

BEFORE THE NATIONAL GREEN TRIBUNAL, SOUTH ZONE

ORIGINAL APPLICATION NUMBER 87/2024

IN THE MATTER OF

Krishnan C.S.

..... Applicant

Vs.

State of Karnataka & Anr

..... Respondents

AFFIDAVIT ON BEHALF OF KARNATAKA STATE

POLLUTION CONTROL BOARD

PAPERBOOK

[PLEASE SEE INSIDE FOR INDEX]



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BEFORE THE NATIONAL GREEN TRIBUNAL, SOUTH ZONE

ORIGINAL APPLICATION NUMBER 87/2024

IN THE MATTER OF

Krishnan C.S, Bangalore

.... Applicant

Vs.

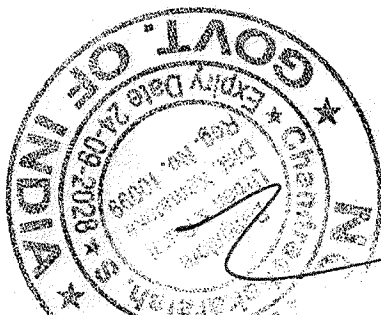
State of Karnataka & Anr

..... Respondents

AFFIDAVIT ON BEHALF OF THE KARNATAKA STATE

POLLUTION CONTROL BOARD

I, Shri. Niranjana P. aged about 59 years, son of Shri. Puttamadhiah H. M. presently working as the Chief Environment Officer, Karnataka State Pollution Control Board, do hereby solemnly affirm and state that I am familiar with the facts and circumstances pertaining to the present matter, in my official capacity and based on the official documents/records maintained by the Karnataka State Pollution Control Board. As such, I am competent and duly authorized to depose the present affidavit set forth below:



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1. It is respectfully submitted that the Applicant has sought for incorporation of catalytic retrofits in existing pre-BS IV commercial diesel vehicles and also BS IV commercial diesel vehicles over 10 years old, operated by the State Government. It is respectfully submitted that the above application is not maintainable on facts and under law because this very issue raised by the Applicant had already been specifically raised in OA No. 183 of 2016 (SZ) (hereafter also referred to as the “**earlier petition**”) and this Hon’ble Tribunal, having duly considered this issue, passed specific and comprehensive directions by its judgment and order dated 13/04/2022 (hereafter also referred to as the “**earlier order**”). The directions of this Hon’ble Tribunal in the earlier order are being currently carried out and implemented by the concerned stake-holders. A copy of the order dated 13/04/2022, passed in OA No. 183 of 2016 (SZ) is annexed herewith as **ANNEXURE R1** which also records the specific prayers that were made therein, including the issue raised again in the present application.

2. The relevant portion of the order dated 13/04/2022 in OA No. 183 of 2016 (SZ), reflecting the fact that the very same issue was raised therein, is reproduced herein below for ready reference:

“11. That prompted the applicant to file this application seeking the following interim as well as final reliefs:-

“Interim Prayer



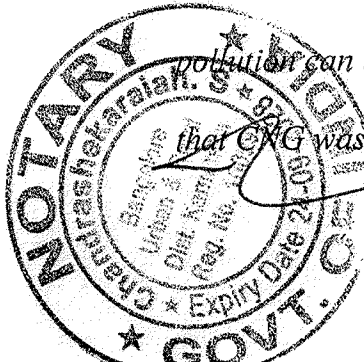
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(i) Direct that all non BS IV diesel buses that are owned or operated by the Government of Karnataka/State RTCs i.e. Respondents No. 2, 3, 5 and 6, or its lessees in public transport, that operate in or pass through any portion of greater Bengaluru at any time, shall convert to CNG or use non engine modifying retrofit devices or catalytic treatments or any other similar devices which reflect 30% or more reduction in smoke emissions, within a time frame fixed by this Hon'ble Tribunal ...” ”

It may also be relevant to note that the Applicant in the earlier petition, as final prayer, had sought for directions to the government to adopt CNG as the preferred fuel for government owned commercial vehicles.

3. The relevant portion of the judgment and order dated 13/04/2022 in OA No. 183 of 2016 (SZ), deciding on the subject-matter issue, is set forth below for ready reference:

“ 57. It is also seen from the various reports submitted by the State of Karnataka and also the BMTC that various steps have been taken by them for implementing the Green and Clean Fuel Policy and they are taking steps to discontinue the old vehicles by new electrical vehicles and steps are being taken for phasing out old vehicles with electrical vehicles. They have also mentioned that the CNG is not the only method by which pollution can be curtailed and various reports relied on by them showed that CNG was also causing some ill effects, but we are not going into those



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aspects, as the policy of the Government and various directions issued by the Hon'ble Apex Court includes replacement of diesel vehicles with Clean and Green Fuel vehicles, which includes CNG and Biogas and Electrical vehicles. It is for the Government to evolve a policy as to how they are going to implement the same and what is the alternate clean fuel policy that they are going to adopt, as it involves financial implications and higher level policy decisions. Further, the Tribunal cannot go into the question as to what is the nature of policy to be evolved [emphasis supplied] and how that will have to be implemented, but the Tribunal can only direct the Government to evolve an effective policy in respect of change over of old vehicles with Clean and Green Fuel policy [emphasis supplied] and the same will have to be implemented at the earliest possible time, as postponement of such implementation will result in great hardship to the people by way of causing health problem due to accelerated possibility of air pollution being caused.

58. The Special Bench while disposing the similar issue which was in respect of State of Tamil Nadu als in OA No. 422 of 2013 (L.G. Shadewan Vs. Union of India & Ors) after relying on the various directions issued by the Principal Bench of the National Green Tribunal in O.A. NO 681 of 2018 referred to above, directed the State Government to evolve and update the policy and other associated activities to remedy the air quality degradation may also include policy with regard to use of Clean



Srinivasan

Fuel, regulatory measures in light of source apportionment and carrying capacity and controlling the dust. There is also a need for effective monitoring at the District Level and State Level by the Steering Committee as well as the Air Quality Monitoring Committee on regular basis subject to overall progress being monitored at the National Level under the National Clean Air Programme.”

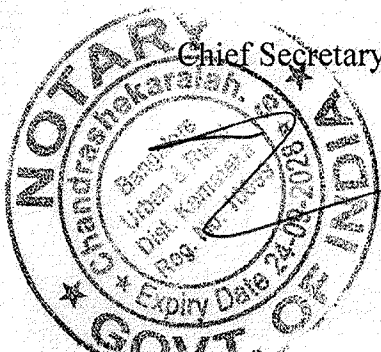
Following from the above reasoning, this Hon'ble Tribunal, in its order dated 13/04/2022, passed comprehensive final directions, which are substantively stated herein below.

(i) The State of Karnataka should implement the directions issued by the Principal Bench of the National Green Tribunal, New Delhi in Original Application No. 681 of 2018 (PB);

(ii) The State of Karnataka should implement the directions issued by the Central Pollution Control Board under the National Clean Air Programme;

(iii) The State of Karnataka should form a monitoring committee under the leadership of the Additional Chief Secretary to Government, Department of Forests, Environment and Ecology and also others as specified;

(iv) Meeting of the above stated committee is to be monitored by the Chief Secretary to Government, State of Karnataka periodically;



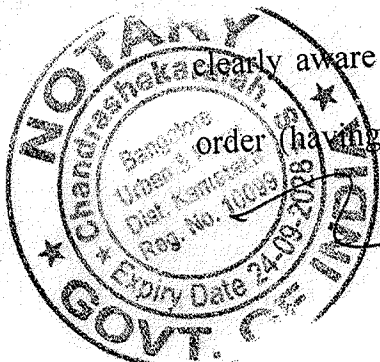
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(v) The Chief Secretary to Government, State of Karnataka, should also form District Level Committees to implement the above stated programmes;

(vi) The Central Pollution Control Board should monitor the implementation of the directions issued under the National Clean Air Programme and the directions issued by the NGT Principal Bench in OA No. 681 of 2018 (PB) and submit periodic reports to this Hon'ble Tribunal i.e., once in four months.

4. It is respectfully submitted that this Hon'ble Tribunal, has therefore, considered the prayer in the earlier petition on the issue of retrofits for government commercial diesel vehicles, as an interim step as prayed for therein, together with the final prayer for migration to CNG fuel and has specifically refrained from passing piecemeal directions as sought for. The Hon'ble NGT has specifically reasoned that the NGT cannot get involved with matters of financial and technical policy that are to be considered by the State Government. As a result, this Hon'ble Tribunal has passed comprehensive directions to ensure prevention of air pollution, which are also specifically aligned with the directions of the Principal Bench of the NGT in OA No. 681 of 2018 (PB).

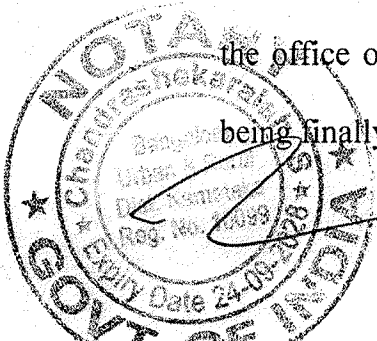
5. It is respectfully submitted that the Applicant in the present matter is clearly aware of the entire directions of this Hon'ble Tribunal in the earlier order (having made references to the same in his Application) but has only



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made superficial references in his Application and has not provided any justification for raising the same issue once again and thus the maintainability of the present petition also. Further, it is important to note that the contents of the present application, verbatim make the same statements and raise the same grounds as were raised in the earlier petition. Therefore, it may not be out of place surmise that the present petition is being filed merely to suit the vested needs of the Applicant and to mislead this Hon'ble Tribunal into passing contradictory orders. Without any prejudice to the facts of the matter and the intentional/malicious conduct of the Applicant, it may also be necessary to submit that the present application is clearly barred under law, by the principles of *res judicata* and/or *constructive res judicata*.

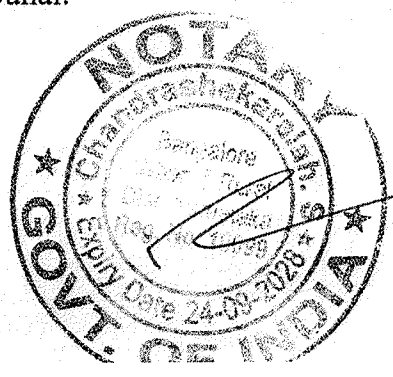
6. Without any prejudice to the above, it may also be noted that the role of the Karnataka State Pollution Control Board is modulated now by the extensive coverage of the subject-matter issues by various court directions i.e., the Hon'ble Supreme Court of India, the Principal Bench of the NGT and the Southern Bench of the NGT (including ongoing proceedings in pending matters referred to herein below in paragraph 7) and the comprehensive nature of the measures that are being undertaken in terms of the court directions by the various stake-holders. The implementation of the various measures is now being undertaken by various agencies and departments under the leadership of the office of the Chief Secretary, Government of Karnataka and the same is being finally reported directly to this Hon'ble Tribunal also.



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7. Without any prejudice to the above, the status of the implementation of various measures available with the Karnataka State Pollution Control Board is based on the proceedings of the committees formed to implement the National Clean Air Policy and the State Action Plan on Air Pollution for Karnataka. A copy of one of the latest proceedings of the NCAP committee meeting headed by the Deputy Commissioner, Bengaluru Urban District dated 12/02/2024, is annexed herewith as **ANNEXURE R2** as a sample for ready reference. Additionally, a copy of the State Action Plan on Air Pollution for Karnataka 2022, is also annexed herewith as **ANNEXURE R3**. It may also be necessary to submit that this Hon'ble Tribunal is considering the State Action Plan on Air Pollution and related issues, in a matter currently pending adjudication i.e., in OA 159/2021 (SZ) and as on the date of this affidavit, this Hon'ble Tribunal has passed directions to the various State Pollution Control Boards to submit revised reports based on the modified templates prepared by the Central Pollution Control Board.

8. It is respectfully submitted that this Hon'ble Tribunal may be pleased to take the above submissions into consideration and dismiss the above titled application with the imposition of exemplary costs. KSPCB will be obliged to provide any additional information that may be required by this Hon'ble Tribunal.

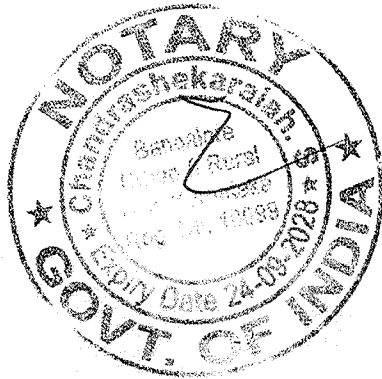


[Signature]
DEPONENT

VERIFICATION

Verified on this 13th day of September, 2024, at Bengaluru that the contents of the above affidavit are true and correct to the best of my knowledge, information and belief and nothing material is concealed therefrom.

[Signature]
DEPONENT



SWORN TO BEFORE ME
[Signature] 13/9/2024
CHANDRASHEKARAJIAH. S.
Advocate & Notary
97, Kempegowda Road,
3rd Cross, Muthurayaswamy Extension
Sunkadakatte, Bangalore - 560 091.

ANNEXURE - 1

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Item No.2:-

BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI

(Through Video Conference) .

Original Application No. 183 of 2016 (SZ)

IN THE MATTER OF:

Shri Vinay Shivanand Naik
Aged about 32 years
S/o. Shivanand P Naik
#101, 2nd Floor, 9th Main Road,
Gokula 2nd Phase, Mathikere,
Bengaluru - 560 054. Karnataka.

... Applicant(s)

Versus

State of Karnataka
Through the Department of Transport,
Vidhana Soudha,
Ambedkar Veedhi
Bengaluru - 560 001
Rep. by its Chief Secretary and Ors.

...Respondent(s)

For Applicant(s): Mr. Jayakumar S Patil, Sr. Adv. along with
Mr. Anu Ganesan.

For Respondent(s): Mr. Darpan K.M. along with
Mr. Rajat Jonathan Shaw for R1.
M/s. P.D. Surana along with
M/s. Kavitha for R2, R3, R5, R6.
Mr. R. Thirunavukarasu for R4.
M/s. Giridhar and Sai for R7.
Mrs. Me. Saraswathy through
Mr. Meyyappan for R9.
Mr. Bharadwaja Rama Subramaniam
along with Mr. Nalina Gouda for R11.

Judgment Pronounced on: 13th April 2022.

CORAM:

HON'BLE Mr. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER

HON'BLE Dr. SATYAGOPAL KORLAPATI, EXPERT MEMBER

ORDER

Judgment pronounced through Video Conference. The original application is disposed of with directions vide separate Judgment.

Pending interlocutory application, if any, shall stand disposed of.

Sd/-
Justice K. Ramakrishnan, JM

Sd/-
Dr. Satyagopal Korlapati, EM

O.A. No.183/2016 (SZ),
13th April 2022. Mn.

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Item No.2:-

**BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI**

(Through Video Conference)

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IN THE MATTER OF:

Shri Vinay Shivanand Naik
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Bengaluru - 560 054. Karnataka.

... Applicant(s)

Versus

- 1) State of Karnataka
Through the Department of Transport,
Vidhana Soudha,
Ambedkar Veedhi
Bengaluru - 560 001
Rep. by its Chief Secretary
- 2) The Karnataka State Road Transport Corporation (KSRTC)
K.H. Road, Bengaluru - 560 027
Rep. by its Chairman
- 3) Bengaluru Metropolitan Transport Corporation (BMTC)
K.H. Road, Bengaluru - 560 027
Rep. by its Chairman
- 4) Karnataka State Pollution Control Board,
P U Building, M.G. Road,
Sivanchetti Gardens
Bengaluru - 560 001.
Rep. by its Chairman
- 5) North West Karnataka Road Transport Corporation
Gokul Road, Hubli,
Karnataka.
Rep. by its Chairman.
- 6) North - East Karnataka Road Transport Corporation
Central Office, Transport House Main Road,
Kalburagi
Rep. by its Chairman.

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- 7) GAIL (India) Limited
Rep. by its Managing Director
GAIL Bhawan, 16 Bhikaji Cama Place,
R.K. Puram, New Delhi - 110 022.
- 8) Ministry of Petroleum & Natural Gas,
Rep. by its Secretary,
Shastri Bhawan, New Delhi - 110 001.
- 9) Ministry of Environment, Forests & Climate Change,
Rep. by its Secretary,
Indira Paryavaran Bhawan,
Jorbagh Road, New Delhi - 110 003.
- 10) Ministry of Road Transport and Highways
Rep. by its Secretary, Parivahan Bhawan,
No.1 Parliament Street,
New Delhi - 100 001.

(Respondents No.7 to 10 were impleaded as per Order dt.12.01.2017)

- 11) M/s. GAIL Gas Limited
3rd Floor, MS Complex
S-44 New BEL Road,
RMV II Stage, Bengaluru - 560 054.

(R11 impleaded as per order dt.27.02.2017)

...Respondent(s)

For Applicant(s): Mr. Jayakumar S Patil, Sr. Adv. along with
Mr. Anu Ganesan.

For Respondent(s): Mr. Darpan K.M. along with
Mr. Rajat Jonathan Shaw for R1.
M/s. P.D. Surana along with
M/s. Kavitha for R2, R3, R5, R6.
Mr. R. Thirunavukarasu for R4.
M/s. Giridhar and Sai for R7.
Mrs. Me. Saraswathy through
Mr. Meyyappan for R9.
Mr. Bharadwaja Rama Subramaniam
along with Mr. Nalina Gouda for R11.

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Earlier Judgment Reserved on: 29th November 2021.

Reopened on: 20th December 2021

Judgment Reserved on: 20th December 2021.

Judgment Pronounced on: 13th April 2022.

CORAM:

HON'BLE Mr. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER

HON'BLE Dr. SATYAGOPAL KORLAPATI, EXPERT MEMBER

Whether the Judgment is allowed to be published on the Internet - Yes/No

Whether the Judgment is to be published in the All India NGT Reporter - Yes/No

JUDGMENT

Delivered by Justice K. Ramakrishnan, Judicial Member

1. The above application has been filed by the Original Applicant alleging vehicular pollution being caused in Bangalore City for taking steps to phase out the old public diesel vehicles by the State of Karnataka and the remedial measures to be taken for that purpose. The applicant filed this application stating that the Right to Life is precious fundamental right enshrined under Article 21 of the Constitution of India which includes, right to get clean air.
2. It is also alleged in the application that is a primary responsibility of the State to provide such environment so as to protect its citizens, especially the health of the children. The level of air pollution in Bangalore has been in increasing trend at an alarming rate for over 1 ½ decades. The scientists at Tel Aviv University on pollution trends for 189 megacities, by

analyzing eight years worth of data from three of NASA's high tech aerosol monitoring satellites, shows Bangalore experienced 34% increase in aerosol concentration (air pollution) between 2002 to 2010. Aerosols are particulate matter i.e., very fine particles suspended in the atmosphere and aerosol pollutants are one of the most harmful constituents of polluted air/environment.

3. The applicant had produced the article published in the American Journal of Climate Change, together with a summary thereof as Annexure - 1. It was alleged in the application that the 4th Respondent sets the current rate of increase in air pollution in Bangalore at 5% per day. The city is being polluted to such a level that the health impact on infants, the youth, the poor and the old are becoming predominant and rampant. On 13th February 2015, the Deccan Herald quoted that the 4th Respondent's Chairman Shri. Vaman Acharya saying "*the City is becoming like Beijing when it comes to pollution*". The news which was published in DNA newspaper on 04th May 2015, at 05:31 IST states "*Bengaluru ranks second in the list of cities which have highest air pollution level*". The children are most affected by increase in the level of air pollution. The said newspaper report was produced as Annexure - 2 Series.

4. Further, it was also alleged in the application that the vehicular air pollution and especially pollution caused by diesel vehicles is one of the largest contributors to air pollution especially in the cities such as Bangalore. The applicant had relied on the decisions of the Hon'ble Apex Court in **M.C. Mehta Vs. Union of India**¹ wherein, it was emphasized that one of the causes of mortality is air pollution and air pollution caused

¹ (2002) 4 SCC 356

a risk of lung cancer and respiratory organs are affected by the pollutants and another lung disease on account of vehicular pollution.

5. The applicant also reiterated the statistics relied by the Hon'ble Apex Court in *M.C. Mehta's* case for the purpose of insisting the necessity for giving directions to take steps for getting clean air, so that the future generation did not suffer from the ill health. The applicant further contended that the 1st Respondent is not implementing sufficient precautionary methods to prevent/reduce the air pollution in terms of guidelines issued by the Hon'ble Apex Court in the year 2002.

6. The applicant also relied on the decision of the Hon'ble High Court of Karnataka in the year 2004 in *Karnataka Lorry Malikara Okkuta Vs. State of Karnataka*² wherein, a direction was issued to the State authorities to evolve some scheme, after considering the details. The Government should also give sufficient time to the vehicle owners for replacement of the old vehicles, in a phased manner, to make available the CNG fuel and to have the vehicles converted to it in a phased manner. The authority concerned should overall monitor and check the two wheelers, four wheelers and other types of vehicles including commercial/transport vehicles as well as passenger vehicles, at important functions, and to see that they do not violate the prescribed norms of pollution and the traffic rules and to ensure the safety and welfare of the public. The authorities concerned are also free to take note of the direction issued by the Hon'ble Apex Court in *M.C. Mehta's* case.

² (2004) 6 Kar LJ 1

7. It was further alleged in the application that on 17.08.2014, to the best of knowledge of the applicant, not even one CNG bus is plying in Bangalore in compliance with the direction. The report prepared by the Department of Forest, Ecology and Environment, Government of Karnataka also well aware of the adoption of CNG where an emphasize has been made in the report as *"There is a need to emphasize well-known truisms that vehicles should be maintained in good conditions, that adulterated fuel should not be used and that the use of LPG and CNG as fuel can reduce air pollution"* and the relevant portion of the report was produced by the applicant as Annexure - 3. That also emphasizes the necessity to prevent ill effects of air pollution on account of vehicular pollution on children, adults and senior citizens. The 2nd Respondent in their website, title '*Natural Gas - A Greener Alternative*' also gives the details regarding the possibility of less pollution from the CNG when compared to other fuels and that was extracted by the applicant in the application as follows:-

Fuel Emissions	Co ₂	UHC	CO	No _x	So _x	PM
Petrol	22,000	85	634	78	8.3	1.1
Diesel	21,000	21	106	108	21	12.5
CNG	16,275	5.6	22.2	25.8	0.15	0.29

8. They produced the report issued by the 2nd Respondent as Annexure - 4. The Hon'ble High Court of Karnataka also in Suo Motu matter relating to air pollution, directed the State of Karnataka to comply with the suggestions given by the State Pollution Control Board by order dated 29.04.2015, evidenced by Annexure - 5 and copy of the final order dated 01.07.2015 was produced as Annexure - 6. He has given the details of the quotes made by the Ministry of Transport in one of the newspaper

regarding the necessity for conversion of diesel vehicles to green fuel vehicles, evidenced by Annexure - 7 Series. They have also reiterated the necessity of regulating the diesel gases in Euro/BS diesel standards and the Hartridge Smoke units fixed in 1986 revised so far. They also produced certain reports of various countries as Annexure - 9, 10, 11 and 12 in support of their case and he has given the details of BS- IV vehicles issued by the Transport Corporation.

9. According to the applicant, at the rate at which they want to phase out the old diesel vehicles, will take more than 23 years to complete the process. He also relied on the Annexure - 13, Report reiterating the necessity of going for new environment friendly Clean and Green Fuel vehicles. The applicant herein filed a Writ Petition before the Hon'ble High Court of Karnataka as W.P. No.51663 of 2015 (Vinay Shivanand Naik Vs. State of Karnataka & Ors.) and the Hon'ble High Court of Karnataka by order dated 05.05.2016, considered the submissions made by the State counsel and then passed the following order:-

"In so far as the Bangalore Metropolitan Transport Corporation (BMTc) is concerned, it transpires that it is negotiating the purchase of numerous Diesel engine buses.

Before finalizing any such purchase, the BMTc shall take this Court into confidence."

10. The said order was produced as Annexure - 14 and thereafter, the above mentioned writ petition was disposed of by the Hon'ble High Court on 22.07.2016 with the following directions, evidence by Annexure - 15.

"5. On hearing learned counsel and considering the interim orders passed by this Court, we are of the view that it would be appropriate for the National Green Tribunal to consider this matter. However, having entertained

this petition and having passed interim orders. It would be just and necessary that the interim orders continue for some time.

6. The petition is disposed off by reserving liberty to the petitioner to approach the National Green Tribunal for necessary orders. The interim order granted by this Court shall continue for a period of two weeks, from the date of receipt of a copy of this order."

