveri, Koppal Yadagiri, Gadag, Mysore, Chamarajanagar, Hassan, Shimoga, Karwar, Raichur, Bidar, Chikkamagaluru, Vijayapura, Bagalkote, and Kolar – each district one CAAQM Station.

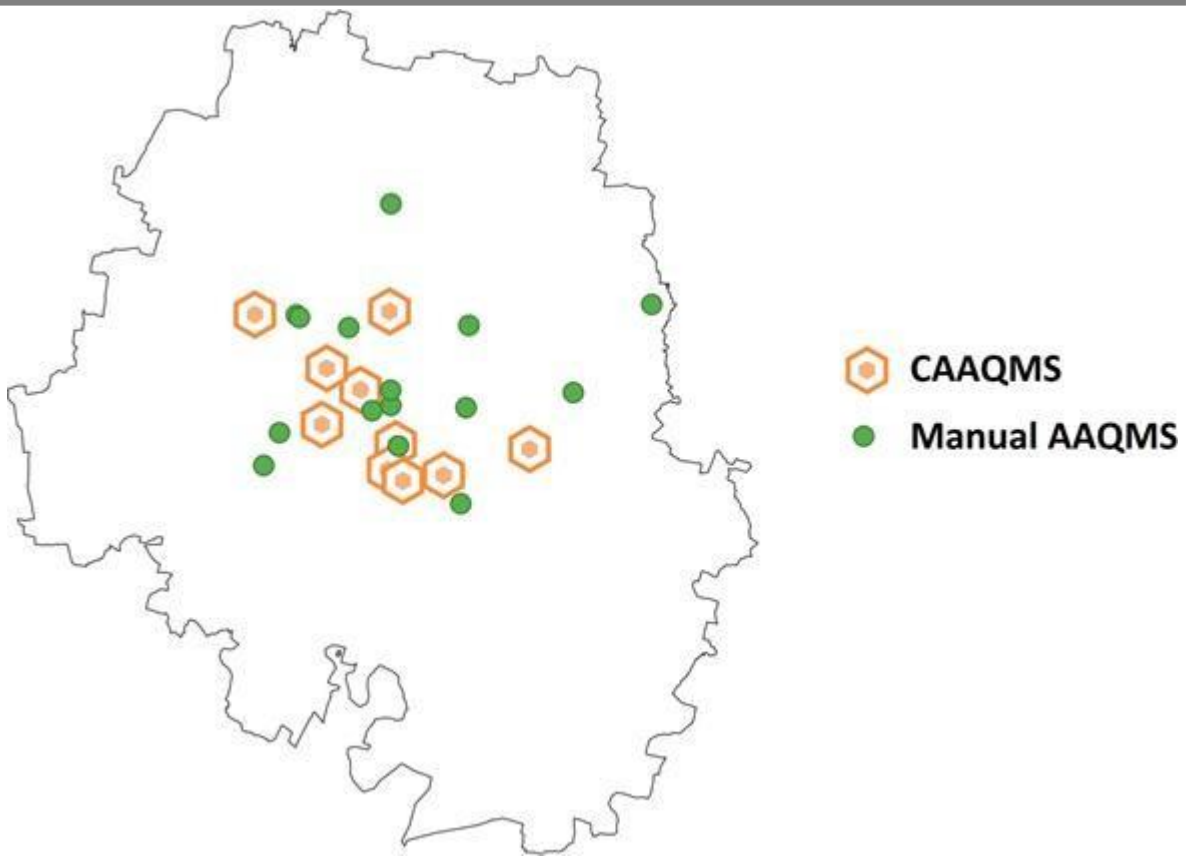

Figure 2: Map showing the AAQ stations in Bengaluru Urban District *(Source: KSPCB)*

Table 1: The details of AAQ Monitoring stations in Karnataka

Sl. No.	**Location of the Stations**	**Name of the District**	**Type of AAQM station**		
			CAAQMS	NAMP (Manual)	BAMP (Manual)
1	Graphite India White Field Road, Bengaluru	Bengaluru		NAMP	
2	AMCO Batteries Mysuru Road Bengaluru			NAMP	
3	KHB Industrial Area Near R.R. Founders Yelahanka Bengaluru			NAMP	
4	Ace Designers, Peenya Industrial Area, Bengaluru			NAMP	
5	Victoria Hospital, Bengaluru			NAMP	
6	Yeshwanthpura Police Station, Bengaluru			NAMP	
7	TERI office premises, Bengaluru			NAMP	
8	RV College of Engineering, Mysuru Road,			NAMP	

	Bengaluru				
9	Bengaluru University, Bengaluru			NAMP	
10	Central Silk Board, Hosur Road, Bengaluru				BAMP
11	Indira Gandhi Children Health Care Hospital, Bengaluru				BAMP
12	Mr.Madavachari House, Khajisonnenahalli Village, Bengaluru				BAMP
13	Urban Eco Park, KSPCB Office Premises, Peenya, Bengaluru				BAMP
14	Govt. S.K.S.J. Technological institute, K.R circle, Bengaluru				BAMP
15	Banaswadi Police Station, Bengaluru				BAMP
16	City Railway Station, Bengaluru		CAAQMS		
17	KSPCB office Building, Nisarga Bhavan, Saneguruvanahalli, Bengaluru		CAAQMS		
18	HSR Layout, Near Central Silk Board Flyover, Bengaluru		CAAQMS		
19	Rajeev Gandhi Child Care Institute, NIMHANS, Bengaluru		CAAQMS		
20	Veterinary College, Hebbal, Bengaluru		CAAQMS		
21	Kavika –Mysuru Road, Bengaluru		CAAQMS		
22	Shalini Ground, Jayanagara 5th Block, Bengaluru		CAAQMS (NCAP)		
23	RV College of Engineering, Mysore Road, Bengaluru		CAAQMS (NCAP)		
24	NTTF, Peenya Industrial Area, Bengaluru		CAAQMS (NCAP)		
25	RTO Office, Indiranagara,		CAAQMS		

	Bengaluru		(NCAP)		
26	Jigani Industrial Area, Bengaluru		CAAQMS (NCAP)		
27	KSPCB Office Premises, Tumakuru	Tumakuru		NAMP	
28	KSPCB OfficePremises, Tumakuru		CAAQMS (NCAP)		
29	KSPCB Office Premises, Kolar	Kolar		NAMP	
30	KSPCB Office Premises, Kolar		CAAQMS		
31	KSRTC Building, K.R. circle, Mysuru	Mysuru		NAMP	
32	KSPCB Office Premises, Mysuru			NAMP	
33	KSPCB Office Premises, Mysuru		CAAQMS		
34	KSPCB Office Premises, Mandya	Mandya		NAMP	
35	KSPCB Office Premises, Kodagu	Kodagu			BAMP
36	KSTDC Hotel Mayura, Madikeri	Madikeri	CAAQMS		
37	KSPCB Office Premises, Chamarajanagar	Chamarajanagar			BAMP
38	KHB Layout, Opp. Stadium, Chamarajanagar		CAAQMS		
39	KSPCB Office Premises, Hassan	Hassan		NAMP	
40	KSPCB Office Premises, Hassan		CAAQMS		
41	Baikampady Industrial Area, Mangaluru	Mangaluru		NAMP	
42	Circuit Guest House Circle, Mangaluru		CAAQMS		
43	Ranichannamma Circle, Hubballi	Dharwad		NAMP	
44	KSPCB Office Premises, Dharwad			NAMP	
45	University of Agricultural Sciences, Dharwad				BAMP (NCAP)

46	HDMC office premises, Hubballi Town		CAAQMS		
47	Lingarajanagara, Samudaya Bhavana, Hubballi Town		CAAQMS (NCAP)		
48	Kadapa Maidan, Kalabhavan premises, Dharwad		CAAQMS (NCAP)		
49	Port Directors Office, Karwar	Karwar		NAMP	
50	Karwar		CAAQMS		
51	KSPCB Office Premises, Davanagere	Davangere			BAMP
52	Traffic Police Station (South), PB Road, Davangere			NAMP	
53	Canteen building, M/s HPF Ltd., Kumarapattanam, Ranebennur			NAMP	
54	The site yet to be identified, Davanagere				BAMP (NCAP)
55	KSPCB Office Premises, Davanagere		CAAQMS		
56	VISL, Bhadravathi	Shivamogga		NAMP	
57	Vinoba Nagara, Shivamogga		CAAQMS		
58	KSPCB Office Premises, Chitradurga	Chitradurga		NAMP	
59	KSPCB Office Premises, Belagavi	Belagavi		NAMP	
60	KSPCB Office Premises, Belagavi		CAAQMS		
61	KSPCB OfficePremises, Vijayapura	Vijayapura		NAMP	
62	Ibrahimpur, Vijayapura		CAAQMS		
63	KSPCB Office Premises, Bagalkote	Bagalakote		NAMP	
64	Vidyagiri, Bagalakote		CAAQMS		
65	KSPCB Office premises, Kalaburgi	Kalaburgi		NAMP	
66	City Corporation building, Kalaburgi				BAMP (NCAP)

67	Office of Weights & Measures, Ring Road, Opp. High Court, Kalaburgi				BAMP (NCAP)
68	Opp. To Govt.Depot, Jewargi Road, Kalburgi		CAAQMS		
69	Near KSPCB Office premises, Kalaburgi		CAAQMS (NCAP)		
70	KSPCB Office Premises, Bidar	Bidar		NAMP	
71	KSPCB Office Premises, Bidar		CAAQMS		
72	KSPCB Office Premises, Raichur	Raichur		NAMP	
73	Haji Colony, Raichur		CAAQMS		
74	CMC Building, Ballary	Ballary			BAMP
75	Govt. Junior College, Near DDPI Office Chikkaballapura	Chikkaballapura	CAAQMS		
76	Vijay Nagar, Ramanagara	Ramanagara	CAAQMS		
77	Brahmagiri, Udupi	Udupi	CAAQMS		
78	Ashwini Nagar, Haveri	Haveri	CAAQMS		
79	Diwator Nagar, Koppala	Koppala	CAAQMS		
80	Collector Office, Yadgiri	Yadgiri	CAAQMS		
81	Panchal Nagar, Gadag	Gadag	CAAQMS		
82	Kalyana Nagara, Chikkamagaluru	Chikkamagaluru	CAAQMS		
		Total	**39**	**30**	**13**

(Source: KSPCB 2020-21 Annual Report)

Air Quality Index

Air Quality Index (AQI) is a tool for effective communication of air quality status to people in terms, which are easy to understand. It transforms complex air quality data of various pollutants into a single number (index value), nomenclature and colour. There are six AQI categories, namely GOOD, SATISFACTORY, MODERATE, POOR, VERY POOR, and SEVERE. Each of these categories is decided based on ambient concentration values of air pollutants and their likely health impacts (known as health break-points). The index has SIX colour schemes indicating the six categories. AQ sub-index and health breakpoints are evolved for eight pollutants which include PM_{10}, $PM_{2.5}$ besides, NO_2, SO_2, CO, O_3, NH_3, and Pb for which short-term (up to 24-hours) National Ambient Air Quality Standards are prescribed. The worst sub-index determines the overall AQI. AQI categories and health breakpoints are given below. The ambient air quality in Karnataka ranges from good to moderate.

Table 2: Air Quality Index of Karnataka

District	Sl. No.	Locations	CAAQMS/ Manual AAQM	2016	2017	2018	2019	2020	2021	2022 (June)
Bengaluru	1	Graphite India White Field Road, Bengaluru	Manual AAQM (NAMP)	**116**	**109**	**111**	**90**	**71**	**65**	**100**
	2	AMCO Batteries Mysuru Road Bengaluru	Manual AAQM (NAMP)	**103**	**86**	**102**	**67**	**68**	**69**	**72**
	3	KHB Industrial Area Yelahanka Bengaluru	Manual AAQM (NAMP)	**104**	**95**	**103**	**58**	**80**	**117**	**66**
	4	Ace Designers, Peenya Industrial Area, Bengaluru	Manual AAQM (NAMP)	**96**	**100**	**89**	**76**	**67**	**80**	**79**
	5	Victoria Hospital, Bengaluru	Manual AAQM (NAMP)	**84**	**65**	**66**	**42**	**55**	**67**	**108**
	6	Yeshwanthpura Police Station, Bengaluru	Manual AAQM (NAMP)	**94**	**88**	**104**	**52**	**64**	**88**	**108**

	7	TERI office premises, Bengaluru	Manual AAQM (NAMP)	**109**	**115**	**93**	**90**	**94**	**64**	**58**
	8	RV College of Engineering, Mysuru Road, Bengaluru	Manual AAQM (NAMP)	**67**	**109**	*	**34**	**40**	**92**	**90**
	9	Bengaluru University, Bengaluru	Manual AAQM (NAMP)	*	**52**	**41**	**66**	**16**	**15**	**13**
	10	Central Silk Board, Hosur Road, Bengaluru	Manual AAQM (Board Programme)	**123**	**120**	**110**	**104**	**76**	**85**	**55**
	11	Indira Gandhi Children Health Care Hospital, Bengaluru	Manual AAQM (Board Programme)	**88**	**73**	**69**	**59**	**52**	*	*
	12	Mr. Madavachari House, Khajisonnenahalli Village, Bengaluru	Manual AAQM (Board Programme)	**83**	**67**	**81**	**83**	**69**	**70**	**85**
	13	Urban Eco Park, KSPCB Office Premises, Peenya, Bengaluru	Manual AAQM (Board Programme)	**104**	**101**	**102**	**97**	**78**	**91**	**96**
	14	Govt SKSJ Technological Institute, K R circle, Bengaluru	Manual AAQM (Board Programme)	**73**	**80**	**85**	**66**	**104**	**92**	*
	15	Banaswadi Police Station, Bengaluru	Manual AAQM (Board Programme)	**79**	**78**	**74**	**74**	**109**	**64**	**52**
	16	City Railway Station, Bengaluru	CAAQMS	*	*	*	**110**	**90**	**69**	**79**
	17	KSPCB office Building, Nisarga Bhavan,	CAAQMS	*	*	*	**45**	**42**	**41**	**45**

		Saneguruvanahalli,								
	18	HSR Layout, Near Central Silk Board Flyover, Bengaluru	CAAQMS	*	*	*	78	68	74	112
	19	Rajeev Gandhi Child Care Institute, NIMHANS, Bengaluru	CAAQMS	*	*	*	55	57	57	59
	20	Veterinary College, Hebbal, Bengaluru	CAAQMS	*	*	*	55	60	63	95
	21	KAVIKA – Mysuru Road, Bengaluru	CAAQMS	*	*	*	68	65	74	99
	22	Shalini Ground, Jayanagara 5th Block, Bengaluru	CAAQMS	*	*	*	63	64	61	89
Tumakuru	23	KSPCB Office Premises, Tumakuru	Manual AAQM (NAMP)	128	115	102	76	61	60	70
Kolar	24	KSPCB Office Premises, Kolar	Manual AAQM (NAMP)	64	66	81	80	89	102	117
	25	KSPCB Office Premises, Kolar	CAAQMS	*	*	*	*	*	42	86
Mysuru	26	KSRTC Building, K.R. circle, Mysuru	Manual AAQM (NAMP)	52	58	52	53	47	41	51
	27	KSPCB Office Premises, Mysuru	Manual AAQM (NAMP)	45	48	*	*	30	38	47
	28	KSPCB Office Premises, Mysuru	CAAQMS	*	*	*	*	*	50	49

Mandya	29	KSPCB Office Premises, Mandya	Manual AAQM (NAMP)	**42**	**44**	**44**	**43**	**37**	**34**	**41**
Kodagu	30	KSPCB Office Premises, Kodagu	Manual AAQM (Board Programme)	*	*	*	*	*	*	*
	31	KSTDC Hotel Mayura, Madikeri	CAAQMS	*	*	*	*	*	**36**	**47**
Chamarajanagar	32	KSPCB Office Premises, Chamarajanagar	Manual AAQM (Board Programme)	*	*	*	*	*	*	*
	33	KHB Layout, Opp. Stadium, Chamarajanagar	CAAQMS	*	*	*	**30**	**48**	**50**	**40**
Hassan	34	KSPCB Office Premises, Hassan	Manual AAQM (NAMP)	**29**	**31**	**33**	**37**	**36**	**45**	**70**
	35	KSPCB Office Premises, Hassan	CAAQMS	*	*	*	*	*	**64**	**81**
Mangaluru	36	Baikampady Indl. Area, Mangaluru	Manual AAQM (NAMP)	**54**	**75**	**57**	**48**	**47**	**46**	**40**
	37	Circuit Guest House Circle, Mangaluru	CAAQMS	*	*	*	*	*	*	*
Dharwad	38	Rani Channamma Circle, Hubballi	Manual AAQM (NAMP)	*	**87**	**84**	**76**	**57**	**56**	**74**
	39	KSPCB Office Premises, Dharwad	Manual AAQM (NAMP)	*	*	*	*	**64**	**45**	**46**
	40	HDMC office premises, Hubballi Town	CAAQMS	*	*	*	*	*	**74**	**87**
Karwar	41	Port Directors Office, Karwar	Manual AAQM (NAMP)	*	*	*	*	*	*	*

	42	Karwar	CAAQMS	*	*	*	*	*	*	*
Davanagere	43	KSPCB Office Premises, Davangere	Manual AAQM (NAMP)	**55**	**44**	**48**	**61**	**40**	**32**	**50**
	44	Traffic Police Station (South), P B Road, Davanagere	Manual AAQM (NAMP)	*	**113**	**123**	**100.5**	*	*	*
	45	Canteen building, M/s HPF Ltd. Kumarapattanam, Ranebennur	Manual AAQM (NAMP)	*	*	*	*	*	*	*
	46	KSPCB Office Premises, Davanagere	CAAQMS	*	*	*	*	*	**53**	**72**
Shivamogga	47	VISL, Bhadravathi	Manual AAQM (NAMP)		**36**	**43**	**31.2**	*	*	*
	48	Vinoba Nagara, Shivamogga	CAAQMS	*	*	*	*	*	**49**	**55**
Chitradurga	49	KSPCB Office Premises, Chitradurga	Manual AAQM (NAMP)	*	**43**	**53**	**41**	**41**	**38**	**46**
Belagavi	50	KSPCB Office Premises, Belagavi	Manual AAQM (NAMP)	**81**	**79**	**95**	**95**	**72**	**90**	**70**
	51	KSPCB Office Premises, Belagavi	CAAQMS	*	*	*	*	*	*	*
Vijayapura	52	KSPCB Office Premises, Vijayapura	Manual AAQM (NAMP)	**92**	**82**	**76**	**80**	**75**	**52**	**71**
	53	Ibrahimpur, Vijayapura	Manual AAQM (NAMP)	*	*	*	*	*	**49**	**50**
Bagalakote	54	KSPCB Office Premises,	CAAQMS	**46**	**51**	**65**	**41**	**42**	**65**	**74**

		Bagalkote								
	55	Vidyagiri, Bagalakote	CAAQMS	*	*	*	*	65	39	47
Kalaburgi	56	Govt. Hospital, Kalaburgi	Manual AAQM (NAMP)	*	51	67	83	96	85	81
	57	Opp. To Govt. Depot, Jewargi Road, Kalaburgi	Manual AAQM (NAMP)	*	*	*	*	*	80	100
Bidar	58	KSPCB Office Premises, Bidar	Manual AAQM (NAMP)	*	*	*	57	65	56	69
	59	KSPCB Office Premises, Bidar	CAAQMS	*	*	*	*	*	74	111
Raichur	60	KSPCB Office Premises, Raichur	Manual AAQM (NAMP)	*	*	84	90	73	*	*
	61	Haji Colony, Raichur	CAAQMS	*	*	*	*	*	91	106
Ballary	62	CMC Building, Ballary	Manual AAQM (Board Programme)	*	*	*	*	*	*	*
Chikkaballapura	63	Govt. Junior College, Near DDPI Office, Chikkaballapura	CAAQMS	*	*	61	72	65	57	69
Ramanagara	64	Vijay Nagar, Ramanagara	CAAQMS	*	*	*	*	*	52	66
Udupi	65	Brahmagiri, Udupi	CAAQMS	*	*	*	*	*	32	24
Haveri	66	Ashwini Nagar, Haveri	CAAQMS	*	*	*	*	*	*	47
Koppala	67	Diwator Nagar, Koppala	CAAQMS	*	*	*	*	*	40	58
Yadgiri	68	Collector Office, Yadgiri	CAAQMS	*	*	*	*	*	59	74
Gadag	69	Panchal Nagar, Gadag	CAAQMS	*	*	*	*	32	54	*

Chikkamangaluru	70	Kalyana Nagara, Chikkamagaluru	CAAQMS	*	*	*	*	**49**	**40**	**45**
* Not Monitored										

(Source: KSPCB)

Table 3: AQI Categories

AQI	Remark	Colour Code	Possible Health Impacts
0-50	Good		Minimal impact
51-100	Satisfactory		Minor breathing discomfort to sensitive people
101-200	Moderate		Breathing discomfort to people with asthma and heart diseases
201-300	Poor		Breathing discomfort to most people on prolonged exposure
301-400	Very Poor		Respiratory illness on prolonged exposure
401-500	Severe		Affects healthy people and seriously impacts those with existing diseases

Table 4: Annual average values of Air Pollutants in Bengaluru city during the year 2020-2021

Sl.No	Name of the Station	SO_2 µg/m³	NO_2 µg/m³	PM_{10} µg/m³	$PM_{2.5}$ µg/m³	NH_3 µg/m³	Pb µg/m³	O_3 µg/m³	CO mg/m³
1	Export promotional Park, ITPL, Whitefield Industrial Area	BDL	21.0	73.0	33.0	17.0	*	*	*
2	Rail Wheel Factory, Yelahanka	BDL	22.0	113.0	38.0	17.0	*	*	*
3	Yeshwanthpura Police Station	BDL	20.0	59.0	30.0	17.0	*	*	*
4	Central Silk Board, Hosur Road	BDL	22.0	69.0	52.0	19.0	*	*	*
5	Rajeev Gandhi Institute of Chest Diseases, NIMHANS (CAAQMS)	10.3	15.5	53.2	24.8	7.9	*	36.2	0.6
6	Central Silk Board (CAAQMS)	BDL	23.2	63.0	26.9	10.5	*	31.9	0.6
7	Urban Eco park, Peenya	BDL	21.0	79.0	30.0	18.0	*	*	*
8	Ace Designers Ltd., Peenya	BDL	22.0	62.0	26.0	19.0	*	*	*
9	AMCO Batteries, Mysore Road	BDL	23.0	68.0	35.0	19.0	*	*	*
10	Banaswadi police station	*	*	*	*	*	*	*	*
11	Kavika, Mysuru Road (CAAQMs)	9.5	28.5	67.6	34.5	11.1	*	27.8	0.6
12	Kajisonnenahalli	BDL	21.0	68.0	33.0	18.0	*	*	*
13	TERI Office, Domlur	BDL	21.0	69.0	32.0	19.0	*	*	*
14	Govt. SKSJ Technology Institute	BDL	17.0	116.0	*	19.0	*	*	*
15	Victoria Hospital, Bangalore	BDL	24.0	56.0	27.0	14.0	*	*	*
16	Indira Gandhi Child Health Care Centre	*	*	*	*	*	*	*	*
17	Veternary College, Hebbel (CAAQMS)	8.4	20.5	63.3	27.8	6.2	*	23.6	0.5
18	Jayanagara 5th Block	BDL	18.1	64.3	33.9	9.6	*	33.7	0.5

	(CAAQMS)								
19	S.G.Halli, Nisarga Bhavan (CAAQMS)	4.5	22.3	39.9	*	*	*	*	0.6
20	City Railway Station (CAAQMS)	7.9	39.8	95.8	*	*	*	*	1.2
	Standards	**50.0**	**40.0**	**60.0**	**40.0**	**100.0**	**0.50**	**100.0**	**2.0**
*** Not Monitored; BDL: Below Detection Limit [SO_2 lower detection limit is 4.00 µg/m³]**									

(Source: KSPCB 2020-21 Annual Report)

Air Quality in different districts of Karnataka

KSPCB during 2020-21 has monitored the ambient air quality at 22 locations of 19 major cities of Karnataka using manual equipment under the National Ambient Air Quality Monitoring Programme (NAMP). Ambient air quality monitoring is being carried out twice a week throughout the year for 24 hours, for PM_{10}, $PM_{2.5}$, SO_2, NO_2, Ammonia & Lead using manual equipment as per Central Pollution Control Board guidelines, and the data is sent to CPCB, New Delhi electronically and also uploaded on the Board's website (https://kspcb.karnataka.gov.in/).

