



**STATUS REPORT
OF THE PROGRESS ACHIEVED IN IMPLEMENTATION OF CEPI
ACTION PLANS - KARNATAKA**

**CENTRAL POLLUTION
CONTROL BOARD
SOUTH ZONAL OFFICE
BENGALURU**

1.	<p>Background:</p> <p>A Comprehensive Environmental Pollution Index (CEPI) is a rational number developed to characterize the environmental quality at a given location following the algorithm of source, pathway and receptor. The index captures the various health dimensions of environment including air, water and land. Central Pollution Control Board (CPCB) in collaboration with Indian Institute of Technology (IIT), Delhi had carried out comprehensive environmental assessment of 88 prominent industrial clusters based on Comprehensive Environmental Pollution Index (CEPI) criteria. Out of identified 88 prominent industrial clusters, 43 industrial clusters in 16 States having CEPI score of 70 and above are identified as Critically Polluted Industrial Clusters. Further, thirty two industrial clusters with CEPI scores between 60 & 70 are categorized as severely polluted areas. Subsequently, Ministry of Environment, Forests & Climate Change, Government of India has imposed temporary moratorium on consideration of new projects /expansion of existing projects for environmental clearance to be located in Critically Polluted Areas, vide Office Memorandum, dated 13.01.2010.</p>
2.	<p>Polluted Areas in the State of Karnataka:</p> <p>The industrial clusters / areas having aggregated CEPI scores of 70 and above were considered as critically polluted clusters/ areas. Accordingly, in the state of Karnataka the following two industrial clusters were declared as critically polluted area vide MoEF office Memorandum No. J-11013/5/2010-1A.II (i) dated 13.01.2010:</p> <ol style="list-style-type: none">1. Bhadravathi with CEPI score of 72.33 and2. Baikampady Industrial Cluster, Mangalore with CEPI Score of 73.68 <p>Severely Polluted Areas (SPAs):</p> <p>And, the Industrial Clusters with CEPI score between 60 -70 are considered as Severely Polluted Areas. Accordingly in Karnataka, the three industrial clusters namely 1. Raichur, 2. Bidar and 3. Peenya were declared as severely polluted areas.</p> <p>During the period of moratorium as per the direction of MoEF, time bound action plans were prepared by the Karnataka State Pollution</p>

Control Boards (KSPCBs) in co-ordination with CPCB Zonal Office (South) and industries located in the respective cluster / area for improving the environmental quality in the industrial clusters/ areas and to bring down the prevailing pollution loads. The action plans so prepared for Bhadravathi and Mangalore were finalized by CPCB / MoEF.

Initially, MoEF has adopted a policy of lifting of moratorium conditionally on submission of verified progress reports from concern State pollution Control Boards in line of initiation/implementation of ground work towards implementation of Action Plans. On the basis of this policy, moratorium has been lifted from vide their O.M., dated 23.05.2011. But, Environmental quality monitoring is being carried out by CPCB through reputed environmental labs periodically and CEPI is being assessed based on the recorded monitoring data in the 43 CPAs. Entire monitoring work is being done in co-ordination with concerned SPCBs. The evaluated CEPI reflects the environmental quality of the 43 CPAs and also serves as a yardstick to assess the progress achieved in the implementation of action plans. So far, three rounds of monitoring have been undertaken by CPCB (2009, 2011, 2013) based on which CEPI has been evaluated. The updated status of moratorium and CEPI scores of Bhadravathi and Mangalore are depicted below:

S. No	Industrial Cluster/Area	CEPI Score		
		2009	2011	2013
1.	Bhadravathi	72.33	62.64	45.27
2.	Mangalore	73.68	73.86	67.62

The Status of implementation of action plans for respective industrial clusters / areas are as follows:

3. Critically Polluted Area

3.1. Bhadravathi, Karnataka

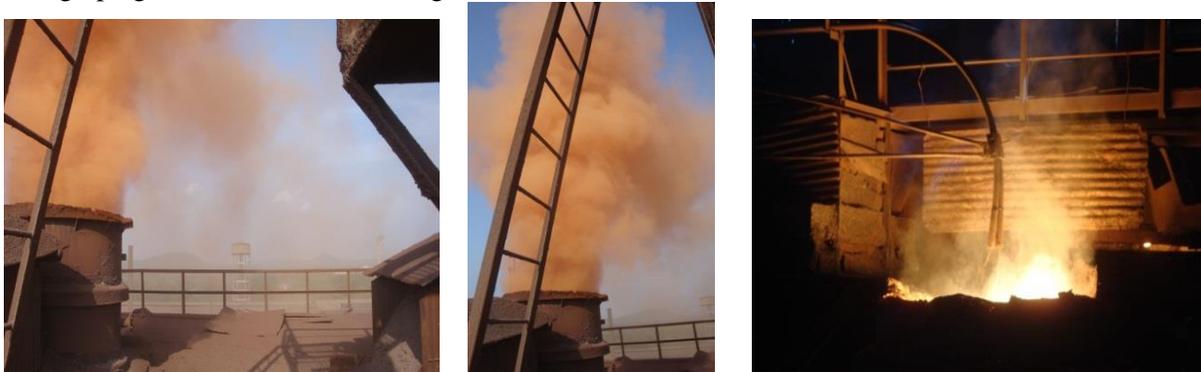
Bhadravathi is an industrial city of Shimoga District having an area of 690 Sq.Km. The total population of the area is 1,51,102 (census 2011). The average temperature in summer is between 25° C and 37°C. The average temperature in winter is between 20°C and 30°C. The annual precipitation in the city is around 950 mm. Bhadra river flows through Bhadravathi town, which is a source of water for Bhadravathi town and industries. The major 17 category of highly polluting industry located in and around Bhadravathi are as follow:

- i. The Mysore Paper Mills Ltd (MPM), Paper town, Bhadravathi having latitude and longitude N-13.82760 and E-75.70831 respectively.
- ii. Steel Authority of India, Visveswaraya Iron and Steel Ltd (VSIL), Bhadravathi having latitude and longitude N-13.83788 and E-75.70084 respectively.