11. That prompted the applicant to file this application seeking the following interim as well as final reliefs:-

"Interim Prayer

(i) Direct that all non BS IV diesel buses that are owned or operated by the Government of Karnataka/State RTCs i.e. Respondents No.2, 3, 5 and 6, or its lessees in public transport, that operate in or pass through any portion of greater Bengaluru at any time, shall convert to CNG or use non engine modifying retrofit devices or catalytic treatments or any other similar devices which reflect 30% or more reduction in smoke emissions, within a time frame fixed by this Hon'ble Tribunal

(ii) Direct the respondents that buses not complying with the directions that may be issued pursuant to prayer clause (i) be removed from service and /or scrapped within a time frame fixed by this Hon'ble Tribunal

(iii) Restrain Respondent No.3 - Bengaluru Metropolitan Transport Corporation from procuring any new diesel powered buses and consequently direct Respondent No.3 to procure CNG Buses, as and when the need to procure new buses arises

(iv) Restrain Respondent No.2 - KSRTC from procuring any new diesel powered buses that will ply or pass through greater Bengaluru and consequently direct Respondent No.2 to procure only CNG Buses for that purpose, as and when the need to procure new buses arises.

Main Relief:

a. Direct the Respondents to ensure that all buses plying in and/or passing through the city of Bengaluru, Karnataka (including buses of State RTCs, i.e. Respondents No.2, 3, 5 and 6 and routes leased by them), be converted to CNG within a time frame fixed by this Hon'ble Tribunal.

b. Direct the Respondents to revise the HSU limit at 40 Hartridge Scale Units for all commercial diesel vehicles plying in the State of Karnataka.

c. Direct the Respondents to take additional further action to reduce air pollution being caused on account of diesel vehicular emissions by implementing new policies above and beyond the provisions and regulations in the Central Motor Vehicle Act state wide

d. Pass any other/further orders in the interest of justice."

12. Subsequently, additional Respondents No.7 to 10 and the 11th Respondent were impleaded as per order dated 12.01.2017 and 27.02.2017 respectively.

13. The 4th Respondent filed a reply affidavit contending that the application is not maintainable and there were no specific averments or allegations made against them and no specific relief sought against them. Pursuant to the directions laid down in **Karnataka Lorry Malikara Okkuta Vs. State of Karnataka** by the Hon'ble High Court of Karnataka, the answering respondent has taken several preventive measures which has considerably and effectively reduced the air pollution. They were monitoring the Ambient Air Quality of Bangalore City at 13 locations including two Continuous Ambient Air Quality Monitoring Stations using manual equipments under National Ambient Air Quality

Monitoring Programme (NAMP) covering industrial area, mixed urban area and sensitive area. They have set up two Continuous Ambient Air Quality Monitoring Stations (CAAQMs) one at city railway station and other at Regional Office Complex at S.G. Hali. Monitoring is being carried out on 24 hours basis for RSPM, So₂, No₂, and Co and the data is sent to the CPCB, New Delhi electronically and also the data is entered in the Board's website. They had also set up Ambient Air Quality Monitoring Stations in mixed zone (Residential, Rural and Other areas) at Bangalore City viz., (i) AMCO Batteries Mysore Road, (ii) Yeshwanthpur Police Station, (iii) Central Silk Board, (iv) DTDC Office, Victoria Road and (v) Kazi Summanahalli, White Field. They have set up Ambient Air Quality Monitoring Stations in sensitive zone at Bangalore City viz., (i) Ambient Air Quality at Victoria Hospital Bangalore and (ii) Indira Gandhi Child Care Centres, NIMHANS. They also setup four Ambient Air Quality Monitoring Stations in the industrial zone of Bangalore city viz., (i) Export Promotional Park, ITPL, (ii) KHB Industrial Area, (iii) Peenya Industrial area (Gymkhana) and (iv) Peenya Industrial area. They issued several directions under Section 31 A of the Air (Prevention and Control of Pollution) Act, 1981 read with 20 (a) of the Karnataka Air (Prevention and Control of Pollution) Rules, 1983 to the BBMP directing to (a) Declare an area not less than 100 meters around all Government hospital in Bangalore and High Court as silence Zone and any other area as deemed necessary for maintaining as silence zone, (b) To declare the traffic junction zone as no honking zone and display signage in consultation with Home Dept., (c) To regulate the developmental activities, installation of air conditioners and blower in commercial establishments, generators etc causing noise pollution and affecting

quality of life and to avoid noise menace and to achieve the objectives of maintaining the ambient air quality standard, (d) To prohibit all sound emitting construction equipments/activities except on going Metro rail works during night time (10 PM to 6 AM). A co-ordination committee was constituted comprising of the Department of Transport, BBMP, BMTC, BDA and Police. Seven Coordination Committee meetings were held between 09.04.2014 to 16.08.2014. Even though, the BBMP has taken certain measures, the same is not adequate in controlling the noise and air pollution which is evident from the noise levels recorded at five different locations by this Respondent. The present noise levels were communicated to the BBMP vide letter dated 07.02.2014 from this Respondent as the noise levels were exceeding the stipulated limits. Increase in RSPM levels is predominately caused by vehicular traffic due to re-suspension of dust accumulated on the road sides, medians, bad maintenance of roads, construction activities without covering the construction area and construction material, un-cleared garbage and setting garbage on fire, frequent road cuttings and non-removal of the excess earth after the repair works, encroachment of footpath by hawkers, conversion of parking area in multi storied buildings and commercial buildings for non- parking commercial use, etc. The Hon'ble Supreme Court of India and the Hon'ble High Court of Karnataka has taken view of the said matter seriously. In fact the Hon'ble High Court of Karnataka during the hearing on 18.08.2014 in the said writ Petition has viewed seriously about the increase in ambient noise and air quality levels. In pursuance to the directions of the High court of Karnataka, this Respondent invoked Section 31(A) of the Air (Prevention and Control of Pollution) Act 1981 and gave a series of directions to

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formulate an action plan to implement the following directions so as to improve the air quality in Bangalore city

- (a) To plan comprehensive parking management programme for Bangalore city,
- (b) To initiate action for removal of dust/silt accumulated on road side/medium using mechanical means or regular basis,
- (c) To initiate action for filing potholes and road cutting to facilitate for smooth flow traffic,
- (d) To take action to evacuate non parking activities in area earmarked for parking as per approved building plan,
- (e) To coordinate with Police and Transport department to facilitate proper parking of vehicles,
- (f) To remove encroachment of footpaths by hawkers in market place,
- (g) To avoid open burning of garbage and initiate action to remove the garbage dumped,
- (h) To construct more number of multi level vehicle parking,
- (i) To take action to transport the silt removed from the storm water drains,
- (j) To take action to notify boundaries of residential area, commercial area and silence zone in coordination with the Bangalore Development Authority and Police Department,
- (k) To ensure that the construction and demolition of building are carried out by providing an enclosure,
- (l) To regulate the stocking of construction material to minimal levels at site and debris to be cleared frequently without accumulation,
- (m) To ensure that the BBMP vehicles and the vehicles engaged by the contractors comply with the Noise regulation and Automobile emission regulations, and
- (n) to ensure that the solid waste and debris transportation vehicles are covered.

14. Failing to comply with the above direction, will attract penal action as per Section 37 of the Air (Prevention and Control of Pollution) Act, 1981. They have issued several directions under Section 31 A of the Air

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(Prevention and Control of Pollution) Act, 1981 read with 20(a) of Karnataka Air (Prevention And Control of Pollution) Rules, 1983 to the Dept of Transport and Road Safety directing to formulate an action plan to implement the following directions so as to improve the air quality in Bangalore city viz.,

(a) To restrict registration of new vehicles in Bangalore City till the noise level and air quality standards are met,

(b) To ban the entry of heavy motor vehicles (HMTVs) within the outer ring road of Bangalore City. The HMTVs shall be terminated at the outer ring road by creating proper facilities for its parking,

(c) To ban the use of two stroke vehicles within BBMP area,

(d) To ban auto rickshaws in central business district of Bangalore city in a phased manner,

(e) To ban use of more than 15 years old HMTVs within Bangalore city,

(f) To intensively check the emission levels of the vehicles to ensure conformity with the stipulated automobile emission limits,

(g) To audit the emission checking centers at regular intervals,

(h) To conduct a comprehensive study and plan for regulating the traffic,

(i) To direct BMTC & KSRTC to convert the existing vehicles to green fuel like CNG and draw a road map for implementation,

(j) To direct KSRTC & BMTC to strictly adhere to the traffic rules viz., lane discipline, parking/stopping of vehicles at designated bus bays/stop,

(k) To impose heavy fine of Rs.1000/- (Rupees-one Thousand only) for vehicles exceeding the automobile emission limits and if the offence is compounded initiate action, to suspend the registration certificate/seize the vehicles,

(l) To conduct awareness programme in Bangalore city to educate the public on following traffic regulations and educate them on the prevailing penal actions using print and visual media service and

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(m) To issue necessary notification restricting the sale of fuel in BBMP area for vehicles not having pollution under control certificate."

15. They have issued several directions under Section 31(A) of Air (Prevention and Control of Pollution) Act, 1981 read with 20(a) of Karnataka Air (Prevention and Control of Pollution) Rules, 1983 to the Additional Commissioner of Police, Traffic Division directing to them to formulate an action plan to implement the following direction so as to improve the air quality in Bangalore city:-

(a) To ban the entry of heavy motor vehicles (HMs) within the outer ring road of Bangalore City,

(b) Not to issue of permissions to conduct/organize functions in the road blocking the traffic, movement of pedestrians, use of loudspeakers and public address system in contravention with the Noise (Regulation and Control) Rules, 2000 and Government of Karnataka Notification No. FEE 46 ENV 2000, dated 13.08.2002,

(c) To conduct a comprehensive study and plan for regulating the traffic,

(d) To direct KSRTC & BMTC to strictly adhere to the traffic rules viz., lane discipline, parking/stopping of vehicles at designated bus bays/stop,

(e) To impose heavy fine of Rs. 1000/- (Rupees one thousand only) for vehicles exceeding the noise limits and vehicles fitted with shrill horns and defective/altered silencers not in conformity with regulations,

(f) To coordinate with BBMP and Transport department to regulate the parking of vehicles in Bangalore,

(g) The encroachment of footpaths by hawkers in market place and also during festival season shall be regulated so as to ensure that the hawkers do not obstruct the movement of pedestrian and traffic,

(h) To deploy adequate traffic police/traffic volunteers at strategic locations where there are frequent traffic jams to regulate the smooth flow of vehicles,

(i) To introduce dedicated bus lanes in major road in Central business District of Bangalore city,

(j) To adopt intelligent transportation system by use of automated traffic control system, and

(k) To conduct awareness programme in Bangalore city to educate the public on following traffic regulations and educate them on the prevailing penal actions using print and visual media services.

16. It is further contended that failing to comply with the above directions will attract penal action as per Section 37 of Air (Prevention and Control of Pollution) Act, 1981. After issuing the above said directions to the concerned departments, the Dept. of Forest, Environment and Ecology submitted a short term and long term action plan before the Hon'ble High Court of Karnataka in W.P No. 39432 of 2013, evidenced by Annexure - A produced along with the counter and on the basis of the short term and long term action plan, the Hon'ble High Court disposed of the Writ Petition, directing the State Government and concerned departments including Transport Department, KSRTC and BMTC to implement the written suggestions given by the Pollution Control Board as far as practicable. The co-ordination committee consisting of KSPCB, Dept. of Transport and Road Safety, BWSSE, CPCB, BMTC, BDA and KSRTC were conducting meeting on regular basis wherein representatives of various Departments were submitting their plan of actions to reduce the air pollution and report on effective implementation of the same, and one of the meetings of the Co-ordination Committee was produced as Annexure - B. Further, the Board has procured 12 mobile vans having facility to

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check and to conduct joint monitoring Programme to create public awareness. The Additional Chief Secretary of Forest, Environment and Ecology had conducted regular review meetings to ensure the implementation of measures taken to reduce the air and noise pollution and to create public awareness among people. Further, the Board had issued directions to convert the existing vehicles to green fuel like CNG and draw a road map for implementation. The directions issued by the Board in conformity with the directions issued by the Hon'ble Court of Karnataka. So, they prayed for accepting their contentions and passing appropriate directions.

17. Respondents No.2 & 3 have filed a common counter statement denying the allegations made by the applicant in the application, regarding the inaction on the part of these respondents in implementing the direction issued by the Hon'ble High Court of Karnataka in respect of reducing the vehicular pollution caused which has some impact on air pollution in the city. They further contended that most of the directions relied by the applicant issued by the Hon'ble Supreme Court in *M.C. Mehta's* case was relating to situation in Delhi and certain directions were issued depending upon the circumstances and situations brought to the notice of the Hon'ble Apex Court. Several steps have been taken by the State of Karnataka in compliance with the direction issued by the Central Pollution Control Board and also direction issued by the Hon'ble High Court of Karnataka and the pollution has been brought down considerably on account of such implementations. The Motor Vehicles Act was amended in the year 2016 and on the basis of the provisions of the Motor Vehicles Act, certain stringent conditions have been imposed

and there was a direction to phase out the BS- I, II and III diesel vehicles and change over to BS-IV and BS-VI vehicles and certain timelines were given for implementation of the same. The Hon'ble Supreme Court also observed in one of the cases that emission standard of CNG vehicle will be on par with Euro -IV stage make vehicles. The CNG alone is not a solution and there are other type of vehicles available which are more environment friendly. The Hon'ble High Court on the basis of the short-term and long-term measures provided by the State of Karnataka, disposed of the matter, directing them to implement the same and also directed to implement the directions issued by the Pollution Control Board as far as practicable. In view of the final disposal of the writ petition by the Hon'ble High Court of Karnataka relied on by the applicant, lot of further directions were issued than the directions issued by the Hon'ble High Court in the same case which was produced by the applicant and in view of the further directions issued and implementation of the same by Respondents No.2 & 3, most of the grievances raised by the applicant have been redressed. Lot of public vehicles like Auto rickshaws have been converted to CNG and they are trying to BS-VI stage norms which have to be implemented from 01.04.2020 which are better than the CNG vehicles. The possibility of creating pollution on account of use of CNG vehicles and the consequential health hazards cannot be ruled out. They have taken sincere steps to convert BS - I, II and III vehicles to BS-IV and slowly, the old vehicles will be converted to BS-VI, as mandated under the present Motor Vehicles Act. Suddenly changing the old vehicles of BS - I to III will involve in large scale conversion of the engines resulting in huge expenditure which will not be economical and feasible as well. Air pollution is not only due to vehicular pollution but

there are other sources and the cumulative steps will have to be taken for the purpose of meeting the situation and mitigate the danger caused on account of air pollution. They are also anticipating construction of large number of bridges and also signal free roads so as to avoid air pollution which have played a major role in reducing air pollution. Large scale awareness programmes have been conducted to the drivers of the vehicles and also public awareness programmes so as to remind the public of their responsibility to make their contribution to reduce pollution. They have provided smoke testing machines so as to ensure the standard of smoke emission to be regulated and lot of improvements have been made in the workshops so as to maintain the standard of the vehicle to reduce smoke emission which is one of the reasons for pollution. On the basis of the directions issued by the Hon'ble High Court of Karnataka in W.P. No.39432/2013, steps have been taken to provide arterial roads and remove encroachments and regulated parking so as to avoid dust and air pollution. They also made arrangement with the Gas Authority of India Limited (GAIL) and discussed about the possibility of promoting CNG vehicles and also difficulty in procuring the CNG vehicles in an Indian market. Draw backs indicated by Bombay Electrical Supply and Transport Company on account of user CNG vehicles were extracted as follows:-

"a. Many of the spares required for maintenance of fuel system and ignition system are not indigenously manufactured and are not easily available in local market. We have to depend on OEMs for their supply that too at exorbitant cost.

b. Many of the electronic gadgets units are not repairable and at times, there are required to be replaced with new ones at very high cost.

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c. Since the CNG vehicles particularly, CNG bus population in country is much less, the vendors are reluctant to come forward for development and supply of the spares required for CNG vehicles.

d. The frequency of clutch, gear and engine failures are more as the operating temperature of CNG engine is higher. The breakdowns in engine, transmissions and electrical system in case of CNG buses are higher.

e. Now the CNG bus fleet is 2862 and the maintenance difficulties are encountered during the recent past. Considering the frequency of repairs and high cost of labour, the CNG bus maintenance may not be cost effective for larger fleet in the longer run.

f. The filling time required for CNG bus is three to four times more than the diesel bus for which manpower requirement is more.

g. The limited onboard CNG storage capacity restricts the vehicle utilization and needs mid day fueling resulted into dead kms.

h. The drivers comfort is reduced due to higher operating temperature of CNG engine as compared to diesel.

In general, handling CNG as a fuel is difficult.

i. M/s. MGL is the sole agency to supply the CNG having its monopoly. In exigencies of disruption of CNG supply for any reason, the undertakings services will be badly paralysed."

18. The number of accidents caused on account of use of CNG as fuel is also increasing and they have produced Annexure - D, letter to substantiate these aspects. The Council of Scientific and Industrial Research had conducted a study and formulated their finding in the report dated 06.08.2015 evidenced by Annexure - E and the research was conducted by it on the CNG operated buses which revealed that the CNG is not as clean as green or clean fuel as claimed by the applicant. It was also observed in the report that the CNG fuel is dangerous to human life. According to the study, they came to the conclusion that nano carbon particles coming out from natural gas combustion which mix with the atmosphere causing

severe air pollution resulting in lung related diseases and also causing cancer. They also given the details regarding the emission norms of BS- I to VI vehicles as follows:-

Norms	No _x	Co	HC	PM
Bharat Stage I	8.0	4.5	1.1	0.36
Bharat Stage II	7.0	4.0	1.1	0.15
Bharat Stage III	5.0	2.1	0.66	0.10
Bharat Stage IV	3.5	1.5	0.46	0.02
Bharat Stage V	2.0	1.5	0.46	0.02
Bharat Stage VI	0.40	1.5	0.13	0.01

19. They have also given the details of the vehicles owned by the BMTC and according to them, they are having 6,197 vehicles as follows:-

- a) BS - I Stage - No. of buses - 11
- b) BS - II Stage - No. of buses - 781
- c) BS - III Stage - No. of buses - 3757
- d) BS - IV Stage - No. of buses - 1648

20. They are slowly replacing the old BS-I to III vehicles with BS-IV vehicles and as per the present Motor Vehicles Act, they will switch over to the BS-VI vehicles. They also relied on the report prepared on the basis of the study conducted in Deli after the introduction of CNG buses which came to the conclusion that there was no significant change happened even thereafter. Under the AMRUT Scheme of the Central Government, they have agreed to provide an aid of 213.5 Crores for purchase of 150 standard size premium segment AC buses of 400 mm floor - height buses and 350 midi non-AC buses having a floor height of 650 mm and having

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unit cost of 28.00 Lakhs per bus and on the basis of the same, they have floated tenders and that process is in the progress. They also given the details of the buses purchased utilizing those funds. The KSRTC is using the blend of diesel and bio diesel as a fuel to run the buses and the bio diesel is manufactured out of vegetable oil, animal fat and naturals like Soya bean oil, Jatropa seed oil etc. The Bio diesel is being used in heavy duty vehicles in cities like United States which significantly reduce the emission level compared to the regular buses. The Karnataka State Road Corporation has also entrusted the work of technical evaluation of emissions which results from the buses using bio diesel and such agencies are Centre for Infrastructure, Sustainable Transportation and Urban Planning (CISTUP) of India Institute of Science, Bangalore, JSS Academy of Technical Education, Bangalore and R.V. College of Engineering, Bangalore. There are 65,85,455 vehicles running as per the statistics available and the number of vehicles operated by the BMTC is only 6,197 and the percentage will be less than 0.16% of the total vehicles. So, it cannot be said that they are responsible for pollution on account of use of their vehicles. Lot of development activities have been made by improving the road infrastructure in several areas to avoid air pollution. They are also strictly complying with the directions issued by the Pollution Control Board in maintaining the standards. Sufficient amount of CNG is not available and BS-VI norms and operation of BS-VI vehicles will be better environmental complaint compared to CNG buses. So, they prayed for accepting their contentions and passing appropriate orders.

21. Respondents No.2 & 3 also filed a memo adopting the statement of objections filed by the Respondents No.5 & 6.

22. The 7th Respondent filed a counter contending that the application is not maintainable and the applicant was relying on the directions given by the Hon'ble Apex Court in M.C. Mehta case and also implementation of the directions by the Delhi Government by introducing CNG vehicles. They further contended that they are the Central Government Undertaking and a Maharatna company under the administrative control of Ministry of Petroleum and Natural Gas, Government of India engaged in procurement, distribution and supply of natural gas including Re-gasified Liquefied Natural Gas (RLNG) and various other petroleum products such as Liquefied Petroleum Gas (LPG) etc. for the usage of the Industrial and domestic consumers. They laid and constructed the Dabhol-Bangalore Gas pipeline project (DBPL) for supplying natural gas to the transport sector, industrial sector and house hold sector consumers in the states of Maharashtra, Karnataka and Goa in the form of natural gas, compressed Natural gas and piped natural gas respectively. The project involved laying of about 1000 Km of gas pipeline, construction of sectionalized valve stations and Gas management centres. Considering the need for development of eco-friendly fuels in the state of Karnataka and also for augmenting the supply of natural gas for achieving increased power production and development of city gas distribution system for ensuring abundant supply of cooking gas for the household consumers and green fuel for the transport sector, the Industrial Development Department of Government of Karnataka, has entered into MOU dated 29.4.2009 with the respondent herein for rendering necessary assistance for the speedy completion of the DBPL project. By Government order dated 19.2.2010, the Government of Karnataka had accorded in principle approval for this gas pipeline project

which covers a total distance of 993 kms with an investment of Rs.4544 crores and gave permission for extending the necessary infrastructure facilities, incentives and concessions to this project. The Government of India had enacted the Petroleum and Natural Gas Regulatory Board Act 2006 (PNGRB Act) under which the Petroleum & Natural Gas Regulatory Board has been established which inter alia grants authorization for City and Local Area Natural Gas Distribution Networks in accordance with the provisions of the said Act and the PNGRB (authorizing Entities to Lay, Build, Operate or Expand City or Local Natural Gas Distribution Network) Regulation 2008. They have granted to the GAIL Gas Ltd (GGL), which is wholly owned subsidiary of the 7th Respondent for laying building, operating or expanding CGD network in Bangalore Rural and urban Districts. On the basis of the said authorization, they will be implementing CGD project in Bengaluru Rural and Urban districts including distribution of CNG, evidenced by Annexure - 1 produced along with the counter. So, they wanted to issue direction to the GAIL for implementation of the directions.

23. It is further contended that in compliance with the order of High Court of Gujarat in WPs No.47/2011 and 54/2011, the Ministry of Petroleum & Natural Gas (MoP&NG) had issued guidelines dated 14.11.2013 for allocation of domestic gas to City Gas Distribution (CGD) entities for Compressed Natural Gas (CNG) for transport sector and Piped Natural Gas (PNG) for household/domestic sector. In order to comply with the directions of Hon'ble Supreme Court of India, in M.C. Mehta Vs. Union of India and others in WP No.13029/1985 in 2002, according highest priority to transport sector in allocation of natural gas, MoP&NG had reviewed

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the guidelines dated 14.11.2013 and came up with revised guidelines dated 20.08.2014. As per the revised guidelines, the MoP&NG has authorized the 7th respondent to divert domestic gas from non-priority sector to meet the requirement of CNG (transport) and PNG (domestic) segments as per their actual consumption during the previous half year and on that basis, they have diverted the supply. So, they prayed for passing appropriate orders and also undertaken that they will comply with the directions of this Tribunal.

24. The 11th Respondent filed a counter affidavit more or less raising the same contentions raised by the 7th Respondent and also their commitment to supply clean and green fuel in the form CNG and also detailed their experience in Delhi, Gujarat and Mumbai. They also mentioned about various steps taken by them for implementing the scheme in State of Karnataka especially in Bangalore and also given the comparative table regarding the cost effectiveness of operation on the basis of the report submitted by the CISTUP as follows:-

"Table 5.7 : Operating Cost Comparison between CNG Buses and

Clean Diesel Buses

Cost Element	CNG Buses	Clean Diesel Buses
	Fuel cost for single bus per year	Fuel cost for single per year
CNG Fuel cost for 250 Km/day for 350 Operational Days	Rs.11,25,000	
Diesel Cost for 250 Km/day for 350 Operational Days		Rs.12,50,560
Total	Rs.11,25,000	Rs.12,50,560

The maintenance cost of CNG buses is lower when compared to diesel buses because the CNG extends engine life primarily because it is a gaseous fuel.

Table 5.8: Cost per Km of Diesel and CNG Buses.