Table 5: Annual average values of Air Pollutants in other districts of Karnataka during the year 2020-2021

Sl.No	Name of the Monitoring Station	(24 hrs. Time Weighted Average)					
		PM_{10} µg/m³	$PM_{2.5}$ µg/m³	SO_2 µg/m³	NO_2 µg/m³	NH_3 µg/m³	Pb µg/m³
1	KSPCB Office Premises, Kolar	98.0	57.8	BDL	18.2	14.5	*
2	KSPCB Office Premises, Tumakuru	56.7	32.4	BDL	24.0	14.4	*
3	KSRTC, Building, K. R. Circle, Mysuru	48.0	18.0	BDL	14.7	14.3	*
4	KSPCB Office Premises, Mysuru	36.3	*	BDL	28.0	13.3	*
5	KSPCB Office Premises, Mandya	37.3	19.9	BDL	12.9	12.1	*
6	KSPCB Office Premises, Kodagu	69.7	10.1	BDL	10.6	10.1	*
7	KSPCB Office Premises, Chamarajanagar	46.3	23.1	BDL	14.2	13.8	*
8	KSPCB Office Premises,	39.0	24.8	BDL	19.7	6.5	*

	Hassan						
9	Biakampady Ind. Area, Mangaluru	48.0	26.0	6.2	9.8	0.2	*
10	Gokul Rd. Opp. to New Bus stand, Hubbali	55.8	17.6	4.8	17.9	21.1	*
11	Lakkamanahalli Ind.area, Dharwad	44.4	14.5	4.0	14.3	20.3	*
12	Karwar Port, Director's Office, Karwar	*	*	*	*	*	*
13	Traffic Police Station, Davangere	128.3	*	15.9	13.9	6.9	*
14	KSPCB Office Premises, Davangere	41.0	10.3	BDL	5.3	5.7	*
15	HPF Intake Well, Ranibennur	32.2	*	BDL	4.5	4.9	*
16	VISL, Bhadravathi,	37.1	7.0	6.1	11.1	6.0	*
17	KSPCB Office Premises, Chitradurga	38.3	9.3	BDL	4.5	5.8	*
18	KSPCB Office Premises, Belagavi	84.9	33.6	BDL	12.0	8.5	*
19	KSPCB Office Premises, Vijyapura	76.6	20.4	BDL	13.0	7.8	*
20	KSPCB Office Premises, Bagalkote	52.7	19.2	BDL	11.6	9.6	*
21	KSPCB Office Premises, Ballari	59.3	16.6	4.1	15.5	*	*
22	Government Hospital, Kalaburagi	78.7	41.8	BDL	9.3	19.6	*
23	KSPCB Office Premises, Raichur	*	*	*	*	*	*
24	KSPCB Office Premises, Bidar	60.3	37.4	BDL	6.8	*	*
	Standards	**60.0**	**40.0**	**50.0**	**40.0**	**100.0**	**0.50**
*** Not monitored; BDL: Below Detection Limit [SO_2 lower detection limit is 4.00 µg/m^3]**							

(Source: KSPCB 2020-21 Annual Report)

The Concentration of PM_{10} exceeded the National Ambient Air Quality standard at 6 cities viz., **Kolar**, **Kodagu**, **Davanagere**, **Belagavi**, **Vijayapura**, and **Kalaburgi**. $PM_{2.5}$ values exceeded only at **Kolar** & **Kalaburgi**. The remaining 3 parameters are well within the

national ambient air quality standards. PM_{10} concentrations have exceeded the standard limits due to the emissions from construction activities, vehicular emissions, and road dust.

Table 6: Annual Average of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) in other cities of Karnataka for the year 2020-2021

Sl.No	Name of the Station	PM_{10} µg/m^3	$PM_{2.5}$ µg/m^3	SO_2 µg/m^3	NO_2 µg/m^3	NH_3 µg/m^3	O_3 µg/m^3	CO mg/m^3
1	KSPCB Premises, Mysuru	34.9	15.2	3.5	15.6	16.4	35.9	0.4
2	KSPCB Premises, Shivamogga	45.0	21.3	2.6	23.3	24.7	35.6	0.6
3	KSPCB, Premises, Chikamangaluru	43.7	21.6	2.5	19.2	20.3	33.2	0.5
4	KSPCB Premises, Vijayapura	44.3	24.6	3.6	7.7	6.2	37.0	0.5
5	Near District Stadium, Chamrajanagar	45.6	20.1	3.1	13.6	14.8	36.6	0.4
6	Basaveshwar Engineering College, Bagalkote	43.7	23.1	4.4	13.5	15.5	30.5	0.4
7	Government PU College, Chikkaballapur	60.2	30.5	12.8	19.7	19.6	30.5	0.7
8	Yadgiri	61.3	29.7	10.9	18.3	3.3	47.8	0.8
9	Hotel KSTDC, Mayura valley, Madikeri	41.3	21.0	12.2	4.6	2.6	48.9	0.6
10	KSPCB Regional Office-Ramanagar	47.0	23.4	21.3	16.7	7.3	33.1	0.4
11	KSPCB Premises, Bidar	60.4	32.1	36.3	37.7	6.5	11.9	0.4
12	Central Excise & Customs Office Devaraj URS layout, Davanagere	47.3	15.2	21.9	9.7	7.2	6.7	0.6
13	Mundaragi Road, Near Chirayu Hospital, Gadag	56.9	44.9	19.9	13.7	11.8	20.8	0.4
14	Corporation Garden Opposite, Hubbali	65.5	26.3	8.9	23.7	14.2	16.9	0.7

15	KSPCB Premises, Hassan	59.7	23.5	5.4	18.4	13.7	14.5	0.7
16	KSPCB Premises, Haveri	31.6	25.2	31.9	15.3	50.2	17.9	1.6
17	KSPCB Premises, Karwar	*	*	*	*	*	*	*
18	Govt. ITI College, Kalaburgi	107.8	36.5	11.6	18.7	13.8	17.9	1.1
19	KSPCB Premises, Kolar	43.7	22.8	19.6	12.2	4.9	14.0	0.7
20	DC Office Compound, Koppal	51.6	20.4	10.8	15.5	39.5	20.8	0.5
21	Vasanth Vihar, Mangalore	71.4	25.7	6.6	11.1	4.7	12.4	1.4
22	DC Office compound, Raichur	70.9	29.1	19.9	15.2	12.1	7.3	0.7
23	High School compound, Udupi	86.0	70.0	17.2	26.9	5.8	24.1	1.0
24	KSPCB Premises, Belagavi	146.7	73.4	10.5	31.3	15.8	59.6	1.0
	Annual Standards	**60.0**	**40.0**	**50.0**	**40.0**	**100.0**	**100.0**	**2.0**
*** Monitoring not carried out**								

(Source: KSPCB 2020-21 Annual Report)

The PM_{10} values are within the standards in all cities except **Chikkabalapur**, **Yadagiri**, **Bidar**, **Hubli**, **Kalaburgi**, **Mangalore**, **Udupi**, and **Belagavi**. $PM_{2.5}$ values are well within the National Ambient Air Quality standard at all monitoring locations except **Belagavi, Udupi** & **Gadag**. All other parameters are well within the National Ambient Air Quality standards. PM_{10} values are exceeded due to construction activities and vehicular movement and road dust.

Mobile Ambient Air Quality Monitoring Vans

The KSPCB has procured two mobile ambient air quality monitoring Vans, one for North Karnataka and another for South Karnataka. The Mobile Vans are equipped with instruments to monitor Sulphur dioxide (SO_2), Nitrogen dioxide (NO_2), Ammonia (NH_3), Benzene (C_6H_6), Carbon monoxide (CO), Ozone (O_3), Particulate matter (Size less than 2.5 microns) $PM_{2.5}$ and Particulate matter (Size less than 10 microns) PM_{10} analyzers along with weather monitoring equipment to measure Wind Speed (WS), Wind Direction (WD), Atmospheric Temperature (AT), and Relative Humidity (RH), etc.,

Figure 3: Continuous Air Quality Monitoring Van *(Source: KSPCB 2020-21 Annual Report)*

Mobile Vehicular Emission Monitoring Vehicles

To assess the impact of vehicular emission on the ambient air quality, the Karnataka State Pollution Control Board has procured 12 vehicular emission monitoring vehicles fitted with a smoke density meter and gas analyzer (6 Nos) deployed in Bangalore city and one each in Mysore, Mangalore, Dharwad, Kalaburgi, Chitradurga and Bellary. The Board has conducted "Joint monitoring of vehicular emission at major cities" along with the Transport & Road Safety Department, Traffic Police, BMTC, and Zonal Office CPCB.

Table 7: The details of vehicular emission testing data

Vehicular emission monitored in Karnataka State for the year 2020-21 (Nov)					
Type of Vehicle	**Total**	**Confirm**	**Percentage**	**Non- Confirm**	**Percentage**
Petrol	7994	7729	96.7	265	3.3
Diesel	5405	4754	87.8	650	12
Total	**13398**	**12483**	**93.2**	**915**	**6.8**

(Source: KSPCB 2020-21 Annual Report)

4. State Action Plan

The State Action Plan is to provide guidance and mandatory activities to be implemented by different stakeholder departments, civil societies, and others concerned with reducing emissions and improving ambient air quality. The increasing evidence on the health effects of air pollution from studies across the globe shall be an alarm for sensitizing the public, stakeholder departments, and civil societies towards concerted actions for reducing air pollution and thus providing a better and healthier society for future generations.

The ambient air quality data of the KSPCB and that of the CPCB indicate that 2 out of the 12 notified parameters in ambient air under the National Ambient Air Quality Standards (NAAQS) are exceeding the standards. The Particulate matter of size less than 10 microns called Respirable Suspended Particulate Matter (PM_{10}) and Fine Particulate Matter ($PM_{2.5}$) are exceeding the standards in some of the places in the State. The major sources of air pollution in Karnataka are industrial emissions, vehicular emissions, construction and demolition waste, road dust, emissions from the burning of solid waste, emissions due to the burning of agro residues, and household emissions.

The Health impacts of PM_{10} are known to cause nasal and upper respiratory tract health problems. Fine particles ($PM_{2.5}$) penetrate deeper into the lungs and cause heart attacks, strokes, asthma, and bronchitis, as well as premature death from heart ailments, lung disease, and cancer.

A separate action plan for improving the air quality by reducing Particulate Matter emissions is under implementation in Bengaluru, Hubli-Dharwad, Davanagere, and Kalaburgi. The action plan is prepared in line with the existing action plan under implementation in the non-attainment cities (https://kspcb.karnataka.gov.in/invites-industries-join-green-company-movement) and taking into account the CPCB Graded Action Plan communicated for preparation of the action plan during 2019.

The action plan provides the actions to mitigate

1. Industrial Emissions
2. Vehicular emissions
3. Construction and Demolition waste and Road Dust Management
4. Emissions from burning of Waste
5. Emissions from burning of agro residues
6. Household emissions

The action plan proposed for the above activities and others is tentative. The regulatory actions are continuous and any amendments in terms of the regulatory activities will be continued as they are in force. Those actions that require the budget will be taken as per the availability and approval of the financial allocations. The indicative template for State Action Plan on Air Pollution can be found in **Annexure I**.

Industrial Emissions

As of August 2022, Karnataka has a total of 28716[1] industries, out of which, 2652 are in the Red category, 8710 are Orange category, 8975 are Green category and 8379 are White category industries. These industries are monitored periodically by the KSPCB and action is initiated against non-complying industries. The district-wise details of the industries are placed in **Annexure II**.

Policy for permitting new industries in Critically Polluted Areas (CPAs) The CPCB has revised the criteria for determining of Comprehensive Environmental Pollution Index (CEPI) of industrial areas in the year 2016 and laid out components which include the scale of industrial activity, scale of exceedance of Environment Quality (Level of Exposure), health-related statistics and compliance status of industries. Where the CEPI score crosses 70, the areas are designated as Critically Polluted Areas (CPA's) where the index is between 60 and 70 those areas are designated as Severely Polluted Areas (SPA's), and thosebelow 60 are designated as other polluted Areas (OPA's).

Based on the revised criteria, CPCB carried out Environment Quality Monitoring in the year 2017-18 wherein it was found that the number of identified polluted industrial clusters went up to 100 in the country. This number includes 38 critically polluted industrial areas, 31 severely polluted industrial areas, and the remaining 31 as other polluted industrial areas. In the state of Karnataka, two industrial clusters were declared as critically polluted areas, one as severely polluted industrial areas, and three as other polluted industrials area.

Table 8: The CEPI scores of the six industrial areas identified in the State

Sl. No	Name of the Industrial Area	CEPI Score	Remarks
1	Peenya Industrial Area, Bengaluru	78.12	Critically Polluted Area
2	KIADB Industrial Area, Jigani-Anekal, Bengaluru	70.99	Critically Polluted Area
3	Kolhar Industrial Area, Bidar	65.64	Severely Polluted Area
4	Bhadravathi, Shivmogga	58.48	Other Polluted Area

[1] Information received from KSPCB

5	Baikampady Industrial Area, Mangaluru	58.20	Other Polluted Area
6	Raichur Growth Centre, Raichur	53.42	Other Polluted Area

(Source: KSPCB 2020-21 Annual Report)

The Hon'ble NGT has registered a Suo Motu petition vide OA No. 1038/2018 and issued various directions to the Ministry of Environment, Forest and Climate Change, Central Pollution Control Board, State Pollution Control Boards, and State Governments. Accordingly, the Karnataka State Pollution Control Board has prepared action plans and got them approved by the Committee headed by the Additional Chief Secretary and Development Commissioner in the State Level Committee Meeting held on 11.04.2019 and submitted to CPCB. Local Area Committees have been constituted for all Three Polluted industrial areas to oversee the implementation of Action Plans submitted to the CPCB to Improve Environmental Quality.

The Hon'ble NGT in its order Dated 10/7/2019 has directed SPCBs not to grant Consent for Establishment /Expansion of Red and Orange Category industries in the Critically Polluted Areas (Peenya and Jigani- Bommasandra Industrial; Area) till these industries satisfy the pollution control norms.

Subsequently in the NGT order dated 19.8.2019, it is stated that there is no absolute bar to such units (Red and Orange Category) being set up if they are found to be viable. MoEF & CC to devise an appropriate mechanism to ensure that new legitimate activity or expansion can take place after due precautions are taken by these units. The MoEF & CC, GoI devised a Mechanism on 25.10.2019 for the Environment Management of CPAs and SPAs for the said direction and communicated to SPCB for implementation and the same is being followed.

Guidelines for laying city gas distribution network[2]

The Infrastructure Development Department (IDD) is the nodal Department for all the Gas Pipeline Projects and City Gas Distribution (CGD) Projects in Karnataka. As of date, 8 entities have been authorized by Petroleum & Natural Gas Regulatory Board (PNGRB) to establish and operate a gas distribution network under various Geographical areas (GA) covering all 30 districts of Karnataka. As per the request of the Ministry of Petroleum and Natural Gas (MOPNG), GoI, a special desk was created in IDD for coordinating with all entities carrying out gas pipeline projects, city gas distribution projects, compressed bio-gas projects, etc., in the state of Karnataka. The focus of the special desk was to expand the

[2] Information received from IDD via letter No. IDD 52 ITS 2022 dated:19.07.2022

availability of natural gas to domestic households, industries, and transport sectors which will facilitate meeting India's CoP-21 commitments for the reduction of Carbon emissions. The City Gas Distribution (CGD) Project is a part of the Government of India's vision for a gas-based economy and raising the share of natural gas in the country's primary energy basket to 15% by 2030, from 6.2% currently. Greater use of natural gas will cut fuel costs as well as bring down carbon emissions, helping the nation meet its COP-26 commitments. The primary objective of the City Gas Distribution (CGD) Project is to supply natural gas through Piped Natural Gas (PNG) to domestic households, commercial/ industrial consumers, and through Compressed Natural Gas (CNG).

Policy for replacement of heavy oil-based industries to alternate energy sources

State Initiative: GAIL India has developed and is operating two major gas pipeline networks in Karnataka namely; Dhabol-Bangalore (DBPL) and Kochi-Koottanadu-Mangalore-Bangalore pipeline (KKMPL).

Policy for restriction on the usage of Pet coke for industrial use

KSPCB concerning the Order of the Hon'ble National Green Tribunal, New Delhi, regarding the use of pet coke as fuel, has declared Pet Coke as an "approved" fuel under Section 2(d) of the Air (Prevention and Control of Pollution) Act, 1981 in Cement Kilns including captive power plants of Cement Plants only, vide Board Notification dated: 22.07.2017.

The Government of Karnataka because of the Orders of Hon'ble NGT, New Delhi has prohibited the use of pet coke as fuel in the entire State of Karnataka on 11.08/2017 under the provisions of Section 19(3) of the Air (Prevention and Control of Pollution) Act, 1981 except for the following activities.

1) The Cement Kilns

2) Captive Power Plants within Cement Plants having the facility of Circulating Fluidized Bed Combustion (CFBC) Boilers, wherein SO_2 emissions are controlled by the use of limestone.

To regulate the use of Pet Coke, the Board has issued directions under Section 31(A) of the Air (Prevention and Control of Pollution) Act, 1981 to M/s Mangalore Refinery and Petrochemicals Limited, Mangaluru, Dakshina Kannada on 15.06.2018 which is the only producer of pet coke in the state to sell the pet coke only to industries having the permission

of the Board and submit the details on the quantity of pet coke generated and sold every month.

As per the Office Memorandum of the Ministry of Environment, Forest and Climate Change, Government of India dated: 10.09.2018, the quantity of pet coke permitted for use in the Cement Kiln has been specified in the Consent Order.

KSPCB, given the Order of Hon'ble Supreme Court, issued in respect of WP (C) No. 13029 of 1985 issued a Modification to Office Memorandum issued on 22.07.2017 wherein the approval granted under Section 2(d) of the Air (Prevention and Control of Pollution) Act, 1981 for use of pet Coke was withdrawn. Instead, the Board permitted the use of Pet coke as a feedstock only in cement industries for clinker production, lime kiln, calcium carbide, gasification plants, and calcined Pet coke for anode making in Aluminium Industries.

Rules and Regulation on uninterrupted power supply in State[3]

- Electricity (Rights of Consumers) Rules, 2020 issued by GoI Vide Gazetted Notification No. G.S.R. 818(E) dated 31st December, 2020, stipulates 24 X 7 Power supply to consumers.
- Karnataka Electricity Regulatory Commission (KERC) (Standards of Performance) Regulation, Notification No. D/01/03 dated 24.05. 2004 is already in place which specifies minimum standards of performance with reference to quality and reliability of services that a Licensee shall achieve in the discharge of its obligations as a licensee.
- KERC Draft regulation Electricity (Rights of Consumers) Rules vide Notification No. KERC/3/DDD/2021-22/996 dated 10.11.2021, the draft is published in the Karnataka State Gazette on 23.11.2021. The final regulation is awaited.

Measures/ Initiatives taken by Energy Department:

- Significant Capacity addition of more than 10 GW in the renewable energy sector during the last 6 years, with a cumulative achievement of 15579 MW.
- Aligning with the GoI's Mission of 500 GW by 2030, GoK has come up with a new holistic "Karnataka Renewable Energy Policy 2022-2027" that aims to achieve energy security primarily from Renewable energy sources.
- Deployment of Electric Vehicle Charging Stations across the State in order to achieve net zero emission target by 2070.

[3] Information received from the Energy department via letter Nos. ENERGY 313 VSC 2022 dated: 18.07.2022 and 29.10.2022.

- State's Discoms through EESL & CESL encouraging sale of LED bulbs, LED Tubelights and energy efficient fans under UJALA & GRAM UJALA programme and use of LED bulbs under various Government schemes.
- Implementation of Battery Storage system, Hybrid Park and Pumped Hydro Storage Projects are under progress.
- Development of Green Hydrogen Policy is under progress.

Policy For use of DG sets

KSPCB has issued an order, vide No. KSPCB/SEO-INFRA/DG-RETROFITTING/2021-22/2887 dated 17th September 2021 (**Annexure III**); Establishments, projects, buildings, utilities, airports, railway stations or any other places operating DG sets of capacity 125 KVA and above, within the jurisdiction of the State of Karnataka are directed to retrofit all operational DG sets of capacity 125 KVA and above with an emission control device/equipment having a minimum specified particulate matter capturing efficiency of at least 70% in 5-mode D2 cycle and also should result in the increase of fuel efficiency. The emission control device/equipment must be tested over an ISO-8178 5-mode D2 cycle for an equivalent KVA rating by one of the five CPCB, GoI-recognized/approved laboratories. However, as per the Hon'ble NGT (SZ) directions, the process of implementation is kept on hold for want of CPCB guidelines on certification entity.

Policy Regarding CAAQMS based on the emission potential or capacity of air polluting industries

Installation of an Online Continuous Effluent/Emission Monitoring System (OCEMS) as per the CPCB directions issued on 05.02.2014 has been made mandatory. KSPCB is also asserting major industries have Continuous Ambient Air Quality Monitoring Stations (CAAQMS) and publish the air quality on their website.

Mechanism to be devised for the expansion of OCEMS to air-polluting industries is not covered currently (Such as emission from utility stacks in 17 categories, etc.)

Karnataka has 246 industries operating under this category; KSPCB is asserting these 17 category industries to have an Environmental Cell with qualified Environmental Engineers/Scientists with required staff and also to establish a self-monitoring system. The details of various categories of industries connected with OCEMS are provided in table No.9.

Table 9: Status of OCEMS in the State

Sl. No.	17-Category Industries	Total No. of industries	Connected	Not Connected
1	Aluminium	1	1	Nil
2	Bulk Drugs & Pharmaceutical	83	83	
3	Caustic Soda	1	1	
4	Cement	23	23	
5	Distillery	14	14	
6	Dyes & Dye Intermediates	2	2	
7	Fertilizer	3	3	
8	Oil Refinery	1	1	
9	Pesticides	1	1	
10	Petrochemicals	1	1	
11	Pulp & Paper	5	5	
12	Sugar (Sugar & Co-gen, Sugar, Co-gen and Distillery)	71	71	
13	Thermal Power	10	10	
14	Integrated Iron & Steel	30	30	
15	Tannery	0	0	
16	Copper Smelter	0	0	
17	Zinc Smelter	0	0	
	17- Category Industries Total	**246**	**246**	**0**

(Source: KSPCB 2020-21 Annual Report)

Mechanisms to control fugitive emission sources

- The Fugitive Emission Standards are prescribed for the industries wherever required and regular monitoring of the same is being carried out. The industries were instructed to operate with enclosures, suction hoods with APC, and sprinklers.
- The interlocking system of the Air Pollution Control (APC) equipment with the process plant is also made mandatory in all industries to ensure the functioning of the APC.
- Separate Energy meters for the APC are also made mandatory for certain category industries to ensure the operation of the APC.
- Siting guidelines for certain air-polluting industries like stone crushers are notified and the same are under implementation.
- A green belt of 33% area is being insisted in the industries with air pollution sources to mitigate the air pollution.
- Most industries are opting for heat recovery systems for better utilization of the heat and to cut the utilization of fossil fuels thereby reducing emissions.

- The industries are regularly being monitored for compliance verification and actions are being initiated in case of non-compliance by way of issuing directions and closure of the industry.

Policy to set up e-waste recycling units in industrial areas in compliance with e-waste management rules[4]

- Electronic waste (e-waste) is the waste arising from end-of-life electronic products. It is the fastest-growing waste stream in the world at present.
- Annual global production of e-waste is estimated to surpass 50 million tons in 2020, It is reported that India is contributing over 3.2 million tons out of which Karnataka contributes approximately 0.1 million tons.
- All e-waste is valuable as it is highly rich in some valuable and rare metals i.e., e-WEALTH.
- Environmentally sound management of electrical and electronic waste is currently one of the most critical and challenging issues, not only for India but for the World.
- India is one of the fastest-growing markets for electronics and the demand was about USD 400 billion in the year 2020.
- Presently bulk of the e-waste recycling is done by the informal sector in India, wherein recovery of valuable materials is just 10–20%.