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Sl. No.	Description	Regular Diesel Bus	CNG Bus
1.	Initial Cost of the Bus	33 Lakhs	38 Lakhs
2.	Life of the Bus	12 years/10,00,000 Kms	12 years + 30% more/13,00,000* Kms
3.	Initial Cost per Km	Rs.3.3 Per Km	Rs.2.92 Per Km
4.	Operating Cost per km	Rs.14.29 per km	Rs.12.85 per km **
5.	Maintenance Cost	Rs.3 per km	Rs.3.60 per km***
	Total Cost per Km	Rs.20.59 per km	Rs.19.37 per km

* As per a study by SRTD, California, the CNG engines can run for over 250,000 miles while diesel buses can run for over 170,000 miles which is 30 percent more than the diesel bus.

** The price of CNG is taken as RS 45.00 kg (Bangalore Price) and the mileage of CNG bus is taken as 3.5 km/kg. Whereas the price of diesel is taken as Rs. 54.31 per litre (Bangalore Price) and the mileage of diesel is taken as 3.8 km/litre (BMTC buses average mileage).

*** The maintenance cost of BMTC buses per km come to around Rs 2.20 but I have taken it as Rs. 3,00 per km. But since the maintenance cost of CNG bus is twenty percent more (average) as per PMP ML and BEST, I have taken it as Rs. 3.60 per km."

25. They have also given a detailed road map for implementation of CNG conversion in Bangalore to Karnataka State Pollution Control Board evidenced by the Annexure - 4 Series. In the meeting held on 04.06.2016 with the Chief Secretary, State of Karnataka, the Finance Department agreed to consider funding for procuring 200 CNG buses for a period of five years in addition to considering waiving off entry tax. The Chief Secretary emphasized that BMTC should expedite the induction of CNG buses as per the NGT's order for switchover to green fuel, while citing Government of Karnataka's commitment to curb rising pollution levels evidenced by Annexure - 6 produced along with the counter. They also furnished details of various interim arrangements made with the KSRTC for this purpose. They also further given the future plan for installation of CNG Stations across Bangalore by end of 2017 as follows:-

Sl. No.	Area	Remarks
a.	Magadi Road	Online Station
b.	Sanjeevini Nagar	DBS (Daughter Booster)

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		System)
c.	Yeshwanthpur	DBS
d.	Bommasandra	Online Station
e.	Peenya	Online Station
f.	Bethaloor Cross	DBS
g.	Agara Sarjapura Road	Online Station
h.	Mahadevapura	Online Station
i.	Jigani	Mother Station
j.	Dobaspet	Online Station

26. They also expressed their readiness to provide all necessary assistance and also provide necessary vehicles on the Government Sector as well as Private Sector for fulfilling the commitment to fight against pollution. They prayed for passing appropriate orders, considering their contentions.

27. The 10th Respondent also filed a counter contending that the Mass Emission standards for Compressed Natural Gas (CNG) driven vehicles are provided under Rule 115B of Central Motor Vehicles Rules, 1989. The Ministry of Road Transport and Highways has taken proactive steps to curb the problem of vehicular pollution and issued following notifications:

"(i) Ministry has issued notification number G.S.R. 643(E) date 19.08.2015 vide which the Mass Emission Standards for Bharat Stage IV shall come into force all over the country in respect of four wheeled vehicle manufacturers on or after the 1st April, 2017 (Copy Attached at Annexure-I), (ii) This Ministry, vide notification number G.S.R. 889 € dated 16.09.2016 has mandated mass emission standard for BS-VI throughout the country with effect from 1st April 2020 (Copy Attached at Annexure-II) and (iii) Enforcement of notifications is done by the State Transport Authorities."

28. The Ministry also issued the following notifications to introduce bio fuels in vehicles:-

(i) This Ministry has issued G.S.R. 682(E), dated 12.07.2016 regarding mass emissions standards for flex-fuel (E 85) or (E 100) and ethanol (ED 95) vehicles (Copy Attached at Annexure-III)

(ii) This Ministry has issued G.S.R. 412(E), dated 11/04/2016 introducing Biodiesel (Copy Attached at Annexure-IV).

(iii) This Ministry has issued G.S.R. 498(E), dated 16/06/2015 regarding Smoke test and Bio CNG (Copy Attached at Annexure-V).

(iv) To promote use of electric hybrid vehicles in Delhi, Department of Heavy Industry has notified S.O. 830 E dated 25th March, 2015 notifying the scheme for Faster Adoption and Manufacturing of (Hybrid and) Electric Vehicles in India - FAME. Subsequently, Ministry of Road Transport & Highways has notified two notifications i.e. G.S.R. 364 (E) dated 28th May, 2014 for retro fitment of hybrid electric system kit to in-use vehicles and S.O. 1013 (E) dated 15th April, 2015 which specifies the type approval procedure of electric hybrid vehicles. G.S.R. no. 629(E) dated 24.06.2016 have been notified for Retro fitment of hybrid electric vehicles (Copy Attached at Annexure-VI).

29. It is further contended that the implementation of provisions of Motor Vehicle Act, 1988 and Central Motor Vehicles Rules, 1989 comes under the purview of State Transport Authorities and the concerned Union Territory administration. The applicant had not challenged any of the action of the Ministry of Road Transport and Highways and no relief has been sought against them. So, they prayed for passing appropriate orders, considering their contentions.

30. The 9th Respondent filed a counter affidavit contending that in the administrative structure of the Central Government, the primary concern of the Ministry of Environment, Forest and Climate Change is for the

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planning, promotion, co-ordination and overseeing the implementation of our country's environmental and forestry policies and programs. The objectives of the Ministry are well supported by a set of legislative and regulatory measures, aimed at the preservation, conservation and protection of the environment. The policy decisions of the Ministry are being implemented at the State level by the State Environment Departments, State Pollution Control Boards, Pollution Control Committees in respect of Union Territories, State Urban Development Departments, Urban Local Bodies, etc. They have also taken into consideration the alarming health hazards being caused on account of increasing pollution level. They have initiated the National Carbonaceous Aerosols Programme (NCAP), which aims to enhance the understanding of the role of carbonaceous aerosols on climate change, to prepare an inventory of black carbon emissions in the country and to assess its impacts on glacier melting. The science plan for the "Black Carbon Research Initiative-National Carbonaceous Aerosols Programme (NCAP)" was launched in March 2011 under the Indian Network for Climate Change Assessment (INCCA) which was launched on October 14, 2009 by this Ministry. In order to prevent and control air pollution, the major steps taken by Government inter alia includes notification of National Ambient Air Quality Standards, formulation of environmental regulations / statutes; setting up of monitoring network for assessment of ambient air quality; introduction of cleaner / alternate fuels like gaseous fuel (CNG, LPG etc.), ethanol blending; promotion of cleaner production processes; launching of National Air Quality index; universalization of BS-IV by 2017; leapfrogging from BS-IV to BS-VI fuel standards by 1st April, 2020; comprehensive amendments to various Waste Management

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Rules and notification of Construction and Demolition Waste Management Rules; banning of burning of leaves, biomass, municipal solid waste; promotion of public transport and network of metro, e-rickshaws, promotion of carpooling; Pollution Under Control Certificate, lane discipline, vehicle maintenance, etc. They have also given the statistics of implementation of their policies in Delhi, Kolkata, Mumbai and Chennai and other states and it was extended to entire country from April 2017 for 2, 3 & 4 wheelers. The Ministry of Road Transport & Highways has issued Notification for leapfrogging directly to BS-VI emission standards for all categories of new vehicles (2, 3 & 4-Wheelers) from 01.04.2020. The 2 and 3 wheelers were required to conform to Bharat Stage II norms from 1.4.2005 all over the country and Bharat Stage III norms preferably from 1.4.2008 but not later than 2010. As part of the implementation of BS norms, corrective steps are required to be taken with respect to augmentation of technology of internal combustion engine during manufacturing of vehicles and improvement in fuel quality standards. They also given the number of steps taken by them for establishing Ambient Air Quality Stations under the National Air Quality Monitoring Programme (NAMP) and a standards provided by the CPCB for pollution related parameters. The Ministry had proposed to launch a National Clean Air Programme (NCAP) which inter-alia includes components as augmentation of air quality monitoring network across the country including in rural areas, air quality management plan for 100 non-attainment cities, extensive plantation drive, and national emission inventory. They have identified the source of pollution and giving necessary directions for curbing the pollution. They also given the way forward for to mitigating the situation and scrupulously monitoring the

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same, as their main motto is to make India, pollution free. They prayed for passing appropriate orders issuing necessary directions.

31. The applicant filed common rejoinder to the counters filed Respondents No.1 to 3, 5, 6 & 9, more or less reiterating the contentions raised by them in the application and also various policies of Government and the directions issued by the Hon'ble Supreme Court in *M.C. Mehta's* case and also relied on Dr. Buharilal's Committee report on these aspects. They also mentioned about the ill effects of Euro - VI on maintaining the standard. They also reiterated the non-implementation of the directions given by the Hon'ble High Court of Karnataka in this regard. They have projected the inaction on the part of the State of Karnataka and its Transport authorities in not taking steps to implement the directions of the Hon'ble High Court as well as Hon'ble Supreme Court.

32. After admitting the matter, this Tribunal had passed several orders giving directions to the authorities to submit the report in respect of steps taken by them to implement the Clean and Green Fuel policy.

33. As per order dated 24.09.2020, after considering the pleadings and also the stage of implementation of Clean and Green Fuel policy, this Tribunal had directed the BMTC as well as the State of Karnataka to come with a proper action for changing the old vehicles in a phased manner as directed by the Principal Bench of National Green Tribunal in *Vardhaman Kaushik's* case with Clean and Green Fuel technology.

34. Again the matter was taken up on 16.07.2021, and on that date, this Tribunal had considered the order passed on 24.09.2020, extracted in Para

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CH4	gkWh	1.1	0.50	
PM Mass	gkWh	0.02	0.03	0.01 0.01
				5-% reduction from BS4

4. This respondent herewith producing the e-mail communication dated 21-06-2021 sent by the Sales Manager of M/s.Ashok Leyland, who are the manufacturers of bus chasis. A detailed emission norms are furnished by them in comparison to BS-IV and BS-VI vehicles with reference to diesel and CNG. The emission norms prescribed for the diesel vehicles and CNG vehicles for BS-VI make, makes it clear that the diesel vehicles are more environmental friendly than the CNG BS-VI norms vehicles. It is submitted that in view of the emission norms prescribed for BS-VI make diesel buses are better in all respects when compared to BS-VI CNG buses.
5. It is submitted that this Hon'ble Court was pleased to pass an order dated 12-01-2017 permitting this respondent to purchase diesel vehicles of BS-IV make. This Hon'ble Court was pleased to observe referring to judgment of Supreme Court referring to MC Mehta's case as follows :

"Learned Counsel also submitted that even the Hon'ble Supreme Court in M.C.Mehta Vs. Union of India ((2002) 4 SCC 356) though found that the analysis emphasizes the need for change to non liquid fuel like CNG or LPG so as to improve the air quality in this country, it was also fund that the CNG vehicles are 15 times better them Euro II diesel vehicles and only Euro IV diesel vehicles are comparable to CNG vehicles and in such circumstances, permission be granted to purchase the BS IV norm buses. It was also submitted that the diesel buses to be purchased are for plying in the State outside the Bengaluru city and those buses would enter the city of Bengaluru only to drop and take the passengers from the Bus Stand".
6. The submissions made by the learned Counsel appearing for the applicant is also noted in the said order dated 12-01-2017, which is as follows :

"Learned Counsel also argued that the quality of CNG fuel now available in the market has improved compared with the CNG available at the time when the Hon'ble Supreme Court considered the issue in M.C.Mehta Vs Union of India ((2002) 4 SC 356) case and at present the efficiency of CNG fuel and the CNG vehicles cannot be compared to the Euro IV vehicles and they could only be compared to only Ero VI norm buses and in such circumstances, permission may be granted and even if permission is to be granted, necessary restriction be imposed."
7. Under the above circumstances the applicant himself has maintained that the emission of BS-VI vehicles are comparable to CNG buses. The diesel

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(1) of the order and also considered the reply affidavit dated 14.07.2021, e-
 filed and received on 15.07.2021 submitted by the 3rd Respondent to the
 written submissions filed by the applicant dated 27.05.2021 which was
 extracted in Para (4) of the order which reads as follows:-

"The Third Respondent in the above case begs to file the following reply to the written submissions of the Applicant which were filed on 27-05-2021 :-

1. The above petition is filed during the year 2016. During the year 2016 BS-III emission norms were prevailing. It is submitted that having regard to emission norms which were prevailing then, the above petition is filed.
2. That BS-IV emission norms are implemented by Central Government as per the provisions of Motor Vehicle Act from 01-04-2017. That thereafter from 1st April 2020, BS-VI norms are implemented. The emission standards which are prescribed for diesel buses from BS-I standard to BS-VI standard are as follows :

Norms	NOx	CO	HC	PM
Bharat Stage I	8.0	4.5	1.1	0.36
Bharat Stage II	7.0	4.0	1.1	0.15
Bharat Stage III	5.0	2.1	0.66	0.10
Bharat Stage IV	3.5	1.5	0.46	0.02
Bharat Stage V	2.0	1.5	0.46	0.02
Bharat Stage VI	0.40	1.5	0.13	0.01

3. That the emission norms for BS-VI CNG and diesel buses are as follows

Emission	UOM	BS4		BS6		% reduction in BS6 diesel emissions from BS4
		Diesel	CNG	Diesel	CNG	
CO	(gkWh)	1.5	1.5	1.5	1.5	No change
HC	(gkWh)	0.46		0.13		72% reduction from BS4
NMHC	(gkWh)		0.55		0.16	
NOX	(gkWh)	3.50	3.50	0.40	0.46	89% reduction from BS4

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BS-VI are more environmental friendly in the matter of emission than the CNG buses. The applicant having made a statement which is noted by this Hon'ble Court in order dated 12-01-2017 cannot contend now that only CNG buses should be operated in Bangalore City.

8. This respondent has submitted replacement plan to replace all the 10 years old vehicles which are of BS-I to BS-III make by BS-VI make vehicles. In the event permission is granted all the 10 years old vehicles will be replaced by BS-VI vehicles which will reduce the pollution to a larger extent.
9. With reference to para 2 to 2.2, it is submitted that the observations made by this Hon'ble Court that the grant of permission to purchase diesel buses will not enable this respondent to contend that they need not switch over to CNG buses was the observation made by this Hon'ble Court having regard to the fact that the old buses of BS-I, BS-II and BS-III was sought to be replaced by purchasing BS-IV make buses. After the orders of this Hon'ble Court, from 01-02-2020, BS-VI pollution norms are introduced. The emission standards of BS-VI norm diesel buses is comparable with emission standards for BS-VI CNG buses. Infact the diesel BS-VI buses are better environment friendly than the CNG buses. Therefore the said observation will not entitle the applicant to contend that CNG buses alone should be operated.
10. With reference to para 3, it is submitted that the application was filed by the respondents to purchase in all 3,672 BS-IV norm compliance buses by the State Corporation. The statement of the applicant that the respondents have purchased 1,158 more BS-IV buses on the plea that only 1000 buses were allowed for being purchased by this Hon'le Tribunal on 12-01-2017 is not a correct statement. This respondent in compliance with the order of this Hon'ble Tribunal permission was sought for to purchase 2,672 BS-IV norm compliance buses by the State Corporation. Out of which this respondent corporation (BMTC) has purchased 2,158 buses as stated in para 4 of the affidavit. The plea that this respondent has committed contempt of this Hon'ble Court and violated the interim order is not a correct statement made by the applicant.
11. With reference to para 4, it is submitted that this respondent has given correct figures that as on date of filing of affidavit 2,813 BS-III make buses were available in BMTC fleet and the scrapping plan adopted by BMTC is to scrap the buses after they run 8.5 lakhs kilometers. The applicant cannot make any grievance about said scrapping plan. BS-IV norm buses are prescribed for registration from 01-04-2017 and BS-IV fuel was introduced from 01-04-2017. The respondents have not purchased any vehicles after 01-04-2010 which are of make of BS-I, BS-II and BS-III.
12. With reference to para 4.1, it is submitted that no fresh registration of BS-III buses are made by the transport department of Karnataka after 01-04-

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2017 and after 01-04-2020 only buses which are of BS-VI make are registered by the transport department which were purchased as permitted by this Hon'ble Tribunal. The question of registration of BS-III buses after the said dates do not arise at all and this respondent is also not purchasing any BS-III buses and therefore the question of registration of buses will not arise at all.

13. With reference to para 4.2, it is submitted that the buses used for public transportation have been mentioned correctly. The BMTC is not operating any buses by taking on lease. Efforts were made to procure electrical buses on hire basis under FAME-I scheme promogulated by Central Government. But the efforts have not been fruitful for various reasons. The Central Government has promogulated FAME-II scheme, which enables the State Road Transport Corporation to avail incentives to hire electrical buses. The proposal to hire 300 electrical buses is in the process of finalization. 90 electrical buses are sought to be introduced under Smart City Program of the Central Government. Letter of Award dated 05-02-2021 is issued to NTPC Vidyut Vyapar Nigam Limited, New Delhi to procure 90 electrical buses on hire basis. The said NTPC Vidyut Vyapar Nigam Limited, New Delhi has to execute the agreement for providing vehicles. The requirement of executing agreement is pending due to lock-downs imposed in State of Karnataka due to covid-19 (second wave). BMTC is not owning any trucks. That in M.C.Mehta case the directions were issued to reduce the operation of diesel buses having regard to emission norms which were prevailing at the given point of time. Now from 01-04-2020 BS-VI norms are introduced. These norms are fuel neutral and so far as emissions are concerned the BS-VI diesel vehicles are more environmental friendly than CNG buses. Infact the burning of CNG produces heat and it also emits many micro particles which are more dangerous to health.
14. With reference to para 4.3, it is submitted that the applicant appears to be more interested to help the producers of Retrofits. Fixing of retrofits in the diesel buses to use CNG is not safe either for vehicle and also for the public. It is submitted that the retrofits which were operated in other parts of the Country have resulted in fire hazards. It also leads to leakage of CNG. The diesel engine cannot be operated by using CNG by fixing the Retrofits. The design of the diesel engine do not permit the safe use of CNG as a fuel in the place of the diesel. Fixing of retrofits to operate diesel buses. More than 94% of the diesel buses are operated by all the State Road Transport Corporations in India.
15. With reference to para 4.4, it is submitted that no action appears to have been taken on the report of the committee appointed to suggest the auto fuel policy. The recommendations furnished by the committee were required to be implemented till 2025 on the view that the BS-VI norms

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will be brought into force in the year 2025. The oil companies of Central Government have started supply BS-IV fuel for being used by vehicles 01-04-2017. It is submitted that from 01-04-2020 BS-VI emission norms are introduced and these norms are based on the neutrality of all the fuels i.e. the emission which will be produced by any one of the fuel will be on par with on other fuel. It is submitted that the committee suggested the fixing of devices for catalistic treatment of the gases which are emitted at the exhaust mouth of the vehicle. The committee did not suggest that the retrofits must be fixed to use CNG as fuel in place of diesel. It is submitted that in BS-IV make buses which are operated by the respondent are provided with mechanism of spraying urea at the mouth of the exhaust to convert the gases and to make emission environmental friendly. It is submitted there is nothing like renewal of registration certificate. The registration certificate issued to vehicle continues till the vehicle is scrapped. The respondent are having diesel vehicles which have completed the run of 8.5 lakhs kilo meters. The statement that respondents have continued to renew the registration of vehicles is not correct. The further say of the applicant that these respondents have committed contempt is not correct.

16. With regard to para 4.5, it is submitted that KSRTC is a establishment which caters to the need of travelling public in various cities of Karnataka and it is not operating for catering need of the passengers travelling within the city. The transportation facilities are provided by BMTC for the passengers travelling within Bangalore City and its neighbouring suburbs. The KSRTC only carries the passengers from its main bus stand of Bengaluru to the areas outside Bengaluru who commence journey from Bengaluru or terminate their journey at Bengaluru. All the highways which are leading to other cities from Bengaluru are located at a distance of nearly 4 to 5 kilo meters from Majestic Bus stand. The pick-up points are enroute for going out of city. The KSRTC has also established satellite bus stand in Bangalore City which are on peripheral areas of the City and buses are also operated from Satellite bus stands. The say of the applicant that KSRTC operates buses through Bengaluru and have dozen bus stands for pick-up points and such pick-up points are scattered throughout Bangalore City is not a correct statement made by applicant. The expert committee report of Dr.Bhbure Lal of 01-02-2017 was during the period when BS-III norms of emissions were in force. The operation of KSRTC buses from bus stands to go out of city is highly negligible length of the journey under taken by the bus. The statement that the KSRTC has one dozen bus stands in Bengaluru City is not correct. It has only 3 satellite bus stands in peripheral area of Bengaluru City. The KSRTC buses are not using any of the bus stops of BMTC for pick-up or dropping passengers.

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17. With regard to para 5.1, it is submitted that efforts were made to introduce electrical buses. But for various reasons the efforts have failed. There is no infrastructure available in Bengaluru to introduce CNG buses. CNG buses are not environmental friendly they produce more heat and during the pendency of the above proceedings the emission norms have undergone change. At the time when the petition was filed BS-III emission norms were in force. Thereafter BS-IV norms fuel was made available for being used from 01-04-2017. Normally from BS-IV norms the emission standard could have been improved to BS-V norms. But the emission norms were improved from BS-IV norms to BS-VI norms. Under the circumstances the operation of BS-VI norms diesel buses is permissible in law and they also result in drastically reducing the pollution. That apart, the emissions of diesel and CNG BS-VI norms is fuel neutral. There is no difference whatsoever in the emission norms between the said two fuels. Further in diesel buses are more easy to maintain than CNG buses.
18. With regard to para 5.2, it is submitted that directions issued by Karnataka Pollution Control Board (respondent No.4) was the subject matter of consideration by the Hon'ble High Court of Karnataka in W.P.No.39432/2013. The said writ petition is disposed off by Division Bench of Hon'ble High Court of Karnataka by order dated 01-07-2015. Under the circumstances the applicant cannot think of projecting the orders of the Pollution Control Board in the present application.,
19. With regard to para 5.3, 5.4, 5.5 and 5.6, it is submitted that during the pendency of above application, the respondents have replaced BS-I, BS-II and BS-III norms buses by BS-IV norm buses in view of the permission which was granted by this Hon'ble Court by order dated 12-01-2017. The remaining old buses will be replaced by BS-VI norm buses as already submitted by this respondent. Tenders were floated for introducing electrical buses but for various reasons and beyond the control of respondents, the respondents were not able to carry forward the tender process. Now as submitted above work order have been issued for providing of 90 electrical buses and a tender is floated for introducing 300 electrical buses on hire basis as stated above. The collection of taxes by way of sale of fuel is the state subject and this respondents have no say in the matter. The taxes so collected are utilized for public benefit. Various works have been undertaken and implemented in the matter of improvement of traffic flow in Bangalore City and other areas. Various number of over bridges and under bridges are constructed in Bangalore City to reduce pollution at the junctions. The pollution is also reduced when the stoppage of vehicles at the junctions of the road are avoided. Infact long flyovers of few kilometers in length are constructed to facilitate the free flow of vehicles to go out of Bangalore City and by virtue of these

flyovers the emission into the city is also reduced. Under the circumstances the statement of the applicant that steps are not taken to reduce the pollution is incorrect statement. The State Government has also formulated electrical vehicle policy to provide subsidies to purchase electrical vehicles. The assertion that polluted pays principle must be applied to respondent No.1 is only a illusory one.

20. With regard to para 6, it is submitted that the contentions of the applicant based on Dr.Bhure Lal expert committee and auto fuel policy are not the relevant on which the applicant can maintain the above application as submitted above in view of the enforcement of BS-VI emission norms. It is submitted that an expert committee can be appointed to study the emission of CNG buses and BS-VI norm buses. Such an exercise will result in demonstration that both the fuels are displaying same emissions. The emissions which are tested by the manufacturer of both the fuels is already produced before this Hon'ble Court along with statement of objections. The assertions that BS-VI buses have serious problems in meeting emission norms is not correct. It is submitted the vehicles are now manufactured of BS-VI compliance and the fuels supplied by oil companies is also BS-VI compliance. Under the circumstances the question of having any problem do not arise at all. So far as the directions of Karnataka State Pollution Board are no longer implementable in view of the order of the Hon'ble High Court of Karnataka in W.P.No.39432/2013. The assertion that the Hon'ble Supreme Court has ordered to use CNG and to have retrofits from 2002 is not a correct statement. Those orders related to Delhi only they do not relate to Bangalore City. The applicant cannot make any grievance about the interim application made by respondent to purchase BS-IV norm buses during the year 2017. The defense raised by the respondent is valid in law. The defense raised by respondent is in consonance with the standards of emission prescribed by Motor Vehicles Act and Air (Pollution) Control Act. The entire contention of the applicant with regard to the use of CNG is no longer feasible in view of various difficulties in using CNG and availability of CNG. It is submitted that there are about 80 lakhs vehicles which are in operation in Bangalore City. There are more than 1 lakh commercial vehicles and private buses which operates in Bangalore City. In comparison to the same only 6,512 buses are operated by BMTC. That BMTC is not a polluter of the air. Out of total quantity of emission which emanated by running of 80 lakhs vehicles the share of emission of BMTC is not even 0.09%.
21. With reference to para 7, the applicant has stated the proceedings of this Hon'ble Court which are matter of records. The case is pending for the reasons that the case was transferred to Delhi in views of filing of interim application for the reasons that there was no sitting of this Hon' ble

Tribunal and the case is retransferred from Delhi to this Hon'ble Court. From March, 2020 in view of covid-19 epidemic these respondents has suffered huge loses. The State Government have made grants to pay salaries to its employees. Apart from that the respondents have also raised loans on their properties to meet the recurring day to day expenses. The statement that the buses should be retrofitted to use CNG is not viable contention. That the BS-IV vehicles which are operated are provided with mechanism of spraying urea at the exhaust point of engine which greatly reduces the gases pollution. The KSRTC is not operating 14336 non BS-IV buses in Bangalore City. The further statement that 9,715 buses are operated in Bangalore City by KSRTC is misleading statement. No trucks are operated by respondents and there are no buses which are operated on lease basis. The respondents will replace all BS-I to BS-III vehicles with BS-VI norms vehicles which is a clean fuel and comparable with CNG the replacement of the BS-I to BS-III norm buses by BS-IV buses have reduced the pollution and this respondent is acting within frame work of law to replace the old vehicles by BS-VI norm vehicles. Infact the applicant himself has stated before this Hon'ble Court that BS-VI norms buses are comparable to CNG buses which is also recorded by this Hon'ble Court in the order dated 12-01-2017. Under the circumstances the various contentions which are advanced by the applicant are all liable to be rejected.

22. With reference to para 8, it appears that the applicant is set-up only to plead and canvas the pleas of fixing retrofits to operate the diesel engine buses with CNG. Such adaptation is dangerous to the public safety. The burning of CNG will increase the heat of atmosphere apart from emitting may micro pollutants which are hazardous to the health. The applicant is responsible in delay in the replacement of old buses with new buses which are of clean fuel. The submissions that large number of children in Bangalore City are suffering from asthma is far from truth. There is no such health condition existing in Bangalore as on today. The applicant is relying upon some reports which are not scientifically correct. The statement that nearly 9 out of 10 children in Bangalore are affected in their lungs is totally a misleading statement. The State Government is collecting taxes on fuel, it is spending larger amount in providing infrastructure like roads and other required infrastructure to reduce the pollution.
23. Under the circumstances the above application may please be dismissed."

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35. After considering the submissions made by the parties, this Tribunal had directed the State of Karnataka as well as the BMTC to furnish a concrete action plan which envisaged for the purpose of replacing the old diesel vehicles to new Clean and Green Fuel vehicles with shorter timeline, but they have not come with any concrete policy. Thereafter, this Tribunal had reiterated the responsibility of the State Government to provide clean environment as contemplated under Article 48 A of the Constitution of India and the Right to Life included right to get clean air, as contemplated under Article 21 of the Constitution of India and the State Government cannot shirk their responsibility in implementing these policies. This Tribunal had also directed the State of Karnataka, Transport Department, BMTC, CPCB and SPCB to come with the further report regarding action taken by them to implement the Central Government Policy of Clean and Green Fuel policy in the State of Karnataka, especially in Bangalore city in view of the directions given by the Principal Bench of National Green Tribunal, New Delhi dealing with critically polluted cities in Original Application No.681 of 2018 (PB).

36. Thereafter, the matter was taken up on 03.09.2021, and on that date, after considering the order passed on 16.07.2021 which was extracted in Para (1) of the order, this Tribunal had considered the Joint report on action taken to implement the Central Government Policy of Clean and Green Fuel, Bangalore dated 24.08.2021, submitted by the CPCB, extracted in Para (3) of the order which reads as follows:-

"Joint Report on Action Taken to Implement the Central Government Policy of Clean and Green Fuel in Bengaluru, Karnataka

1.0 Background

In Original Application No. 183 of 2016 (SZ) in the matter of Sh Vinay Shivnand Naik Vs State of Karnataka & Ors. Hon'ble NGT, Southern

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Zone, Chennai issued directions to Bengaluru Metropolitan Transport Corporation (BMTC), State of Karnataka to come up with an action plan to implement the clean and green fuel policy. The Hon'ble Tribunal also referred to the earlier order of Vardhaman Kaushik Case before Hon'ble NGT, Principal Bench, Delhi regarding directions to the Delhi Government to change all the old public transport vehicles to curb the pollution on account of use of old motor vehicle in the area.

2.0 NGT Directions

Hon'ble NGT vide order dated 16.07.2021 mentioned that "11. If the Government of Karnataka as well as the Bengaluru Metropolitan Transport Corporation (BMTC) can furnish a concrete action plan, which they envisaged for the purpose of replacing the old diesel vehicles to new green and clean fuel vehicles with shorter time line, then this Tribunal can accept their action plan and pass appropriate orders giving direction to implement the same within the timeline undertaking by them or to be fixed by this Tribunal.

15. The State of Karnataka, Transport Department and also the Bengaluru Metropolitan Transport Corporation (BMTC) are directed to come with an action plan for replacing the old vehicles with new environment friendly vehicles with shorter timeline in the Transport Corporation as well as in the Bangalore City.

16. The Central Pollution Control Board as well as the Karnataka State Pollution Control Board are also directed to come with further reports regarding the action taken by them for implementing the Central Government Policy of clean and green fuel in the State of Karnataka, especially in Bangalore City and also the direction given by the National Green Tribunal, Principal Bench, New Delhi in this regard."

Copy of Hon'ble NGT Order appended as Annexure I.

3.0 Action Taken

In compliance to the aforesaid order of Hon'ble NGT dated 16.07.2021, CPCB, RD, Bengaluru conducted a meeting through video conference on 10.08.2021 to discuss the status of implementation of the Hon'ble NGT directions with Bengaluru Metropolitan Transport Corporation (BMTC) and Karnataka State Pollution Control Board (KSPCB). BMTC explained the status of compliance of the Hon'ble NGT directions in the aforesaid order dated 16.07.2021. In the meeting, Karnataka SPCB was requested to arrange for the action plan with timelines for implementation of Central Government Policy of Clean and Green Fuel in Bengaluru, Karnataka.

CPCB, RD, Bengaluru had a meeting to discuss the Action Plan with timelines submitted by BMTC on 17.08.2021 at Parisara Bhawan, Karnataka State Pollution Control Board, Head Quarter, Bengaluru.

4.0 Status of Compliance

Bengaluru Metropolitan Transport Corporation (BMTC) vide letter no. BMTC/CO/ME/404/2020-21 dated 16.08.2021. It has been mentioned in

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the report that out of total 6512 buses, 3797 buses are of BSIV make. Whereas, remaining 2715 BS III buses will be replaced with Electrical and BSVI buses by 2024. The timelines for replacing 2715 BSIII buses as given by BMTC are provided below;

S.No	Number of Old Vehicles to be replaced with Electric and BS VI buses	Time line	Remarks
1.	1033 BSIII buses	31.03.2022	All the BS III buses will be replaced by Electric and BS VI make buses only if funds are provided by Government of Karnataka for purchase of new buses and vehicles ply & assured kilometers are achieved.
2.	550 BSIII buses	31.03.2023	
3.	650 BSIII buses	31.03.2024	
4.	482 BSIII buses	31.03.2024	

It was also mentioned that, out of 3797 BS IV buses, 2158 BS IV buses were newly purchased from 2017 onwards. Further, remaining 1639 old BS IV vehicles will be scrapped in phased manner as per the scrapping policy of Government of Karnataka until the draft of the Motor Vehicles (Registration and Functions of Vehicle Scrapping Facility) Rules, 2021 are notified.

BMTC has also mentioned about the emission checking procedures for the vehicles followed to keep a check on the emission levels below the permissible limit. Copy of the report provided by BMTC is appended as Annexure II.

5.0 Concluding Remarks

The timelines for replacing the BS III vehicles to BS VI vehicles and scrapping of old vehicles provided by BMTC may be considered by the Hon'ble Tribunal. The emission standards for Bharat Stage VI (BS VI) for the vehicles manufactured on or after 1st April 2020 notified by the Ministry of Road Transport and Highways vide G.S.R. 889(E) dated 16th September, 2016 will be in place in Bengaluru, Karnataka with the induction of BS VI vehicles as agreed by BMTC."

37. This Tribunal had also considered the rejoinder to the reply submitted by the applicant dated 19.08.2021, extracted in Para (4) of the order which reads as follows:-

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"Rejoinder to the Reply Dated 15.07.2021 filed by the Respondent No.3, adopted by respondents No.2, 5 & 6 to the written submission of the applicant dated 27.05.2021."

The applicant most respectfully states as follows:

1) At the outset, it is submitted that the contents of the reply dated 15.07.2021 (Respondent No.3's reply) to the written submissions dated 27.05.2021 filed by the applicant ("Written submissions") are much the same as the Statement of Objections dated 05.01.2021 filed by the respondent no.3. Respondent Nos. 2, 5 and 6 have adopted respondent No.3's reply.

2) It is submitted that the respondents at Paragraph No.2, 3, 4, 6, 7, 8, 9, 13, 17 and 20 of the Respondent No.3's reply have baselessly contended that the arrival of BS-VI negates all previous orders and directions, inter alia, issued by this Hon'ble Tribunal and the KSPCB.

3.) It is pertinent to note that the orders passed by KSPCB remains in effect and the Respondents are in contempt for not complying with the statutory orders/ directions.

4.) It is submitted that neither Dr. Bhure Lal's EPCA report nor the Auto Fuel Policy Expert Committee Report is lessened or negated by the introduction of BS-VI.

5.) At Paragraph 4 of Respondent No.3's reply, it is stated that the emission norms prescribed for BS-VI make diesel buses better in all respects when compared to BS-VI CNG buses, however, the Government impaneled expert committees along with notable domestic and international NGOs have disagreed to this inter alia on the ground that the norms prescribed for BS-VI are not maintained once in service.

6.) Additionally, a long-recognized Indian NGO in the air pollution field issued a report this year named "Policy Brief 2020-21 BS-VI leapfrog what more to do" explaining the serious issues with BS VI diesels maintaining certified emissions levels. Relevant portions of the report are as follows:

"Following the Volkswagen emissions fraud that shocked the world in 2015 and also sent ripples in India that led to the National Green Tribunal seeking penal action on the company. More assessment globally has shown how well known brands of diesel vehicles of reputed companies were found to be emitting several times higher NOx in the real world compared to the emissions measured and reported during certification. An assessment of emissions test results by the International Council on Clean Transportation

(ICCT) in Europe found that real-world emissions from as much as 90 per cent of Euro VI vehicles exceeded standards by up to 12 times.

India's leapfrog to BS-VI emissions standards and its nationwide introduction on schedule despite the pandemic disruption is commendable. But global experience has also shown that only introduction of these new standards will not be adequate. They will have to be implemented with stronger regulatory testing of real-world driving emissions to maximize emissions and health gains. If not addressed, this can create serious risks of uncontrolled emissions. India therefore needs to adopt the entire regulatory framework, including advanced testing procedures for monitoring real world emissions, WLTC and WLTP for type-approval of vehicles, in-service conformity and compliance strategies, emission disclosure and independent market surveillance among others. This will encourage industry to optimize the integration of overall engine technology approaches and emissions control systems for best results and improved on-road performance.

This trend is likely to continue to fan new wave of dieselization in India. This has implications for public health. The ICCT study has shown that exhaust from only on-road diesel vehicles is responsible for nearly half of the premature deaths worldwide. And two thirds of this is in India, France, Germany and Italy. Among the 100 major urban centers assessed for deaths related to the transport sector, Delhi ranks sixth. India needs to tame dieselization and ensure very stringent monitoring of real-world emissions and in service compliance."

A copy of this report is produced herewith as "Document No.1".

3.) The Respondents reiterate the same arguments that have been discredited for the last five years. Incorrect claims of better BS VI diesel emissions than CNG, alleged expert references to justify same by ignoring prescribed versus actual emissions levels, incorrect dissertations of BS-III norms in effect for Respondent 2 (KSRTC) and 3 (BMTC) in 2016. Per the Auto Fuel policy, BS-IV took effect in April 2010 for all vehicles registered in Bengaluru which are all the buses of Respondent No. 2 KSRTC and Respondent 3 BMTC, the claim that CNG being dangerous, unavailable and absent of infrastructure is false and contrary to the material on record.

4.) The Auto Fuel Policy Report of the Expert Committee, Government of India, dated May 2014 (petroleum.nic.in/docs/autopol.pdf) considered representation and input from all relevant departments, manufacturers, academia and NGO's. The AFP Report and the reports of Dr. Bhure Lal's EPCA were relied on by the Petitioner on technical issues. The Application Prayer specifically asks for non-engine-modifying retrofits to eliminate two potential retrofit problems; a) No confusion that diesel buses should NOT be retrofitted to CNG. It is submitted that the Diesel engines are compression ignited with no spark plugs, while CNG is a spark ignited engine requiring spark plugs. It is

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impossible to retrofit buses from diesel to CNG without engine modifications - thus, non-engine-modifying retrofits to eliminate any CNG retrofit confusion were incorporated into the Prayer; b) No new Type Approval is required on a non engine-modifying retrofit eliminating inordinate delay in implementation. Further, the Respondents have excluded trucks and leased route buses by stating "we have no trucks" and there are "no leased buses". Leased routes are private buses operating on public RTC routes per the terms of a fee based lease license from the State. There are thousands of buses in this category and many government owned diesel trucks within the State's many agencies that all fall under Respondent 1's responsibility.

5.) In Paragraph 14 of the Respondent No.3's reply, it is stated that that the applicant appears to be more interested to help the producers of CNG Retrofits. This is specifically denied by the Applicant. It is submitted that the Applicant does not have any interest whatsoever with regard to the producers of Retrofits and the Application Prayer does not advocate CNG retrofits in any way.

6.) In Paragraph 15 the Respondents state "the committee did not suggest that the retrofits must be fixed to use CNG as fuel in place of diesel". The Applicant agrees and must point out that the preferred action would be orders for the Respondents to scrap their roughly 14,500 non-BS-IV buses (Reference: RTI numbers) and immediately replace them all with CNG, LPG and \ or electric buses in a few months and not use retrofits at all. Since that "scrapping action" is not feasible on several levels, and would cause political and economic disruption, the Applicant adopted for its Prayer the recommended and proven "Retrofit, Refuel and Replace" formula used worldwide for reducing air pollution from diesel vehicles during a bridge or transition to new standards and emissions norms. By using non-engine-modifying retrofits as a bridge from diesel vehicles to new non-liquid, clean fuel vehicles, the public is not punished with disruption of service from scrapping orders and air pollution is meaningfully reduced during the long replacement cycle. A relevant portion of the Auto Fuel Policy Report of the Expert Committee on page xvii states as follows:

"Once an area is switched over entirely to BS IV fuel, the existing stock of commercial vehicles, especially heavy duty diesel units, should be directed to compulsorily get after-treatment devices... retro-fitted within two years, failing which their licence should not be renewed. The point has repeatedly been made in the course of the deliberations of the Committee that the vexed issue of pollutant stress on air quality and health cannot be addressed solely through improving fuel quality and emission norms."

7.) It is submitted that the most urban bus fleets worldwide use CNG, LPG and electric buses due to concern over diesel emissions, including Euro 6 diesels. CNG has a long history of safety and maintaining their in-use emissions levels over time The Environmental Pollution Control Authority

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(EPCA) is a Central Government constituted expert committee, chaired by Dr. Bhure Lal, formed in compliance with the Hon'ble Supreme Court's order dated January 07, 1998 in WP 13029/1985. The Ministry of Environment, Forests and Climate Change in 2016 re-constituted the EPCA, once again chaired by Dr. Bhure Lal, in compliance with the Hon'ble Supreme Court's order dated April 30, 2016. The reformation of this committee in 2016 and its findings in 2017 are current and not subject to the false and unfounded accusations of the Respondent that the Petition's data are outdated and irrelevant. The relevant portions of the Dr. Bhure Lal Committee Report dated February 01, 2017 are extracted hereinbelow. Copy of the report dated February 01, 2017 available at <http://www.epca.org.in/EPCA Reports 1999 1917/Reportno.65.pdf>):

"4. Health impact of air pollution: Delhi is paying a very high price for its polluted air. Several global and national studies have already proven severe health risks from air pollution; a number of studies are also available in Delhi to provide local evidence.

"... This is not just Delhi's problem. As per the Global Burden of Disease (GBD) report released in 2013, air pollution is the fifth largest killer in India. The World Health Organization (WHO) has classified air pollution, including diesel emissions, as a Class 1 carcinogen, which is based on detailed and comprehensive evidence from global studies. Automobile companies contest this data, saying that this study, which confirms diesel particulates as carcinogen is based on older vehicle and emission technology. However, this is not the case as the study establishes the carcinogenicity of diesel based on detailed global technologies and evidence. Also, as global evidence shows, modern diesel vehicles, Euro 6 have serious problems in meeting emission norms on roads".

"c. Adopting a regional approach for common air-shed: Over time, science has made it clear that local pollution cannot be solved without addressing the larger regional pollution."

A study by the Health Effects Institute, published recently in Environmental Health Perspectives, has found that particles from coal and diesel are more harmful than windblown dust, as they can lead to an increase in ischemic heart disease-related deaths. This suggests that we must prioritise the more harmful particulates for action". "The study has observed that vehicles are the most consistent and dominant source of pollution... To get the average levels down, therefore, the focus must remain on consistent sources such as vehicles".

"Transition to CNG... Dis-incentivize diesel because of toxicity and higher emissions... Make PUC stringent for in-use vehicles".

"Augmenting public transport, last-mile connectivity and car restraint... improvement in bus numbers and service".

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8.) From the foregoing submissions, it is apparent that the claims and objections of the Respondents are baseless. The Respondents refuse to use CNG buses, yet the Karnataka Transport Ministry and KSPCB urges the public to convert their vehicles to CNG to reduce air pollution. That is precisely why the Hon'ble Supreme Court has held that "to begin with Government vehicles and public undertaking vehicles including public transport vehicles". It is submitted that it is the duty of the State to lead by example. The Auto Fuel Policy and The Motor Vehicle Act establish the place of registration as the basis for emissions norms enforcement, i.e. both KSRTC and BMTC registers their buses in Bengaluru, therefore they both fall under the major metro standards that took effect in April 2010.

9.) Although all the buses of Respondent No.2 are registered in Bengaluru, Respondent 2 (KSRTC) claims exemption from BS IV requirement. Respondent No.2's largest terminal is in central Bengaluru and there are a dozen more terminals / stands / pick up points within the Bengaluru. It is humbly submitted that since KSRTC buses are registered in Bengaluru, and therefore fall under major metro standards per the Motor Vehicle Act, they cannot be exempted from the major metro standards.

10.) In Paragraph 18 of the Respondents reply, the Respondents claim *res judicata* regarding this Application based upon orders of the Hon'ble High Court of Karnataka in the *Suo Moto* WP No. 39432 / 2013. They state, "It is submitted that directions issued by Karnataka Pollution Control Board (respondent No.4) was the subject matter of consideration by the Hon'ble High Court of Karnataka in W.P.No.39432/2013. The said writ petition is disposed off by Division Bench of Hon'ble High Court of Karnataka by order dated 01-07- 2015. Under the circumstances the applicant cannot think of projecting the orders of the Pollution Control Board in the present application." In Paragraph 10 of their Objections of January 2017, the Respondents refer to that High Court Order; "and after hearing the parties, the said writ petition was disposed of by issuing directions to comply with the directions of the Pollution Control Board..." In Paragraph 44 of the same Objections: "The directions issued by the Hon'ble High Court of Karnataka are to be carried out by the State Government and its agencies". The Respondents, be it the road transport corporations or the State Government or any of its agencies or instrumentalities, must comply with Respondent No. 4's (KSPCB) statutory directives. In KSPCB's Reply to this Application, the above referenced directions were provided. They contain: Page 5 and 18; "To direct BMTC & KSRTC to convert to green fuel like CNG and draw a road map for implementation." Page 11; "The Managing Directors of BMTC and KSRTC were requested vide this office Letter No. CT/ENF 3/PR-582/13-14 dt.2-9-2014 to use CNG fuel after the regular supply of the same to the Bangalore City." (Emphasis Supplied). It is humbly submitted that the availability of CNG has been a non-issue since a

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dedicated gas pipeline has been built from Dabhol to Bengaluru and this is confirmed in great detail in the Counter Affidavit dated April 11, 2017 of Respondent No. 11, GAIL Gas Limited. In fact, pursuant to the same suo moto public interest litigation initiated by the High Court of Karnataka, BMTC submitted to the Hon'ble High Court that "phased conversion of diesel-powered public transport vehicles to CNG vehicles is taken up seriously" ... "and it shall consider all the aspects of the matter of replacement of the entire fleet of buses in a phased manner and shall make an action plan with the timelines for the phased conversion". KSPCB has not withdrawn or rescinded its statutory directives; the Hon'ble High Court of Karnataka has not rescinded its order to follow the directions of KSPCB; Six years later, none of the Respondent's promises have been realized nor has there been any compliance with the KSPCB statutory Order.

11.) In Paragraphs 10 & 11 of the Respondents reply, the Respondent No.3 indicate numbers that do not add up. The RTI dated 27.05.2019 response received from BMTC stated that BMTC had 2,535 BS-III buses. However, in paragraph 11. BMTC lists 2,813 BS-III diesel buses. Additionally, in the same paragraph, the Respondents state no BS-I, BS-II or BS-III buses have been purchased since April 2010. The BS-III count grew by 278 buses in 2 years and that does not count any BS-III buses being scraped as they claim.

12.) In Paragraph 5 of Respondents reply, (BMTC) states that this Hon'ble Tribunal vide order dated 12.01.2017 permitted BMTC to purchase diesel vehicles of BS-IV make. This submission materially misrepresents the Order dated 12.01.2017 passed by this Hon'ble Tribunal while making an attempt to justify buying over twice the BS-IV buses contrary to this Hon'ble Tribunal's Order. The Order dated 12.01.2017 only permitted purchase of BS-IV buses to Karnataka State Road Transport Corporation subsidiaries for use outside of Bengaluru. BMTC was allowed to purchase 1,000 buses because of their undocumented claims that grant funds were expiring and would be permanently lost and it was an emergency. It is pertinent to note that no tenders for like equipped CNG buses or any CNG buses whatsoever were presented to show why BS-IV buses should be allowed instead of CNG. The Order specifically stated "It is made clear that the permission granted shall not be taken a ground to contend later that they need not switch over to CNG buses" which is the question to be decided in the main application. Similarly, before purchasing any additional buses, in addition to the BS IV norm buses now permitted, "BMTC shall take the Tribunal into confidence and satisfy why the CNG vehicles are not being chosen." The Respondents fails to offer any reasonable explanation as to why CNG vehicles are not being chosen. BMTC rejected the Gail Gas offer to make up the difference, if any, in pricing between CNG and diesel. Yet, without permission or consultation, BMTC has purchased BS-IV buses and BS-VI buses. The applicant humbly submits that Respondent 3, BMTC, is in

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contempt regarding this Hon'ble Tribunal's Orders and both Respondent 2 and Respondent 3 are in contempt of the KSPCB statutory orders. Thus, this Hon'ble Tribunal may be pleased proceed to pass appropriate directions against the said respondents."

38. This Tribunal had also considered the affidavit submitted by the Additional Commissioner for Transport (E&EG), State of Karnataka dated 25.08.2021, e-filed on 01.09.2021, extracted in Para (5) of the order which reads as follows:-

"AFFIDAVIT

I, J. Purushotham S/o K.N.Junjappa aged 49 years presently working as Additional commissioner for Transport (E & EG), do hereby solemnly affirm and swear on oath as follows:

1). I have been authorized by the State Government to file this affidavit on behalf of the State. I know the facts of this case being the Addl. Commissioner for Transport (Environment & e-governance) for the Transport Department. Hence, I am filing this affidavit on behalf of the State.

2). I submit that the State Government has introduced various policies to promote and for implementation of Green Fuel to reduce the air pollution in Bangalore city and in the entire State by encouraging usage of Electric Vehicles by providing concession phase-wise.