The Issues:

1. **Lack of infrastructure:**
   a. The gap between e-waste collected and recycled by authorized dismantlers/recyclers and the quantum generated is huge.
   b. The existing recycling facilities face issues from a lack of suitable environmentally friendly technologies to a lack of a steady supply of raw materials.
   c. The reason is a lack of awareness about the hazardous impact of inappropriate e-waste recycling, consumers do sell their electronic waste to informal recyclers for quick money as it is easier and faster.
   d. Thus, registered recycling units are deprived of a regular supply of e-waste which is crucial for their sustenance.
2. **Boosting the formal e-waste recycling industry:** The Amendment to the E-waste (Management) Rules, 2016 was made to channel the same towards authorized

[4] KSPCB's Parisara Vahini, January 2022

dismantlers and recyclers to formalize the e-waste recycling sector and this would further boost the economy as well.

3. **High cost of setting up recycling facilities:**
   a. Advanced recycling technology is expensive and makes large investments risky, especially when sourcing e-waste is a challenge.
   b. Most of the formal recycling companies in India limit their role to only pre-processing of e-waste, wherein the crushed e-waste with precious metals is exported to smelting refineries outside India.
   c. An end-to-end solution for e-waste recycling has become a prime requirement.

Challenges in E-Waste Management in India:

1. As per data, India is the 3rd largest generator of e-waste in 2019 with 3.2 million Tonnes.
2. The Factual data on the quantum of Electrical and Electronic Equipment (EEE) put into the market is not available.
3. A proper digital tracking and monitoring system at a national level is a need of the hour to track all EEE during its complete life cycle.
4. Even after 10 years of enforcement of the e-Waste Rules, the share of the formal sector is just 10-15 %. The industry is dominated by the informal sector with 85-90%. The Rules have set an EPR target from 10 % to 70% (by 2023).
5. There is no proper digital mechanism to check compliance with EPR targets met by the producers of EEE.
6. The Authorizations for (Producer Responsibility Organization) PROs under E-Waste Rules are being issued by the nation's highest technical body i.e., CPCB. In reality, these authorized PROs are approaching informal sectors or aggregators to collect e-waste on behalf of Producers to achieve the Extended Producer Responsibility (EPR) targets.
7. As per recent data, India generated around 3.2 Million Tonnes of e-waste in 2019 and as per CPCB's annual report, the authorized capacity of re-processors across the nation is only 1.2 Million Tonnes per annum.

Despite this huge gap, formal re-cyclers are facing the problem of insufficient raw materials (input e-waste). This gap has to be addressed to bring re-processing quantity on par with its generation and the govt. has to support more and more re-cyclers of e-waste with both financial and technical assistance.

A few important goals that contribute to the objective of a robust e-waste system are:

1. Facilitate an e-waste management supply chain that integrates the informal sector in a manner that recognizes the right to livelihoods of the workers.

2. Develop a regularly updated and publicly available inventory of generation of e-waste quantities by e-waste type (e.g. computers, mobiles, and appliances), waste composition, and flows. Concerning Karnataka, work in this regard has been entrusted to EMPRI and work is underway.
3. Create a policy framework for the development of indigenous technologies and technology transfer to encourage the widespread application of environment-friendly e-waste recycling technologies.
4. Identify and employ public policy instruments that incentivize the manufacturers/producers to invest in achieving 'design for environment' changes in their product design.
5. Generate greater awareness of e-waste and its impacts on society, the responsibilities of various stakeholders under current regulations, and responsible actions that citizens can take.

Number of Industries in the State complying with emission standards

Table 10: Air Pollution Control (APC) Status of Industries

Zonal Office	Category	Total No. of Operating Industries	APC system under Operation	Defaulters (No adequate facility)
Bengaluru City	Red	342	337	Nil
	Orange	744	666	Nil
Bengaluru East	Red	195	195	Nil
	Orange	359	346	Nil
Bengaluru South	Red	499	499	Nil
	Orange	748	748	Nil
Bengaluru North	Red	299	298	1
	Orange	464	464	Nil
Mysuru	Red	176	176	Nil
	Orange	497	497	Nil
Mangaluru	Red	117	116	1
	Orange	976	959	Nil
Ballari	Red	148	148	Nil
	Orange	548	548	Nil
Chitradurga	Red	105	105	Nil
	Orange	683	677	6

Dharwad	Red	217	216	1
	Orange	640	632	8
Kalaburgi	Red	90	90	Nil
	Orange	195	195	Nil
Total		**8042**	**7912**	**17**

(Source: KSPCB 2020-21 Annual Report)

Shifting of industries/commercial units to gaseous fuels (CNG/NG/CBG) The Infrastructure Development Department (IDD) of Karnataka is responsible for providing natural gas pipeline connections to the industries. In the four non-attainment cities (NAC) in Karnataka namely, Bengaluru, Davanagere, Hubli-Dhaward, and Kalaburgi, the city gas distribution projects are being carried out by GAIL Gas Ltd., Unison Enviro Pvt. Ltd., Indian Oil Adani Gas Pvt. Ltd. and AG&P Pvt. Ltd. respectively.

Table 11: Details of Industrial Areas ready with natural gas supply for industries with requirements up to or less than 50000 SCMD

Sl. No	**Entity Name**	**Geographical Area**	**The Industrial area has already been connected with the Natural gas pipeline network**	**Industrial area to be connected with Natural gas pipeline network and charged in the Financial Year 2022-23**
1	Gail Gas Limited	Bengaluru Rural & Urban	Bommasandra, Jigani, Veerasandra, Singasandra, Whitefield, Hoskote, Software Park, Hardware Park (Bagalur), Yelahanka New Town, Peenya-Phase-2	Attibele, Dabaspet, Doddaballapur, Aerospace Park
2	Gail Gas Limited	Dhakshin Kannada	Baikampady Industrial Area	Karnad Industrial Area
3	Maharashtra Natural Gas Ltd	Ramanagara	Bidadi Industrial Area	Harohalli Industrial Area, KIABD
4	Megha Engineering & Infrastructure Limited	Tumakuru District	Vasanthnarasapura, Hirehalli, Kunigal, Antharasanahalli	Sathyamangala, Sira Industrial Area, Gubbi

5	Megha Engineering & Infrastructure Limited	Belgaum District	Auto Nagar Belgaum, Macche Industrial Area, Udambagh Industrial Area, Honga Industrial Area, Navage Industrial Area, kangrali KIADB, Angol Industrial Area, Santi Bastwad Industrial Area, Waghawade Industrial Area	Kittur Industrial Area, Kanagia Industrial Estate, Aeques SEZ, Bailhongai, Gokak
6	AGP City Gas Private Limited	Bagalkot, Koppal and Raichur	Not connected	Kapnoor KIADB/KSSIDC
				Koppal-Ginigera Industry Area
				Koppal-Bhanapur Industry Area
				Raichur-Wadloor Cross-Industry Area
				Raichur-KIADB Area
7	AGP City Gas Private Limited	Chikkmangaluru , Hasssan, and Kodagu	Not connected	Hassan KIADB
				Special Economic Zone Textile specific Hassan
				Kushalnagar KIADB
8	AGP City Gas Private Limited	Kalaburgi and Vijaypura	Not connected	Kapnoor Industrial Area Phase-I, Phase-II, Phase-III
				Nandur Industrial Area Phase-I & Phase-II,
				Mahalbagyat Industrial Area
9	AGP City Gas Private Limited	Mysuru, Mandya and Chamarajnagar	Nanjangud KIADB, Hebbal KIADB	Hebbal Industrial Area
				Kadakola Industrial Area
				Tandya Industrial Area
				Adakanahalli Industrial Area

				Hootagalli Industrial Area
				Metagalli Industrial Area
				Bellagola Industrial Area
				Kadakola KIADB
10	AGP City Gas Private Limited	Uttar Kannada, Haveri and Shivvamogga	Not connected	Machenahally KIADB Area, Shivamogga
				Haveri Grasim Junction
11	AGP City Gas Private Limited	Chitoor, Vellor and Kolar	Not connected	Malur KIADB
				Narsapura KIADB
				Jakkasandra KIADB
12	Adani Total Gas Limited	Udupi	Not connected	KIADB, Padubidri, Udupi
13	Indian Oil Adani Gas Pvt Ltd.		Rayapur, Gokul Industrial, Mommigatti, Bellur	Tarihal, Gamangatti
14	Bharat Gas Resources Ltd.	Bidar	Not connected	Kolhar Industrial Area
15	Unison Enviro Private Limited	Chitradurga & Davangere Districts	Not connected	Ready with Virtual Pipeline (Mobile Cascade) to provide Natural Gas within GA

(Source: Information received from IDD via letter No. IDD 52 ITS 2022 dated: 19.07.2022)

Table 12: Details of Industrial Areas ready with natural gas connectivity to industries with requirements of more than 50000 SCMD through GAIL's natural gas pipeline network

Entity	Industrial Area	District
GAIL India Limited	Dobaspet, Aerospace, Doddaballapura	Bengaluru Rural
	Attibele, Bommasandra, Jigani, Peenya	Bengaluru Urban
	Chitradurga, Kelagote, Hiriyur	Chitradurga
	Belagvi, Kittur, Kanagale	Belgavi
	Baikampady, Mangalore SEZ	Dakshina Kannada
	Bidadi, Harahalli	Ramnagara

	Kunigal, Vasanthnarasapura, Antharasanahalli, Sira	Tumkuru
	Hubli Industrial Estate	Hubli
	No consumers to date	Gadag

(Source: Information received from IDD via letter No. IDD 52 ITS 2022 dated: 19.07.2022)

The number of households shifted to PNG/LPG

The Infrastructure Development Department is the Nodal Department for all the Gas Pipeline projects and City Gas Distribution Projects in Karnataka. As of date, 8 entities have been authorized by Petroleum & Natural Gas Regulatory Board (PNGRB) to establish and operate a city gas distribution network under various Geographical areas (GA) covering all 30 districts of Karnataka.

Table 13: City-wise Gas Distribution Network progress details as of 30.06.2022

Sl. No	Geographical Area (GA) Name	No. of domestic PNG connections	No. of commercial connections	No. of industrial connections	No. of CNG stations	Total Length of gas pipeline network (Kms)
1	Bengaluru Urban & Rural	47,542	143	174	52	1490.52
2	Kalaburgi & Vijayapura	1,292	Nil	Nil	08	9.10
3	Hubli-Dharwad	14,138	12	04	06	581.02
4	Chitradurga & Davanagere	1,000	Nil	Nil	10	72

(Source: Information received from IDD via letter No. IDD 52 ITS 2022 dated: 19.07.2022)

Co-processing of Hazardous Waste in Cement Kilns

The incinerable waste generated in the state is being used for co-processing in the cement industries as a result of which the fuel used for incineration and the operation of the APC are saved leading to lesser air pollution and is managed in an environmentally sound method. The amount of material co-processed in 9 cement plants during the year 2020-21 is 1,27,103 Metric Tonnes and for the year 2021-22 is 2,32,045 Metric Tonnes respectively.

Inventory of fuel consumed in the industries (type and quantity)

Table 14: Abstract of the fuel consumed in the industries (type and quantity) from the all Zonal offices of Karnataka

	Zonal Office	Total No. of Industries				Type and Quantity of fuel used in Kg/per day							Status of Emission		Total No. of Industries provided OCEMS	No. Of Industries provided CAAQM	Total No. of Industries having PNG connection
		Red	Orange	Green	White	High Speed Diesel (HSD)	Furnace Oil (FO)	CNG	PNG	LPG	Solid fuels/ Briquettes	Coal/ Coke	Confirming	Non Confirming			
1	**Mysuru**	226	955	1065	1772	8,40,489.81	5,22,721.11	-	-	96,400	66,40,432.2	67,70.580.8	All	-	16	-	-
2	**Bengaluru City**	164	808	1246	1743	1,86019.14	5535	-	1200	-	42,227.70	-	All	-	-	-	25
3	**Mangaluru**	166	1445	915	4.0	4,83,890.76	6,12,020	-	-	-	26,48,274.0	1,17,87,744	All	-	7	2	-
4	**Dharwad**	312	1184	1067	3580	81,996.53	10,979	1.7	-	89	1,18,49,595	4,27,622	All	-	22	2	-
5	**Bengaluru North**	217	448	768	55	16,917	7440	96.84	589	16	45,130	37,656	-	-	-	-	-
6	**Kalaburagi**	100	401	315	470	13,761.83	10,000	-	-	1633	39,83,949	94,09,538.6	All	-	39	9	-
7	**Bengaluru East**	315	659	724	98	13,05,974	5710	200	3,26,893	3349	35,263.55	1678	All	-	4	-	5
8	**Bengaluru South**	602	1072	1586	220	14,50,563.3	4,40,724.33	55,863.23	9251.11	2020	66,59,246.69	18,727	76	15	22	2	-
9	**Chitradurga**	148	1039	626		1,55,384.1	8570	1,60,100	2442	5400	3,50,426	24,14,479	18	3	20	3	-
10	**Ballary**	216	828	767	717	5,79,889	14,800	-	-	-	7,76,200	1,20,52,648	All	-	56	15	-
Total		**2466**	**8839**	**9079**	**8659**	**51,14,885.**	**16,38,499**	**21,62,623**	**3,40,375**	**1,08,906**	**3,30,30,744**	**4,29,20,674**	**94**	**18**	**186**	**33**	**30**

(Source: KSPCB)

Any other Policy/Rules/standards/Guidelines pertaining to industrialemissions

The Status of fly ash utilization as per Fly Ash Notification SO 2084 E dated 03.11.2009 for the period 01.04.2020 to 31.03.2021 (**Annexure IV**) is given in the table below:

Table 15: Status of fly ash utilization

Sl. No.	Name & Address of the Industry	Power Generating Capacity [MW]	Quantity of fly ash generated (in MTA)	Utilization (%)	Utilization
1	Karnataka Power Corporation Limited, Raichur Thermal Power Station, Shaktinagar, Raichur	7 x 210 MW and 1 x 250 MW (Total 1720 MW)	23,87,353.73	81.70	Supplied to Cement Industries, Bricks & Tile Manufacturing industries.
2	Karnataka Power Corporation Limited, Ballari Thermal Power Station, K.P.C.L. Kudithini Village, Ballari	2 x 500 MW 1 x 700 MW	10,72,510.33	76.68	Supplied to Cement industries, Brick manufacturers
3	Udupi Power Corporation Ltd., Yelluru Village, Pilar Post, Padubidri, Udupi	2 x 600 MW	79,066.61	99.42	Supplied to Cement Industries, Bricks manufacturing, and RMC units, and bottom ash is stored in an ash pond
4	JSW Energy Limited, Thoranagallu, Ballari	2 x 130 MW 2 x 300 MW	1,45,776	100	Supplied to the Cement industry, Brick units and used for slime pond bund construction
5	Kesoram Industries Limited, Unit: Vasavadatta Cements, Sedam, Kalaburagi	79.2 MW (Captive)	1,15,155	100	Used for Cement making (captive consumption)
6	Ultratech Cement (Formerly Rajashree Cements), Malkhed Kalaburagi	58.2 MW (Captive)	1,49,708	100	Used for Cement making (captive consumption)
7	ACC Ltd., (Previously Tata Power Corp. Ltd,) Wadi, Kalaburagi	125 MW (Captive)	21,54,173	100	Used for Cement making (captive consumption
8	Grasim Industries Ltd, Kumarapatnam, Ranebennur- Haveri	20 MW (Captive)	46,675.94	100	Sent to Brick and Cement industries
9	West Coast Paper Mill, Dandeli, Uttara Kannada	74.8 MW	73,572	100	Sent to Brick and Cement industries

10	Gulbarga Power Private Limited, Chatrasala village, Chincholi Taluk, Kalaburagi	30 MW (captive)	19,437	100	Used for Cement making
11	Chettinadu Cement Corporation, Kallurand Sangam villages, Chincholi Taluk, Kalaburagi	30 MW (captive)	18,501.26	98.85	Used for Cement making
12	N T P C Limited Kudigi Super Thermal Power Project Kudigi Basavanabagewadi taluk, Vijayapura	3 x 800 MW	8,93,027	100	Sent to Brick manufacturers
13	Himatsingka Linens, Plot No. 1, SEZ, KIADB Industrial Area, Hanumanthapura Post, Hassan	12.5 MW (captive)	4,334	90.52	Disposed to brick manufacturers
14	Yermarus Thermal Power Station	2 x 2800 MW	1,28,367.80	83.66	Cement industry, Brick units, and RMC
15	BMM Ispat Ltd, Ballari	25MW Power plant 3x70 M W Power plant	39,036	100	Cement industry and Brick Industries
16	Dalmia Cement Limited Yedwad village Gokak taluk, Belgaum	40 MW	30,415	100	Used for Cement making
17	Orient Cement Limited Chittapura taluk, Kalburagi	45 MW	64,788	100	Used for Cement making
18	JK Cement Works, Muddapur, Bagalkot	2 x 25 MW	23,947	100	Used for Cement making
19	Star Metallics and Power Private Limited, Hanumanahalli Vyasanakaere Post, Hospet Taluk, Bellary	1 x 32 MW	14,652	92.87	Disposed to Cement and brick making

(Source: KSPCB 2020-21 Annual Report)

Common Action points for implementation in industrial estates and areas to reduce air pollution

- Extensive Plantation is to be taken up within the industries and also in the industrial areas by the concerned industries, industrial associations, KIADB, KSSIDC, and others.
- The roads in the industrial estates/areas are to be maintained regularly without potholes, end-to-end pavement, and sweeping to remove the silt- KIADB, KSSIDC, and ULB.

- The loading and unloading operations are to be taken up in covered areas to prevent any lofting of dust-ULBs and the Industries Department.
- Industries shall be mandated with suitable air pollution control equipment to meet the environmental standards- KSPCB
- All in charge of industrial estates and areas to monitor the construction works, loading, and unloading activities. Also to have a dedicated Public Redressal System to address the grievances-KSPCB and ULBs.
- The monitoring of all the industrial estates and areas is to be carried out at regular intervals for compliance verification and to take corrective measures required if any-KSPCB
- All the air-polluting industries with boilers, furnaces and any other air-polluting sources should be monitored for compliance verification at regular intervals. The online Continuous Emission Monitoring and Ambient Air Quality Systems shall be made mandatory based on the category of the industry-KSPCB.
- All concerted efforts are to be made for switching over to cleaner fuels like CNG, and LPG, and wherever new industries are coming up they should be mandated to use cleaner fuels wherever available- KSPCB & Infrastructure dept.
- The Pollution Under Control (PUC) for the vehicles plying in the estates shall be mandatory-Transport and Police Dept.
- All measures to be taken to prevent any sort of open burning and all such incidents shall be stopped and punitive action to be initiated- ULB's
- All fire accidents within the industrial estate/area are to be mitigated at the earliest and the environmental damage needs to be fixed as per the procedures-Dept. of Factories
- Hot spots for air pollution need to be identified within 30 days of approval of the state action plan by KSPCB and other line departments. A micro-action plan has to be prepared for mitigation of the air pollution at such hot spots and placed before the competent authority (District Collector) for approval and implementation.
- A half-yearly report has to be prepared by KSPCB and ULBs on the compliance status of air pollution for PM_{10} and $PM_{2.5}$ along with the actions initiated as per the state action plan and approved micro action plan.

Vehicular Emissions

Notification for phasing out old vehicles (Commercial: 10 years; Private: 15 years)

As per the Government notification TD 187 TDO 2020, dated 03-02-2022, the Renewal of Fitness certificate for 2-stroke auto rickshaw plying in Bengaluru has been restricted. The notification can be found in **Annexure V**.

Table 16: The details of more than 15 years old vehicles in Karnataka State as on 31.03.2022

Sl. No	Category of Vehicle	Karnataka State
	NON TRANSPORT VEHICLE	
1	Two-wheelers	51,94,956
2	Cars	12,53,062
3	Omni Buses	18,903
4	Tractors	1,99,299
5	Trailers	1,25,948
6	Construction Moving Equipment	165
7	Private Service Vehicle	470
8	Other Vehicles	22,325
	TOTAL NON TRANSPORT VEHICELES(A)	**68,15,128**
9	**TRANSPORT VEHICLE**	
a	Multi-Axled/Articulated Vehicle	8,724
b	Trucks and Lorries	2,74,621
	TOTAL	**2,83,345**
10	**LIGHT GOODS VEHICLES**	
a	Four Wheeler	2,61,861
b	Three Wheeler	77,816
	TOTAL	**3,39,677**
11	**Buses**	61,045
	TOTAL	**61,045**
12	**TAXIES**	
a	Motor Cabs	67,147
b	Maxi Cabs	47,540
c	Others	01
	TOTAL	**1,14,688**
13	**LMV PASSENGER**	

a	**Three Seater (A/R)**	31,00,02
14	Other Vehicles	84,357
	TOTAL	**3,94,359**
	TOTAL TRANSPORT(B)	**11,93,114**
	TOTAL (A)+(B)	**8,00,8242**

(Source: 2021-22 Annual Report of Transport Department)

Policy of scrapping the old vehicles

Ministry of Road Transport and Highways (MoRTH), New Delhi has issued a notification vide GSR 653 (E), dated: 23-09-2021. For the State, the policy is under finalization for the establishment of RVSF (Registered Vehicle Scrapping Facility).

Karnataka State Road Transport Corporation (KSRTC) as a public sector has adopted the scrapping Policy as below:

For ordinary vehicles: 09 lakh km

For Corona seater: 10 lakh km

For Corona sleeper: 11 lakh km

For Volvo vehicles: 13 lakh km

Bengaluru Metropolitan Transport Corporation (BMTC) as a public sector has adopted the scrapping policy of 8.5 lakh kilometres or 11 years whichever is earlier.

Policy/Scheme for Eco-Friendly Mass Rapid Transport Systems[5]

Metro rail is a vital component of the transformation of the urban transport scenario in India. With the urban population continuously growing, there is a need for green solutions. Mass Rapid Transit Systems are fast, safe, and comfortable to travel. This alone will encourage people to switch from personalized vehicles to public transport.

Bangalore Metro Rail Project Phase-1

Metro services have been in operation 56 Km on the East-West corridor - 25.6 km long, starting from Baiyappanahalli in the East and terminating at Kengeri Terminal in the West and on 30.4 km North-South corridor commencing at Nagasandra in the North and terminating at Silk Institute in the South.

Bangalore Metro Rail Project Phase-2

Phase 2 of the Bangalore Metro Rail Project was sanctioned by GoI in February 2014. The Project consists of Four Extensions to the existing lines and two New Lines. The total length

[5] BMRCL Annual Report, 2021-22

of Phase-2 is 72.095 km with 61 stations (49 Elevated and 12 Underground). The sanctioned project cost is Rs.26,405.14 Crore. The entire network is programmed to be completed by March 2025. The physical progress of Phase 2 up to July 2022 was 71%. The construction of Phase-2 is under progress in all the Reaches.

Bangalore Metro Rail Project Phase-2A and Phase-2B

BMRCL has initiated the process of setting up a separate Metro line from Central Silk Board Junction to Kempegowda International Airport via K.R.Puram and Hebbal on the Outer Ring Road and thereafter by the side of NH-44 with a total length of 58 Km and 30 stations. The GoK has approved the project and the sanction of the GoI was received on 07.06.2021 with a completion plan targeted for June 2026. The approved project cost for Phase-2A & 2B of the BMRC project is estimated at Rs.14,788.101 Crore. The physical progress up to July 2022 is 18.5%. The construction of Phase-2A & 2B is under progress in all packages. The entire network is programmed to be completed by September 2025.

Bangalore Metro Rail Project Phase-3

BMRC proposes to take up metro projects in the following lines:

- ORR West line is from Kempapura to J.P.Nagar 4th Phase-32 km.
- Magadi Road line is from Hosahalli Meto station (Phase-1) to Kadabagere-13 Km.

  The preparation of DPR for the ORR West line and Magadi Road line have been entrusted to M/s RITES. At present, a draft DPR has been submitted.
- New Metro line from Sarjapur to Hebba;-36 Km. Work for the preparation of DPR has been awarded to M/s. Rina Consulting S.p.A.

Policy for augment e-vehicles

Karnataka is encouraging the registration of electric vehicles. In this regard, Transport Department has entered MoU with BESCOM at a cost of Rs.4.0 Crores to make it convenient to the owners of electric vehicles by establishing 100 AC and 26 DC charging stations by the BESCOM within BBMP limits. These charging stations can be viewed through a mobile app and the charging unit fee can be paid. Further, it is proposed to establish such charging units on Highways of the State. To promote the use of electric vehicles and to control air pollution 1190 charging stations are under development, the proceedings of the GoK can be found in **Annexure VI**.