3). Government of Karnataka issued notification dated 31.03.2016 in exercise of powers conferred by Sub-Section (1) of Section 16 of the Karnataka Motor Vehicle Taxation Act, 1957 (Karnataka Act 35 of 1957). In the said notification the Government exempts from payment of taxes on all electric vehicles i.e., Transport and non-Transport Vehicles including e-rickshaws and e-carts etc., with effect from 01.04.2016 in the entire state of Karnataka. The copy of the said Notification dated 31.03.2016 is produced herewith and marked as Annexure-R1.

4). Government of Karnataka announced Karnataka Electric Vehicle and Energy Storage Policy 2017, by providing special tariff and commercially viable rates for installation of Electric Vehicles Charging Stations by excluding duty/tax on electricity tariff for initial period of 5 years from the date of installation and also by providing incentives and concessions to encourage the usage of electric vehicles in the State. The copy of the said Policy is produced herewith and marked as Annexure R2.

5). Further, in the year 2018-19, the State Transport Department entered into an agreement with Bangalore Electricity Supply Company

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Limited (for short 'BESCOM') by executing Memorandum of Understanding ('MOU' for short and released Rs. 4.00 crores for installation of 100 AC charging Units and 26 DC Charging Units within Bangalore Metropolitan City. The copies of the G.Os dated 31.08.2018 and 22.02.2019 issued by the Government in connection with the aforesaid matter are produced herewith and marked as Annexures- R3 & R4 respectively.

6). I submit that the State Government issued Circular dated 14.02.2019, by imposing conditions for the purpose of issuance of permits/renewal of permits only if the transport motor vehicles are within 15 years from the date of registration and further such of those permit holders whose transport motor vehicle is 15 years were permitted to replace such old vehicles with the later model vehicles. But, the said circular has been set aside by the Hon'ble High Court of Karnataka by order dated 20.08.2019 passed in W. P. No. 21991/2019(MV) and connected matters on the ground that the State Government is not empowered to issue such circular by imposing condition and also permitted the State Government to frame appropriate rules by invoking sub-section (2) of Section 72 of the Motor Vehicles Act 1988. The copy of the order dated 20.08.2019 is produced herewith and marked as Annexure-R5.

7). I submit that the State Government has made budget provision of Rupees 100 crores to the Bangalore Metropolitan Transport Corporation ('BMTTC' for short) for the year 2021-22, as a subsidy combined with the demand incentive to be provided by Government of India, Department of Heavy Industries, for operation of electric buses, under FAME-II Scheme, with an object to reduce the air pollution in Bangalore Metropolitan City,

8). I submit that the State Government introduced Electric Bike Taxi Scheme-2021 to implement clean and green fuel policy in the Bangalore Metropolitan City with an object of reducing the air pollution in the city and promoting environmental friendly solutions. The copy of the Electric Bike Taxi Scheme-2021 is produced herewith and marked as Annexure-R6.

9). I submit that the Central Government has issued Draft Notification dated 12.03.2021 for amending the Central Motor Vehicle Rules, 1989 ('CMV' Rules for short) by inserting Rule 52-A non-renewal of certificates of registration of Government Vehicles owned by the authorities hereunder mentioned after the lapse of 15 years from the date of registration:

- a) Central Government and its Departments
- b) State/Union Territory Government and their Departments.
- c) Local Government Institutions namely, Municipal Corporations or Municipalities or Panchayaths.

d) State Transport Undertakings established under RTC Act, 1950 and Companies Act 1913.

e) Public Sector Undertakings.

f) Autonomous Bodies with Central and State Government.

After finalization of the aforesaid Notification, necessary action will be taken to replace the old vehicles by new vehicles to reduce the emission level. The copy of the draft notification is produced herewith and marked as Annexure-R7.

10). I submit that the Central Government has issued the Draft Notification dated 15.03.2021 for introducing the Motor Vehicles (Registration and Functions of Vehicle Scrapping Facility) Rules, 2021. After finalization of the Notification necessary action will be taken to implement the same. The said notification is produced herewith and marked as Annexure-R8. In pursuance of the same, the Government has allocated the budget for the year 2021-22 that the "State government will take action to establish and manage Authorized Vehicle Scrapping Facility" in tune with the draft guidelines issued by the Central Government

11). Further it is submitted that in addition to the above schemes implemented by the State Government to reduce the air pollution in Bangalore city and entire Karnataka State. The Bangalore Metropolitan Transport Corporation Respondent No.3 is also filing Affidavit in compliance with the order of the Hon'ble Tribunal dated 16.07.2021 by submitting the action plan for replacing the old vehicles with new environmental friendly vehicles at Bangalore city may kindly be taken into consideration and dispose the application. The copy of the affidavit filed by the BMTC is also produced herewith and marked as Annexure-R9.

I, the deponent do hereby verify and declare that the contents of Paras 1 to 11 are true and correct, Annexures R1 to R9 are true copies of the originals to the best of my knowledge, information and belief."

39. The applicant also filed their written submissions more or less reiterating the allegations made in the application and also the documents produced by him in this regard.

40. Heard the learned Senior Counsel appearing for the applicant and learned counsels appearing for respondents.

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41. The learned Senior Counsel appearing for the applicant vehemently argued that in spite of the directions issued by this Tribunal and also by the Hon'ble High Court of Karnataka in the Writ Petition mentioned above and also the direction of the Hon'ble Apex Court in *M.C. Mehta's* case, the State of Karnataka has not implemented the Clean and Green Fuel Policy in the State in its letter and spirit and the pollution level is going up and the vehicular pollution is one of the major sources for pollution in Bangalore city. The learned Senior Counsel had reiterated the suggestions given by them and also the various reports relied on by them and produced by them in support of their case and he wanted this Tribunal to issue appropriate proper directions to make the Bangalore City free from air pollution.

42. On the other hand, the learned counsel appearing for the State of Karnataka and the learned counsel appearing for the BMTC argued that the State of Karnataka and the Transport Corporation are committed to implement the policies of the Central Government and they have taken lot of action to phase out the old diesel vehicles to new generation vehicles i.e. Clean and Green Fuel Vehicles and they also submitted that CNG is not the only method by which the pollution can be curtailed and some of the studies conducted by various scientific organizations shows that BS-VI vehicles are more environment friendly than CNG vehicles and they are taking steps to phase out the old vehicles with new BS-VI vehicles and also electrical vehicles.

43. The learned counsel appearing for the MoEF&CC and CPCB submitted respectively that they are issuing necessary notifications for curtailing the air pollution that is being faced at national level and that is being

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monitored by the CPCB and SPCBs. In tune with the directions issued by the Principal Bench of National Green Tribunal, New Delhi in O.A. No.681 of 2018 (PB) and also by the Hon'ble Apex Court, several policy decisions have been taken by the Central Government and it is being implemented by the respective Machineries under the Central Government including the MoEF&CC and CPCB by issuing necessary notifications and directions as required under the Air (Prevention and Control of Pollution) Act, 1981.

44. The learned counsel appearing for the SPCB submitted that they are closely monitoring the serious issue of pollution and necessary directions have already been issued to the respective departments including the Transport Department to phase out the old vehicles with new Clean and Green Fuel vehicles and also by implementing the various Waste Management Rules, which are also the sources contributing air pollution and in case of violations, necessary actions are also being taken by them by issuing directions under Section 31 A of the Air (Prevention and Control of Pollution) Act, 1981. They will strictly implement the rules and directions issued by the MoEF&CC and CPCB and the directions of the National Green Tribunal as well as the Hon'ble Apex Court and Hon'ble High Court of Karnataka in this regard. They are closely monitoring the implementation of these schemes and necessary action will be taken, if it is not properly implemented.

45. The learned counsel appearing for Respondents No.7 & 11 submitted that they are committed to provide necessary infrastructure for supplying CNG for this purpose, as it is the policy of the Ministry of Petroleum and

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Natural Gas and they are prepared to provide all necessary support for this purpose. They have provided necessary infrastructure for supplying CNG in the State of Karnataka and also they are providing necessary CNG Fuel filling stations at appropriate places to make available the fuel without any difficulty and they will abide by any conditions imposed by this Tribunal.

46. We have considered the submissions made by the counsel for parties, pleadings and also perused the documents available on record.

47. The point that arises for consideration is "on the basis of the substantial question of environment raised in respect of increase in pollution due to vehicular emission, what is the nature of direction that can be given by this Tribunal to the State of Karnataka to implement the same".

POINT:-

48. The grievance of the applicant in this application was that on account of user of old diesel vehicles by the BMTC and other Government Transport vehicles, large scale pollution is being caused and in respect of the same, a Writ Petition was filed before the Hon'ble High Court of Karnataka and directions were issued to the State of Karnataka to introduce CNG vehicles to curb pollution and in spite of that, no action was taken. So, the applicant filed this application seeking certain reliefs for giving directions to implement Clean and Green Fuel Policy.

49. It was not disputed by the official respondents regarding their responsibility of implementing the Clean and Green Fuel Policy, but the only difference of opinion is regarding the nature of fuel that will have to be used and whether it should be CNG or any other fuel.

50. It is also not in dispute that the Hon'ble Apex Court in **M.C. Mehta Vs. Union of India & Ors.** several decisions in the same case, dealing with air pollution, issued several directions and most of the directions were taken into consideration the serious air pollution issue faced in Union Territory of Delhi and its neighbouring States and several directions were issued by the Hon'ble Apex Court in this regard.

51. It is also not in dispute that taking into consideration the serious nature of the impact of air pollution on human health, the Central Government also launched a Clean and Green Fuel Policy and amended the Central Motor Vehicles Act and Rules by giving direction to phase out the old BS-I to BS-IV vehicles and change over to BS-VI and specifically mentioned that from 01.04.2020, only BS-IV vehicles can be registered and permitted to ply.

52. Further, it is also not in dispute that the MoEF&CC also issued certain notifications and launched certain programmes to implement the policy under the National Clean Air Programme and on that basis, several directions have been issued by the MoEF&CC as well as the CPCB in respect of establishing Continuous Ambient Air Quality Monitoring Stations throughout the country and also directed to evolve an action plan for meeting the situation and on that basis, several steps have been taken and that is being monitored by the CPCB as well.

53. In all the decisions relied on by the applicant, including the decision of the Hon'ble Apex Court in *M.C. Mehta's* case, it was noted that the air pollution was not caused on account of vehicular emission alone, but it is one of the sources of air pollution which will have to be dealt with by the respective State Governments including the State of Karnataka by implementing the Clean and Green Fuel Policy to reduce pollution caused on account of vehicular emission.

54. It is also brought out in several newspaper reports and the study conducted at global level that air pollution is increasing alarmingly and the recent report of the studies so conducted shows that out of the 100 cities identified by the organization which conducted the study has critically polluted areas, 59 such areas are falling in India. So, it cannot be said that India is free from the disaster that is likely to be faced on account of air pollution and it was also mentioned in those reports that large scale mortality is also happening on account of air pollution which goes unattended. It is also noted in those reports that large scale diseases connected to lungs are also increasing, even among children of tender age and also results in carcinogenic diseases as well, as some of the pollutants in the air are carcinogenic in nature.

55. The Principal Bench of National Green Tribunal, New Delhi had taken cognizance of air pollution in a *Suo Motu* case viz., **O.A. No.681 of 2018 (PB) (In Re news item published in The Times of India, Authored by Sri Vishwa Mohan titled "NCAP with multiple timelines to clean air in 102 cities to be released around August - 15")** and in that case, the Principal Bench of National Green Tribunal had directed a constitution of eight member Task Force Committee to be headed and co-ordinated by

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the Secretary of MoEF&CC with nominees not below the rank of Joint Secretaries of Ministries from Housing and Urban Development, Road Transport and Petroleum, Power, Agriculture and Health and Chairman, CPCB with a view to monitor remedial steps to improve the status of air quality in NAC consistent with the action plans already prepared and approved by the Expert Committee and directions of this Tribunal referred to above including the last order dated 28.08.2020 and also to monitor complaints of noise level norms, NTF may also be monitored, enforcement of laid down air quality standards beyond NAC in other identified air pollution areas where the air quality is poor and above.

56. The Principal Bench has given various directions in the case mentioned above which includes the pollution level in Bangalore, as it was one of the identified critically polluted cities and on the basis of the directions issued by the Principal Bench, the CPCB had directed the State Governments, including the State of Karnataka to evolve action plans to curb air pollution and make the respective States pollution free, especially the critically polluted areas in compliance of the directions of the National Green Tribunal, Principal Bench, New Delhi and each State had submitted their action plans regarding the source of pollution and nature of action plan which they evolved for the purpose of curtailing pollution in the respective States which includes air pollution caused on account of vehicular emission as well and on the basis of the directions issued by the CPCB, the State of Karnataka also submitted an action plan which was reviewed by the CPCB and certain modifications have been made and directed to implement the action plan with certain time lines and that is being monitored by them.

57. It is also seen from the various reports submitted by the State of Karnataka and also the BMTC that various steps have been taken by them for implementing the Green and Clean Fuel Policy and they are taking steps to convert the old vehicles to electrical vehicles and steps are being taken for phasing out the old vehicles with electrical vehicles. They have also mentioned that the CNG is not the only method by which pollution can be curtailed and various reports relied on by them showed that the CNG was also causing some ill effects, but we are not going into those aspects, as the policy of the Government and various directions issued by the Hon'ble Apex Court includes replacement of diesel vehicles with Clean and Green Fuel vehicles, which includes CNG and Biogas and Electrical vehicles. It is for the Government to evolve a policy as to how they are going to implement the same and what is the alternate clean fuel policy that they are going to adopt, as it involves financial implications and higher level policy decisions. Further, the Tribunal cannot go into the question as to what is the nature of policy to be evolved and how that will have to be implemented, but the Tribunal can only direct the Government to evolve an effective policy in respect of change over of old vehicles with Clean and Green Fuel policy and the same will have to be implemented at the earliest possible time, as postponement of such implementation will result in great hardship to the people by way of causing health problem due to accelerated possibility of air pollution being increased.

58. The Special Bench while disposing the similar issue which was in respect of State of Tamil Nadu also in O.A. No.422 of 2013 (L.G. Sahadevan Vs. Union of India & Ors.) after relying on the various directions issued by

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the Principal Bench of National Green Tribunal in O.A. No.681 of 2018 referred to above, directed the State Government to evolve and update the policy and other associated activities to remedy the air quality degradation may also include policy with regard to use of Clean Fuel, regulatory measures in the light of source apportionment and carrying capacity and controlling the dust. There is also a need for effective monitoring at the District Level and State Level by the Steering Committee as well as the Air Quality Monitoring Committee on regular basis subject to overall progress being monitored at National Level under the National Clear Air Programme.

59. The Principal Bench in that case had reproduced certain aspects in Para

(4) of the order which reads as follows:-

"4. We find no justification for such neglect of an important issue of air pollution in Chennai which required emergency measures in the interest of public health of the citizens. New Government has been in office for more than six months. Different steps on the subject taken by Central and many State Governments and orders of the Hon'ble Supreme Court are in public domain.

5. This Tribunal has dealt with the issue of air pollution in the context of adequacy of clean air programme of the Central Government for 124 cities³ 'non-attainment cities', where air quality exceeds standards, based on the data compiled by the CPCB. The Tribunal directed constitution of Air Quality Monitoring Committees (AQMCs) in all the States, including the State of Tamil Nadu, to prepare action plans to remedy the situation. The AQMC for Tamilnadu can be consulted for action plan for Chennai city and its agglomeration area. For ready reference, final directions in the said order are reproduced below:

"60. xxxxxx.....xxx

- i. We direct constitution of an eight-member National Task Force (NTF) to be headed and coordinated by the Secretary MoEF&CC with nominees (not below the rank of Joint Secretaries) of Ministries from Housing and Urban Development, Road Transport, Petroleum, Power, Agriculture, Health and Chairman, CPCB with a view to monitor remedial steps to improve the status of air quality in NACs consistent with the action plans already prepared and approved by the Expert Committee and directions of this Tribunal, referred to above, including the last order dated 21.08.2020 and also to monitor compliance of noise control norms. NTF may also monitor enforcement of laid down air quality standards beyond NACs in*

³Order dated 08.04.2021 in OA No. 681/2018, In re: News item published in "The Times of India" Authored by ShriVishwa Mohan Titled "NCAP with multiple timelines to clean air in 102 cities to be released around August 15

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other identified air polluted areas where air quality is poor and above.

- ii. *The NTF may hold its first meeting within one month and thereafter evolve mechanism for monitoring by quarterly meetings with Chief Secretaries of concerned States/UTs. The NTF may coordinate and work in tandem with the Committees already constituted under NCAP at National and State levels.*
- iii. *Monitoring by NTF may be with reference to the action plans of 124 NACs. The components include installation of monitoring stations, completion of CC and SA studies, shifting, prohibiting and regulating activities beyond carrying capacity (such as shifting to cleaner fuel and declaring regulated/no vehicle zones so as to ensure that the air quality does not go beyond „poor“ for protection of health of the citizens), effectiveness of PGRPs, timelines for execution of the action plans and recovery of compensation for delay, addressing gap in control of noise pollution, afforestation drives utilizing CAMPA funds, effective implementation of ERS, revamping of PCBs/PCCs and other monitoring mechanism, remediation of legacy waste sites and effective steps for management of other waste, including biomedical, plastic and e-waste, dust control, public awareness and community involvement programmes and setting up of data grids on all levels. NTF may also evolve and oversee parameters for interse ranking of success of remedial action for 124 NACs and other air polluted areas where air quality is poor and above. Further, accountability for failures and incentives for success also needs to be monitored. NTF is free to take up any other incidental issues.*
- iv. *Consistent with Digital India initiatives, MoEF&CC/ CPCB may consider setting up and periodically updating National Environment Data Grid (NEDG) linked to the State Environment Data Grids (SEDGs) and District Environment Data Grids (DEDGs) and further linked to available portals like online air quality, Sameer and other monitoring stations to facilitate analysis, research and planning on the subject. It may be further interlinked to National Air Quality Monitoring Programme (NAMP). Based on above data, the MoEF&CC may lay down guidelines for classifying cities/districts in terms of air quality in different categories such as „red“, „orange“ and „green“. On that basis, a National Air Quality Atlas may be compiled and published on the websites of MoEF&CC, CPCB and State PCBs/PCCs annually.*
- v. *The Chief Secretaries of all States/UTs may continue to monitor progress in execution of action plans at State level with the assistance of monitoring cells in their offices and the AQMCs. The State level monitoring must include action at the ground as per directions to be implemented by the District Magistrates or other concerned departments. The monitoring may include all associated issues, including road dust control by appropriate sprinkling of water (utilizing treated water, instead of potable water), planting herbs and shrubs, and all sources of pollution, including fire crackers. The issue of noise pollution also needs to be addressed, as earlier directed.”*

6. We may also refer to order of the Hon'ble Supreme Court dated 29.10.2018 in W.P.(C) No. 13029/1985, M.C. Mehta v. Union of India & Ors. which is as follows:

“Report No.92

Learned amicus curiae has placed before us some submissions on urgent actions to control air pollution in NCR.

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We have gone through the suggestions that have been given and are of the opinion that the three suggestions are eminently reasonable and must be implemented with immediate effect.

These suggestions, which are now the directions of this Court, are as follows:

- 1. The Transport Departments of NCR will immediately announce that all the diesel vehicles more than 10 years" old and petrol vehicles more than 15 years" old shall not ply in NCR in terms of the order of the National Green Tribunal dated 07.04.2015. The order of the National Green Tribunal was challenged in this Court and the Civil Appeal was dismissed. Vehicles violating the order will be impounded. The list of such vehicles should be published on the websites of the Central Pollution Control Board (CPCB) and the Transport Departments of NCR. Similarly, a meaningful advertisement should be published in a local newspaper for the convenience of the owners of the vehicles.*
- 2. CPCB will immediately create a social media account on which the citizens may lodge their complaint directly to be acted upon by the Task Force responsible for implementation of Graded Response Action Plan.*
- 3. EPCA is permitted to take pre-emptive steps under the Graded Response Action Plan without strict adherence to pollution stages delineated in the plan*

The last direction is being issued in view of the more or less critical situation in NCR, particularly in Delhi with regard to air pollution.

We have been shown a Note prepared by the Chairman of EPCA on 28th October, 2018.

The photographs attached to the Note indicate a fairly terrible state of affairs with regard to pollution in various parts of Delhi. It is for this reason, we are compelled to pass the above orders in the first instance

With regard to the Note submitted by the Chairman, EPCA on visits to hot spots of NCR to ascertain ground level enforcement of directions issued and actions taken, the Delhi Government as well as the Delhi State Industrial and Infrastructure Development Corporation Ltd. should file an affidavit within two days."

7. Data of air quality and laid down air quality norms are well known. There is no dearth of expertise for handling the subject in the State administration. What is required is taking an informed responsible decision in the larger interest of public health and enforcing the laid down air quality standards.

8. Accordingly, we direct the Principal Secretary, Transport, Government of Tamil Nadu, in coordination with other concerned authorities, to positively prepare the necessary action plan at the earliest, if not already done and file the same before the Tribunal before the next date."

60. The statement submitted by the CPCB also reveals that already they have launched certain programmes which the State Governments are expected to implement which is being monitored by them.

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61. So under such circumstances, we feel that the matter can be disposed of by giving the following directions:-

- a. The State of Karnataka is directed to strictly implement the directions issued by the Principal Bench of National Green Tribunal, New Delhi in O.A. No.681 of 2018 (PB)⁴.
- b. The State of Karnataka is also directed to implement the directions issued by the Central Pollution Control Board (CPCB) under the National Clean Air Programme and implement the action plan approved by the CPCB in the light of the directions issued by the Principal Bench in O.A. No.681 of 2018 (PB) as referred to above, strictly in compliance with the timelines provided in that action plan and the timeline provided by the CPCB.
- c. The State of Karnataka is also directed to form a monitoring committee under the leadership of (i) the Additional Chief Secretary to Government, Forests, Environment and Ecology Department, (ii) the Principal Secretary to Government, Department of Transport, (iii) the Additional Chief Secretary to Government, Department of Finance, (iv) a Senior Officer from the Integrated Regional Office, Central Pollution Control Board (CPCB) at Bangalore and (v) the Chairman - State Pollution Control Board (SPCB), Karnataka to review the action plan prepared for the implementation of the National Clean Air Programme and implementation of Clean and Green Fuel Policy in the State of Karnataka and implementation of the action plan (if any) already prepared by them pursuant to the

⁴ (A news item published in The Times of India, Authored by Sri Vishwa Mohan titled "NCAP with multiple timelines to clean air in 102 cities to be released around August - 15")

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directions given by the CPCB in compliance with the directions of the Principal Bench of National Green Tribunal, New Delhi in O.A. No.681 of 2018 (PB) and if there is any gap found, they are directed to evolve modified action plans to fill up the gap and fulfill the obligation of providing clean air in the State of Karnataka, including the critically polluted cities in the State of Karnataka which includes Bangalore as well.

- d. Meeting of the Committee mentioned above has to be reviewed by the Chief Secretary to Government, State of Karnataka periodically atleast once in three months and give necessary directions and support (both financial and technical) to implement the action plan so evolved to achieve the goal, that too with shorter timelines.
- e. The Chief Secretary to Government, State of Karnataka is also directed to form District Level Committees to implement these programs in the respective districts as well to accomplish the goal of making the State of Karnataka, a pollution free State in compliance with the constitutional mandate of protecting environment under Article 48 A of the Constitution of India and providing a clean environment, including clean air as part of Right to Life as enshrined under Article 21 of the Constitution of India.
- f. The Central Pollution Control Board (CPCB) is directed to monitor the implementation of the directions issued under the National Clean Air Programme and the directions issued by the Principal Bench of National Green Tribunal, New Delhi in O.A. No.681 of 2018 (PB) and the directions issued by this Bench, consequential to the orders passed by the Principal Bench in respect of this case and submit periodical reports to this Tribunal regarding the progress

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and improvement in the air quality and further recommendations (if any) to be made for achieving the goal of National Clean Air Programme and implementation of National Clean and Green Fuel Policy to this Tribunal **once in 4 (Four) Months** till the goal is achieved in its entirety.