BMTC has already incorporated 90 electric buses in its fleet, a financial provision of Rs.50.0 Crores was provided by Bengaluru Smart City Limited (BenSCL) and Rs.25.0 Crores is being utilized. A fleet of 300 electric vehicles will be incorporated by October 2022 for which a financial provision of Rs.157.0 Crores is being provided under the FAME II scheme,

implemented in April 2019 by the Department of Heavy Industries, Govt. of India and Rs.20.0 Crores is being utilized. BMTC has a vision of replacing all diesel buses with electric buses by 2030.

Similarly, KSRTC has incorporated 50 electric buses in its fleet, a financial provision of Rs.27.50 Crores was provided under the FAME II scheme and Rs.5.5 Crores is being utilized.

Notification and enforcement of PUC norms

A provision has been made under the Motor vehicles Act, 1988 to impose a penalty of Rs.1500/- for 2-wheelers or 3-wheelers and Rs.3000/- for LMV, Heavy & others in regards to the violation of standards prescribed with air pollution. During the year 2021-22 checking was conducted on polluting vehicles and 10,73,018 vehicles were checked, cases were booked against 42,563 vehicles and Rs.5.39 Crore is collected as a fine[6].

Online monitoring of PUC implementation

Directions have been given to manufacturers and distributors of the gas analyzer and smoke meters to give training to the staff at Emission Testing Centres. According to rule 231(b) of Karnataka Motor Vehicles Rules, 1989, all the Emission Testing Centres are being inspected regularly for their proper functioning. If defects are found at the time of inspection, notices will be issued to them to rectify the defects. If more defects are found and bad functioning is noticed, action is taken to suspend or cancel the licenses of those centres. As of 31- 03-2022, there are 542 centres in Bengaluru and 1,342 centres in other places. All the Emission testing centres are computerized for proper functioning and to check vehicles more scientifically and transparently.

Mechanism for centralized record maintenance of PUC checks, certification, and cross-check by the concerned transport authorities to be incorporated

As per rule 231 (b) of Karnataka Motor Vehicles Rules 1989, licenses are being issued to open new Emission Testing Centres only after a detailed inspection of the centres and fulfilment of prescribed norms. The Emission Testing Centres should keep the approved gas analyzers and smoke meters and this equipment have to be maintained properly by calibrating them from time to time. All the centres are being issued detailed and strict instructions for proper functioning. Periodical inspections are also conducted to ensure the proper functioning of these Centres.

Emission testing centres check the levels of exhaust emitted from motor vehicles to guide vehicle owners for rectification. The Transport Department, Government of Karnataka has

[6] Transport Department, 2021-22 Annual Report

provided an online networking facility to all the emission testing centres in Karnataka. This is achieved in Karnataka by employing software that provides test details of motor vehicles and it uploads online test data to a centrally located server. The Motor Vehicle Inspectors also cross-check the test data of vehicles through the website http://etc.karnataka.gov.in. This project will cover approximately 2.85 Crores vehicles[7]. The existing Emission Testing Centres have been converted to the new system. This is a secure way to monitor the Emission data across the state and it helps to take the necessary step to reduce pollution. The said system has been inaugurated in Bangalore City on 22-11-2010. Since December 2016, the system of online networking of emission testing centres in the State is being maintained by the Transport Department.

Any other Policy/Rules/standards/Guidelines pertaining to vehicularemissions[8]

A. Use of air pollution measuring equipment:

Action is being taken by KSPCB and Forest-Environment and Ecology department to set up air pollution measuring equipment and to display the level of air pollution at important traffic junctions and other such places to make people aware of the quality of air and the details shall be published in all daily newspapers. Action in this regard is in progress. Regular Vehicle checks are organized through special squads. For monitoring the air quality in Bengaluru city in association with KSPCB installation of the CAAQMS station at RTO, Bengaluru (East) is under progress.

B. Use of LPG as base fuel in motor vehicles:

By amending Section 52 of the MV Act 1988, a provision has been made for use of LPG in vehicles. The use of LPG in Auto rickshaws and Light motor vehicles is being popularized. Department has already approved 42 LPG Kit models and gave permissions for 76 retro fitment centres in Bangalore City and 210 retro fitment centres in Karnataka state. Encouragement is given to those who apply to establish retro fitment centres. These centres fit approved LPG Cylinders to Auto rickshaws and Light Motor vehicles (Motor cars).

C. Insertion of section 3(b) under Karnataka Motor Vehicles Taxation Act-1957:

A new Section 3 (b) of KMVT Act 1957 with effect from 01-04-2002, green tax is being collected in respect of non-transport vehicles which are more than 15 years old and in respect of transport vehicles that are more than 7 years old. The details are in Table No.17.

[7,8] Transport Department, 2021-22 Annual Report

Table 17: Vehicle Taxation details

Sl. No	Class and age of the vehicle	Rate of tax (Rs.)
1	Non-Transport vehicles completed 15 years from the date of their registration, at the time of renewal of the certificate of registration as per sub-section (10) of section 41, of the Motor Vehicles Act 1988.	
	(1) Two-wheeled vehicles	250.00
	(2) Four-wheeled vehicles	500.00
2	Transport vehicles completed 7 years from the date of their registration, at the time of renewal of fitness certificate as per Sec.56 of Motor Vehicles Act 1988.	200.00 Per annum

(Source: 2021-22 Annual Report of Transport Department)

D. Development and encouragement of eco-friendly alternative fuels in vehicles:

To reduce vehicular air pollution, vehicle manufacturers are introducing new vehicles in the market with eco-friendly alternative fuels like electricity, battery operated, LPG, CNG, etc. which are less or zero emission of pollutants. To encourage and popularize the use of these vehicles, the department is assisting to get loans for battery-operated vehicles through financial institutions.

The Government has proposed to promote ethanol mixed with petrol as fuel to control air pollution in the State by selling the same through petrol bunks for which the oil companies and sugar manufacturing companies have to jointly work out the scheme. Further, M/s GAIL Gas Ltd. has established CNG re-filling stations in Bangalore City. To control vehicular pollution and also to encourage the usage of CNG fuel, the Transport Department has granted permission to four CNG retro fitment centres in Bangalore City. During the year 2020-21, permission has been accorded for the establishment of 02 CNG retro fitment centres in Bangalore City, so far a total of 8 centres are functioning. Further, permission will be sanctioned for the establishment of CNG retro fitment centres in other parts of the State also.

E. November month is observed as pollution awareness and control month:

Due to urbanization and industrialization, the demand for Transport has also increased considerably. The exponential rise in petrol and diesel vehicles in turn has led to the deterioration of air quality. Presently, some Indian cities are recognized as the most polluted cities in the world due to which there is an urgent need to bring awareness among the general public regarding vehicular pollution.

Every year, Transport Department observes November month as Air Pollution awareness month. In this regard various programmes are carried out during the month, to enlighten the public on the ill effects of vehicular pollution.

Construction & Demolition Waste and Road Dust Management

Policy for development of projects/plants for C& D waste management

KSPCB is enforcing the Construction and Demolition Waste Management Rules, 2016 notified by the MoEF & CC. The local bodies are responsible for characterizing the waste to recycling facilities and creating the required infrastructure.

Schemes for development of green belt/open spaces and street sides greening on State highways

Greening is an integral part of the Concessionaire Agreement. The guidelines followed for greening in National Highway Authority of India (NHAI) projects are IRC: SP: 21-2009 and Green Highways (plantation, transplantation, beautification & maintenance), Policy-2015.

As per the information received from the various Regional Offices of NHAI in the State, it is estimated that 4,64,891 avenues of plantation (plantation on both sides of the road) and 10,20,895 median of plantation are being carried out[9].

Penalty provisions for non-compliance of C & D waste management rules at construction sites

The Karnataka State Highways Improvement Project (KSHIP) has no such provision made under the concession agreement. Further, the authority can suspend the whole or part of the work for environmental reasons after the recommendation of the Independent Engineer.

Maintenance, repair, and paving of State highways

Maintenance of roads is carried out regularly to keep the roads in good condition. The shoulders of roads are either compacted earthen or paved surfaces where dust is not emitted.

C & D waste processing plants

Existing plants[10]:

KSPCB has given authorization to M/s. Rock Crystals, No. 184, Chikkajala, near Vidyanagar Camp, Bengaluru for the operation of Construction & Demolition waste processing plant for the production of aggregate using the infrastructure of existing stone crusher in an area of 2 acres 3 guntas with capacity 1000TPD.

[9] Information received by NHAI via Letter No. NHAI/RO-BNG/GHM/25057/5/2021-22/1438 dated: 22.07.22
[10] KSPCB 2020-21 Annual Report

Proposed plants[11]:

1. M/s. Rubbel Revival Pvt. Ltd., has obtained Consent For Establishment (CFE) from KSPCB on 28.05.2020 to establish a 750 MTPD C & D plant in BBMP land, located at Kannur village, Bangalore to process C&D waste. Sites for C& D wastes have been identified at Shivalli of capacity 50TPD in Hubbali – Dharwad at Vantamuri, Srinagar Belagavi, Mangaluru, Mysuru, and Kalaburgi.
2. City Corporation, Mangalore has obtained Consent For establishment (CFE) of the 20 TPD C&D Waste processing facility at Pachanady on 30.12.2020.

Any other Policy/Rules/Standards/Guidelines pertaining to C&D waste and Road dust management

A. To monitor the management of the C & D waste generated by institutions, residential and commercial establishments, KSPCB has issued a notification Vide No. PCB/031/C & D/2016/5753 dated 30.01.2019 (**Annexure-VII**). In this regard all the Regional Officers are required to follow:

1. Collect the information regarding the estimated quantity of construction and demolition waste proposed to be generated and managed during the time of CFE and get certification in case of demolition activities.
2. Collect the information regarding the quantity of construction and demolition waste generated and managed during the time of CFO and collect certification regarding the management of the said waste and verify, and enclose the certificate while forwarding the consent application
3. RSEOs and ROs shall monitor the implementation of construction and demolition waste management rules 2016, by the bulk generators.

B. ULBs may also propose imposition of User Fee as per Rule 3(54) of SWM Rules 2016 on the waste generation to cover full or part cost of providing solid waste collection, transportation, processing and disposal services. Pertaining to C&D waste, Section 4(5) of C&D Waste Management Rules 2016 mandates that every waste generator generating more than 20 TPD or 300 TPM shall have to pay for processing and disposal of C&D waste. The total expected income from imposition of user fee for SWM and C&D waste and SWM processing in Bengaluru alone is around Rs.1030 Crores.[12]

[11] KSPCB 2020-21 Annual Report
[12] Karnataka Economic Survey Report 2021-22

Emission from burning of waste

Notification and Enforcement of Municipal Solid Waste (MSW) management rules/Policy for MSW management

A direction under section 5 of the Environment (Protection) Act, 1986 for implementation of the Solid Waste Management Rules, 2016 is issued vide No. KSPCB/SEO-WMC/MSW/4421 dated 01.12.2021 **(Annexure VIII)** by KSPCB.

The directions for Deputy Commissioners are as follows:

1. Deputy Commissioner shall hold a review meeting as per section 12 (b) of the SWM Rules, 2016, and GoK Order No. FEE 07 ENG 2019, dated 13.02.2019, and take corrective measures in consultation with the Commissioner or Director of Municipal Administration or Director of local bodies and Secretary-in-charge of the State Urban Development.
2. Facilitate identification and allocation of suitable land for setting up solid waste processing and disposal facilities to local authorities.
3. Take necessary actions with the directions issued by the Hon'ble NGT in O.A.606/2018 from time to time.

For Urban Local Bodies (ULBs):

1. Comply with Rule 15 of SWM Rules, 2016.
2. Segregation of waste at source is to be made mandatory for ensuring the safe disposal of MSW. Wet waste should be composted and dry waste should be sent to a Material Recovery Facility (MRF) for further segregation and usage.
3. Every ULB shall adhere to applicable Guidelines issued by CPCB.

Policy for legacy waste management at dumpsites[13]

As per the SWM Rules – 2016, guidelines have been issued to convert legacy waste landfill sites to useful sites by doing Bio-Mining. A grant of Rs.100.00 Crores for biomining of the Mandur landfill site is given. The work is initiated and biomining of nearly 100 Acres of land will be taken up subsequently, the said land will be planned to develop as a biodiversity park.

It is planned to take up bioremediation of the landfill site at Bellahalli to make use of 22 acres of land.

[13] UDD Annual Report 2021-22

Policy for implementation of the ban on single-use of plastics

Implementation of the Plastic Waste Management Rules, 2016:

The MoEF & CC has notified the Plastic Waste (Management and Handling) Rules, 2016 which is in effect from 18th March 2016. The prescribed authority for enforcement of the provisions of these Rules related to registration, manufacture of plastic products, multi-layered packaging, processing, and disposal of plastic wastes is SPCB.

State Initiative: The Forest, Ecology and Environment Secretariat, GoK vide Notification No. FEE 17 EPC 2012, Bengaluru, dated 11.03.2016 **(Annexure IX)** in the exercise of the powers conferred under the Environment (Protection) Act, 1986, issued directions imposing a ban on the manufacture, supply, sale, and use of plastic carry bags, plastic banners, flex, plastic flags, plastic plates, plastic cups, plastic spoons, cling films and plastic sheets used for spreading on dining table including the above items made out of thermocol and plastic which use plastic microbeads in the Karnataka State. In the said notification of GoK, the role of KSPCB is enforcement regarding functions specified in clause (a) of Rule 4 of the Plastic (Management & Handling) Rules, 2011.

The Board has initiated the following action against violating industries.

1. Closure directions issued - 104

2. Notice of proposed directions issued - 36

3. Criminal cases filed for violations
    a. Bellary - 09
    b. Mysuru - 03

KSPCB has conducted raids at different places in the State in coordination with Local bodies. Violation of Rules has been observed and the director of municipal administration has conducted 8357 raids, Rs.88,77,318/- fine has been collected and about 2205 tons of banned plastic seized during raids (As per CPCB).

KSPCB has permitted ten cement industries to co-processing of plastic waste in their kilns. Approx. 49056 TPA of low-value plastic is supplied to cement plants. Approx. 73584 TPA is supplied for recycling.

As per Plastic Waste Management Rules, 2016 plastic waste recyclers require registration. As of 31-03-2021, the KSPCCB has given authorization to 83 plastic waste recycling units.

Policy for development and Construction of Waste to Energy Plants[14]

BBMP has spread across a 709 sq. km. area and has a population of 1.30 Crores. The total quantity of waste generated from domestic generators, commercial waste generators, andbulk waste generators is approximately 5500 MTPD. It is the duty of BBMP and the Government to carry out day-to-day management of solid waste.

In the BBMP area, the quantity of waste generated from domestic waste generators and small establishments (excluding bulk waste generators) is around 4000 to 4500 MTPD. To do scientific collection, transportation, and processing of this waste vide G.O. No. UDD/150/MNY/2019 dated: 04-11-2019 under the "Shubra Bengaluru" Project the Government sanctioned Rs.999.00 Crores for the year 2019-20, 2020-21, and 2021-22. This allocation of funds is purely provided for the creation of SWM Infrastructure.

Under these Shubra Bengaluru, Waste to Energy Plant of capacity 11.5 MW power generation with 600 MT of RDF waste to be provided by BBMP and executed by M/s. KPCL at Bidadi. The work is under progress at a project cost of Rs.260.00 Crores. The cost-sharing for the project is 50:50 to be shared between KPCL and BBMP. By commissioning this project around 25% of waste will be taken up by this project.

a) Non-recyclable/combustible dry waste[15]

Dry Waste Collection Centres (DWCC) are planned to construct at a project cost of Rs.50.00 Crores. Work Orders have been issued and work is under progress at 7 locations at present. Overall around 30 dry waste collection centres each capacity of 4 MT will be constructed by the year 2023.

b) Bio-Methanation/Bio CNG

Establishment of Bio- Methanation Plants of capacity 5 TPD to 50 TPD at various locations in BBMP at a project cost of Rs.40.00 Crores are planned to construct. The tenders are under process.

GAIL India Ltd., has proposed setting up 300 Tonnes per day (TPD) capacity Compressed Bio Gas (CBG) Plant in North Bengaluru at their cost. It is been proposed to utilize 300 TPD of segregated wet waste from BBMP and convert this into Compressed Bio Gas and Manure. The CBG produced will be utilized in CNG stations for fueling vehicles or the GAIL GAS Bengaluru's CGD network. The Infrastructure Development Department is encouraging the CGD entities to develop CBG plants in the districts along with the municipal corporations.

[14,15] UDD Annual Report 2021-22

c) Composting plant etc.

A plan to upgrade existing processing plants at Kannahalli, Seegehalli, Lingadheeranahalli, Subbarayanapalya, Chikkajala, Nagamangala, Doddabidarakallu and Karnataka Compost Development Corporation (KCDC) at a cost of Rs.25.00 Crores by the year 2023.

Waste collection & waste segregation status in the city (%)

As reported by the DMA, 97% of door-to-door waste collection is achieved in 6739 wards out of 6932 wards and 4865 wards (77%) of source segregation is achieved. 7154.22 (64%) tons of Municipal Solid Waste is processed daily (out of 11085 TPD total waste generated in the State).

Material Recovery Facility (MRF)

As reported by the DMA, 55 MRFs have been completed and 309 new MRFs are targeted to be developed in the 309 ULBs for an allocated fund of Rs.362.47 Crores by March 2026.

Waste to Energy plants

As reported by the DMA, 14 Waste to Energy plants have been completed. 600TPD-11.5 MW waste-to-energy plant is being built by BBMP and KPCL and 200TPD by NTPCL at Dharwad City Corporation.

Waste to compost plants

As reported by the DMA, 185 Waste to compost plants have been completed and 124 new plants are yet to be developed to achieve the target of 309 ULBs for an allocated fund of Rs.214.18 Crores by March 2026.

Remediation of the dumpsite in the city

As reported by the DMA, remediation of 5 dumpsites is ongoing and additional 190 dumpsites are yet to be remediated to achieve the target in 195 ULBs for an allocated fund of Rs.451.83 Crores by December 2023.

Control open burning of MSW

As per the notification, FEE 6 ENG 2017 (**Annexure X**), issued by the Department of Forest Ecology and Environment, Government of Karnataka, imposed a complete ban on burning solid waste of any kind including twigs and leaves of plants in open places within the jurisdiction of all urban local bodies including BBMP and solid waste landfill sites throughout the State.

Any other Policy/Rules/Standards/Guidelines pertaining to MSW Management

The state strategy for solid waste management "**Karnataka State Urban SWM Strategy-2020**" prepared in compliance with the SWM rules, 2016, contains an overview of the waste flow from generation to disposal including the different options available to the ULB for processing solid waste while recovering the maximum resources from it. It also provides a framework for the implementation and monitoring of waste management systems and the strategy to be adopted by the ULB to effectively manage the different streams of waste generated within their jurisdictions. In addition, the State Government, by way of this strategy, determines the roles and responsibilities of Urban Local Bodies, statutory and regulatory agencies in implementing solid waste management strategies detailed here, and as per timelines for compliance recording. This would be undertaken in comprehensive compliance with provisions of the Environment Protection Act and its subordinate rules and notifications, in particular SWM Rules 2016, and also all other applicable laws and rules, to produce a socially just, environmentally wise, and economically viable management approach to solid waste management across Karnataka. The State Government resolves to provide all necessary financial, managerial, and infrastructure support to ensure these strategies are effectively implemented.

In this context, this Karnataka State Urban SWM Strategy applies to all urban areas in the state of Karnataka. It is meant for key players, relevant authorities, and other functionaries of "local bodies" in the state of Karnataka to prepare SWM-related plans and procedures for the management of solid waste (including plastic waste) within their jurisdictions. It is clarified that hazardous waste, bio-medical waste, e-waste, faecal sludge and sewage, construction and demolition waste, and industrial waste (solid and liquid components) are not covered by this strategy because they do not fall within the scope of SWM Rules, 2016 and are governed by different regulations. The State of Karnataka shall prepare separate policies, strategies, and regulations for such waste streams as required under applicable law and requirements of the state.

The Karnataka State Urban SWM Strategy will be reviewed and amended at least every two years (or earlier, if there it is deemed necessary by the government), to accommodate the innovations and research on the processing of solid waste management and any other developments that are relevant in the waste sector.

Strategies for effective Solid Waste Management[16]

- Integrated MSW management to ensure safe and environmentally sound disposal of waste.
- Encourage decentralized collection centres as mandated by MSW Rules 2016, Section 3(15) to process dry waste to avoid contamination by wet waste and minimize transportation.
- Set up advanced wet waste processing units for composting and bio-methanation.
- Sensitize general public about effective SWM techniques and create awareness regarding the consequences of poor waste management.
- Establish source segregation of MSW through performance-based incentive scheme.
- Minimize the gap in generation and processing of MSW by emphasizing 5 R's of waste hierarchy i.e. 'reduce, re-use, recycle and recover and disposal' as mandated by MSW Rules 2016, Section 3(57).
- Adopt environmentally sound technologies like composting, bio-methanation, RDF and waste to energy initiatives.
- Boost the incomes of ULBs through earnings from effective MSW processing like recycling, composting, and RDF.
- Set up zone-wise segregation and processing facilities to ensure 100%processing of MSW and minimize land-filling.
- Reduce transportation of MSW to minimize the dependence on fossil fuels and impact on air quality.

[16] Karnataka Economic Survey Report 2021-22

Emission due to burning of Agro residues

4.5.1 In-Situ treatment of Biomass residues for management of stubble burning

A. Schemes for procurement of agriculture machinery[17]:

Under farm mechanization scheme 50% subsidy is being provided for general category farmers and 90% subsidy is provided for farmers belongs to Scheduled Caste and Scheduled Tribes limited to Rs.1.00 Lakh per annum for various Farm Machineries. For small tractors (up to 45 PTO HP) Rs.0.75 lakhs subsidy to general category farmers and 90% limited to Rs.3.00 Lakh subsidy is being provided for farmers belonging to SC and ST. The amount provided under State Farm mechanization is used as matching / top-up grants with the centrally sponsored schemes sub mission on agriculture mechanization) to provide the subsidy. The details of expenditure incurred under farm mechanization programme in Karnataka during 2019-20 is Rs.39819.32 lakhs and in 2020-21 is Rs.46504.78 lakhs.

Sub mission on agricultural mechanization (SMAM): The scheme is being implemented to promote the usage of farm mechanization and increase the ratio of farm power to a cultivable unit area up to 2.5 kW/ha. The beneficiaries covered under the scheme in 2020-21 is 17,753 and the expenditure was found to be Rs.5024.82 lakhs.

B. Assistance for the establishment of farm machinery banks/custom hiring and service centres: Department of Agriculture implemented **'Krishi Yantra Dhare'** for the establishment of farm machinery banks/custom hiring centres, implemented in the State in 2014; the project aims to provide farm machinery to small and marginal farmers at nominal hiring charges in all districts of the State.

From 2014-15, 696 centers have been established with a budget of Rs.28734.52 lakhs. During 2021-22, the budget allocated for implementation of CHSC is Rs.3533.30 lakhs (Rs.3000 Lakhs under state and Rs.33.30 Lakhs under RKVY), of which Rs.1933.30 Lakhs (Rs.1400 Lakhs under state and Rs.533.30 Lakhs under RKVY) has been released till date and 25.12 lakh farmers have been benefited so far[18].

Ex-Situ treatment of biomass residues for management of stubble burning

Schemes for balers/pellet/briquette machines, etc.

Balers are included under farm machinery as one of the components under farm machinery schemes. For the year 2021-22, 2 balers are procured and the procurement of 4 numbers of balers is targeted by 31.03.2023 with an allocated fund of Rs.10 lakhs.

[17,18] Economic Survey Report of Karnataka 2021-22

Biomass projects with respect to the hotspots of crop residue burning[19] There is no exclusive project with respect to the hotspots of crop residue burning, Agriculturedepartment is motivating farmers to take up solid and liquid organic fertilizers production ontheir own at the farm level by effective use of bio-waste produced in crop cultivation. The useof organic fertilizers in crop cultivation helps to reduce air pollution and also improves soil health, water-holding capacity, and soil fertility.

In addition, under the organic fertilizers promotion programme, the department is giving subsidies to firms for the distribution of city compost directly to farmer's field. It helps to effectively utilize waste generated in city municipal and panchayats. Using compost in crop cultivation helps to reduce air pollution and also increases soil organic carbon.