62. In the result, the Original Application is allowed in part and disposed of with the following directions:-

- (i) The State of Karnataka is directed to strictly implement the directions issued by the Principal Bench of National Green Tribunal, New Delhi in **Original Application No.681 of 2018 (PB)**⁵.
- (ii) The State of Karnataka is also directed to implement the directions issued by the Central Pollution Control Board (CPCB) under the National Clean Air Programme and implement the action plan approved by the CPCB in the light of the directions issued by the Principal Bench in O.A. No.681 of 2018 (PB) as referred to above, strictly in compliance with the timelines provided in that action plan and the timeline provided by the CPCB.
- (iii) The State of Karnataka is also directed to form a monitoring committee under the leadership of (i) the Additional Chief Secretary to Government, Forests,

⁵ (A news item published in *The Times of India*, Authored by Sri Vishwa Mohan titled "NCAP with multiple timelines to clean air in 102 cities to be released around August - 15")

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Environment and Ecology Department, (ii) the Principal Secretary to Government, Department of Transport, (iii) the Additional Chief Secretary to Government, Department of Finance, (iv) a Senior Officer from the Integrated Regional Office, Central Pollution Control Board (CPCB) at Bangalore and (v) the Chairman - State Pollution Control Board (SPCB), Karnataka to review the action plan prepared for the implementation of the National Clean Air Programme and implementation of Clean and Green Fuel Policy in the State of Karnataka and implementation of the action plan (if any) already prepared by them pursuant to the directions given by the CPCB in compliance with the directions of the Principal Bench of National Green Tribunal, New Delhi in O.A. No.681 of 2018 (PB) and if there is any gap found, they are directed to evolve modified action plans to fill up the gap and fulfill the obligation of providing clean air in the State of Karnataka, including the critically polluted cities in the State of Karnataka which includes Bangalore as well.

(iv) Meeting of the Committee mentioned above has to be reviewed by the Chief Secretary to Government, State of Karnataka periodically atleast once in three months and give necessary directions and support (both financial and technical) to implement the action plan so evolved to achieve the goal, that too with shorter timelines.

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(v) The Chief Secretary to Government, State of Karnataka is also directed to form District Level Committees to implement these programs in the respective districts as well to accomplish the goal of making the State of Karnataka, a pollution free State in compliance with the constitutional mandate of protecting environment under Article 48 A of the Constitution of India and providing a clean environment, including clean air as part of Right to Life as enshrined under Article 21 of the Constitution of India.

(vi) The Central Pollution Control Board (CPCB) is directed to monitor the implementation of the directions issued under the National Clean Air Programme and the directions issued by the Principal Bench of National Green Tribunal, New Delhi in O.A. No.681 of 2018 (PB) and the directions issued by this Bench, consequential to the orders passed by the Principal Bench in respect of this case and submit periodical reports to this Tribunal regarding the progress and improvement in the air quality and further recommendations (if any) to be made for achieving the goal of National Clean Air Programme and implementation of National Clean and Green Fuel Policy to this Tribunal **once in 4 (Four) Months** till the goal is achieved in its entirety.

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(vii) Considering the circumstances, parties are directed to bear their respective cost in the application.

(viii) The Registry is directed to communicate this order to the Chairman - Karnataka State Pollution Control Board, Integrated Regional Office, Central Pollution Control Board (CPCB) at Bangalore, the Principal Secretary to Government, Department of Transport, the Additional Chief Secretary to Government, Forests, Environment and Ecology Department, the Additional Chief Secretary to Government, Department of Finance, and the Chief Secretary to Government, State of Karnataka for their information and compliance of directions.

(ix) As and when such reports are filed, the Registry is directed to place the same before the Bench for consideration and issuing necessary directions (if any) required in this regard.

63. With the above observations and directions, this Original Application is disposed of.

Sd/-
Justice K. Ramakrishnan, JM

Sd/-
Dr. Satyagopal Korlapati, EM

O.A. No.183/2016 (SZ),
13th April 2022. Mn.

ANNEXURE - 2

ಒರಿಯ ಪರಿಸರ ಅಧಿಕಾರಿಯವರ ಕಛೇರಿ
ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ
ನಿರ್ವಹಣಾ ಕಛೇರಿ, ಬೆಂಗಳೂರು ನಗರ
ನಿರ್ದೇಶನ ಭವನ, 3ನೇ ಮಹಡಿ,
7ನೇ 'ಡಿ' ಮುಖ್ಯ ರಸ್ತೆ, ತಿಮ್ಮಾiah ರಸ್ತೆ,
ಶಿವನಗರ, ಬೆಂಗಳೂರು - 560 010
ದೂರವಾಣಿ : 080-23228864
ಇ-ಮೇಲ್ : seoc@kspcb.gov.in



Office of the Senior Environmental Officer
Karnataka State Pollution Control Board
Zonal Office, Bangalore City
"Nisarga Bhavana", 3rd Floor,
7th 'D' Main, Thimmaiah Road,
Shivanagar, Bangalore - 560 010
Phone : 080-23228864
Email : seoc@kspcb.gov.in

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towards a cleaner Karnataka

//BY RPA011

No.KSPCB/RSEO/BNG-CITY/TASK FORCE/2023-24/383

Dated: 02 FEB 2024

To,

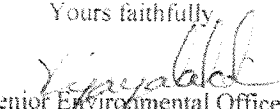
1. The Superintendent of Police, Infantry Road, Bengaluru-560 052.
2. The Commissioner, BBMP, N.R.Square, Hudson Circle, Bengaluru-560 002.
3. The Commissioner, Transport Department, 1st Floor, TIMC Building, Shanthinagar, Bengaluru-560 027.
4. The Commissioner, BMRCI, Department, BMTC Complex, K.H Road, Shanthinagar, Bengaluru.
5. The Commissioner, BDA Department, No.7, Chowdaiah Road, Sankey Road, Kumarpark West, Bengaluru.
6. The Managing Director, BESCOM, Dr.B.R Ambedkar Road, K.R. Circle, Bengaluru-560 001.
7. The Chief Engineer, KIADB, No.49, 4 th 5 Floor, Kanija Bhavan, Race Course Road, Bengaluru.
8. The Deputy Director, Food, Civil Supplies and Consumer Affairs Department, Commissioner Officer, Bengaluru Urban District, Bengaluru-560 001.
9. The Deputy Conservator of Forest, Forest Department, 1st Floor, Aranya Bhavan, 1st cross, Malleshwaram, Bengaluru.
10. The Divisional Control Officer, BMTC and KSRTC Department, No.115, K.H Road, Shanthinagar, Bengaluru.
11. The District Medical officer, District Health and Family Welfare Department, Ananda Rao Circle, Gandhinagar, Bengaluru.
12. The Executive Engineer, Public Works Department, K.R Circle, Bengaluru.
13. The Divisional Controller, North East Karnataka Road Transport Corporation (NEKRTC), K.H Road, Shanthinagar, Bengaluru.
14. Project Director, District Urban Development Cell (DUDC), Kundaya Bhavan, Bengaluru.
15. The Environmental Officer, Bengaluru City East, Mahadevpura, Sarjapura, Rajarajeshwari Nagar, Anekal, Bommanahalli, Bengaluru City South, Bengaluru City West and Yelahanka.

Sub - Submission of Proceedings of the District Task Force Committee meeting held under the chairmanship of Deputy Commissioner, Bengaluru Urban District on 30.12.2023.

Ref:- Meeting held under the chairmanship of Deputy Commissioner, Bengaluru Urban District on 30.12.2023.

The Proceedings of the District Task committee meeting held under the chairmanship of Deputy Commissioner, Bengaluru urban on 30.12.2023 at District Commissioner office, Kundaya Bhavan, Bengaluru for implementation of approved action plan for improvement of the air quality in Bengaluru City is enclosed for information and further needful action.

Encl:- As Above

Yours faithfully,

Senior Environmental Officer
Bengaluru City.

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No: KSPCB/RSEO/BNG-City/Non Attainment City/2023-24/ 383

Date: 19 FEB 2024

PROCEEDINGS OF THE TASK FORCE COMMITTEE FOR THE IMPLEMENTATION OF APPROVED ACTION PLAN FOR IMPROVEMENT OF AIR QUALITY IN NON ATTAINMENT CITY OF BENGALURU WAS CONVENED ON 30.12.2023 UNDER THE CHAIRMANSHIP OF THE DEPUTY COMMISSIONER, BENGALURU URBAN DISTRICT AT KANDAYA BHAVAN, K.G ROAD, BENGALURU.

The list of participants of the meeting is enclosed as Annexure-I.

The Member Convener of the committee and Senior Environmental Officer, KSPCB, Bengaluru City welcomed the Deputy Commissioner and other officials present in the meeting and requested the Deputy Commissioner to review the Department wise progress of implementation of action plan to improve the air quality in Bengaluru City.

Department wise implementation of action plan for improvement of the air quality in Bengaluru City has reviewed and discussed as follows:

1. Police (Traffic) Department:

The Officer of Police (Traffic) Department was present during the meeting, briefed about progress made so far for the below mentioned action points.

Sl. No	Action points	Action in progress
1	To carry out a survey to identify more vulnerable roads with respect to congestion so as to regulate the traffic.	Bengaluru Traffic Police has identified 12 High Density corridor roads, which have congestions to regulate the traffic. The name of the Roads are, 1. Tumkur Road 2. Bellary Road 3. Kanakapura Road, 4. Mysore Road 5. Hosur Road 6. Old Madras Road 7. Bannerghatta Road 8. Old Airport Road, 9. Sarjapura Road, 10. Magadi Road, 11. West of Chord Road, 12. Outer Ring Road. and also Bengaluru Traffic Police has identified 43 junctions and 99 roads which have congestion to regulate the traffic.

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2	To enforce lane discipline rules by stopping /parking of vehicles at designated bus bays/stop.	<p>Number of cases registered against lane discipline violations during the last three years is as follows.</p> <table border="1"> <thead> <tr> <th>Year</th> <th>No of cases booked</th> </tr> </thead> <tbody> <tr> <td>2021</td> <td>21762</td> </tr> <tr> <td>2022</td> <td>15580</td> </tr> <tr> <td>2023</td> <td>831</td> </tr> </tbody> </table>	Year	No of cases booked	2021	21762	2022	15580	2023	831
Year	No of cases booked									
2021	21762									
2022	15580									
2023	831									
3	Prevents and penalize parking of vehicles in non designated areas.	<p>Number of cases registered against no-parking violations during the last three years is as follows:</p> <table border="1"> <thead> <tr> <th>Year</th> <th>No of cases booked</th> </tr> </thead> <tbody> <tr> <td>2021</td> <td>725929</td> </tr> <tr> <td>2022</td> <td>1207651</td> </tr> <tr> <td>2023</td> <td>891559</td> </tr> </tbody> </table>	Year	No of cases booked	2021	725929	2022	1207651	2023	891559
Year	No of cases booked									
2021	725929									
2022	1207651									
2023	891559									
4	To increase fine on vehicle owners (not drivers) where the visible smoke is emitted and noticed.	<p>Number of cases registered against Emitting black Smoke violations during the last three years is as follows.</p> <table border="1"> <thead> <tr> <th>Year</th> <th>No of cases booked</th> </tr> </thead> <tbody> <tr> <td>2021</td> <td>993</td> </tr> <tr> <td>2022</td> <td>556</td> </tr> <tr> <td>2023</td> <td>20</td> </tr> </tbody> </table>	Year	No of cases booked	2021	993	2022	556	2023	20
Year	No of cases booked									
2021	993									
2022	556									
2023	20									
5	Launch public awareness programme Campaign for air pollution control, vehicle maintenance, minimizing the use of personal vehicles, lane discipline etc.	<p>Awareness through social media for avoiding use of personal vehicles and use of public transport.</p> <p>Steps are being taken to create awareness about to maintaing lane discipline and its importance in all junctions.</p> <p>Training sessions are being conducted to all type of vehicle users and children at TT & RSI and Traffic Park about steps to be taken to control air pollution and its importance.</p>								

2. Transport and Road Safety Department.

The Officers of Transport and Road Safety Department were present in the meeting have submitted the progress report to the action points as tabulated below:

Sl. No.	Action plan	Actions are in progress
1	The restriction on use of two stroke vehicles in phased manner (2-Stroke,3- stroke) in Bengaluru city.	The Auto rickshaws plying in Bengaluru city are converted into Bio-fuel mode (LPG+ Petrol) and as per the Order No. SARIE 267 SAEPA 2018, dated 23.10.2018, Government has given permission for 02-stroke LPG Auto rickshaws cabs to renew the Fitness certificate upto 31.03.2020. Further, as per the order No. TD 187 TDO 2020, dated 03.02.2020, the Government

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		has restricted the permission for renewal of fitness certificate for 2-stroke autorickshaw LPG vehicle upto 31.03.2022.																																													
2	To check the calibration of emission monitoring equipments, housed in Emission Testing Centers (ETCs) once in six months to know the status of equipments.	All the emission testing centers in Karnataka State are connected to online network system and these centers are being audited on a regular basis. At the time of inspection, status of equipments functioning at the centers is also being checked for calibration and AMC as well and it is a continuous process.																																													
3	Launch Extensive drive against polluting vehicles for ensuring strict compliances and regulate the traffic	<p>The transport department has been checking vehicular air pollution and noise pollution in Bengaluru City. Every year in the month of November, observed as Air Pollution Awareness month, in this regard various programmes are carried out during November month to enlighten the public on the ill effects of Vehicular pollutions. The Department has taken action to control air and noise pollution in Karnataka State. The checking details for the years 2020-21, 2021-22 and 2022-23 are as follows:</p> <table border="1"> <thead> <tr> <th rowspan="2">Particulars</th> <th colspan="3">No of MV's checked</th> </tr> <tr> <th>2020-21</th> <th>2021-22</th> <th>2022-23</th> </tr> </thead> <tbody> <tr> <td>Air Pollution</td> <td>239151</td> <td>204482</td> <td>882897</td> </tr> <tr> <td>Noise Pollution</td> <td>185406</td> <td>232147</td> <td>794097</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th rowspan="2">Particulars</th> <th colspan="3">No of cases Booked</th> </tr> <tr> <th>2020-21</th> <th>2021-22</th> <th>2022-23</th> </tr> </thead> <tbody> <tr> <td>Air Pollution</td> <td>16890</td> <td>15831</td> <td>40766</td> </tr> <tr> <td>Noise Pollution</td> <td>3288</td> <td>3194</td> <td>16107</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th rowspan="2">Particulars</th> <th colspan="3">Fine collected (Rs.) In crores</th> </tr> <tr> <th>2020-21</th> <th>2021-22</th> <th>2022-23</th> </tr> </thead> <tbody> <tr> <td>Air Pollution</td> <td>1.07</td> <td>1.39</td> <td>5.35</td> </tr> <tr> <td>Noise Pollution</td> <td>0.40</td> <td>0.47</td> <td>3.25</td> </tr> </tbody> </table> <p>The checking of vehicles is also being carried out throughout the state for control of air and noise pollution.</p>	Particulars	No of MV's checked			2020-21	2021-22	2022-23	Air Pollution	239151	204482	882897	Noise Pollution	185406	232147	794097	Particulars	No of cases Booked			2020-21	2021-22	2022-23	Air Pollution	16890	15831	40766	Noise Pollution	3288	3194	16107	Particulars	Fine collected (Rs.) In crores			2020-21	2021-22	2022-23	Air Pollution	1.07	1.39	5.35	Noise Pollution	0.40	0.47	3.25
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4	Installation of remote sensor based Pollution Under Control (PUC) system	The officer present during meeting informed that the PUC system will be done at the manufacturing level itself.																																													
5	Steps to promote battery operated vehicles	<ul style="list-style-type: none"> The Government vide Notification No. SARIE 76 SAEPA 2016, dated 31.03.2016 has exempted all transport and non-transport battery operated vehicles from payment of road tax with effect from 01.04.2016. 																																													

	<ul style="list-style-type: none"> • GoK under the powers vested under section 74(3)(A) of Motor Vehicles Act 1988, has issued Notification No. 168, SAEPA 2015(p), dated 06.05.2016 and published e-rickshaw scheme prescribing general conditions and permit conditions for the purpose of authorizing the operation of e-rickshaws vehicles throughout Karnataka State, except in the areas of BBMP limits. • Government vide Notification No. SARIE 48 SAEPA 2018, dated 26.03.2018 has accorded sanction for issual of 5000 Electric Auto rickshaw permits under "Karnataka Electric Vehicle Policy 2017". Therefore the action to induct battery operated vehicles is underway in phased manner. • Government vide Notification No. TD 2 TDO 2019, dated 20.01.2022 has exempted Transport category battery operated vehicles, Methanol operated vehicles and Ethanol operated vehicles from permit. • MoU was signed between Transport Department and BESCOM and transferred an amount of Rs.4.00 crores by the way of deposit contribution to BESCOM for the purpose of establishing the charging stations for electric vehicles in Bengaluru city. As of now 126 Electric vehicles charging infrastructure has been developed.
6	<p>Initiate steps for retrofitting of particulate filters in diesel vehicles</p> <p>The retrofitting of particulate filters in diesel vehicles done at the manufacturing level and automobile service centre is communicating with the manufactures to maintain with pollution norms.</p>
7	<p>Launch public awareness programme Campaign for air pollution control, vehicle maintenance, minimizing the use of personal vehicles, lane discipline etc.</p> <p>Transport Department observes November month as Air Pollution Awareness month. In this regard various programmes are carried out during the November month to enlighten the public on the ill effects of vehicular pollution.</p> <p>The amount collected under Green Tax is being used for programmes chalked out for control of Air pollution by vehicles under the proper guidance of the Government. Rs.3.00 Crores has been transferred to BESCOM department. Air Pollution control awareness programs like organizing street plays, Geetha gayana and Short movies was conducted at Public places/School's and Colleges from selected Bidders/Service Providers.</p>

People

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3. KSRTC Department:

The Officer of KSRTC Department was present during the meeting, briefed about the below mentioned action points.

Sl. No	Action points	Actions are in progress
1	To construct satellite bus stands at all National high ways leading to Bengaluru.	<p>To control the traffic overcrowding in the city. KSRTC has so far established satellite bus stands at MCTC -Mysore road, Basaveshwara bus station, Peenya and Shanthinagar. Further, to decongest the traffic, KSRTC desires to construct similar satellite bus stands in other directions of the city especially 1. Old Madras Road, 2. Magadi Road, 3. Nelamangala 4. Kanakapura Road and 5. Yelahanka on Bellary Hyderabad road for which land is required.</p> <p>And as discussed in the previous meeting held on 07.07.2021, letter addressed to DC, Bengaluru (U) vide letter No. ಕರ್ನಾಟಕ/ಬೆಂ/ಯಾನ(ಬಿ);/476/2021-2022, ದಿನಾಂಕ: 19.08.2021 has been sent from MD, KSRTC requesting to identify appropriate land and transfer of land on free of cost basis to construct satellite bus stands.</p> <p>Based on KSRTC request, Tahashildar, Yelahanka has been directed by DC, Bengaluru (U) to take needful action vide letter No. LND (Y) CR 178/2021-22 dated 27.11.2021 and no response received so far.</p> <p>During the meeting, Hon'ble DC recommended to make new satellite bus stand on the last stops of metro stations on 04 sides to reach their destination. Further, DC informed that, there is no land available in the city limit, however, identify the nearest/ suitable land available with BMTC and also keeping in view of further extension of metro of KR Puram, Nelamanangala, Yelahanka, plan to identify the land, the place where land is not developed in advance by contacting revenue authorities and submit proposal to the concerned department for sanction of land, identification and sanction of land for construction of new satellite bus stand should be follow up by the KSRTC authorities.</p> <p>Further, DC agreed the decision taken in the previous meeting regarding the utilization of Basaveshwara satellite bus stand by Nelamangala instead of establishing one more satellite bus stand at Nelamangala.</p>



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4. KIADB

The Officer of KIADB was present during meeting briefed about the below mentioned action points:

Sl. No	Action points	Actions are in progress
1	KIADB to earmark adequate land in industrial areas surrounding Bengaluru for the purpose of establishing truck terminals by the Department of Transport & Road safety Department.	KIADB has identified the area for establishment of truck terminals. In this regard KIADB has addressed a letter to Commissioner, Transport department on 16.02.2022 & 10.05.2022 informing that, in surrounding industrial areas of Karnataka & Bengaluru developed/developing industrial areas truck terminals has to be developed by Transport department, if the said department not able to provide truck terminal areas in the industrial areas of Karnataka & Bengaluru it was informed to address a letter to KIADB and KIADB in turn will initiate an action, wherever truck terminals are essential. NCAP Meeting held with under the chairmanship of Hon'ble DC on 03.09.2022 decided that establishment of truck terminal around Bengaluru not comes under the purview of KIADB and it comes under purview of Devraj Urs truck terminals. Hence, DC has directed to get the information from Devraj Urs truck terminals. Further, KIADB has addressed a letter to Commissioner, Transport and Safety Department on 03.11.2022 regarding requirement of Truck terminals where ever required. But, there is no reply received from Transport & Safety department till date, KIADB has also approached the Devraj truck terminals authority and reply awaited. DC has directed to call for Devraj Urs truck terminals for next meeting.

5. Food and Civil Supplies Department:

The Officers of Transport and Road Safety Department were present during meeting briefed about the below mentioned action points:

Sl. No	Action points	Actions are in progress
1	Prevent and penalize adulteration of fuel with cheap oils and solvents.	The Deputy Director & Food Inspector of the Food & civil supplies department of Bangalore Urban District have conducted random inspections from January 2023 to November 2023 and adulteration not found.

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2	Periodic check of all petrol bunks established in Urban and Rural Districts of Bengaluru and initiate action against the violators.	The Deputy Director & Food inspectors of the food & civil supplies department of Bangalore Urban district have conducted random inspections of petrol bunks from January 2023 to November 2023. Adulteration not found.
3	Gradually restrict sale of unscientifically reprocessed oil by the street vendors	Regular checking is being carried out to channelize the processed used oil to the authorized re processor.

6. BMTC Department

The Officers of BMTC was present during meeting briefed about the below mentioned action points:

Sl. No	Action points	Actions are in progress
1	To phase out all BS-III vehicles and to increase BH-IV fleet size of Bengaluru Metropolitan Transport Corporation gradually.	BMTC has a practice of scrapping the buses which have covered 8.5 lakh kms or 11 years of operation (whichever is earlier).As per this policy, all BS-III vehicles will be phased out which are eligible as per the norms. At present, BMTC is operating 1315 BS-III norm, 3604 BS-IV norm and 823 BS-VI norm buses. All BS-III norm buses will be scrapped in phased manner as and when they are eligible for scrapping.
2	To increase the Bus service to all the satellite bus stands and last destination of BBMP area	At present transport facilities are being provided to different parts of city and sub urban area of Bangalore from important Bus stations as per the demand and requirement of the public. BMTC operation jurisdiction is extended till 25kms from BBMP limits. The Villages which comes under BMTC operational jurisdiction and roads which are suitable for the operation of heavy vehicles have been provided with the transport facility based on the demand and requirement. As on November 2023, BMTC is operating 596 schedules with 8915 trips to city area and 4989 schedules with 48737 trips to sub urban areas. Finally 5585 schedules are operating with 57652 trips. The present operated schedules/trips are as per the demand. Further, high traffic mobility places are being identified and transport facilities are being extended from important bus stations and from other places which comes under the BMTC operational jurisdiction with at view to increase the modal shift to mass transport from personal mode to transportation to mitigate the air pollution.

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3	To carryout regular vehicular emission monitoring of KSRTC and BMTC buses and take corrective action for meeting the tail pipe emission standards..	At present, BMTC buses are being subjected to emission check on a monthly basis, for which all the depots are equipped with computerized smoke emission testing facilities. In the event of any bus emitting smoke beyond the permissible limit, action is being taken at the depot level to withdraw the bus from operation for taking corrective measures.
4	Induct electric buses in phased manner in Bengaluru city.	<p>BMTC is operating 9 mts non AC 90 Electric buses as a metro feeder service on Gross Cost Contract (GCC) model under Bangalore smart city scheme through M/s NTPC Vidyut Vypar Niga.</p> <p>BMTC is operating 12 mtr Non AC 300 Electric buses on Gross Cost Contract (GCC) Model under FAME-II scheme through M/s Ashok Leyland Ltd. As on date, 300 electric buses are received and 225 electric buses are in operation.</p> <p>BMTC has issued a letter of Award to M/s TML Smart City Mobility Solution Ltd., on 17.08.2022 for "selection of service provider for procurement, operation and Maintenance of 12 mts Non AC 300 Electric Buses on Gross Cost Contract (GCC) Model" under FAME-II scheme of CESL. As on 26.12.2023, 100 electric buses are in operation and remaining 821 buses will be inducting in the phased manner.</p>

7. BMRCL Department:

The officer from BMRCL present during meeting, briefed about the below mentioned action points:

Sl. No	Action points	Actions are in progress
1	To complete Metro Rail Route (Reach 2 &3) as per schedule	<p>Reach-2</p> <ul style="list-style-type: none"> • Nayandandanahalli to Kengeri – Completed & inaugurated on 29.08.2021 Kengeri to Challaghatta – Completed & inaugurated on 09.10.2023. <p>Reach-3</p> <p>Hesaraghatta cross station (Nagasandra) to BIEC – April 2024.</p>
2	To remove the Construction & Demolition (C&D) waste that are already dumped in the lakes in phased manner	Instructions has been given to all reaches to transport Construction & Demolition (C & D) waste to the designated recycling plant allotted by BBMP.