Any other scheme/program that may help in reducing air pollution[20]

A. Under the organic and millet promotional scheme of the State, natural/traditional/organic millet growers are being provided with an incentive of Rs.6000/- per ha, thereby reducing their carbon footprint. Organic/natural farming systems are being promoted in the farmer's field incorporating best practices of organic farming system and ZNBF system, wherein incorporation of crop residues into the soil or bio digestor along with multi-cropping, intercropping, and crop rotation practices. Stubble burning is discouraged under these systems.

The state needs the Crop Residue Management (CRM) scheme of GoI, as the practice of residue burning is being followed in the State.

B. Action Plan for control of stubble burning in Karnataka (2020-21)

In Response to direction VI of the orders of the Hon'ble NGT at Delhi in OA No.681/2018, the Department of Agriculture, GoK, has an action plan implemented in the State. The copy can be found in **Annexure XI**.

Common Action points for implementation for effective management of crop residue burning[21]

- Encouragement of private companies and Public Private Partnerships (PPP) in biomass based energy and fuel plants.
- Crop residues can be showcased as a portable and valuable source of additional income.

[19,20] Information received by Department of Agriculture via letter No. DDA/FM&MI/EMPRI/SAP/2022-23 dated 22.08.2022.
[21] Indian Council of Food and Agriculture Report on Crop Residues Burning: Challenges & Solutions

- Providing incentives to companies using crop residues as raw materials.
- Linking Corporate Social Responsibility (CSR) activities of large oil companies who are also into biofuel production.
- Development of agro-ecological zones for management of crop residues and implement the same under the Annual Work Plan (AWP) of various ongoing schemes or programmes.
- Dedicated agencies for educating, awareness building, and monitoring crop residue burning.
- Collaboration with ISRO and preparation of Satellite based maps for monitoring of fire incidences.

Household emissions

Scheme for use of LPG/PNG for cooking fuels

To make Karnataka State Kerosene free and to provide LPG Connections to the non-gas Priority Household (PHH) cardholders instead of kerosene. The "Mukhya Mantri Anila Bhagya" scheme has been introduced in the year 2017-18. Presently a target of 1 lakh beneficiaries has been fixed for the scheme and 98,731 installations (data as of 11.07.2022) have been completed[22].

Due to Covid-19 Lockdown, an order was issued (FCS 162 DRA 2020 (E-Office)) to provide three free refill cylinders to beneficiaries who already have LPG connections. Under this scheme about 96,695 beneficiaries have received the 1st refill cylinder, about 96,462 beneficiaries have received the 2nd refill cylinder and 96,138 beneficiaries have received the 3rd refill cylinder.

Any other Policy/Rules/Guidelines pertaining to Household Emissions

A. In May 2016, the Ministry of Petroleum and Natural Gas (MOPNG), introduced the 'Pradhan Mantri Ujjwala Yojana' (PMUY) as a flagship scheme to make clean cooking fuel such as LPG available to rural and deprived households which were otherwise using traditional cooking fuels such as firewood, coal, cow-dung cakes etc. The usage of traditional cooking fuels had detrimental impacts on the health of rural women as well as on the environment. Total connections released under PMUY (earlier PMUY and Ujjwala 2.0 schemes) for the Karnataka State are 36,99,255[23].

B. For the control of air pollution and to make Karnataka State kerosene free, through the Public Distribution System (PDS), the distribution of kerosene from April 2016, is been cut down gradually in phases. At present only a few districts and taluks have been approved for kerosene distribution, and 2 liters of kerosene is being distributed to households that do not have an LPG connection. For the year 2018-19, the central government released 155968 KL of kerosene to the State. In the year 2021-22, the central government released 2230 KL of kerosene, this quantity exceeds the demand of the State and hence the excess quantity is being surrendered back to the central government[24].

[22,24] Data received from FCS department via letter No. FCS/CS/PTL/33/2009-10 dated: 13.07.2022
[23] Data downloaded from www.pmuy.gov.in on: 27/9/2022 11:19:08 AM

5. Environmental initiatives undertaken by Smart Cities of Karnataka[25]

Shivamogga Smart City Limited (SSCL)

- The scheme for the development of street sides greening on smart roads (Tree corridor in smart roads-Planting of tree saplings and shrubs) is partially completed with estimated cost and expenditures included in the Road Package cost. This activity will achieve complete target coverage by October 2022.
- 17 parks are planned to be developed, out of which 14 parks are completed and the development of 03 parks is ongoing, with an allocated budget of Rs.142.26 Crore. Rs.105.68 Crore is being utilized and this activity has achieved complete target coverage by August 2022.
- Greening of open spaces (at 19 places, 8630 saplings are planted) is completed. Rs.2.82 Crore was allocated and Rs.2.49 Crore is being utilized. This activity is currently under Operation and Maintenance.
- The public bike sharing system (Bicycles on rent under the PPP system. 300 bicycles with 30 docking stations at different parts of the city) is ongoing, with an allocated budget of Rs.4.43 Crore and Rs.0.04 Crore being utilized.
- A dedicated bicycle track (total 30 kms) is ongoing with estimated cost and expenditures included in the Road Package cost. This activity will achieve complete target coverage by October 2022.

Tumakuru Smart City Limited (TSCL)

- **Climate Smart Cities:** Initiative by GoI to create awareness among the citizen on the importance of the environment and containing pollution at different levels. TSCL has conducted many activities viz., Workshop, Seminar, and Climate Audit at Government Schools, etc.
- **Environmental Sensors:** This is one of the integrated components in the Integrated Command and Control Centre and Smart Pole projects implemented at Rs.30 Crore and Rs.1Crore respectively**.**
- **Street Light (PPP):** LED-based Street Light project implemented across the city. 32,620 lights are commissioned in the city.
- **06 KW and 50 KW centralized Off-Grid Solar Power Plant with LED-based Solar street lighting system:** The 06 KW system with an allocated budget of Rs.29.90 lakhs, is

[25] Information received from Tumakuru Smart City Limited via letter No. TSCL/ADMN/CR/18-19/237 dated 18.07.2022 and Shivamogga Smart City Limited via email.

designed to cater electricity through clean energy for 72 street lights in 3 streets of Vidyanagar in Tumakuru city. This system operates from dusk to dawn mode with a remote monitoring system imbibed in it, which allows one to pinpoint if any fault occurs in the system and such an issue can be addressed at the exact location of the fault immediately**.**

The 50KW innovation is planned with the following activities with an allocated budget of Rs.65.53 lakhs.

1. Micro Grid: The system designed and implemented would be independent of the Grid which is called a Micro grid or Mini Grid
2. Remote Monitoring Solution
3. CO_2 emission reduction
4. Savings on Electricity

- **300 KW- on-grid BIPV Solar Roof-Top Photo Voltaic (SRTPV) system:** An area-based development with an allocated budget of Rs.2.9 Crore. Amanikere Lake is a beautiful lake that recently got revived in Tumakuru. On its banks, is a magnificent Glass House of an area of 2100 Sq.m constructed over its roof is an innovative energy generation plant using Building Integrated Photo Voltaic (BIPV). Together it has become a cynosure in the mid of the City.
- **Solar Smart Bench:** Part of a Park development Project implemented across the city. The Solar Smart Bench is capable of generating 7.92 kWh/day and is self-sustainable. The project has additional components summing to Rs.3.00 Crore.
- **Solar Street Lights:** Part of a Park development Project implemented across the city. The Solar LED Street Light so far has 1322.64 kWh of total power generation and is self-sustainable. The project has additional components summing to Rs.3.00 Crore.

No information received from the Smart Cities of Belagavi, Bengaluru, Mangaluru, Davangere, and Huballi-Dharwad.

Annexures

Annexure I: Indicative template for State Action Plan on Air Pollution

1. Industrial Emission

Sl. No	Activities	Status of activity (Completed/ongoing /To be Started)	Timeline for completion	Target (Coverage/ Percentage)	Financial implication (Yes/No)	Funds Allocated (Rs. crore)	Funds Utilized as of date (Rs. crore)
1	Policy for permitting new industries in Critically Polluted Areas (CPAs)	New red and orange category permitted only after submission of the scheme for complete treatment & reuse of wastewater	Ongoing	As and when proposals are received	Nil	-	-
2	Guidelines for laying city gas distribution network	Policy and guidelines for laying city gas distribution are being prepared	December 2022	100%	Under the scope of the territorial distributors	-	-
3	Policy for replacement of heavy oil (e.g., furnace oil, diesel etc., based industries to alternate energy sources (CNG/PNG/Electricity)	Policy on the usage of CNG/ LPG is in place for non-attainment cities	Ongoing	Implemented depending on the technical feasibility by the factory	Nil	-	-
4	Policy for restriction on the usage of Pet coke for industrial use.	KSPCB has issued directions under Section 31(A) of the Air (Prevention and Control of Pollution) Act, 1981 to M/s Mangalore Refinery and Petrochemicals Limited, Mangaluru, Dakshina Kannada on 15.06.2018 to sell the pet coke only to industries having the permission of the KSPCB and submit the details on the quantity of pet coke generated and sold every month.					
5	Rules and Regulations on uninterrupted power supply in	Electricity (Rights of Consumers) Rules, 2020 issued by GoI Vide Gazetted Notification No. G.S.R. 818 (E) dated 31st December 2020, stipulates 24 X 7 power supply to consumers					

	State/UT						
6	Policy for use of DG sets	KSPCB has issued an order, vide No. KSPCB/SEO-INFRA/DG-RETROFITTING/2021-22/2887 dated 17th September 2021 (**Annexure III**)					
7	Policy regarding the installation of CAAQMS based on the emission potential or capacity of air-polluting industries	33 industries have installed the CAAQMS & OCEMS	Ongoing	100%	Nil	-	-
8	Mechanisms to be devised for expansion to air polluting industries are not covered currently (Such as emission from utility stacks in 17 categories, etc.,)	Karnataka has 246 industries operating under this category and all the industries have installed OCEMS. The details are provided in Table 9, section 4.1.8.	Completed	100%	Nil	-	-
9	Mechanisms to control fugitive emission sources	Stipulated at the time of issue of Consent for Operation toreduce the fugitive emissions by installing appropriate APC to meet the prescribed standards	Completed and ongoing	100%	Regulatory activity	-	-
10	Regulations for conversions of brick kilns to clean technologies	To be started	Two years	50% percent to be completed by Dec-2025	Regulatory	-	-
11	Regulations for Emission Trading Scheme (ETS)	Yet to be initiated	-	-	-	-	-
12	Policy to set up e-waste recycling unit in industrial areas in compliance with e- waste	State E-waste policy to be developed	Two years	50% percent to be completed by Dec-2024	Regulatory	-	-

	management rules						
13	Any other Policy /Rules/ Standards/Guidelines pertaining to industrial emissions	Siting Guidelines for the establishment of red, orange, and green industries **(Annexure XII)**	Completed	100%	Regulatory activity	-	-
14	Number of industries in the state complying emission standards	Industries are regularly monitored through Automated and manual systems. *The details are provided in Table 10, section 4.1.11*.	Completed and ongoing	100%	Regulatory activity	-	-
15	Inventory of fuel consumed in the industries (type and quantity)	The details are provided in Table 14, section 4.1.15.		-	-	-	-
16	Shifting of industries / commercial units to gaseous fuels (CNG/NG/CBG)	The policy is already laid down and is ongoing	ongoing	Five years initially with a 10% target	Subsidies are being proposed	-	-
17	Number of households shifted to PNG/LPG	The details are provided in Table 13, section 4.1.13. As per National Family Health Survey (NHFS)–5 (2019-21), 79.7% Households in Karnataka use clean fuel for cooking.					
18	Any other activity/project pertaining to industrial emissions	Source Apportionment and Emission inventory studies for Non-attainment cities: Bengaluru-completed. Hubli-Dharwad, Davanagere and Kalaburgi is ongoing	Hubli-Dharwad, Davanagere and Kalaburgi to be completed by Dec 2023	4 non-attainment areas	Yes	0.6	0.25

(Source: KSPCB)

2. Vehicular Emission[26]

Sl. No	Activities	Status of activity (Completed/ongoing /To be Started)	Timeline for completion	Target (Coverage/ Percentage)	Financial implication (Yes/No)	Funds Allocated (Rs. crore)	Funds Utilized as on date (Rs. crore)
1	Notification for phasing out old vehicles (Commercial: 10 years; Private: 15 years)	As per the Government notification TD 187 TDO 2020, dated 03-02-2022, the Renewal of Fitness certificate for 2 -stroke auto rickshaw plying in Bengaluru has been restricted (Annexure V)	2020-23	100%	No	No	No
		MORTH, New Delhi enhanced the fees of Renewal of Fitness certificate and registration certificate to discourage the use of old vehicles	2020-23	100%	Yes	No	No
		Green Tax is being collected at the time of Renewal of fitness certificate and registration certificate as per 3-B of KMVT, 1957	2020-23	100%	Yes	15.0	6.0
2	Policy for scrapping old vehicles	MoRTH, New Delhi has issued a notification vide GSR 653(E), dated: 23-09-2021. For the State, the policy is under finalization for establishment of RVSF	Ongoing	100%	Yes	No	No

[26] Transport Department letter No. CT/Env & EGov/Pr-22/2020-21 dated 25.07.2022, BMTC's letter No. BMTC/CO/ME/619/2022-23 dated: 06.07.2022, and KSRTC's letter No. KST/CO/ME/811/2022-23 dated: 11.07.2022.

		(Registered Vehicle Scrapping Facility)					
		KSRTC as a public Sector has adopted the scrapping Policy as below: For ordinary vehicles 09 lakh kms, For Corona seater 10 lakh kms, For Corona sleeper 11 lakh kms, for Volvo vehicles 13 lakh kms					
		BMTC as a public sector has adopted the scrapping policy of 8.5 lakh kilometres or 11 years whichever is earlier					
3	Policy/Plan for Li-battery waste management from scrapped vehicles	To be started	NA	NA	NA	NA	NA
4	Policy/Scheme for Eco-Friendly Mass Rapid Transport Systems	Ongoing: Bangalore Metro Rail Project Phase-2A and Phase-2B	Sept 2025		Yes	14,788.101	2735.8 (July 2022)
5	Policy for augment e-vehicles	Fees tax and permit exemption for EV vehicles. Setting up of EV charging stations in the State	Ongoing		Yes	In the FY 2018-19, Rs.4.00 Cr and in the FY 2021-22 Rs.3.00 Cr was transferred to BESCOM for setting up of EV charging stations in Karnataka	7.0 Crore
		KSRTC: ongoing A) 50 Buses	Apr-2023	NA	Yes	FAME-II is providing Rs.27.5 Crore	5.5 Crore
		BMTC: Ongoing a) 90 buses b) 300 buses c) 921 buses (to be started)	a) completed b) October-2022	NA	NA	a) Bengaluru Smart City Ltd (BenSCL) provided Rs.50 Cr b) FAME-II is	a) Rs.25 Cr provided by BenSCL b) Rs.20 Cr provided by

						providing Rs.157 Cr	MHI
6	Notification and enforcement of PUC norms	Enforcement is in place and penalty is being imposed on vehicles that do not comply with the Emission norms	Ongoing	100%	No	No	No
		KSRTC & BMTC: Completed	NA	NA	NA	NA	NA
7	Online monitoring of PUC implementation	Ongoing: There are 1945 Emission Testing Centres in Karnataka and these centres are being connected with the centralized servers through online networking					
		KSRTC & BMTC: Completed	NA	NA	NA	NA	NA
8	Mechanism for centralized record maintenance of PUC checks, certification and cross-check by the concerned transport authorities to be incorporated	All Emission Testing Centres are connected with the centralized servers through online networking for centralized monitoring and maintenance of PUC check	On going	NA	NA	NA	NA
		KSRTC & BMTC: Completed	NA	NA	NA	NA	NA
9	Construction of bypass/ring roads	To be started	3 years	-	-	14,934	-
10	Re-filling stations retrofitted with Vapour Recovery System (VRS)	CPCB on January 07, 2020 in Compliance of the Hon'ble NGT order dated January 18, 2019 in OA No. 86/2019, issued guidelines for setting up of new petrol pumps, recommending installation of VRS in all new petrol pumps having sale potential of more than 100 KLPM and located in million plus cities, and petrol pumps with sale potential of more than 300 KLPM and located in cities with population between 01 lakh to 01 million. CPCB in exercise of the power vested under section 5 of the E(P) Act, 1986, the direction dated 18.09.2020 issued to OMCs to install VRS as per the following timelines: • VRS stage II: 100% retail outlets by October 2022 out of which 50% of retail outlets shall have VRS by June 2022. • VRS stage IB: 100% retail outlets by June 2022 out of which 50% of retail outlets shall have VRS by					

		Dec.2021. • VRS stage IA (Storage Terminals): March 2024.					
11	Incentive of setting up R&D facilities related to EVs	Karnataka Electric Vehicle and Energy Storage Policy-2017 https://indianstates.csis.org/uploads/KarnatakaStateElectricVehicleEnergyStoragePolicy2017.pdf					
12	Any other Policy/Rules/Standards/ Guidelines pertaining to vehicular emissions	Ongoing, Green Tax Fund No. TD 113 TDO 2022, dated: 23-05-2022. (Creating awareness regarding controlling Air Pollution)	2022-23	100%	Yes	15.00 Lakhs	6.00 Lakhs
		BMTC has a vision of replacing all diesel buses with electric buses by 2030					

3. Construction & Demolition Waste and Road dust Management[27]

Sl. No	Activities	Status of activity (Completed/ongoing /To be Started)	Timeline for completion	Target (Coverage/ Percentage)	Financial implication (Yes/No)	Funds Allocated (Rs. crore)	Funds Utilized as on date (Rs. crore)
1	Policy for development of projects/plants for C&D waste management	DMA: Ongoing	Dec-2022	100	Yes		Nil
		BBMP: Ongoing	3 years	90	NA	NA	NA
		KSHIP: Ongoing	Sept-2023	100	HAM project, the cost is included in the estimates		
2	Policy for use of C&D waste in laying and construction of State Highways	DMA: Ongoing		100	Yes	-	Nil
		KSHIP: Ongoing	Sept-2023	70	HAM project, the cost is included in the estimates		
3	Demand creation for C&D waste and alternative use of C&D waste material	DMA: Ongoing		100	Yes	-	Nil
		KSHIP: Ongoing	Sept-2023	30	HAM project, the cost is included in the estimates		
4	Schemes for the development of green belts/open spaces and street sides greening on State highways	KSHIP: to be started	Sept-2023	100	HAM project, the cost is included in the estimates		
		NHAI: Greening is an integral part of the Concessionaire Agreement. The guidelines followed for greening in National Highway Authority of India (NHAI) projects are IRC: SP: 21-2009 and Green Highways (plantation, transplantation, beautification & maintenance), Policy-2015.					
5	Penalty provisions for non-compliance of C&D waste management rules at construction sites	DMA: Ongoing	-	100	Yes	-	Nil
		KSHIP: No such provision was made under the concession agreement. Further, the authority can suspend the whole or part of the work for environmental reasons after the recommendation of the Independent Engineer.					
6	Maintenance, repair and paving of State highways	KSHIP: Ongoing	Sept-2023	30	HAM project, the cost is included in the estimates		

[27] Information received from DMA via letter No. 565640/DMA/16/2020-21/4504 dated: 17.09.2022, KSHIP's Letter No: PIU/KSHIP-III/Env/SAPAP/Pkg-1, 2 & 3/2022-23/1112 dated: 22.07.2022 and NHAI's letter NO. NHAI/RO-BNG/GHM/25027/5/2021-22/1438 dated: 22.07.2022.

		NHAI: Maintenance of roads is carried out regularly to keep the roads in good condition. The shoulders of roads are either compacted earthen or paved surfaces where dust is not emitted.					
7	Monitoring of road dust especially in and around hotspot areas and in the vicinity of State highways	KSHIP: Ongoing	Sept-2023	30	HAM project, the cost is included in the estimates		
		NHAI: Usually wherever earthworks are taken during the project construction, to avoid dust continuous sprinkling of water is done					
8	Mechanism for development and maintenance of road infrastructures for industrial states and clusters	Karnataka Industrial Areas Development Board is responsible for this activity based on the orders issued with regard to Consent For Establishment by KSPCB					
9	Any other Policy /Rules/Standards /Guidelines pertaining to C&D waste and Road dust management	DMA: To be started	31.03.2025	-	-	-	-
		KSHIP: Ongoing	Sept-2023	30	Policy of Concession Agreement followed		
10	C&D waste processing plants	DMA: Ongoing		100	Yes	-	Nil
		BBMP: Completed (Chikkajala, Kannur)					
11	Greening of open spaces/parks developed	KSHIP: Ongoing	Sept-2023	30	HAM project, the cost is included in the estimates		
		Karnataka Forest Department (KFD): An amount of Rs.591.11 Lakhs has been spent for Plantation in green belt area of Bangalore City, Development of Parks and maintenance work in BDA Layouts. KFD provides certain facilities for general public through a number of schemes involving tree planting and/or raising of awareness, some of the schemes include: (a) Tree Park & Daivivana - provides facilities to general public for recreation and environmental awareness; and (b) Chinnara Vana Darshana - provides facilities to school children to visit forest and wildlife areas to increase their environmental awareness. UDD: Under the 14th Finance commission Grants, Maintenance of Community properties including Parks is a priority sector					
12	Any other activity/project pertaining to C&D waste and Road dust management	KSHIP: Ongoing	Sept-2023	30	HAM project, the cost is included in the estimates		
		BBMP has procured 17 self-propelled; 8 truck mounted and 2 rides on mechanical sweeping machines					

4. Emissions from burning of waste[28]

Sl. No	Activities	Status of activity (Completed/ongoing /To be Started)	Timeline for completion	Target (Coverage/ Percentage)	Financial implication (Yes/No)	Funds Allocated (Rs. crore)	Funds Utilized as on date (Rs. crore)
1	Notification and Enforcement of municipal solid waste (MSW) management rules	SWM Rules 2016	A direction under section 5 of the Environment (Protection) Act, 1986 for implementation of the Solid Waste Management Rules, 2016 is issued vide No. KSPCB/SEO-WMC/MSW/4421 dated 01.12.2021 **(Annexure VIII)** by KSPCB. For ULB's: Meet the terms with respect to Rule 15 of SWM Rules, 2016				
2	Policy for MSW management	SWM Rules 2016					
3	Policy for legacy waste management at dumpsites	SWM Rules 2016	Karnataka State Urban SWM Strategy-2020				
4	Policy for implementations of ban on single use plastics	The Forest, Ecology and Environment Secretariat, GoK vide Notification No. FEE 17 EPC 2012, Bengaluru, dated 11.03.2016 (**Annexure IX**) in the exercise of the powers conferred under the Environment (Protection) Act, 1986.					
5	Policy for development and Construction of Waste to Energy Plants	The State strategy for solid waste management "**Karnataka State Urban SWM Strategy-2020**" prepared in compliance with the SWM rules, 2016, contains an overview of the waste flow from generation to disposal including the different options available to the ULB for processing solid waste while recovering the maximum resources from it. It also provides a framework for the implementation and monitoring of waste management systems and the strategy to be adopted by the ULB to effectively manage the different streams of waste generated within their jurisdictions. In addition, the State Government, by way of this strategy, determines the roles and responsibilities of Urban Local Bodies, statutory and regulatory agencies in implementing solid waste management strategies detailed, and as per timelines for compliance recording.					
	a) Non-recyclable/ combustible dry waste						
	b) Bio-methanation/Bio CNG						
	c) Composting plant etc.,						
6	Any other Policy /Rules /Standards / Guidelines pertaining to MSW Management	NA	-	-	-	-	-

[28] Information received from DMA via letter No. 565640/DMA/16/2020-21/4504 dated: 17.09.2022 and BBMP through E-mail dated 13.07.2022.

Sl. No	Activities	Status of activity (Completed/ongoing /To be Started)	Timeline for completion	Target (Coverage/ Percentage)	Financial implication (Yes/No)	Funds Allocated (Rs. crore)	Funds Utilized as on date (Rs. crore)
1	Waste collection status in the city (%)	BBMP: Ongoing	N/A	100%	Yes	325.0	100%
		DMA: 97%	Dec-2022	309 ULBs	No	-	-
2	Waste segregation status in the city (%)	BBMP: Ongoing	N/A	100%	Yes	325.0	100%
		DMA: 77%	Dec-2022	309 ULBs	No	-	-
3	Material Recovery Facility	Ongoing	N/A	138 Wards	Yes	70 .0	100%
		Completed: 55 To be started: 309	March -2026	309 ULBs	Yes	362.47	Nil
4	Waste to Energy plants	BBMP :Ongoing	N/A	Nil	Nil	Nil	Nil
		DMA:14 Completed	-	-	-	-	-
5	Waste to compost plants	BBMP: Ongoing		6 Plants	Yes	44.0	100%
		DMA: Completed:185 To be started: 124	March -2026	309 ULBs	Yes	214.18	Nil
6	Remediation of dumpsites in the city	BBMP: Ongoing	3 years	7 Sites	Yes	100.0	Nil
		DMA: Ongoing: 05 To be started: 124	Dec-2023	195 ULBs	Yes	451.83	Nil
7	Control open burning of MSW	BBMP: Ongoing	1 year	100%	Yes	12.0	Nil
		As per the notification, FEE 6 ENG 2017 (**Annexure X**), issued by the Department of Forest Ecology and Environment, Government of Karnataka, imposed a complete ban on open burning solid waste.					

8	Any other activity/project pertaining to MSW Management	BBMP: Ban of single use of plastic, Zero waste management, 3R Principles and Awareness to capacity building.	1 year	100%	Yes	10.00	Nil

Note: *The information provided by BBMP is only for Bengaluru City and that provided by DMA is for the State.*

5. Emissions due to burning of Agro residues[29]

Sl. No	Activities	Status of activity (Completed/ongoing /To be Started)	Timeline for completion	Target (Coverage/ Percentage)	Financial implication (Yes/No)	Funds Allocated (Rs. crore)	Funds Utilized as on date (Rs. crore)
1	**In-Situ treatment of biomass residues for management of stubble burning**						
a.	Schemes for procurement of agriculture machinery	Ongoing : Farm mechanization programme	-	-	Yes	-	-
b.	Assistance for establishment of farm machinery banks/custom hiring centres	Ongoing scheme	-	696 CHSC & 447 FMB have been established	yes	60	-
c.	Use of decomposer for in-situ Crop residue management	NA	-	-	-	-	-
2	**Ex-Situ treatment of biomass residues for management of stubble burning**						
a.	Schemes for balers/pellet/briquette machines, etc.,	Balers are included under farm machinery as one of the components under farm machinery schemes.					
		For the year 2021-22, the activity is completed	-	For the year 2021-22 out of 6 targets for balers, 2 have been procured	yes	0.06	0.02
		For the current year, the activity is yet to be started	31.03.2023	04 Nos	No	0.04	

[29] Information received from Department of Agriculture via letter No. DDA/FM&MI/EMPRI/SAP/2022-23 dated 22.08.2022.

3	Biomass projects with respect to the hotspots of crop residue burning	There is no exclusive project with respect to the hotspots of crop residue burning, Agriculture department is motivating farmers to take up solid and liquid organic fertilizers production on their own at the farm level by effective use of bio-waste produced in crop cultivation. The use of organic fertilizers in crop cultivation helps to reduce air pollution and also improves soil health, water-holding capacity, and soil fertility. In addition, under the organic fertilizers promotion programme, the department is giving subsidies to firms for the distribution of city compost directly to a farmers' field. It helps to effectively utilize waste generated in city municipal and panchayath. Using compost in crop cultivation helps to reduce air pollution and also increases soil organic carbon.					
4	Use of biomass/crop residue based pellets mass blending with coal and its co-firing in thermal power plants with blending ration which needs no modification in boilers	As per the Karnataka Renewable Energy Development Ltd (KREDL), State has an allocated capacity of 395.13 MW and commissioned capacity as on 31.08.2022 is 139.03 MW. The State has a potential for generating 1000 MW. KREDL has Commissioned 20 Biomass Power Plants in different districts of the State under various Electricity Supply Commissions (ESCOMs) https://kredl.karnataka.gov.in/storage/pdf-files/bio-cogen-wte/Bio_com.pdf					
5	Policy for supply chain mechanism for in-situ and ex-situ management of stubble	-	-	-	-	-	-
6	Supply chain for crop residues to cow shelters	-	-	-	-	-	-
7	Development of an effective protocol for monitoring fire incidents including crop area consideration and crop fire area data	-	-	-	-	-	-
8	Collaboration with ISRO and preparation of Satellite-based maps for monitoring fire incidence	-	-	-	-	-	-
9	Any other scheme/program that may help in reducing air pollution	Under the organic and millet promotional scheme of the State, natural/traditional/organic millet growers are being provided with an incentive of Rs.6000/- per ha, thereby reducing their carbon footprint. Organic/natural farming systems are being promoted in the farmer's field incorporating best practices of organic farming system and ZNBF system, wherein incorporation of crop residues into the soil or bio digestor along with multi-cropping, intercropping, and crop rotation practices. Stubble burning is totally discouraged under these systems.					

6. Household Emissions[30]

Sl. No	Activities	Status of activity (Completed/ongoing /To be Started)	Timeline for completion	Target (Coverage/ Percentage)	Financial implication (Yes/No)	Funds Allocated (Rs. crore)	Funds Utilized as on date (Rs. crore)
1	Schemes for use of LPG/PNG for cooking fuels	Ongoing: Total LPG connections released under PMUY (earlier PMUY and Ujjwala 2.0 schemes) for the Karnataka State are 36,99,255 as on 27.09.2022.					
		Ongoing Chief Minister Anila Bhagya Yojane	NA	1 lakh Connections	Yes	143.35	59.28
		PNGRB has authorized 8 entities to establish a CGD network in all the districts of Karnataka to supply PNG & CNG. IDD in coordination with district and other state agencies is working for successful implementation of the CGD projects in the State.					
2	Amendments to the building by-laws for "Indoor air quality management"	The Municipal Corporation Model Building Bye-Laws, 2017 has been published in the State Gazette Dated: 13-02-2020 vide Notification No: UDD 12 TTP 2018, dated: 05-02-2020, for indoor air quality, the ventilation provisions are as per National Building Code of India.					
3	Any other Policy/ Rules/Standards/Guidelines pertaining to Household emissions	-	-	-	-	-	-

[30] Information received from FCS Department via letter No. FCS/CS/PTL/33/2009-10 dated 13.07.2022 and letter No. FCS/CSTT/03/2019-20 dated 18.07.2022.

Annexure II: District-wise details of the industries in Karnataka

Zonal Office	Particulars of the Regional Office	Name of the District	Red	Orange	Green	White	Grand Total
Bengaluru City	Bengaluru City-East	Bengaluru Urban	58	188	107	673	1026
	Bengaluru City-South	Bengaluru Urban	103	292	387	899	1681
	Bengaluru City-West	Bengaluru Urban	3	161	138	6	308
	Bengaluru - Peenya	Bengaluru Urban	138	167	614	165	1084
		Total	**302**	**808**	**1246**	**1743**	**4099**
Bengaluru North	Dasarahalli	Bengaluru Urban	17	83	12	0	112
	Doddaballapur	Bengaluru Rural	49	85	146	53	333
	Nelamangala	Bengaluru Rural	112	182	452	1	747
	Yelahanka (Byatarayanpura)	Bengaluru Urban	39	98	158	1	296
		Total	**217**	**448**	**768**	**55**	**1488**
Bengaluru South	Anekal	Bengaluru Urban	149	161	333		643
	Bommanahalli	Bengaluru Urban	172	272	386	59	889
	Rajarajeswari Nagar	Bengaluru Urban	57	193	229	2	481
	Ramnagara	Ramanagara	90	218	202	2	512
	Sarjapura	Bengaluru Urban	188	228	436	157	1009
		Total	**656**	**1072**	**1586**	**220**	**3534**
Bengaluru East	Chikaballapura	Chikaballapura	16	151	91	7	265
	Hoskote	Bengaluru Rural	50	135	167	8	360
	Kolar	Kolar	77	144	241	8	470
	Mahadevpura	Bengaluru Urban	172	229	225	75	701
		Total	**315**	**659**	**724**	**98**	**1796**
Mysuru	Chamrajnagara	Chamrajanagar	5	73	41	158	277
	Hassan	Hassan	33	197	322	460	1012
	Kodagu (Coorg)	Kodagu	4	66	158	100	328
	Mandya	Mandya	30	218	155	314	717
	Mysuru - 1	Mysuru	94	259	223	464	**1040**

	Mysuru - 2	Mysuru	60	142	166	276	644
		Total	**226**	**955**	**1065**	**1772**	4018
Mangaluru	Chikkamagaluru	Chikkamagaluru	10	106	180	0	296
	Karwar	Karwar	20	177	144	0	341
	Mangaluru	Mangaluru	115	617	225	0	957
	Udupi	Udupi	21	545	366	4	936
		Total	**166**	**1445**	**915**	**4**	**2530**
Dharwad	Bagalkot	Bagalkot	86	104	161	274	625
	Belgaum - 1	Belagavi	91	427	299	2576	3393
	Belgaum - 2 (Chikkodi)	Belagavi	40	6	5	0	51
	Dharwad	Dharwad	76	355	240	37	708
	Haveri	Haveri	8	89	122	245	464
	Gadag	Gadag	5	74	136	168	383
		Total	**306**	**1055**	**963**	**3300**	**5624**
Ballary	Bellary	Bellary	132	452	255	314	1153
	Koppal	Koppal	39	207	201	16	463
	Raichur	Raichur	45	169	311	387	912
		Total	**216**	**828**	**767**	**717**	**2528**
Chitradurga	Chitradurga	Chitradurga	21	110	134		265
	Davangere	Davangere	23	233	163		419
	Shimoga	Shimoga	21	281	51		353
	Tumukur	Tumakur	83	415	278		776
		Total	**148**	**1039**	**626**	**0**	**1813**
Kalaburgi	Vijayapura	Vijayapura	15	148	133	360	656
	Bidar	Bidar	34	39	52		125
	Kalaburagi	Kalaburagi	37	166	60		263
	Yadgiri	Yadgiri	14	48	70	110	242
		Total	**100**	**401**	**315**	**470**	**1286**
		Grand Total	**2652**	**8710**	**8975**	**8379**	**28716**

(Source: KSPCB)

Annexure III: Retrofitting of Emission Control Devices to DG sets

ಫ್ಯಾಕ್ಸ್ / Fax : 080-25586321
ಈಮೇಲ್ / Email : ho@kspcb.gov.in
ವೆಬ್‌ಸೈಟ್ / Website : http://kspcb.gov.in

080-25581383, 25589112
080-25589113, 25589114

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
Karnataka State Pollution Control Board
"ಪರಿಸರ ಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ. 49, ಚರ್ಚ್ ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ ರಾಜ್ಯ, ಭಾರತ
"Parisara Bhavan", 1st to 5th Floor, # 49, Church Street, Bangalore - 560 001, Karnataka State, India

No. KSPCB/SEO-INFRA/DG-RETROFITTING/2021-22/ 2887 **Date:** 17 SEP 2021

ಶಾಖಾನಿಲಯಾಗಿದೆ

ORDER

Sub: Mandatory Retrofitting of Emission Control Devices/Equipment to DG sets with Capacity of 125 KVA and above in the State of Karnataka.

Ref: 1) Honourable NGT Directions in OA 681/2018 dated. 6.8.2019
2) Standing Committee Directions to the Honourable Chief Minister dated. 20.8.2020

>>><<<

Whereas, the particulate matter emissions due to operation of DG Sets have also been identified as one of the major sources of emissions in the National Clean Air Programme and by the Honourable National Green Tribunal in the Original Application No. 681/2018, as shown vide ref.1,

Whereas, the Government of India, MoEF & CC has launched the National Clean Air Programme (NCAP) for the prevention, control and abetment of air pollution level in the Country at an urban and regional level. The Government of India, recognized major sources of air pollution such as vehicles, DG sets, construction dust etc. As per National Clean Air Programme (NCAP) of Government of India, Diesel Generator sets are found to be one of the major source of air pollution in Indian cities and states.

Whereas, there is a plan for national level target of 30% reduction of $PM_{2.5}$ and PM10 concentration in the ambient air under the National Clean Air Programme (NCAP) of Govt of India. The Hon'ble NGT vide order dated 06/08/2019 has observed that the timeline to reduce the air pollution by 30% needs to be reduced and the target of reduction needs to be increased, having regard to adverse effect on public health and in view of constitutional mandate of fundamental right to breathe clean air. The Honourable NGT has further stated, that the air pollution caused by DG sets needs to be a part of the action plan, which may, if necessary, require retrofitting of Emission Control Devices / Equipment on generators under existence already.

Now, therefore, with the above background, and in exercise of powers vested with the Board under Section 17 (1) J read with section 31 (A) of Air (Prevention and Control of Pollution) Act, 1981 and section 5 of the Environment (Protection) Act 1986, all the Industries,

Establishments, Projects, Buildings, Utilities, Airports, Railway Stations or any other places operating DG sets of capacity 125 KVA and above, within the jurisdiction of the state of Karnataka, are hereby directed to:

1) Retrofit all operational DG sets of capacity 125 KVA and above with an Emission Control Device / Equipment having a minimum specified Particulate Matter capturing efficiency of at least 70% in 5 mode D2 cycle and also should result in the increase of fuel efficiency. The Emission Control Device Equipment must be tested over a ISO-8178 5 mode D2 cycle for equivalent KVA rating by one of the five Central Pollution Control Board, Govt of India, recognized /approved laboratories as given below:

a. Automotive Research Association of India, Pune (Maharashtra)
b. International Centre for Automotive Technology, Manesar (Haryana)
c. Indian Oil Corporation, Research and Development Centre, Faridabad (Haryana)
d. Indian Institute of Petroleum, Dehradun (Uttarakhand); or
e. Vehicle Research Development Establishment. Ahmednagar (Maharashtra)

(or)

1) Shifting to gas based generators by employing new gas based generators or retrofitting the existing DG sets for partial gas usage.

This is to be complied with within a period of 120 days from the date of issuance of this order by all stake holders.

The above order will come with an immediate effect for all the DG Sets of 125 KVA and above within the stipulated time period, failing which action as warranted under the provisions of Environment (Protection) Act, 1986 and Air (Prevention and Control of Pollution) Act, 1981 shall be initiated.

Member Secretary

To

1)All CEOs/SEOs/ZSEOs/Ros for information and to strictly follow above.
2) The President and Chairman (Environment) KASSIA to circulate the directions among the industries
3) The President, Peenya Industries Association, 18/B Peenya Trade Centre, 1st Cross Rd, Peenya 1st Stage, Peenya, Bengaluru, Karnataka 560058, to circulate the directions among the industries
4) The President, CREDAI, 6th Floor, 607, Barton Centre, Near-Lawrence & Mayo, Mahatma Gandhi Road, Bengaluru, Karnataka 560001, to circulate the directions among the industries.
5) Office Copy.

Annexure IV: Utilization of Fly ash generated by coal based Thermal Power plants operating in the State of Karnataka

ಫ್ಯಾಕ್ಸ್ / Fax : 080-25586321
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25588142, 25586520

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
Karnataka State Pollution Control Board
"ಪರಿಸರಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ.49, ಚರ್ಚ್‌ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ, ಭಾರತ
"Parisara Bhavana", 1st to 5th Floor, # 49, Church Street, Bengaluru - 560 001, Karnataka, INDIA

No: PCB/Fly Ash/2018-19 5350

Dated: 16 JAN 2019

To;

1) The Additional Chief Secretary to the Government, Urban Development Department, Room No. 436, Vikas Soudha, Bangalore 560 001.	7) The Chief Engineer, Public Works Department (Communication and Building)- North, Sir M.V. Marg, Dharwad-580 008.
2) The Additional Chief Secretary & Development Commissioner, Rural Development and Panchayat Raj 3rd Gate, 3rd Floor, MS Building Bangalore-560001.	8) The Chief Engineer, National Highways, PWD Annexe, K.R.Circle, Bangalore- 560001.
3) The Principal Secretary, Public Works, Ports and Inland Water Transport Department, Karnataka Government Secretariat, 3rd Floor, Vikasa Soudha, M.S.Building, Dr.Ambedkar Road, Bangalore-560001	9) The Chief Engineer, Karnataka Road Development Corporation, 16J, Millers Tank Bund Road, Bangalore 560 052.
4) The Secretary to the Government, Urban Development Department, Room No. 434, Vikasa Soudha, Bangalore.	10)The Managing Director, Karnataka Road Development Corporation Limited, "Samparka Soudha", Survey No.8, B.E.P Premises (Opp. Orion Mall),Dr. Rajkumar Road, Rajajinagar 1st Block, Bangalore- 560010.
5) The Director, Department of Mines and Geology,#49, Khanija Bhavan, Race Course Road, Bangalore 560 001.	11)The Chief Project Officer, Karnataka State Highways Improvement Project, PWD, Annexure, K.R.Circle, Bangalore 560 001.
6) The Chief Engineer, Public Works Department (Communication and Building) - South, K.R. Circle, Bangalore 560 001.	

1

Sir,

Sub: Utilization of fly ash generated by Coal or Lignite based Thermal Power Plants operating in the State of Karnataka –Reg.

Ref:
1. Notification issued by Ministry of Environment, Forest and Climate Change, Government of India,S.O.763 (E) dated: 14.09.1999 and its amendments on 27.08.2003, 03.11.2009 and 25.01.2016.
2. Board Office letter No. PCB/17 Cat/Flyash/2016-17/462 Dated: 12.01.2017
3. Letter of Department of Ecology and Environment, Government of Karnataka, No.APG23ENV 2014 dated: 03.03.2017.
4. Board Office letter No. PCB/17 Cat/Fly ash/2016-17/462 dated: 12.01.2017.
5. Board Office letter No.PCB/17Cat/Fly Ash/2016-17/611 Dated: 25.03.2017.
6. Proceedings of the Meeting of State Monitoring Committee held on 16.11.2017 under the Chairmanship of Additional Chief Secretary, Forest, Ecology and Environment. Government of Karnataka.
7. Directions issued by Central Pollution Control Board under Section 18(1) (b) of the Water (Prevention and Control of Pollution)Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 No.B-33018/07/IPC-II/12521 dated: 08.11.2018.

****

With reference to the above subject, it is to be informed that, the Ministry of Environment, Forest and Climate Change, Government of India has issued Notification under Section 5 of the Environment (Protection) Act, 1986 on utilization of fly ash, bottom ash or pond ash generated by Coal and lignite based thermal power plants for use in manufacture of bricks and other construction activities. As per the provisions of the said notification and subsequent amendments issued from time to time, the concerned authorities are required to comply with the following provisions **in order to protect the environment, conserve top soil and promote utilization of ash generated from Coal/lignite based thermal power plant operating in the State;**

1. (1A).Every construction agency engaged in construction of buildings within a radius of 300 kms from coal or lignite based thermal power plant shall use only fly ash based products for construction, such as cement or concrete, fly ash bricks or tiles or clay fly ash bricks or blocks or tiles or cement fly ash bricks or blocks or similar products or a combination or aggregate of them in every construction project.

1. (1B) The provisions of Sub-paragraph (1A) shall be applicable to all construction agencies of Central or State or Local Government and private or public sector and it shall be responsibility of the agencies either undertaking construction of approving the design or both to ensure compliance of the provisions of Sub-paragraph (1A) and to submit annual returns to the concerned State Pollution Control Board.

2

1. (1.C). Minimum fly ash content for building materials or products to qualify as "fly ash based products" category" shall be as per Table –I of the Fly Ash Notification.

1. (5). No agency, person or organization shall, within a radius of 300 kms from coal or lignite based thermal power plant undertake construction or approve design for construction of roads or fly over embankment with top soil...

1. (7) No agency, person or organization shall, within a radius of 300 kms from coal or lignite based thermal power plants undertake or approve or allow reclamation and compaction of low lying areas with soil; only fly ash shall be used for compaction and reclamation...

1. (8)(i). No person or agency shall , within fifty kilometers (by road) from coal or lignite based thermal power plants undertake or approve stowing of mines without using at least 25% of fly ash on weight to weight basis, of the total stowing materials used....

1. (8)(ii) No person or agency shall, within fifty kilometers (by road) from coal or lignite based thermal power plant under take or approve without using at least 25% of fly ash on volume to volume basis of the total materials used for external dump of overburden and same percentage in upper bencher of backfilling of open cast mines....

`Further, as per amended Notification issued by MoEF & CC on 25.01.2016;

- It shall be the responsibility of the State approving various construction projects to ensure that Memorandum of Understanding or any other arrangement for using fly ash or fly ash based products is made between the thermal power plants and the construction agency or contractors.
- The State shall amend building bye laws of the cities having population one million or more so as to ensure the mandatory use of fly ash bricks keeping in view of specification necessary as per technical requirements for load bearing structures.
- The concerned authority shall ensure mandatory use of ash based bricks products in all the Government Scheme or programmes e.g., Mahatma Gandhi National Rural Employment Guarantee Act, 2005 (MNERGA), SWATCH BHARATH ABIYAN, Urban and Rural Housing Scheme, where built up area is more than 1000 square feet and infrastructure construction including building in designated industrial estates or parks or Special Economic Zones.
- The Ministry of Agriculture may consider the promotion of ash utilization in agriculture as soil conditioner.

In this regard the Board vide letters cited at reference (4) and (5) informed to take necessary action to implement the said notification and to furnish the details on action taken in this regard. Till date Board has not received action taken report regarding implementation of the said notification.

3

The Chairman, Central Pollution Control Board, Delhi has issued directions vide reference (7) under Section 18(1)(b) of the Water Act, 1974 and Air Act,1981 and directed as under (Copy enclosed) ;

1) To enlist all agencies and authorities undertaking the construction or approving the design or both within radius of three kilometers from coal or lignite based thermal power plants in the state (and keep updating the list every quarter) and co-ordinate at the State level as well as district level with the designated enforcement authority i.e., State Government, so as to ensure compliance of relevant provisions of the Notification by all such agencies and authorities.

2) To enlist the entire road and fly over projects within radius of 300 kms from coal or lignite thermal power plants and update the list every quarter to ensure compliance with relevant provisions of the fly ash notification and submit annual implementation report to CPCB every year.

In view of the above, you are once again requested to furnish the action taken report **within 15 days** to comply with provisions of the said Notification and also furnish the list of agencies coming under your Department responsible of direct implementation of the provisions of the notification and regularly furnish list of projects indicated in the said CPCB directions along with Annual Returns as per para(1B) of the said Notification with a copy to the Department of Ecology and Environment, Government of Karnataka.

Encl: As above.

Yours faithfully,
Sd/-
MEMBER SECRETARY
KARNATAKA STATE POLLUTION CONTROL BOARD

Copy to:

1) Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex East Arjun Nagar, Delhi - 110 032, India
2) Zonal Central Pollution Control Board, Nisarga Bhavan, Thimmaiah Road, 7th D Main Rd, Shivanagar, Bengaluru, Karnataka 560079
3) The Principle Secretary, Department of Ecology and Environment for information.
4) EO, e-governance to upload this letter in the Board's website.

CHIEF ENVIRONMENTAL OFFICER-1
KARNATAKA STATE POLLUTION CONTROL BOARD

4

Annexure V: Notification for the Renewal of Fitness certificate for 2-stroke auto rickshaw plying in Bengaluru City

ಕರ್ನಾಟಕ ಸರ್ಕಾರದ ನಡವಳಿಗಳು

ವಿಷಯ: ಬೆಂಗಳೂರು ನಗರದಲ್ಲಿ 2ಸ್ಟ್ರೋಕ್ ಆಟೊರಿಕ್ಷಾಗಳ ಅರ್ಹತಾ ಪ್ರಮಾಣ ಪತ್ರ ನವೀಕರಣದ ಅವಧಿಯನ್ನು ವಿಸ್ತರಿಸುವ ಬಗ್ಗೆ.- ಆದೇಶ.

ಓದಲಾಗಿದೆ: 1. ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ: ಸಾರಿಇ 267 ಸಾಇಪ 2018, ದಿನಾಂಕ: 23-10-2018.
2. ಆಯುಕ್ತರು, ಸಾರಿಗೆ ಮತ್ತು ರಸ್ತೆ ಸುರಕ್ಷತೆ ಇವರ ಪತ್ರ ಸಂಖ್ಯೆ:ಸಾಆ/ಪ್ರವರ್ತನ-2/ಪಿಆರ್-661/2016-17, ದಿನಾಂಕ: 09-07-2020.