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3	To sweep the street using mechanical suction vacuum cleaner, where the metro construction work is under progress and sprinkle water to suppress the dust emission.	<ul style="list-style-type: none"> • Mechanical suction vacuum cleaner is used surrounding to Metro construction sites. • To avoid air pollution due to particulate matter, periodic water sprinkling is being done on daily basis. • Vehicle speed in working site is restricted to 5-20 km/hr to avoid fugitive dust emission. • Tyre washing facility and development of green cover is under taken in working site to reduce the air pollution considerably.
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8. Department of Energy and BESCOM

The Officers of BESCOM were present during meeting briefed about the below mentioned action points:

Sl. No	Action points	Actions are in progress
1	To make an action points to ensure round the clock supply of electricity to Bengaluru city	<p>Bengaluru city is having sufficient installed capacity to cater the maximum power supply to the various categories of consumers. Further, BESCOM is consistently/constantly working towards reducing frequency and duration of interruption with following measures:</p> <ol style="list-style-type: none"> 1. Installing RMU's at necessary places to narrow down the faulty portion of the 11 KV feeder. 2. Installing Auto-reclosures for industrial and commercial feeders for identification of faulty portion in no time and isolating the faulty portion of the 11 KV feeder and restoring the healthy portion of the 11 KV feeder. 3. Conversion of Overhead lines into UG/AB cables to avoid the frequency and duration of interruption due to natural calamities and manmade faults. <p>As per statistics, even after consistent increase in number and installed capacity of DG sets in Bangalore city, with effort of reduced interruption, the usage of frequency/hours of DG sets has come down considerably.</p>



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	Interruption of electric power is increased in this year compared to last two years, subsidy given by the BESCOM for solar system was discussed in the meeting. The BESCOM officers present in the meeting stated that, due to shortage of rainfall in this year, there is no water in the reservoir which results to the continuous interruption of power and department is relooking/planning for giving subsidy for installation of solar power and will be implemented shortly.
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9. BDA

The Officers of BDA were present during meeting briefed about the below mentioned action points:

Sl. No	Action points	Actions are in progress
1	To establish truck terminals on all major highways leading to Bengaluru in a phased manner.	Provision for truck terminals on all major highways coming under BDA jurisdiction will be made in the proposed Revised Master Plan-2041 (RMP-2041).
2	To create separate bus bays in new proposed BDA layout and Private layouts.	In all BDA formed and BDA approved private layout, provision is made for allocation of Bus bays in required places.
3	To increase the green cover by planting trees in Bengaluru city where empty spaces are available on road	In all BDA formed layout and connecting roads tree plantation is already carried out. In some of the layout and roads tree plantation is in progress.

10. BBMP

The Officers of BBMP was present during meeting and briefed about the below mentioned action points:

Sl.No	Action points	Present status of action progress report for implementation of Action Plan
1	To initiate action points for filling potholes and road cuttings to facilitate smooth flow of traffic.	1430 potholes have been filled and 160216 sqm of damaged surface area has been redeveloped. 80% of work completed: Asphalting and Upgradation of footpath and drains for 1768.73 Kms and construction of ridge pavements (concrete roads) in 417 kms of roads in the limit of BBMP.
2	Blacktopping of metaled roads including pavement of road shoulders	
3	To construct more number of multilevel vehicle parking facilities.	The Bengaluru Metropolitan Transport Company (BMTc) owns 9 and BBMP has 3 in JC road, freedom park and KR market Around 1,700 cars and 4000 two-wheelers can safely be accommodate in 12 parking facilities. Further, one in Gandhi Bazar area is also established recently.

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4	To take action to enforce covering of construction and demolition debris carried through trucks and create/approve facility for re-processing of C and D waste.	Establishment of C & D waste facility including processing of 890 MTPD is under progress.
5	Prepare plan for widening of roads and improvement of infrastructure for decongestion of roads.	<ol style="list-style-type: none"> 1. Nearly 12 roads are completed at a cost of Rs 200 Cr under Tender SURF project namely Church street, St. Marks Road, Commissionarate Road, Cunningham Road, Vittal Mallya Road, K. G Road, Nrupatunga Road, Siddaiah Puranik Road, Modi hospital road in 1st phase. 2. To enhance connectivity and alleviate traffic Congestion BBMP has initiated widening of roads and improvement of infrastructure for decongestion of roads in the Mahadevapura area. The project entails the widening of 16 existing roads and formation of 13 new roads, with a total estimated cost of Rs 224.8 crores. Out of which eight projects have already been completed. 3. BBMP has prioritized road widening and the creation of new roadways. The road widening efforts cover a span of 43.65 kilometres, while the construction of new roads encompasses 32.4 kilometres within Mahadevapura area. 4. Some notable projects include improvements to the road from Kadubisanahalli ORR to PRR via Panathur Gunjur Palya Varthur Main Road RMP Road, the construction of a road from Vydehi Hospital Road to Old Airport Road via Tubarahalli Tank and Siddapura Nallurahalli Road to Kundanahalli Main Road via BEML Layout in R1 Mahadevapura, and the comprehensive development of Hoodi Main Road from Ayyappanagara Arch to Hoodi Junction and Hoodi Railway Station to Medahalli Road.
6	To create separate bus bays in new proposed BDA layout and Private layouts.	BMTC and BDA are planning the bus bays in the new BDA and Private Layouts.
7	To construct flyovers/under pass at congested / highly traffic intersection of BBMP area in phased manner.	As of 2023, Bengaluru has 42 flyovers and 28 under bridges. Ejipura flyover is under progress. Proposed flyovers are:



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		<p>1. Flyover at Gokula road near the busy Mathikere turn will be built at the cost of Rs. 40 crores.</p> <p>2. Flyover at ORR-pipeline junction at Jalahalli will be built by BBMP at the cost of Rs. 40 crores.</p> <p>3. Flyover on Mekhri circle underpass at Jayamahall road, will be built at cost of Rs. 65 crores to the civic body.</p> <p>4. New flyover at the Sadashivanagar police station circle will be built at cost of Rs. 40 crores.</p> <p>5. Integrated flyover from the Yeshwantpur railway station to New BEL Road</p>
8	To create water fountains at traffic intersections like Upparpet Police stations.	Planned in phased manner.
9	To take action to remove dust and silt from major roads regularly by deploying mechanical sweeping vehicles.	BBMP has procured 25 truck mounted mechanical sweeping machines for sweeping around 1000kms daily in major arterial and sub-arterial roads.
10	To suppress the dust by using treated water of BWSSB by sprinkling on the roads during night times in the areas where dust levels are high.	6 water sprinklers procured under NCAP funds are used to suppress dust.
11	To remove encroachment of footpaths by hawkers in market places and relocate in the designated places as per Street Vendors Act.	The removal of encroachment of footpaths by hawkers in market places is a continuous process and is undertaken in major market places such as Madiwala market, K R Market, Russel Market, Johnson Market, Malleshwaram Market, Jayanagar 4 th block etc.
12	Strictly implement notification No.FEE 06 ENG 2017 dated: 03.08.2017 issued by the Department of Forest, Ecology and Environment regarding prohibition of open burning of solid waste in the city.	BBMP has appointed Marshals for imposing penalty on people burning solid waste in the City. In this regard, each of the wards one junior health inspector has been appointed to manage solid waste by segregation of wet and dry wastes. There are more than 160 dry waste segregation centers established in BBMP limits to handle dry waste collected on day to day basis. BBMP has also established 7 waste processing plants for processing of wet waste to convert to compost. The burning of waste is mainly by general public and trouble mongers who lit fire on open garbage on streets. Measures have been taken up to catch hold of such persons and impose penalty with the help of Marshals.

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13	To create green buffer along the traffic corridor/ greening of open areas, developing gardens, greening in schools.	<p>BBMP has independent Forest & Horticulture department which looks after plantation of Avenue Trees and also development of parks. BBMP has developed so far nearly 1,400 parks (small, medium, large parks). In order to develop these new parks and maintain these parks BBMP spends nearly Rs. 40.00 Crores per annum.</p> <p>Further, from the forest department every year Nursery is being developed and Rs. 2.00 Crores per year is earmarked for Avenue Plantation and trimming of tree branches.</p> <p>Under XVFC grants, Rs 10 Cr to forest Dept for creation of Nurseries at different locations in BBMP layout and to carry-out new plantation across Bengaluru to increase green cover and Rs 15 Cr to Horticulture dept is allocated for development of new parks with emphasis on greenery all along the park by identifying hotspots areas around such parks.</p>
14	To create separate space/zone/ to handle solid waste , C&D waste and any other waste in all BBMP wards / BDA new layouts	<p>Bengaluru generates nearly 4,200 MT per day solid waste. Out of these 4,200 MT of waste nearly 600 MT of waste is sent to 7 waste processing plants. Further, nearly 500 MT of wastes is processed at M/s. MSGP. BBMP has also established nearly 160 dry waste collection centers and in these DWCC nearly 100 MT of dry waste is handled. The remaining waste of nearly 2500 MT is scientifically disposed at landfill sites.</p> <p>Around 5000 TPD of C&D waste is generated in the city. There are 3 C&D waste collection centers at Jigni, Kannur and Chikkajala with a capacity of 1750 TPD. Further, 3 centers are proposed to be established to manage the City's generated C&D waste.</p>
15	Plants of specific native species which are absorbing fine dust where the pollution levels are very high viz., Central Silk Board, Whitefield industrial area, Mysore road and other areas.	<p>BBMP has independent Forest & Horticulture department which looks after plantation of Avenue Trees and also development of parks. They have identified specific species and plantation is ongoing process.</p>
16	To increase the green cover by planting trees in Bengaluru city where empty spaces are available on road	<p>It is a continuous process and are undergoing in phased manner, places where empty spaces are available.</p>



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11. KSPCB

The Officers of KSPCB were present during meeting and RSEO, Bengaluru city was briefed about the below mentioned action points:

Sl. No	Action points	Action in progress
1	To increase the green cover by planting trees in Bengaluru city where empty spaces are available on road	It is a continuous Programme. Initiation has taken by KSPCB in coordination with industries, Apartments, commercial establishments, office building etc., to plant more saplings where the empty spaces are available. Industries/commercial establishments/office building are insisted to increase the green cover by planting trees in their premises as a part of their CSR programme. KSPCB is also insisting the industries to maintain minimum 33% of the green coverage.
2	Gradually restrict sale of un-scientificallly reprocessed oil by the street vendors	<ol style="list-style-type: none"> 1. KSPCB is regularly monitoring the industries/units including the Commercial establishments those who are generating the used oil and waste oil from their DG Sets and PCB is ensuring all the used oil and waste oil generated industries/units are diverted to authorized recyclers under the Hazardous Waste Management Rules, 2016. 2. The Board has insisting all the units to make register in the Hazardous Waste manifest system for tracking and to avoid mishandling of hazardous waste from the point of generation, till it reaches to re-processing plant for scientific treatment and disposal. The Board is continuously monitoring the same.
3	To conduct Source Apportionment Study of Bengaluru (BBMP area).	KSPCB is joining hands to push for adoption of cleaner fuel like Natural Gas, LPG, in place of polluting fuels like Furnace Oil, Wood, Coal, Pet coke etc., in industrial areas. To encourage industries to switch over to cleaner fuel, Gail Gas company has already provided Natural gas pipeline network in some industrial areas and network is ready for connectivity for some industrial area.
4	To carryout ambient air quality monitoring of air pollutants and publish the Air Quality Index (AQI) in the website and communicate the	1. KSPCB has established 15 manual ambient air quality monitoring station in Bengaluru City and are in operations.

<p>Air Quality Status to the line departments on regular basis.</p>	<p style="text-align: right;">93</p> <p>2. 14 CAAQM's (11 KSPCB + 3 CPCB) covering all 4 Zones viz., Residential, Commercial, Sensitive and Industrial Zone are in operation</p> <p>3. Daily air quality levels are disseminated through digital media. The real-time AQI value is available on the KSPCB website https://kspcb.karnataka.gov.in/caaqm-online-data and in the CPCB Sameer app.</p> <p>4. As per AQI of November 2023 out of 11 stations, AQI at 4 stations (Nisarga Bhavan, Sanegoravanahalli and NTTF, Peenya Vateriaary College Hebbal City Railway Station, are satisfactory. AQI at remaining 07 station Shalini Ground, Jayanagar, Nimhans, Kavika Mysore Road, HSR Layout, Near Central Silk Board, Kasturinagar RTO, Jigani Industrial Area, Anekal, RV College are moderate.</p> <p>Note : * AQI Index – Good (0-50), Satisfactory (51-100), Moderate (101-200) , Poor (201-300) and Very poor (301-400), Severe (>401).</p> <p>5. Four mobile enforcement vans are equipped with marshals to control air polluting activity in the city limits (open burning, Industrial waste burning, construction activities etc.,) are in operation.</p> <p>6. One mobile van for monitoring of Air Emission in industrial area is in operation.</p> <p>7. 06 mini vans equipped with monitoring of Vehicular Emissions are in operation in coordination with RTO, BMTC and KSRTC.</p>
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		<p>8. Awareness programs along with industries, science centers and commercial establishments, Public are conducted at regular intervals which include and are not restricted to Awareness on use of mass transport system. Encourage industries to switch over to cleaner fuel. Gail Gas company has already provided Natural gas pipeline network in some industrial areas and network is ready for connectivity for some industrial area.</p>
5	Carryout regular monitoring of industries and initiate action against the defaulting industries	<p>1. In Bengaluru, 27 industries have OCEMS, in which 22 industries are in 17 Category and 5 industries are related to incinerators, CETPs and Hazardous waste generating industries. The data of OCEMS is linked to KSPCB website vide https://onlinekspcb.com/public/#/landing/dashboard/table and CPCB website. Stack emission monitoring of these industries is monitored regularly as per CPCB frequency of inspections/monitoring. The stack emissions are manually monitored by KSPCB using TESTO 350 Flue gas analyzer.</p> <p>2. It is a continuous programme. Board is carrying out regular monitoring of industries & initiating action against the industries which are non-complying under the Provisions of Air (Prevention & Control of Pollution) Act, 1981.</p> <p>3. Awareness programs along with industries, science centers, municipal bodies and commercial establishments are conducted at regular intervals which include and are not restricted to Switch over to Clean & Green fuel in Industries/Commercial Establishments/Street vendors.</p> <p>4. Not to burst crackers during Ganesha and Deepavali Festivals.</p>

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The following other key points were discussed during the meeting.

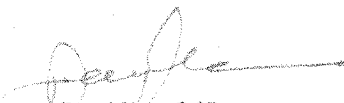

- 1) Earmarked the land for establishment & supervision of truck terminals on all major highways and Presiding Officer has directed the concerned department to provide basic amenities like vehicle platform, drinking water facility, toilet facility etc. and make provision for bus bays & maintenance of truck terminals and also directed to call the Devraj Urs Truck terminals to attend the next meeting.
- 2) Directed BDA to furnish the list of land allotted and reserved for essential services viz., Solid Waste processing plant, establishment of truck terminal, bus bay and concerned department pursued with the BDA and take to possession of allotted land from BDA immediately.
- 3) BBMP shall submit proposal to concerned department for sanction of 0.5 acres of site out of 50 acres CA sites for solid waste processing plant & for cost relaxation.
- 4) Member convener of the committee was directed to address a letter to Managing Director of BMRCL for scientific handling & disposal of C & D waste and for not provided dust control equipment at construction site which leads to Air pollution and also DC has directed the member convener to send jurisdictional officers of the KSPCB to conduct random inspection of construction site of BMRCL regularly and to take corrective measures to prevent fugitive emission at construction site including scientific disposal and handling of C & D Waste.
- 5) Deputy Commissioner has directed the Food and Civil supplies department to increase inspections & conduct random inspections of petrol bunks.
- 6) Deputy Commissioner has directed the BMTC department to encourage mass transportation and to extend the free services facility to all peoples and also encourage for utilization of public transport by giving concession & to reduce the ticket price. DC has also directed the depot authority to acquire sites reserved for bus bay. Member convener of the committee raised the points about unscientific disposal of scrapping of buses, DC has directed to add condition to tendering process for scientific disposal of scrapping of buses.
- 7) Directed to BBMP department to take effective steps for segregation, collection and processing of solid, & C & D waste, increase the numbers of C& D, solid waste treatment/processing facility and create more awareness among the public regarding solid waste handling & management system and also directed to submit proposal to BDA for sanction of 0.5 acres of site out of 50 acres CA sites for establishment of solid waste processing plant along with cost relaxation/concession.
- 8) Deputy Commissioner & representatives of other departments has raised the point about subsidy given by BESCOM for installation/utilization of solar power for lighting and other purposes was stopped. Deputy Commissioner has directed the BESCOM authority to extend the services of subsidy to solar system.
- 9) Deputy Commissioner has appreciated the utilization of natural gas in Residents for cooking purposes. pipeline network/connectivity provided in some residential/industrial area which may reduce the Air Pollution and same be extended to all other area. Distribution/supply of domestic LPG to all levels leads to larger increase of vegetation and which may leads to decrease in Air Pollution.



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- 10) Deputy Commissioner has raised the points about receiving a complaint regarding discharging of sewage into outside the premises which is being finally joining to lakes from residential & commercial building and directed the KSPCB authorities to conduct random inspections of apartments/commercial/hostel building whether they have provided and operation of the STP or not and take action against defaulting units if any.
- 11) Finally Presiding Officer opined that serious actions needs to be taken by all the departments and have to work together to control Air & noise pollution.

The meeting ended with thanks to the Chair.


**Presiding Officer
and the Deputy Commissioner
Bengaluru Urban District,
Bengaluru.**


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Annexure-I

Members Present:

1	Sri.Puroshotham M.L	ASP, Traffic (Police) Department
2	Sri.Suresh BM	Joint Commissioner, Transport Department.
3	Sri. Basavaraj Kabade	Chief Engineer, BBMP
4	Dr. Asha Bharath	Joint Director, Town Planning, KIADB
5	Sri.K.L.Manjunath	KIADB
6	Sri. D. Kodandapani	Director (Technical) Energy
7	Sri. K.S. Maheswarappa	Deputy Director, BDA (TPM Section)
8	Smt. Monica Chakravarthy	MOEF & CC/ CPCB RD
9	Sri. Vyshnavi Ramesh	Assistant Director, BDA (TPM Section)
10	Smt. Indira J	Assistant General Manager, BESCOM
11	Smt. Mala	Manager, Food and Civil Supplies Department, Bengaluru
12	Sri.Sunil. V.	EO, KSPCB, Yalahanka (Bytarayanapura).
13	Sri.J.N. Yogananda	EO, KSPCB, Bengaluru City West
14	Smt.Vasantha Shree	DEO, KSPCB, Bengaluru City South.
15	Sri.Ashok K.S	DEO, RO, Bommanahalli
16	Sri. Naveen .D	DEO, KSPCB, Rajarajeshwarinagar.
17	Smt.Veena Kona	AEO, KSPCB, Mahadevpura
18	Sri.Sreenath.N	Divisional Controller, BMTC.
19	Sri.H.S. Sathish	Divisional Mech. Enginner, KSRTC.
20	Sri. Ravikumar. R	Traffic and Planning, Traffic (Police) Department
21	Sri.Kanaka Raj	Environment Engineer, BMRCL.
22	Sri.Nagesh M.D	Technical Assistant, PWD

ANNEXURE - 3

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BEFORE THE NATIONAL GREEN TRIBUNAL SOUTHERN BENCH,
CHENNAI

Original Application No. 159 of 2021

IN THE MATTER OF

Kankana Das
Kolkata

....Applicant

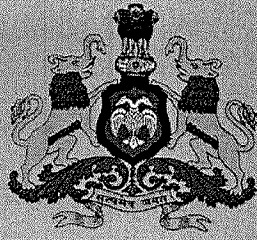
VS

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

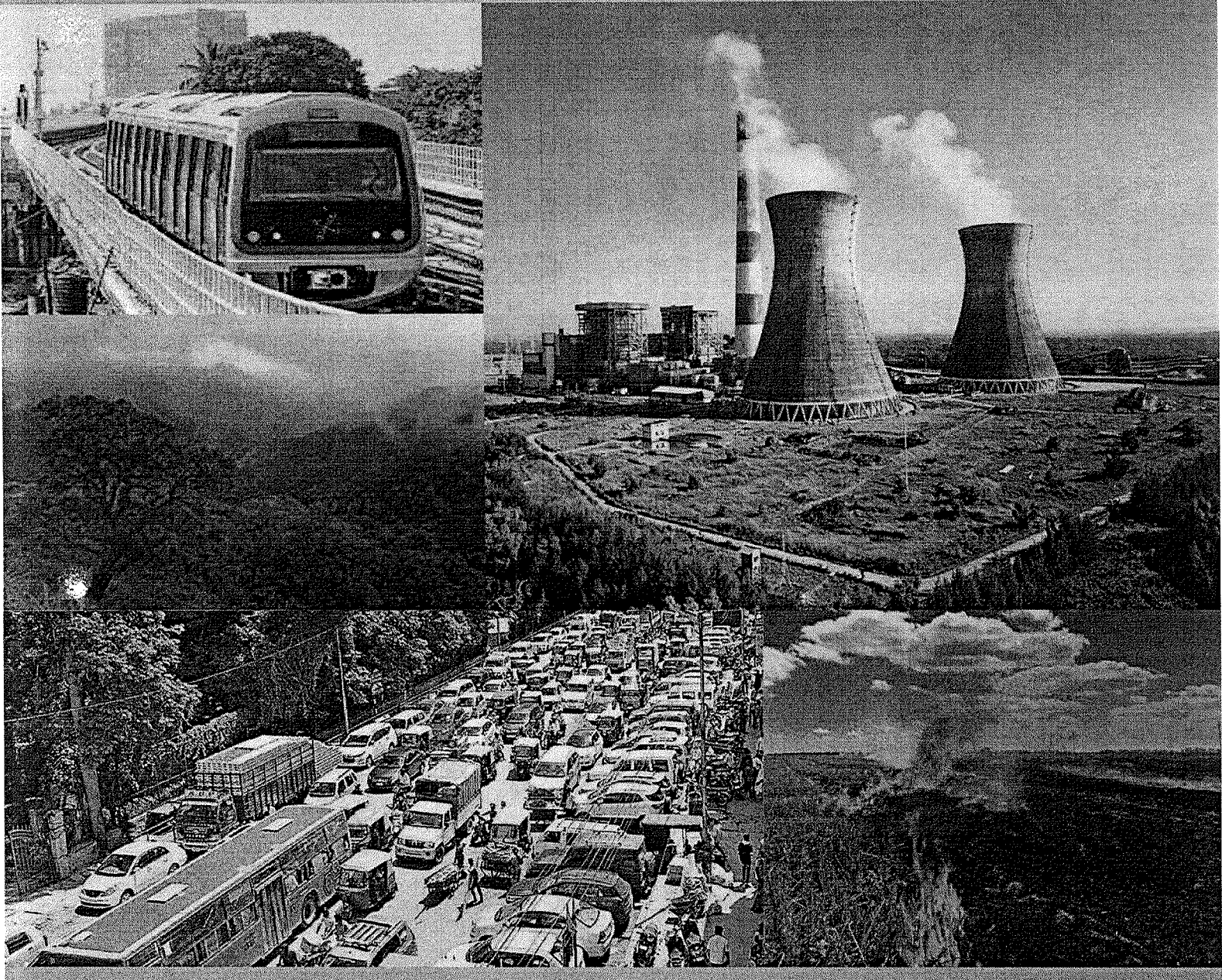
....Respondents

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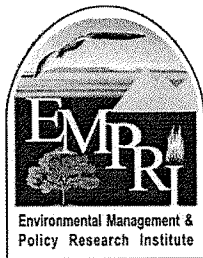
STATE ACTION PLAN ON AIR POLLUTION FOR KARNATAKA (SAPAP-K)



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.

While every effort has been made to ensure the correctness of the data and information put forward in this report, neither the authors nor EMPRI accepts any legal liability for the accuracy or inferences of the material contained in this report or for any consequences arising from the use of this material.