*****

ಪ್ರಸ್ತಾವನೆ:-

ಮೇಲೆ ಓದಲಾದ (1)ರ ಆದೇಶದಲ್ಲಿ ಬೆಂಗಳೂರು ನಗರದಲ್ಲಿ ಸಂಚರಿಸುತ್ತಿರುವ ಎಲ್.ಪಿ.ಜಿ ಕಿಟ್ ಅಳವಡಿಸಿರುವ 2-ಸ್ಟ್ರೋಕ್ ಆಟೋರಿಕ್ಷಾಗಳನ್ನು ರದ್ದುಪಡಿಸಿರುವುದನ್ನು ಹಿಂಪಡೆದು ಈ ಆಟೋರಿಕ್ಷಾಗಳ ಅರ್ಹತಾ ಪ್ರಮಾಣ ಪತ್ರವನ್ನು ದಿನಾಂಕ:31-03-2020 ರವರೆಗೆ ನವೀಕರಿಸಲು ಅನುಮತಿ ನೀಡಿ ಆದೇಶಿಸಲಾಗಿರುತ್ತದೆ.

ಮೇಲೆ ಓದಲಾದ (2)ರ ಪತ್ರದಲ್ಲಿ ಆಯುಕ್ತರು, ಸಾರಿಗೆ ಮತ್ತು ರಸ್ತೆ ಸುರಕ್ಷತೆ ಇವರು ಸರ್ಕಾರಕ್ಕೆ ಪ್ರಸ್ತಾವನೆ ಸಲ್ಲಿಸಿ, ಇಲಾಖೆಯ ಹಿರಿಯ ಅಧಿಕಾರಿಗಳು ಮತ್ತು ಆಟೋ ಸಂಘಟನೆಗಳನ್ನೊಳಗೊಂಡ ಸಮಿತಿಯು ದಿನಾಂಕ: 10-06-2020ರಂದು ನಡೆದ ಸಭೆಯಲ್ಲಿ ಚರ್ಚಿಸಿ ಕೈಗೊಂಡ ನಿರ್ಣಯದಂತೆ ಬೆಂಗಳೂರು ನಗರದಲ್ಲಿನ ಎಲ್.ಪಿ.ಜಿ ಕಿಟ್ ಅಳವಡಿಸಿರುವ 2-ಸ್ಟ್ರೋಕ್ ಆಟೋರಿಕ್ಷಾಗಳ ಅರ್ಹತಾ ಪ್ರಮಾಣ ಪತ್ರದ ಅವಧಿಯು ದಿನಾಂಕ: 31-03-2020ಕ್ಕೆ ಅಂತ್ಯಗೊಂಡಿದ್ದು, ಈ ಅವಧಿಯನ್ನು ಮುಂದಿನ ಎರಡು ವರ್ಷಗಳ ಅವಧಿಗೆ ಅಂದರೆ ದಿನಾಂಕ: 01-04-2020ರಿಂದ 31-03-2022ರವರೆಗೆ ಅರ್ಹತಾ ಪ್ರಮಾಣ ಪತ್ರಗಳನ್ನು ನವೀಕರಿಸಲು ಅನುಮತಿ ನೀಡಿ ಸೂಕ್ತ ಆದೇಶ ಹೊರಡಿಸಲು ಕೋರಿರುತ್ತಾರೆ.

ಸಾರಿಗೆ ಆಯುಕ್ತರ ಪ್ರಸ್ತಾವನೆಯನ್ನು ಕೂಲಂಕಷವಾಗಿ ಪರಿಶೀಲಿಸಿ, ಸರ್ಕಾರವು ತೀರ್ಮಾನಿಸಿ ಈ ಕೆಳಕಂಡಂತೆ ಆದೇಶಿಸಿದೆ.

ಸರ್ಕಾರದ ಆದೇಶ ಸಂಖ್ಯೆ: ಟಿಡಿ 187 ಟಿಡಿಓ 2020 , ಬೆಂಗಳೂರು, ದಿನಾಂಕ: 03-02-2022.

ಪ್ರಸ್ತಾವನೆಯಲ್ಲಿ ವಿವರಿಸಿರುವ ಅಂಶಗಳ ಹಿನ್ನೆಲೆಯಲ್ಲಿ, ಬೆಂಗಳೂರು ನಗರದಲ್ಲಿ ಸಂಚರಿಸುತ್ತಿರುವ ಎಲ್.ಪಿ.ಜಿ ಕಿಟ್ ಅಳವಡಿಸಿರುವ 2-ಸ್ಟ್ರೋಕ್ ಆಟೋರಿಕ್ಷಾಗಳ ಅರ್ಹತಾ ಪ್ರಮಾಣ ಪತ್ರವನ್ನು ದಿನಾಂಕ:31-03-2022 ರವರೆಗೆ ನವೀಕರಿಸಲು ಅನುಮತಿ ನೀಡಿ ಆದೇಶಿಸಿದೆ.

ಕರ್ನಾಟಕ ರಾಜ್ಯಪಾಲರ ಆದೇಶಾನುಸಾರ
ಮತ್ತು ಅವರ ಹೆಸರಿನಲ್ಲಿ,
Pushpa V.S
(ಪುಷ್ಪ ವಿ.ಎಸ್)
ಸರ್ಕಾರದ ಅಧೀನ ಕಾರ್ಯದರ್ಶಿ,
ಸಾರಿಗೆ ಇಲಾಖೆ

ಇವರಿಗೆ:

1. ಪ್ರಧಾನ ಮಹಾಲೇಖಪಾಲರು, (ಜಿ & ಎಸ್.ಎಸ್.ಎ)/ (ಇ & ಆರ್.ಎಸ್.ಎ),(ಎ & ಎ) ಕರ್ನಾಟಕ, ಬೆಂಗಳೂರು.
2. ಆಯುಕ್ತರು, ಸಾರಿಗೆ ಮತ್ತು ರಸ್ತೆ ಸುರಕ್ಷತೆ, ಟಿ.ಟಿ.ಎಂ.ಸಿ. 'ಎ' ಬ್ಲಾಕ್, 1ನೇ ಮಹಡಿ, ಶಾಂತಿನಗರ, ಬೆಂಗಳೂರು.
3. ಎಲ್ಲಾ ಜಂಟಿ /ಉಪ ಸಾರಿಗೆ ಆಯುಕ್ತರು (ಸಾರಿಗೆ ಆಯುಕ್ತರ ಕಛೇರಿಯ ಮುಖಾಂತರ).

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Annexure VI: Installation of 1190 Electric Vehicles Charging stations by BESCOM

ಕರ್ನಾಟಕ ಸರ್ಕಾರದ ನಡವಳಿಗಳು

ವಿಷಯ: ರಾಜ್ಯದಲ್ಲಿ ವಿದ್ಯುತ್ ವಾಹನಗಳ ಬಳಕೆಯನ್ನು ಉತ್ತೇಜಿಸಲು ಹಾಗೂ ವಾಯು ಮಾಲಿನ್ಯವನ್ನು ನಿಯಂತ್ರಿಸಲು 1000 ವಿದ್ಯುತ್ ಚಾಲಿತ ವಾಹನಗಳ ಚಾರ್ಜಿಂಗ್ ಕೇಂದ್ರಗಳನ್ನು ಸಾರ್ವಜನಿಕ ಖಾಸಗಿ ಸಹಭಾಗಿತ್ವದಲ್ಲಿ ಸ್ಥಾಪಿಸುವ ಬಗ್ಗೆ.

ಓದಲಾಗಿದೆ:

1. 2021-22ನೇ ಸಾಲಿನ ಆಯವ್ಯಯ ಕಂಡಿಕೆ ಸಂಖ್ಯೆ: 226
2. ವ್ಯವಸ್ಥಾಪಕ ನಿರ್ದೇಶಕರು, ಬೆವಿಕಂ ರವರ ಪತ್ರ ಸಂಖ್ಯೆ: ಬೆವಿಕಂ/ವ್ಯನಿ/ಆಕಾ/ಬಿಸಿ-01/2021-22/108 ದಿನಾಂಕ 13.10.2021.
3. ಸರ್ಕಾರದ ಅಧಿಸೂಚನೆ ಸಂಖ್ಯೆ: EN 216 VSC 2018 ದಿನಾಂಕ 28.12.2018.

ಪ್ರಸ್ತಾವನೆ:

ವಿದ್ಯುತ್ ಚಾಲಿತ ವಾಹನವು ಹೊಗೆ ರಹಿತ ಪರಿಸರ ಸ್ನೇಹಿ ವಾಹನವಾಗಿದ್ದು, ಒಂದು ಅಥವಾ ಹೆಚ್ಚು ವಿದ್ಯುತ್ ಮೋಟಾರುಗಳ ನೆರವಿನಿಂದ ರಿ-ಚಾರ್ಜೆಬಲ್ ಬ್ಯಾಟರಿಗಳಲ್ಲಿ ಶೇಖರಣೆಗೊಂಡಿರುವ ವಿದ್ಯುಚ್ಛಕ್ತಿಯ ನೆರವಿನಿಂದ ಚಲಿಸುತ್ತದೆ. ವಿದ್ಯುತ್ ವಾಹನಗಳು ಚೊಕ್ಕವಾದ ಪರ್ಯಾಯ ವ್ಯವಸ್ಥೆಯಾಗಿದ್ದು, ಕಡಿಮೆ ವೆಚ್ಚದ ನಿರ್ವಹಣೆ ಜೊತೆಗೆ ವೆಚ್ಚದಲ್ಲಿ ಉಳಿತಾಯ ಹಾಗು ಮಾಲಿನ್ಯ ರಹಿತವಾಗಿರುತ್ತದೆ. ಪಳಿಯುಳಿಕೆ ಇಂಧನದ ವೇಗದ ಕ್ಷೀಣಿಸುವಿಕೆಯಿಂದಾಗಿ ಹೆಚ್ಚಾಗುತ್ತಿರುವ ದರಗಳಿಗೆ ಪರ್ಯಾಯವಾಗಿ ವಿದ್ಯುತ್ ವಾಹನಗಳ ಬಳಕೆ ಪೂರಕವಾಗಿರುತ್ತದೆ. ಈ ಹಿನ್ನಲೆಯಲ್ಲಿ ಕರ್ನಾಟಕ ಸರ್ಕಾರವು ವಿದ್ಯುತ್ ವಾಹನಗಳ ಬಳಕೆಗೆ ಪ್ರೋತ್ಸಾಹ ನೀಡುವ ಉದ್ದೇಶದಿಂದ **ವಿದ್ಯುತ್ ವಾಹನ ಮತ್ತು ಶಕ್ತಿ ಶೇಖರಣೆ ನೀತಿ – 2017** ನ್ನು ಜಾರಿಗೊಳಿಸಿದೆ.

ಮೇಲೆ ಓದಲಾದ (3) ರ ಅಧಿಸೂಚನೆಯಲ್ಲಿ ಕೇಂದ್ರ ಇಂಧನ ಮಂತ್ರಾಲಯದ ಪತ್ರ ಸಂಖ್ಯೆ: 12/2/2018-EV ದಿನಾಂಕ 14.12.2018 ರಂತೆ ವಿದ್ಯುತ್ ಚಾಲಿತ ವಾಹನಗಳ ಚಾರ್ಜಿಂಗ್ ಮೂಲಭೂತ ಸೌಕರ್ಯ ಕಲ್ಪಿಸುವ ಕುರಿತು ಹೊರಡಿಸಿದ್ದ ಮಾರ್ಗಸೂಚಿ ಮತ್ತು ಮಾನದಂಡಗಳನ್ವಯ ರಾಜ್ಯದಲ್ಲಿ ವಿದ್ಯುತ್ ಚಾಲಿತ ವಾಹನಗಳ ಚಾರ್ಜಿಂಗ್ ಮೂಲಭೂತ ಸೌಕರ್ಯ ಕಲ್ಪಿಸಲು ಬೆಂಗಳೂರು ವಿದ್ಯುತ್ ಸರಬರಾಜು ಕಂಪನಿಯನ್ನು **"ರಾಜ್ಯ ನೋಡಲ್ ಸಂಸ್ಥೆ"** ಯನ್ನಾಗಿ ನೇಮಿಸಲಾಗಿದೆ.

ಸರ್ಕಾರವು 2021-22ನೇ ಸಾಲಿನ ಆಯವ್ಯಯದ ಕಂಡಿಕೆ 226 ರಲ್ಲಿ **"ರಾಜ್ಯದಲ್ಲಿ ವಿದ್ಯುತ್ ವಾಹನಗಳ ಬಳಕೆಯನ್ನು ಉತ್ತೇಜಿಸಲು ಹಾಗೂ ವಾಯು ಮಾಲಿನ್ಯವನ್ನು ನಿಯಂತ್ರಿಸಲು 1000 ವಿದ್ಯುತ್ ಚಾಲಿತ ವಾಹನಗಳ ಚಾರ್ಜಿಂಗ್ ಕೇಂದ್ರಗಳನ್ನು ಸಾರ್ವಜನಿಕ ಖಾಸಗಿ ಸಹಭಾಗಿತ್ವದಲ್ಲಿ ಸ್ಥಾಪಿಸಲಾಗುವುದು"** ಎಂದು ಘೋಷಿಸಿದೆ.

ಅದರಂತೆ, ನೋಡಲ್ ಸಂಸ್ಥೆಯಾದ ಬೆಂಗಳೂರು ವಿದ್ಯುತ್ ಸರಬರಾಜು ಕಂಪನಿಯು ಮೇಲೆ ಓದಲಾದ (2) ರಲ್ಲಿ ರಾಜ್ಯದಲ್ಲಿ 1190 ಸಂಖ್ಯೆಯ ವಿದ್ಯುತ್ ವಾಹನ ಚಾರ್ಜಿಂಗ್ ಕೇಂದ್ರಗಳನ್ನು ಪಿಪಿಪಿ ಮಾದರಿಯಲ್ಲಿ ಸ್ಥಾಪಿಸಲು ಕ್ರಿಯಾ ಯೋಜನೆಯನ್ನು ಸಲ್ಲಿಸಿರುತ್ತದೆ.

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ಸದರಿ ಪ್ರಸ್ತಾವನೆಯನ್ನು ವಿವರವಾಗಿ ಪರಿಶೀಲಿಸಿ, ಈ ಕೆಳಗಿನಂತೆ ಆದೇಶಿಸಿದೆ.

ಸರ್ಕಾರಿ ಆದೇಶ ಸಂಖ್ಯೆ: ಎನರ್ಜಿ 267 ವಿಎಸ್ ಸಿ 2021, ಬೆಂಗಳೂರು, ದಿನಾಂಕ: 02.02.2022

ಪ್ರಸ್ತಾವನೆಯಲ್ಲಿ ವಿವರಿಸಿರುವ ಅಂಶಗಳ ಹಿನ್ನಲೆಯಲ್ಲಿ, ರಾಜ್ಯದಲ್ಲಿ ವಿದ್ಯುತ್ ವಾಹನಗಳ ಬಳಕೆಯನ್ನು ಉತ್ತೇಜಿಸಲು ಹಾಗೂ ವಾಯು ಮಾಲಿನ್ಯವನ್ನು ನಿಯಂತ್ರಿಸಲು 1190 ವಿದ್ಯುತ್ ಚಾಲಿತ ವಾಹನಗಳ ಚಾರ್ಜಿಂಗ್ ಕೇಂದ್ರಗಳನ್ನು ಸಾರ್ವಜನಿಕ ಖಾಸಗಿ ಸಹಭಾಗಿತ್ವದಲ್ಲಿ ಸ್ಥಾಪಿಸಲು ನೋಡಲ್ ಸಂಸ್ಥೆಯಾದ ಬೆಂಗಳೂರು ವಿದ್ಯುತ್ ಸರಬರಾಜು ಕಂಪನಿ ಮುಖಾಂತರ ಅನುಬಂಧದಲ್ಲಿ ಲಗತ್ತಿಸಿರುವ ಕ್ರಿಯಾ ಯೋಜನೆಯಂತೆ ಅನುಷ್ಠಾನಗೊಳಿಸಲು ಆದೇಶಿಸಿದೆ.

ಈ ಆದೇಶವನ್ನು ಆರ್ಥಿಕ ಇಲಾಖೆಯ ಟಿಪ್ಪಣಿ ಸಂಖ್ಯೆ: FD 476 Exp-1/2021 ದಿನಾಂಕ: 18.01.2022 ಮತ್ತು ಯೋಜನಾ ಇಲಾಖೆಯ ಟಿಪ್ಪಣಿ ಸಂಖ್ಯೆ: ಪಿಡಿಎಸ್ 7 ಎಂಸಿಎಂ 2022-ಪಿಪಿಡಿ ದಿನಾಂಕ: 28.01.2022 ರ ಸಹಮತಿಯಂತೆ ಹೊರಡಿಸಲಾಗಿದೆ.

ಬೆಂಗಳೂರು ವಿದ್ಯುತ್ ಸರಬರಾಜು ಕಂಪನಿಯು KTPP ಅಧಿನಿಯಮ ಮತ್ತು ಕೇಂದ್ರ ಇಂಧನ ಮಂತ್ರಾಲಯದಿಂದ ಕಾಲಕಾಲಕ್ಕೆ ಹೊರಡಿಸುವ ಮಾರ್ಗಸೂಚಿ ಮತ್ತು ಮಾನದಂಡಗಳನ್ವಯ ಯೋಜನೆಯನ್ನು ಅನುಷ್ಠಾನಗೊಳಿಸುವುದು.

ಕರ್ನಾಟಕ ರಾಜ್ಯಪಾಲರ ಆದೇಶಾನುಸಾರ
ಮತ್ತು ಅವರ ಹೆಸರಿನಲ್ಲಿ,

N. mangalagouri 2/2/22

(ಎನ್. ಮಂಗಳಗೌರಿ)
ಸರ್ಕಾರದ ಅಧೀನ ಕಾರ್ಯದರ್ಶಿ,
ಇಂಧನ ಇಲಾಖೆ.

ಇವರಿಗೆ,

ಸಂಕಲನಕಾರರು, ಸರ್ಕಾರಿ ಮುದ್ರಣಾಲಯ, ಕರ್ನಾಟಕ ರಾಜ್ಯ ಪತ್ರ ಪ್ರಕಟಣೆಗಾಗಿ.

ಪ್ರತಿ:-

1. ಸರ್ಕಾರದ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿಗಳು, ವಿಧಾನಸೌಧ, ಬೆಂಗಳೂರು.
2. ಸರ್ಕಾರದ ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿಗಳು, ಆರ್ಥಿಕ ಇಲಾಖೆ, ವಿಧಾನಸೌಧ, ಬೆಂಗಳೂರು.

Annexure VII: Implementation of C & D waste management Rules, 2016 by the Infrastructure Projects

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ವೆಬ್‌ಸೈಟ್ / Website : http://kspcb.gov.in

☎ 25581383, 25589112
25588151, 25588270
25588142, 25586520

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
Karnataka State Pollution Control Board
"ಪರಿಸರಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ.49, ಚರ್ಚ್‌ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ, ಭಾರತ
"Parisara Bhavana", 1st to 5th Floor, # 49, Church Street, Bengaluru - 560 001, Karnataka, INDIA

No. PCB/031/C&D/2016 5753 **Date:** 30 JAN 2019

CIRCULAR

Sub: Implementation of the Construction and Demolition (C&D) Waste Management Rules, 2016 by the Infrastructure Projects.

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The Ministry for Environment and Forest, Climate Change has notified the Construction and Demolition Waste Management Rules, 2016. Rule 3(J) defines waste generator as under;

> *"waste generator" means any person or association of persons or institution, residential and commercial establishments including Indian Railways, Airport, Port and Harbour and Defense establishments who undertakes construction of or demolition of any civil structure which generate construction and demolition waste.*

The duties of the waste generator is given under Rule 4 which includes

> *Sub Rule 4(3) Waste generators who generate more than 20 tonnes or more in one day or 300 tonnes per project in a month shall segregate the waste into four streams such as concrete, soil, steel, wood and plastics, bricks and mortar and shall submit waste management plan and get appropriate approvals from the local authority before starting construction or demolition or remodeling work and keep the concerned authorities informed regarding the relevant activities from the planning stage to the implementation stage and this should be on project to project basis.*
>
> *Sub Rule 4(4) Every waste generator shall keep the construction and demolition waste within the premise or get the waste deposited at collection centre so made by the local body or handover it to the authorized processing facilities of construction and demolition waste; and ensure that there is no littering or deposition of construction and demolition waste*

1

so as to prevent obstruction to the traffic or the public or drains.

The Board is conducted review meeting with various stake holders and also the Government of Karnataka has conducted meetings regarding implementation of Construction and Demolition Waste Management Rules, 2016.

The Board is granting consent under the Water (Prevention & Control of Pollution) Act, 1974 to the many bulk generators as defined under the Construction and Demolition Waste Management Rules, 2016.

As per Rule 8 of said rules the State Pollution Control Board is require to monitor the implementation of the provision rules. In order to monitor the Management of the C&D waste by institutions, residential and commercial establishment. In this connection all the Regional Officers are require to follow;

1. Collect the information regarding the estimated quantity of Construction and Demolition Waste proposed to be generated and management during the time of CFE & to get certification in case demolition activities.
2. Collect the information regarding the quantity of Construction and Demolition Waste generated and managed during the time of CFO and to collect certification regarding the management of the said waste and to verify, enclose the certificate while forwarding consent application.
3. RSEOs and ROs shall monitor the implementation of Construction and Demolition Waste Management Rules, 2016 by the bulk generators.

Sd/-
MEMBER SECRETARY

To,
All ROs & RSEOs

Copy to:

1. SEO, Infrastructure Cell for information & necessary action.
2. EO, E-Governance for information to upload in Board Website and also make provision in XGN for uploading the certificate as a mandatory field.
3. Technical Officer to Chairman for information and to bring to the kind notice of the Chairman.

Senior Environmental Officer

2

Annexure VIII: Directions for implementation of SWM Rules 2016

ಫ್ಯಾಕ್ಸ್ / Fax : 080-25586321
ಈಮೇಲ್ / Email : ho@kspcb.gov.in
ವೆಬ್‌ಸೈಟ್ / Website : http://kspcb.gov.in

☎ 080-25581383, 25589112
080-25589113, 25589114

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
Karnataka State Pollution Control Board
"ಪರಿಸರ ಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ. 49, ಚರ್ಚ್ ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ ರಾಜ್ಯ, ಭಾರತ
"Parisara Bhavan", 1st to 5th Floor, # 49, Church Street, Bangalore - 560 001, Karnataka State, India

No. KSPCB/SEO-WMC/MSW/ 4421 **Date:** 01 DEC 2021

To

All Deputy Commissioners
Karnataka State

All Urban Local bodies
Karnataka State

Sub.: Direction under Section 5 of Environment (Protection) Act, 1986 for implementation of the Solid Waste Management Rules, 2016

***

1. **WHEREAS,** as per rule 12 (a) of the Solid Waste Management (SWM) Rules, 2016, the Deputy commissioner shall facilitate identification and allocation of suitable land as per clause (f) of rules 11 for setting up solid waste processing and disposal facilities to local authorities in his district in close coordination with the Secretary-in-charge of State Urban Development Department within one year from the date of notification of these rules;

2. **WHEREAS,** as per rule 12 (b) of the SWM Rules, 2016, Deputy Commissioner shall review the performance of local bodies, at least once in a quarter on waste segregation, processing, treatment and disposal and take corrective measures in consultation with the Commissioner or Director of Municipal Administration or Director of local bodies and secretary-in-charge of the State Urban Development;

3. **WHEREAS,** Government of Karnataka (GoK) vide Order No. FEE 07 ENG 2019, Dated 13.02.2019 formed District Level Special Task Force (DLSTF) under the chairmanship of Deputy commissioner;

4. **WHEREAS,** GoK vide Order No. FEE 07 ENG 2019, Dated 13.02.2019 formed DLSTF under the chairmanship of Deputy commissioner who shall hold meeting periodically to review the progress of the compliance of the Solid Waste Management Rules, 2016 and submit action taken report to the State level committee with regard to implementation of the SWM rules, 2016 ;

5. **WHEREAS,** the DLSTF shall take necessary actions to comply with the directions issued by the Hon'ble National Green Tribunal in O.A.606/2018 from time to time;

6. **WHEREAS,** it has been reported that there are several complaints/litigations with regard to non-implementation of SWM Rules, 2016;

7. **WHEREAS,** local authorities and village Panchayats of census towns and urban shall comply with Rule 15 of SMW Rules, 2016;

KSPCB BANGALORE WMC Section

"ಪ್ಲಾಸ್ಟಿಕ್ ಬಳಕೆ ನಿಲ್ಲಿಸಿ, ಪರಿಸರ ಹಾನಿ ತಪ್ಪಿಸಿ" AVOID USE OF PLASTIC BE 'ECO' FRIENDLY

8. **WHEREAS,** more than four years have been passed from the notification of SWM Rules, 2016 and majority of Municipal Authorities and Deputy Commissioners have failed to comply with provisions of the Rules;

9. **WHEREAS,** most of MSW dumpsites have been exhausted in a city/town, however, dumping of mixed MSW is continued;

10. **WHEREAS,** Hon'ble National Green Tribunal upon hearing all the States/UTs passed several order in the matter of OA No. 606/2018;

11. **WHEREAS,** as per as pert the Regional officers of KSPCB have reported serious deficiencies in compliance of provisions of Solid Waste Management Rules, 2016;

12. **WHEREAS,** several local body have hove not taken Environmental clearance in accordance with Ministry of Environment, Forest and Climate Change, 2006 S.O 1533 (E), dated the 14th September, 2006; and

13. **NOW THEREFORE,** in view of the above observations on implementation of the provisions of the rules under SWM Rules, 2016 and in exercise of powers vested to the Chairman, Karnataka State Pollution Control Board under Section 5, Environment (Protection) Act, 1986 to Chairman, DCs and ULBs are hereby directed as under:

For Deputy Commissioners:

1. Deputy commissioner shall hold review meeting in accordance with 12 (b) of the SWM Rules, 2016, and GoK Order No. FEE 07 ENG 2019, Dated 13.02.2019 and take corrective measures in consultation with the Commissioner or Director of Municipal Administration or Director of local bodies and secretary-in-charge of the State Urban Development.
2. Facilitate identification and allocation of suitable land for setting up solid waste processing and disposal facilities to local authorities
3. Take necessary actions to comply with the directions issued by the Hon'ble National Green Tribunal in O.A.606/2018 from time to time.

For Urban Local Bodies (ULBs):

1. Comply with Rule 15 of SMW.Rules, 2016.
2. Segregation of waste at source is to be made mandatory for ensuring safe disposal of MSW. Wet waste should be composted and dry waste should be sent to Material Recovery Facility (MRF) for further segregation & its usage.
3. Every ULB shall adhere to applicable Guidelines issued by CPCB.

KSPCB BANGALORE WMC Section

CHAIRMAN
KSPCB

Annexure IX: Notification on Plastic ban in Karnataka

FOREST, ECOLOGY AND ENVIRONMENT SECRETARIAT

NOTIFICATION

No. FEE 17 EPC 2012, Bangalore, Dated: 11.03.2016

Whereas, plastic carry bags and other plastic items used in daily life cause short term and long term environmental damage and health hazard;

And whereas, Article 48-A of the Constitution of India, inter alia, envisages that the State shall endeavor to protect and improve the environment;

And whereas, it has come to the knowledge of the Government that, the use of plastic carry bags, banners, buntings, flex, plastic flags, plastic plates, plastic cups, plastic spoons, cling films and plastic sheets used for spreading on dining table and items that are made of thermocol are causing serious environmental hazards and affects health of human beings as well as animals;

And whereas, it is observed that the plastic wastes is also causing blockage of gutters, sewers and drains apart from resulting in pollution of water bodies in urban areas;

And whereas, with a view to prevent the recurrence of such problems, the State Government in exercise of the powers conferred under Section 5 of the Environment (Protection) Act, 1986, issues the following directions imposing ban on manufacture, supply, sale and use of plastic carry bags, plastic banners, plastic buntings, flex, plastic flags, plastic plates, plastic cups, plastic spoons, cling films and plastic sheets used for spreading on dining table including the above items made of thermocol and plastic which use plastic micro beads in the state. This notification comes into effect from the date of its publication in the Official Gazette.

DIRECTION

1. No person including shopkeeper, vendor, wholesaler, retailer, trader, hawker or salesmen shall use plastic carry bags, plastic banners, plastic buntings, flex, plastic flags, plastic plates, plastic cups, plastic spoons, cling films and plastic sheets used for spreading on dining table irrespective of thickness including the above items made of thermocol and plastic which use plastic micro beads. Further, no industry or person shall manufacture, supply, store, transport, sale and/or distribute plastic carry bags, plastic banners, plastic buntings, flex, plastic flags, plastic plates, plastic cups, plastic spoons, cling films and plastic sheets used for spreading on

dining table irrespective of their thickness including the above items made of thermocol and plastic which use plastic micro beads in the State.

Provided that, the plastic used for the following purposes and circumstances are exempted from this notification;

a) The plastic carry bags manufactured exclusively for export purpose against any export orders in a plastic industry located in Special Economic Zone (SEZ) and Export Oriented Units (EOU).
b) The plastic bags which constitute or form an integral part of packaging in which goods are sealed prior to use at manufacturing/processing units.
c) The plastic bags and sheets used in Forestry and Horticulture nurseries against the orders from the Govt Departments or from the firms concerned.
d) The plastic used for packing of milk and milk products (dairy products).

2. That the following Officers shall enforce this direction in exercise of power conferred on them by law in their jurisdiction.
   a) The Commissioner, Joint Commissioners, Revenue Officers, all Health Officers and all Engineers of BBMP.
   b) All Deputy Commissioners of the districts.
   c) All Commissioners of City Corporations, Chief Officers, Health Officers and all Engineers of Urban Local Bodies.
   d) All Assistant Environmental Officers, Deputy Environmental Officers, Environmental Officers and Senior Environmental Officers of KSPCB.
   e) All Assistant Commissioners of Revenue Sub Divisions.
   f) Tahsildars of all Taluks.
   g) All officers of Commercial Tax Department.
   h) All officers of Department of Food and Civil supplies.
   i) The Controller, Deputy Controller and Regional Officers of Legal Metrology Department.
3. That the following officers shall take cognizance of offences and initiate legal action in case of noncompliance of this direction as per the powers conferred on them under section 19 of the Environment (Protection) Act, 1986 and to file complaint in the jurisdictional court of law on all violators.
   a) Secretary to Government (Ecology & Environment), Forest, Environment and Ecology Department.
   b) Chairman and Member Secretary, KSPCB.
   c) Deputy Commissioners of the Districts.
   d) Assistant Commissioners of Revenue Sub Divisions.
   e) Regional Officers of KSPCB.

Explanation 1- "Plastic" means any of the items mentioned in this direction made out of poly propylene (PP), non-woven poly propylene, multi layered co-extruder poly propylene, poly ethylene (PE), poly vinyl chloride (PVC), high and low density poly ethylene (HDPE & LDPE), poly styrene (PS) which is also called thermocol, poly amides (Nylon), poly terephthalate (PT), poly methyl methacrylate (PMM) and plastic micro beads.

Explanation 2- The word "carry bag" will have the same meaning that is provided in Rule 3 (b) of the Plastic Waste (Management and Handling) Rules, 2011. In this definition exemption is provided for plastic bag that constitute or form an integral part of packaging in which goods are sealed prior to use.

Explanation 3- Karnataka State Pollution Control Board shall be responsible for enforcement regarding the functions specified in clause (a) of Rule 4 of the Plastic Waste (Management and Handling) Rules, 2011 and Urban Local Bodies shall be responsible for enforcement regarding the functions specified in clause (b) of rule 4 of the said Rules;

Explanation 4- Officers as mentioned in Government of India's Notification No.S.O.394 (E) dated 16.04.1987 amended from time to time are authorized to file complaints against violation of directions included in this Notification under Section 19 of the Environment (Protection) Act, 1986.

By Order & in the name of the Governor of Karnataka,

Mahendra Jain
Additional Chief Secretary to Government,
Forest, Ecology and Environment Department

ಸರ್ಕಾರಿ ಮುದ್ರಣಾಲಯ, ವಿಕಾಸ ಸೌಧ ಘಟಕ, ಬೆಂಗಳೂರು. (ಪ್ರ) 500 ಪ್ರತಿಗಳು)

Annexure X: Ban on open burning of Solid Waste

GOVERNMENT OF KARNATAKA

No. FEE 6 ENG 2017

Karnataka Government Secretariat,
M.S. Building,
Bangalore, Dated:03.08.2017.

NOTIFICATION

Research findings reveal that burning of solid waste including plastic in the open places especially in the urban areas releases harmful chemicals such as Sulpher Dioxide (SO_2) Carbon Dioxide (CO_2), Carbon Monoxide (CO), Dioxins and Furans in addition to lot of Particulate Matter which get into the environment and create serious health hazard on all living creatures including human beings.

The Karnataka State Pollution Control Board have submitted a proposal recommending for issue of a notification banning burning of solid waste including twigs, dry leaves and other wastes in open places of urban areas in accordance with section 19(5) of the Air (Prevention and Control of Pollution) Act, 1981 to prevent its ill-effect on the health of general public as concentration of the Particulate Matter is increasing in the urban areas because of burning of solid waste in open places.

Considering the recommendation made by the Karnataka State Pollution Control Board and in exercise of the powers conferred under section 19(5) of the Air (Prevention and Control of Pollution) Act, 1981, the State Government hereby impose a complete ban on burning of solid wastes of any kind including twigs and leaves of plants in open places within the jurisdiction of all urban local bodies including Bruhat Bengaluru Mahanagara Palike and in solid waste landfill sites throughout the State.

The competent authorities shall deal with violation of this notification if any, as violation of the provisions of the Air (Prevention and Control of Pollution) Act, 1981.

By Order & in the name of the
Governor of Karnataka,

(H.C. Rajendra Kumar)
Under Secretary to Government (I/c),
(Ecology and Environment)
Forest, Ecology and Environment Department

To:

The Compiler, Karnataka State Gazette – with a request to publish in the next issue and arrange to furnish 200 copies to this Department.

..2

Annexure XI: Action plan for control of stubble burning in Karnataka

ACTION PLAN FOR CONTROL OF STUBBLE BURNING IN KARNATAKA(2020-21)

(Response to direction number vi of the orders of the Hon'ble National Green Tribunal at Delhi in OA number 681/2018)

India, the second largest agro-based economy with year round crop cultivation, generates a large amount of agricultural waste, including crop residues. According to the Ministry of New and Renewable Energy (MNRE), India generates on an average 500 million tonnes of crop residue per year. The majority of this crop residue is in fact used as fodder, fuel for other domestic and industrial purposes. However, there is still a surplus of 140 million tonnes, of which 92 million tonnes is reportedly burnt each year, causing excessive particulate matter emissions and air pollution.

According to the Inter-Government Panel on Climate Change (IPCC), approximately 25% of the crop residues are burnt on farm. Crop residue burning is a major environmental problem causing health issues as well as contributing to global warming. The fraction of crop residue subjected to burning comprises mainly of Rice straw,wheat straw and Sugarcane.

Crop residues produced by Rice, Wheat and Sugarcane are Husk, bran; Bran, Straw and Sugarcane tops, bagasse, molasses respectively. Composting, bio-char production and mechanization are a few effective sustainable techniques that can help to curtail the issue while retaining the nutrients present in the crop residue in the soil.

In Karnataka, Paddy straw is rarely burnt. This is because the straw is extremely useful and precious to be used as dry fodder for cattle. After the straw has been collected, the remaining stubble is retained in the fields. In the forthcoming sowing season, the lands are ploughed. The pieces of stubble are sorted by size by land owners and the big pieces discarded. The small pieces are used as mulch and fertigation / organic manure.

In case of sugarcane, burning trash is practiced in few scattered pockets. Though stubble/trash burning has not been reported to cause air pollution or

smog of significant intensity, with a view to contain the burning of stubble/trash, both in paddy/wheat and Sugarcane, the Department of Agriculture, Government of Karnataka, has taken action to provide machinery and equipment for residue management for various crops under subsidy scheme to beneficiaries and throughCustom Hiring Centres (CHSC). Some of the residue management machines that are being provided under subsidy schemes are Tractor operated Trash Cutter/ Mulcher/ Shredder, Engine operated Rake, Baler, Ratoon Manager, Sugarcane harvester etc.

CONTROL OF PADDY/ WHEAT STUBBLE BURNING

A. By utilization of stubble:

As already mentioned above, stubble is not a waste. It has immense potential to be utilized as a product useful to the farmer. All it requires is providing appropriate technology to harvest and convert the stubble into useful product. Balers and Rakes are machines that do this and these are quite popular too. The cost being slightly high for the farmer, these are provided on rental basis through CHSCs and also on subsidy basis to individual farmers.

Area under Paddy and Wheat cultivation in Karnataka is approximately 12.83 lakh hectares and 1.75 lakh hectares (all cropping seasons included) respectively. Approximately, 3-4 tonnes paddy/ wheat straw is generated per hectare.Straw balers can be used to pick-up the straw from the harvested paddy field and densify into bales.

In Karnataka, 197 Balers are available as of date (121 in CHSCs and 76privately held). One Baler approximately tackles about 5 hectares of rice/wheat per day. Paddy/wheat harvesting lasts around 40 days during a season. Thus one baler will tackle about 200 hectares of rice/wheat area per season. Taking two seasons per year, each Baler will tackle 400 hectares in a year. The existing 197 Balers are thus already tackling stubble burning in 78800 hectares annually.

Similar is the case with Rakes.121 Rakes are available as of date with CHSCs. One Rake approximately tackles about 5 hectares of rice/wheat per day. Paddy/wheat harvesting lasts around 40 days during a season. Thusone Rake

will tackle about 200 hectares of rice/wheat area per season. Taking two seasons per year, each Rake will tackle 400 hectares in a year. The existing 121 Rakes are thus already tackling stubble burning in 48400 hectares annually.

This year, 76 Balers are proposed to be given on subsidy to farmers. Since these will be used only in one season (Rabi), these 76 Balers would tackle stubble burning in 15200 hectares.

Summarily, there are Balers and Rakes tackling stubble burning in 127200 (78800 by Balers + 48400 by Rakes) hectares of paddy/wheat cultivation area annually. An additional 15200 hectares would be added to this in the current year taking the total Paddy/wheatcultivation area tackled against stubble burning to become 142400 hectares annually by utilization of stubble.

B. By retaining the stubble in Rice Fallows:

An extent of 26600 hectares (inclusive of demonstration and distribution of inputs) of Paddy is covered under Targeting Rice Fallow Area (TRFA) scheme of the Government of India for 2020-21. Under this, pulses and oilseeds are sown in Paddy harvest areas without removing the stubble. Thus, 26600 hectares of paddy cultivation area will be tackled against stubble burning this year by retention of stubble.

The total area tackled against stubble burning in paddy/wheat cultivated areas in 2020-21 is thus 169000 (142400 + 26600) hectares.

CONTROL OF SUGARCANE THRASH BURNING

Area under Sugarcane cultivation in Karnataka is approximately 6.64 Lakh hectares. Approximately5-8 tonnes of trash are generated per hectare. In some places sugarcane trash is burnt which leads to loss of nutrients, affects environment and causes air pollution. Sugarcane trash cutter/ Mulcher/ Ratoon manager can be used to managing sugarcane trashin the fields.

In Karnataka, 3 Sugarcane Trash cutters (in CHSCs), 25 Sugarcane Mulchers (16 in CHSC and 9 are privately held), 7 Sugarcane Ratoon Managers (1 in CHSC and 6 privately held) and 200 Sugarcane harvesters (all privately held) are already available. In a day, one Trash Cutter/Mulcher/Ratoon Manager

can cover 5 hectares and each Sugarcane harvester nearly 10 hectares of sugarcane area. With the sugarcane harvest season spanning 70 days a year, the existing 35 Trash Cutters/Mulchers/Ratoon Managers tackle 12250 hectares of sugarcane area against trash burning. Similarly, the existing 200 Sugarcane harvesters tackle 140000 hectares of sugarcane area against trash burning. The existing machines and technology are thus tackling 152250 (140000+12250) hectares of sugarcane area against trash burning annually.

This year, 50 Trash Cutters/Mulchers/Ratoon Managers and 60 Sugarcane harvesters are proposed to be given on subsidy to farmers. Since these will be used only in only a part of the year, taking that these would be utilized for only half the harvest season i.e. 35 days, these 50 Trash Cutters/Mulchers/Ratoon Managers would tackle stubble burning in 8750 hectares and the60 Sugarcane harvesterswould tackle stubble burning in 21000 hectares. Thus totally 29750 (8750 + 21000) hectares of additional capacity would be added to the already existing annual capacity of 152250 hectares of sugarcane area against trash burning making the total to become 182000 hectares annually.

Summarily, **152250 hectares of sugarcane area is being tackled against trash burning in 2020-21 and an extent of 29750 hectares is being added to it this year.**

03/09/20

Commissioner for Agriculture

Commissioner for Agriculture
Bellary Road, Bengaluru-560001.

Annexure XII: Siting guidelines for Establishment of Industries

PR-399

GOVERNMENT OF KARNATAKA

No: FEE 106 EPC 2021 (i)

Karnataka Government Secretariat,
M.S.Building,
Bangalore, dated:10.12.2021.

NOTIFICATION

In exercise of the powers conferred by section 64 of the Water (Prevention and Control of Pollution) Act, 1974, (Central Act 6 of 1974), in consultation with the Karnataka State Pollution Control Board, the Government of Karnataka hereby makes the following rules further to amend the Karnataka State Board for the Prevention and Control of Water Pollution (Procedure for Transaction of Business) and the Water (Prevention and Control of Pollution) Rules 1976, namely:

1. **Title and commencement**: - (1) These rules may be called the Karnataka State Pollution Control Board for Prevention and Control of Water Pollution (Procedure for Transaction of Business) and the Water (Prevention and Control of Pollution) (Second Amendment) Rules, 2021.

   (2) They shall come into force from the date of their publication in the official Gazette.

2. **Amendment to Rule 32 —** In Rule 32 of the Karnataka State Board for the Prevention and Control of Water Pollution (Procedure for Transaction of Business) and the Water (Prevention and Control of Pollution) Rules 1976.-

   (1) after sub-rule (4), the following sub-rule shall be inserted, namely:—

   ''(5) Siting guidelines for Consent for Establishment for different category of industries is specified in Schedule IV.''

   (2) the siting guidelines to accompany the combined application form for Consent for Establishment for Orange and Green category industries, published vide Notification No.FEE 195 ENV 2002, dated 21st June, 2003, shall be omitted.

3. **Insertion of new Schedule:** After Schedule III of the Karnataka State Pollution Control Board for Prevention and Control of Water Pollution (Procedure for Transaction of Business) and the Water (Prevention and Control of Pollution) Rules, 1976 the Schedule IV shall be inserted and appended to this Notification.

By order and in the name of
Governor of Karnataka

(Muralidhar S. Tallikeri)
Under Secretary to Government,
Forest, Ecology and Environment Department
(Ecology and Environment)

Schedule IV

Matrix of Siting Guidelines (New Industries excluding New Health Care Establishments and New Infrastructure Projects)

Sl. No.	Category of Industry		Minimum distance from Water-body *(river and lake)*
1.	**Red**		Only beyond 500 meters
2.	**Orange**	***With Effluents***	Only beyond 75 Meters
		Without effluents	Only beyond 30 Meters
3.	**Green**		Only beyond 30 Meters

Matrix of Siting Guidelines (New Health Care Establishments and New Infrastructure Projects)

1.	Health Care Establishments and Infrastructure Projects	Prevailing Local bye-law or local regulation may be followed subject to the condition that a minimum distance of 30 Meters from water-body (river and lake) shall be maintained.

Note:

1. These Guidelines are not applicable to notified industrial estates.
2. These guidelines are the minimum standards. If any local/special law, Statutory Notification/Direction, Orders of court, Tribunal or directions of Central Pollution Control Board stipulate more stringent standards, the latter shall prevail.
3. Distance from water body shall be measured from the nearest boundary of water body as depicted in the revenue sketch.

4. Infrastructure Projects means residential township including commercial buildings, Office building, School, College, University, Special Economic Zone, Metro Station, Railway station, Bus Depot, Airport, Seaport, Highway infrastructure, Fire Station, Warehouse, Business Plaza, Malls & Multiplex, Nursing Homes, Resort, Hotel/Restaurant/Food Plaza, Holiday Home/Guest home/Hostels/ Banquet Hall/Marriage Gardens, IT Complex, Logistics & Cargo, Clubs and Trade Centre as indicated in Annexure VI of Notification No. S.O. 3289 (E), dated 24th September 2020 issued by Ministry of Jal Shakti, Government of India.

(**Muralidhar S. Tallikeri**)
Under Secretary to Government,
Forest, Ecology and Environment Department
(Ecology and Environment)

PR-400

GOVERNMENT OF KARNATAKA

No: FEE 106 EPC 2021 (ii)

Karnataka Government Secretariat,
M.S.Building,
Bangalore, dated: 10.12.2021.

NOTIFICATION

In exercise of the powers conferred by Section 54 of the Air (Prevention and Control of Pollution) Act, 1981 (Central Act 14 of 1981), in consultation with the Karnataka State Pollution Control Board, the Government of Karnataka hereby makes the following rules further to amend the Karnataka Air (Prevention and Control of Pollution) Rules, 1983, namely:

1. **Title and commencement**: - (1) These rules may be called the Karnataka Air (Prevention and Control of Pollution) (Second Amendment) Rules, 2021.

   (2) They shall come into force from the date of their publication in the official Gazette.

2. **Amendment of Rule 20**:- In Rule 20 of the Karnataka Air (Prevention and Control of Pollution) Rules, 1983.-

   1. after sub-rule (5), the following sub-rule shall be inserted, namely:—

      ''(6) Siting guidelines for Consent for Establishment for different category of industries is specified in Schedule IV.''

   2. the siting guidelines to accompany the combined application form for Consent for Establishment for Orange and Green category industries, published vide Notification No.FEE 195 ENV 2002, dated 21st June, 2003, shall be omitted.

3. **Insertion of new Schedule:** After Schedule III of the Karnataka Air (Prevention and Control of Pollution Rules, 1983, the Schedule IV shall be inserted and appended to this Notification.

By order and in the name of
Governor of Karnataka

(**Muralidhar S. Tallikeri**)
Under Secretary to Government,
(Ecology and Environment)
Forest, Ecology and Environment Department

Schedule IV

Matrix of Siting Guidelines (New Industries excluding New Health Care Establishments and New Infrastructure Projects)

Sl. No.	Category of Industry		Minimum distance from Water-body *(river and lake)*
1.	**Red**		Only beyond 500 meters
2.	**Orange**	***With Effluents***	Only beyond 75 Meters
		Without effluents	Only beyond 30 Meters
3.	**Green**		Only beyond 30 Meters

Matrix of Siting Guidelines (New Health Care Establishments and New Infrastructure Projects)

1.	Health Care Establishments and Infrastructure Projects	Prevailing Local bye-law or local regulation may be followed subject to the condition that a minimum distance of 30 Meters from water-body (river and lake) shall be maintained.

Note:

1. These Guidelines are not applicable to notified industrial estates.
2. These guidelines are the minimum standards. If any local/special law, Statutory Notification/Direction, Orders of court, Tribunal or directions of Central Pollution Control Board stipulate more stringent standards, the latter shall prevail.
3. Distance from water body shall be measured from the nearest boundary of water body as depicted in the revenue sketch.
4. Infrastructure Projects means residential township including commercial buildings, Office building, School, College, University, Special Economic Zone, Metro Station, Railway station, Bus Depot, Airport, Seaport, Highway infrastructure, Fire Station, Warehouse, Business Plaza, Malls & Multiplex, Nursing Homes, Resort, Hotel/Restaurant/Food Plaza, Holiday Home/Guest home/Hostels/ Banquet Hall/Marriage Gardens, IT Complex, Logistics & Cargo, Clubs and Trade Centre as indicated in Annexure VI of Notification No. S.O. 3289 (E), dated 24th September 2020 issued by Ministry of Jal Shakti, Government of India.

(Muralidhar S. Tallikeri)
Under Secretary to Government,
Forest, Ecology and Environment Department
(Ecology and Environment)

PR-401

About EMPRI

Environmental Management & Policy Research Institute (EMPRI) is an autonomous institute established by Government of Karnataka under the Department of Forest, Ecology and Environment. It is registered under the Karnataka Societies Registration Act, 1960. The Institute undertakes applied and policy research and also endeavours to provide capacity building trainings on concurrent environmental issues relevant to the society. Research and assessments undertaken by the institute seek to encourage and enable government and other institutions, industry and civil society to safeguard and manage the natural resources effectively. Fresh capabilities on impact and carrying capacity assessment for sustainable development, and baseline data and modelling for air pollution and climate change are being augmented.

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