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Construction & Demolition Waste and Road Dust Management

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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
BMTCL	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
NO _x	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
µg/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 PM₁₀ 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

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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
2. Dr. K H Vinaya Kumar, IFS (Rtd), Director (Research), EMPRI
3. Shri. Mahesh T, Chief Environmental Officer-1, KSPCB
4. Dr. P Niranjana, Chief Environmental Officer-3, KSPCB
5. Smt. P K Selvi, Scientist D, CPCB, Regional Directorate, Bengaluru
6. Dr. Pratima Singh, Research Scientist, CSTEP, Bengaluru
7. Shri. Akshay Kumar V Ganeshker, Research Associate, DCC, 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 KRDCCL 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 , NO _x , NH ₃ , CO, O ₃ , C ₆ H 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)

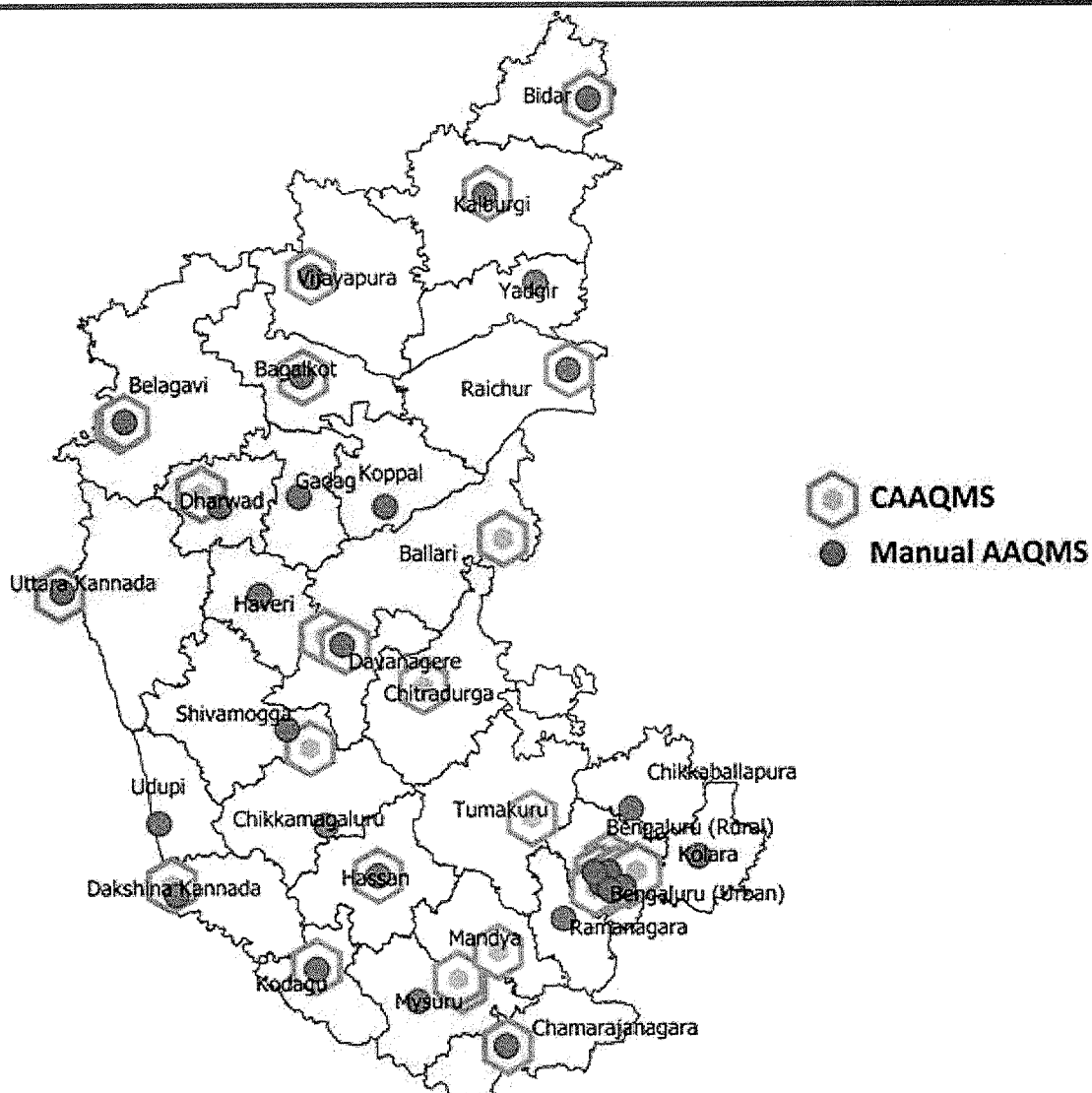


Figure 1: Map showing the Network of AAQ stations in Karnataka State (Source: KSPCB)

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.

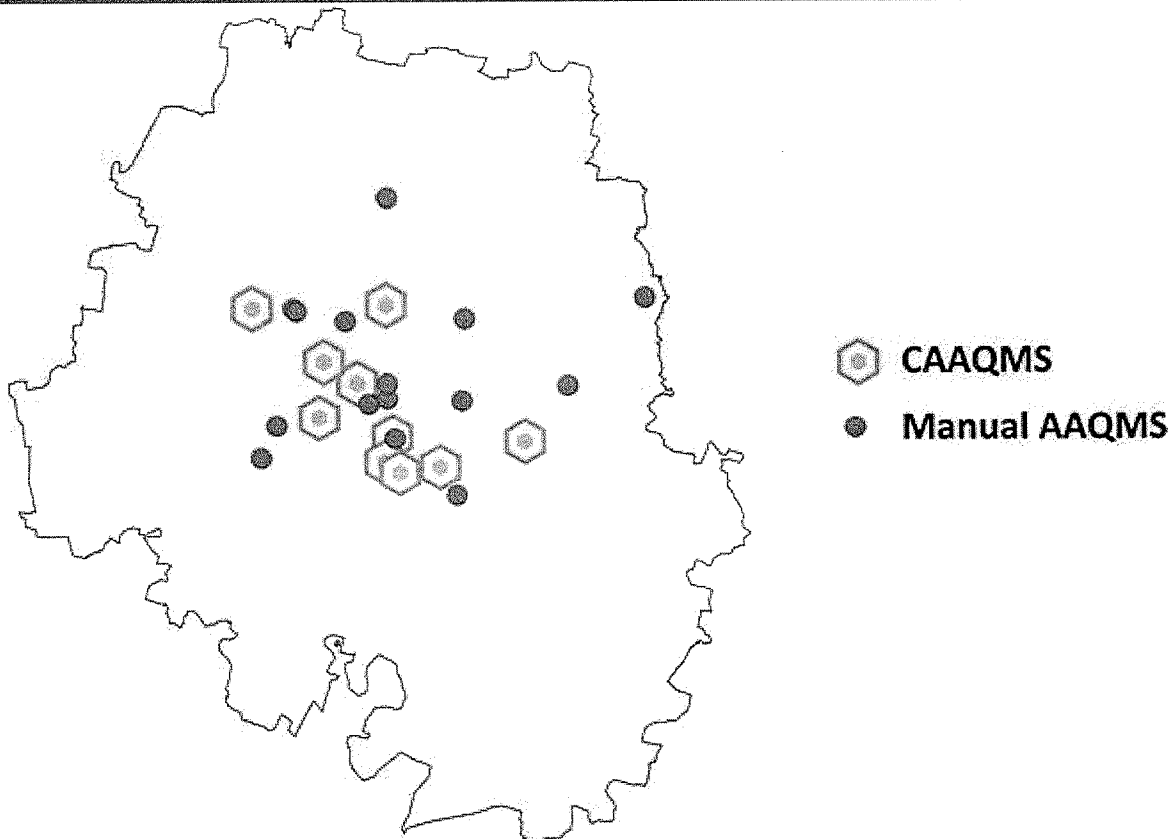


Figure 2: Map showing the AAQ stations in Bengaluru Urban District (Source: KSPCB)

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	

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	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 5 th 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		

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	Bengaluru		(NCAP)		
26	Jigani Industrial Area, Bengaluru		CAAQMS (NCAP)		
27	KSPCB Office Premises, Tumakuru	Tumakuru		NAMP	
28	KSPCB Office Premises, 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)

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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	Davanagere			BAMP
52	Traffic Police Station (South), PB Road, Davanagere			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 Office Premises, Vijayapura	Vijayapura		NAMP	
62	Ibrahimpur, Vijayapura		CAAQMS		
63	KSPCB Office Premises, Bagalakote	Bagalakote		NAMP	
64	Vidyagiri, Bagalakote		CAAQMS		
65	KSPCB Office premises, Kalaburgi	Kalaburgi		NAMP	
66	City Corporation building, Kalaburgi				BAMP (NCAP)

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67	Office of Weights & Measures, Ring Road, Opp. High Court, Kalaburgi				BAMP (NCAP)
68	Opp. To Govt. Depot, Jewargi Road, Kalaburgi		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 PM₁₀, PM_{2.5} besides, NO₂, SO₂, CO, O₃, NH₃, 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

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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

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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
Karwar	40	HDMC office premises, Hubballi Town	CAAQMS	*	*	*	*	*	74	87
	41	Port Directors Office, Karwar	Manual AAQM (NAMP)	*	*	*	*	*	*	*

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

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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

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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/m ³	NO ₂ µg/m ³	PM ₁₀ µg/m ³	PM _{2.5} µg/m ³	NH ₃ µg/m ³	Pb µg/m ³	O ₃ µg/m ³	CO mg/m ³
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

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	(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 [SO₂ 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 PM₁₀, PM_{2.5}, SO₂, NO₂, 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/m ³	PM _{2.5} µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	NH ₃ µg/m ³	Pb µg/m ³
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	*

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	Hassan						
9	Biakampady Ind. Area, Mangaluru	48.0	26.0	6.2	9.8	0.2	*
10	Gokul Rd. Opp. to New Bus stand, Hubballi	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, Vijayapura	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 [SO₂ lower detection limit is 4.00 µg/m³]							

(Source: KSPCB 2020-21 Annual Report)

The Concentration of PM₁₀ 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

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national ambient air quality standards. PM₁₀ 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, Hubballi	65.5	26.3	8.9	23.7	14.2	16.9	0.7

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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 PM₁₀ 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. PM₁₀ 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 (SO₂), Nitrogen dioxide (NO₂), Ammonia (NH₃), Benzene (C₆H₆), Carbon monoxide (CO), Ozone (O₃), Particulate matter (Size less than 2.5 microns) PM_{2.5} and Particulate matter (Size less than 10 microns) PM₁₀ 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 (PM₁₀) 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 PM₁₀ 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 28716¹ 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 those below 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

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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 network²

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 SO₂ 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

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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 State³

- 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.

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- 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.

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Table 9: Status of OCEMS in the State

Sl. No.	17-Category Industries	Total No. of industries	Connected	Not Connected
1	Aluminium	1	1	
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		Nil
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 rules⁴

- 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.

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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

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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

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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, Aeqes 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, Hassan, and Kodagu	Not connected	Hassan KIADB
				Special Economic Zone Textile specific Hassan
				Kushalnagar KIADB
8	AGP City Gas Private Limited	Kalaburgi and Vijayapura	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

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				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	Chittoor, Vellore 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

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	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	1,86,019.14	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)

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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

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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 Vyasanaakaere 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.

State Action Plan on Air Pollution for Karnataka (SAPAP-K) | 2022

- 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 PM₁₀ 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 VEHICLES(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	

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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 Systems⁵

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

BMRC 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 Metro 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 Hebbal;-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 fine⁶.

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 vehicles⁷. 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 vehicularemissions⁸

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 out⁹.

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 plants¹⁰:

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 plants¹¹:

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 Hubballi – 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 dumpsites¹³

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 Plants¹⁴

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, and bulk 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 waste¹⁵

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 Management¹⁶

- 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 machinery¹⁷:

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 far¹⁸.

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 burning¹⁹ 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 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 pollution²⁰

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 digester 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 burning²¹

- 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

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- 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.

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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 completed²².

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 36,99,255²³.

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 government²⁴.

^{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 Karnataka²⁵**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.

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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. CO₂ 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 31 st December 2020, stipulates 24 X 7 power supply to consumers					

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State/UT	KSPCB has issued an order, vide No. KSPCB/SEO-INFRA/DG-RETROFITTING/2021-22/2887 dated 17 th September 2021 (Annexure III)							
6	Policy for use of DG sets							
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 to reduce 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	-	-	

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management rules	Siting Guidelines for the establishment of red, orange, and green industries (Annexure XII)	Completed	100%	Regulatory activity	-	-
13 Any other Policy /Rules/ Standards/Guidelines pertaining to industrial emissions	Industries are regularly monitored through Automated and manual systems. <i>The details are provided in Table 10, section 4.1.11.</i>	Completed and ongoing	100%	Regulatory activity	-	-
14 Number of industries in the state complying emission standards	The details are provided in Table 14, section 4.1.15.		-	-	-	-
15 Inventory of fuel consumed in the industries (type and quantity)	The policy is already laid down and is ongoing	ongoing	Five years initially with a 10% target	Subsidies are being proposed	-	-
16 Shifting of industries / commercial units to gaseous fuels (CNG/NG/CBG)	The details are provided in Table 13, section 4.1.13.					
17 Number of households shifted to PNG/LPG	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)

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2. Vehicular Emission²⁶

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) MoRTH, New Delhi enhanced the fees of Renewal of Fitness certificate and registration certificate to discourage the use of old vehicles	2020-23	100%	No	No	No
		Green Tax is being collected at the time of Renewal of fitness certificate and registration certificate as per 3-B of KMTV, 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 KSRITC's letter No. KST/CO/ME/811/2022-23 dated: 11.07.2022.

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	(Registered Vehicle Scrapping Facility)							
	KSRRTC 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	NA	NA	NA	NA	NA	NA	NA
4	Policy/Scheme for Eco-Friendly Mass Rapid Transport Systems	Sept 2025			Yes	14,788.101	2735.8 (July 2022)	
5	Policy for augrment e-vehicles	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	
	KSRRTC: 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	

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						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	NA	NA	NA	NA	NA
		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: <ul style="list-style-type: none"> 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 					

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		Dec.2021. <ul style="list-style-type: none"> 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				15.00 Lakhs	6.00 Lakhs
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) BMTC has a vision of replacing all diesel buses with electric buses by 2030	2022-23	100%	Yes		

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3. Construction & Demolition Waste and Road dust Management²⁷

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 BBMP: Ongoing KSHIP: Ongoing	Dec-2022 3 years Sept-2023	100 90 100	Yes NA HAM project, the cost is included in the estimates	NA NA	Nil NA
2	Policy for use of C&D waste in laying and construction of State Highways	DMA: Ongoing KSHIP: Ongoing	Sept-2023	100 70	Yes HAM project, the cost is included in the estimates	-	Nil
3	Demand creation for C&D waste and alternative use of C&D waste material	DMA: Ongoing KSHIP: Ongoing	Sept-2023	100 30	Yes HAM project, the cost is included in the estimates	-	Nil
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	-	Nil
5	Penalty provisions for non-compliance of C&D waste management rules at construction sites	DMA: Ongoing 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.	-	100	Yes	-	Nil
6	Maintenance, repair and paving of State highways	KSHIP: Ongoing	Sept-2023	30	HAM project, the cost is included in the estimates	-	Nil

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.

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		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		
11	Greening of open spaces/parks developed	BBMP: Completed (Chikkajala, Kannur)		
		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 14 th 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		

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4. Emissions from burning of waste²⁸

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.				
2	Policy for MSW management	SWM Rules 2016	For ULB's: Meet the terms with respect to Rule 15 of 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 a) Non-recyclable/ combustible dry waste b) Bio-methanation/Bio CNG c) Composting plant etc.,	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.					
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 DMA: 97%	N/A Dec-2022	100% 309 ULBs	Yes No	325.0 -	100% -
2	Waste segregation status in the city (%)	BBMP: Ongoing DMA: 77%	N/A Dec-2022	100% 309 ULBs	Yes No	325.0 -	100% -
3	Material Recovery Facility	Ongoing Completed: 55 To be started: 309	N/A March -2026	138 Wards 309 ULBs	Yes Yes	70.0 362.47	100% Nil
4	Waste to Energy plants	BBMP :Ongoing DMA:14 Completed	N/A -	Nil -	Nil -	Nil -	Nil -
5	Waste to compost plants	BBMP: Ongoing DMA: Completed:185 To be started: 124	March -2026	6 Plants 309 ULBs	Yes Yes	44.0 214.18	100% Nil
6	Remediation of dumpsites in the city	BBMP: Ongoing DMA: Ongoing: 05 To be started: 124	3 years Dec-2023	7 Sites 195 ULBs	Yes Yes	100.0 451.83	Nil 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.							

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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
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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 residues²⁹

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	<p>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.</p>					
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	<p>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</p>					
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	<p>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 digester along with multi-cropping, intercropping, and crop rotation practices. Stubble burning is totally discouraged under these systems.</p>					

State Action Plan on Air Pollution for Karnataka (SAPAP-K) | 2022

6. Household Emissions³⁰

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

State Action Plan on Air Pollution for Karnataka (SAPAP-K) | 2022

	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	Tumukur	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)

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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

ORDER

ರವಾನಿಸಲಾಗಿದೆ

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 abatement 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,

"ಪ್ಲಾಸ್ಟಿಕ್ ಬಳಕೆ ನಿಲ್ಲಿಸಿ, ಪರಿಸರ ಹಾನಿ ತಪ್ಪಿಸಿ"

AVOID USE OF PLASTIC BE 'ECO' FRIENDLY

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State Action Plan on Air Pollution for Karnataka (SAPAP-K) | 2022

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.

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

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 ಈಮೇಲ್ / E-mail : ho@kspcb.gov.in
 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/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.	

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 or 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.

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 bench 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.

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,

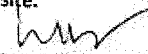
Sd/-

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, Thimmalah 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

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



ಕರ್ನಾಟಕ ಸರ್ಕಾರದ ನಡವಳಿಗಳು

ನಿಷೇಧ: ಬೆಂಗಳೂರು ನಗರದಲ್ಲಿ 2-ಸ್ಟ್ರೋಕ್ ಆಟೋರಿಕ್ಸಾಗಳ 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 ಆಟೋರಿಕ್ಸಾಗಳನ್ನು ರದ್ದುಪಡಿಸಿರುವುದನ್ನು ಹಿಂಪಡೆದು ಈ ಆಟೋರಿಕ್ಸಾಗಳ 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 ಆಟೋರಿಕ್ಸಾಗಳ 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 ಆಟೋರಿಕ್ಸಾಗಳ ಅರ್ಹತಾ ಪ್ರಮಾಣ ಪತ್ರವನ್ನು ದಿನಾಂಕ:31-03-2022 ರವರೆಗೆ ನವೀಕರಿಸಲು ಅನುಮತಿ ನೀಡಿ ಆದೇಶಿಸಿದೆ.

ಕರ್ನಾಟಕ ರಾಜ್ಯವಾಲರ ಆದೇಶಾನುಸಾರ
ಮತ್ತು ಅವರ ಹೆಸರಿನಲ್ಲಿ,
Rysalpa 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).

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 ಮೂಲಗಳ ನೆರವಿನಿಂದ ರಿ-ಚಾರ್ಜಿಂಗ್ ಬ್ಯಾಟರಿಗಳಲ್ಲಿ ಶೇಖರಣೆಗೊಂಡಿರುವ ವಿದ್ಯುಚ್ಛಕ್ತಿಯ ನೆರವಿನಿಂದ ಚಲಿಸುತ್ತದೆ. ವಿದ್ಯುತ್ ವಾಹನಗಳು ಚೊಕ್ಕವಾದ ಪರ್ಯಾಯ ವ್ಯವಸ್ಥೆಯಾಗಿದ್ದು, ಕಡಿಮೆ ವೆಚ್ಚದ ನಿರ್ವಹಣೆ ಜೊತೆಗೆ ವೆಚ್ಚದಲ್ಲಿ ಉಳಿತಾಯ ಹಾಗೂ ಮಾಲಿನ್ಯ ರಹಿತವಾಗಿರುತ್ತದೆ. ಪಳೆಯುಳಿಕೆ ಇಂಧನದ ವೇಗದ ಕ್ಷೀಣಿಸುವಿಕೆಯಿಂದಾಗಿ ಹೆಚ್ಚಾಗುತ್ತಿರುವ ದರಗಳಿಗೆ ಪರ್ಯಾಯವಾಗಿ ವಿದ್ಯುತ್ ವಾಹನಗಳ ಬಳಕೆ ಪೂರಕವಾಗಿರುತ್ತದೆ. ಈ ಹಿನ್ನೆಲೆಯಲ್ಲಿ 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: ಎನ್‌ಜಿ 267 ವಿಎಸ್ ಸಿ 2021, ಬೆಂಗಳೂರು, ದಿನಾಂಕ: 02.02.2022

ಪ್ರಸ್ತಾವನೆಯಲ್ಲಿ ವಿವರಿಸಿರುವ ಅಂಶಗಳ ಹಿನ್ನೆಲೆಯಲ್ಲಿ, ರಾಜ್ಯದಲ್ಲಿ ವಿದ್ಯುತ್ ವಾಹನಗಳ ಬಳಕೆಯನ್ನು ಉತ್ತೇಜಿಸಲು ಹಾಗೂ ವಾಯು ಮಾಲಿನ್ಯವನ್ನು ನಿಯಂತ್ರಿಸಲು 1190 ವಿದ್ಯುತ್ ಚಾಲಿತ ವಾಹನಗಳ ಟಾರ್ಜೆಟ್ 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 KTHP ಅಧಿನಿಯಮ ಮತ್ತು ಕೇಂದ್ರ ಇಂಧನ ಮಂತ್ರಾಲಯದಿಂದ ಕಾಲಕಾಲಕ್ಕೆ ಹೊರಡಿಸುವ ಮಾರ್ಗಸೂಚಿ ಮತ್ತು ಮಾನದಂಡಗಳನ್ವಯ ಯೋಜನೆಯನ್ನು ಅನುಷ್ಠಾನಗೊಳಿಸುವುದು.

ಕರ್ನಾಟಕ ರಾಜ್ಯಪಾಲರ ಆದೇಶಾನುಸಾರ
ಮತ್ತು ಅವರ ಹೆಸರಿನಲ್ಲಿ.

N. mangalagiri
(ಎನ್. ಮಂಗಳಗೌರಿ)

ಸರ್ಕಾರದ ಅಧೀನ ಕಾರ್ಯದರ್ಶಿ,

ಇಂಧನ ಇಲಾಖೆ.
02.02.22

ಇವರಿಗೆ,

ಸಂಕಲನಕಾರರು, ಸರ್ಕಾರಿ ಮುದ್ರಣಾಲಯ, ಕರ್ನಾಟಕ ರಾಜ್ಯ ಪತ್ರ ಪ್ರಕಟಣೆಗಾಗಿ.


ಪ್ರತಿ:-

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

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

ಫ್ಯಾಕ್ಸ್ / Fax : 080-25586321
ಈಮೇಲ್ / E-mail : ho@kspcb.gov.in
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, ಚರ್ಚ್ ಸ್ಟ್ರೀಟ್, 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.

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

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

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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

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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 5 ನೇ 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;

"ಪ್ಲಾಸ್ಟಿಕ್ ಬಳಕೆ ನಿಲ್ಲಿಸಿ, ಪರಿಸರ ಹಾನಿ ತಪ್ಪಿಸಿ"



AVOID USE OF PLASTIC BE 'ECO' FRIENDLY

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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 have 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.



[Handwritten Signature]
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, ವಿಜಯ ನಗರ ಭವನ, ಬೆಂಗಳೂರು. (ಆ7) 500 ಪ್ರತಿಯು

Annexure X: Ban on open burning of Solid WasteGOVERNMENT OF KARNATAKA

No. FEE 6 ENG 2017

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

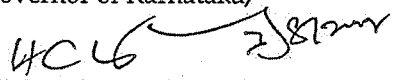
Research findings reveal that burning of solid waste including plastic in the open places especially in the urban areas releases harmful chemicals such as Sulphur Dioxide (SO₂), Carbon Dioxide (CO₂), Carbon Monoxide (CO), Dioxins and Furans in addition to lot of Particulate Matter which get into the 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.

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 through Custom 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 76 privately 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. Thus one 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

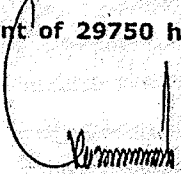
Area under Sugarcane cultivation in Karnataka is approximately 6.64 Lakh hectares. Approximately 5-8 tonnes of trash are generated per hectare. In some places sugarcane trash is burnt which leads to loss of nutrients, affects environment and causes air pollution. Sugarcane trash cutter/ Mulcher/ Ratoon manager can be used to managing sugarcane trash in 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 the 60 Sugarcane harvesters would 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.**


 Commissioner for Agriculture
 Commissioner for Agriculture,
 Hosur Road, Bengaluru-560075.

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.

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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

(Muralldhar 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	<i>With Effluents</i>	Only beyond 75 Meters
		<i>Without effluents</i>	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.
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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.

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ಕರ್ನಾಟಕ ರಾಜ್ಯಪತ್ರ, ಸೋಮವಾರ, ೨೦. ಡಿಸೆಂಬರ್, ೨೦೨೧

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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

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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	<i>With Effluents</i>	Only beyond 75 Meters
		<i>Without effluents</i>	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.
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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.

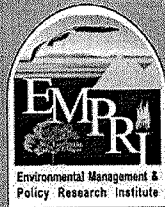
(Muralidhar S. Tallikeri)
Under Secretary to Government,
Forest, Ecology and Environment Department
(Ecology and Environment)

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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