	<p>Declaration as CPA : Bhadravathi was declared as critically polluted area with a CEPI score of 72.33 vide MoEF office Memorandum No. J-11013/5/2010-1A.II (i) dated 13.01.2010. As per the direction of MoEF, Action Plans were developed for the enhancement of pollution control measures to bring down the prevailing pollution loads and CEPI score. The step-wise follow-up actions taken are as follows:</p>												
<p>3.1.2</p>	<p>Constitution of Local Area Committee(LAC) for Bhadravathi</p> <p>KSPCB has constituted the Local Area Committee (LAC) on 04.02.2011 for Bhadravathi under the Chairmanship of Shri. Araga Gnanendra, Chairman, Mysore Paper Mills Ltd. As on date, three meetings were conducted. The first meeting of LAC was held on 07.03.2011 and the second meeting was held on 01.03.2012 to review the progress of work on action plan submitted by the stake holders. The tenure of LAC got expired on 31st March, 2015 and as per the advice of CPCB, the KSPCB has re-constituted LAC on 27th June, 2015 under the Chairmanship of Dr. Sripathi L.K., Professor, Jawaharlal Nehru National College of Engineering (JNNCE), Shivamoga with a tenure period up to 31st March, 2017. The present committee has conducted the third meeting of LAC on 18th August, 2015 to review the status of action plans and the proceeding of the same is enclosed as Annexure 1.</p>												
<p>3.1.3</p> <p>A.</p>	<p>Status of Industry Specific Action Plans :</p> <p>The Mysore Paper Mills Ltd, Bhadravathi – 577 302</p> <p>The Mysore Paper Mills Ltd is an integrated unit consists of Sugar and Pulp & Paper. The unit is engaged in the manufacture of following products and the consented capacities are:</p> <table border="1" data-bbox="584 927 1285 1094"> <thead> <tr> <th>S. No.</th> <th>Product</th> <th>Capacity</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>News print</td> <td>75000 TPA</td> </tr> <tr> <td>2.</td> <td>Writing and Printing</td> <td>30000 TPA</td> </tr> <tr> <td>3.</td> <td>Sugar Cane Crushing</td> <td>2500 TCD</td> </tr> </tbody> </table> <p>The status of action plans as on 18.08.2015:</p> <p>M/s The Mysore Paper Mills Ltd. (pulp & paper and Sugar) was inspected under Environmental Surveillance Squad (ESS) on November 18 - 20, 2013 by CPCB. Based on the observations and recommendation, the Chairman, Central Pollution Control Board (CPCB) issued Direction (Show cause) under Section 5 of Environmental (Protection) Act (EPA), 1986 vide letter no. B-23012/1/PCI-III/9793 dated January 29, 2014 to the unit followed with Closure Direction under Section 5 of E (P) Act 1986 vide letter no. B-23012/1/PCI-III/ dated September 23, 2014 to the unit. In this regard the unit replied vide letter dated 15.10.2014, which was examined and requested to closed down all the manufacturing operation in</p>	S. No.	Product	Capacity	1.	News print	75000 TPA	2.	Writing and Printing	30000 TPA	3.	Sugar Cane Crushing	2500 TCD
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	<p>compliance of the CPCB's Direction dated September 23, 2014 and ensure the compliance of the all measures prescribed in the Direction. Accordingly, the unit has stopped all the operation of company i.e. Paper Mill and Sugar Mill vide order MPM/MO/349/2014 on 11.12.2014 and appealed the Hon'ble National Green Tribunal for resuming its operation. Now the matter is still in Hon'ble NGT, as per the direction dt. 5.5.2015 the unit is continuing its operation at a restricted production of Pulp and Paper @ 220 TPD and sugar plant is stopped.</p>		
	ACTION PLANS	STATUS	OBSERVATIONS / REMARKS
i.	<p>Performance Study of ETP and Water Auditing of Plant</p>	Not complied	<ul style="list-style-type: none"> The unit has not taken up performance audit study of ETP and Water Audit. During last LAC the committee directed to submit comprehensive report of ETP performance to KSPCB within 45 days and suggested to take up water audit on priority either in-house or through external agency and submit report within 60 days from the date of August 18, 2015. The industry has informed that in-house team carried out the performance study of ETP and all the time the treated effluent quality is meeting the stipulated standards. But, as per CPCB observation, the unit is not meeting the standard of Chloride, as per KSPCB consent condition.
ii.	<p>Up gradation of Existing ETP</p> <ul style="list-style-type: none"> Installation of Diffused aeration system Installation of Decanter and filter press Quantification of Green House Gas emissions 	Not complied	<p>The time limit give was up to December 2011 but due to financial burden they did not take up the work. Presently, the unit only segregates its trade effluents into three streams, namely,</p> <p>Stream 1: Coloured effluents Stream 2: Non-Coloured effluents Stream 3: Sugar mill & Bagasse yard effluents</p> <p>All the three streams are subjected to coarse screening and primary clarification separately to remove floating debris and suspended matter. The Ferrous chloride to remove color and poly electrolytes are added at inlets of primary clarification, improve flocculation and settling.</p> <p>Primary treated (Stream-3) Bagasse effluent is being taken to the UASB reactor after pH correction in pre acidification tank and addition of nutrients like DAP and urea. The Bio-gas generated in the reactor is utilized as fuel in the boilers. Overflow from the reactor is clarified in lamella clarifiers to remove the suspended bio mass and the clear overflow is taken to the inlet of primary treatment (Colour stream).</p> <p>Primary treated effluent and a part of sewage are mixed with the requisite quantity of nutrients like DAP and urea and return activated sludge from secondary clarifiers and are subjected to bio-oxidation in the Aeration tank, with forced aeration. The clarified effluent is further aerated in post aeration basin (PAB) to boost the dissolved oxygen content of the effluent before discharging it in to River Bhadra.</p>

			<p>The unit has installed online DO meter and pH for treated effluent. And as per the CPCB direction, the unit has installed online real time monitoring for BOD, COD and TSS. In General the treated effluent are not meeting the standard of SS and Chloride.</p> <p>Installation of Diffused aeration system : Not done, continuing with surface aeration system</p> <p>Installation of Decanter and filter press: Just month before, modified the existing filter press to handle the mixed sludge i.e Primary and Secondary ETP sludge. The disposal option is silent in the KSPCB consent. The unit was dumping the primary and secondary sludge at open place near highway. That activity stopped now and started storing inside the plant for disposal for board making.</p> <p>Quantification of Green House Gas emissions: Not estimated.</p>																														
iii.	Installation of Rotary Lime Kiln (RLK)	Not complied	<ul style="list-style-type: none"> • The industry spent more than 20 crores on RLK for purchasing equipments and civil infrastructure required for the same. But till date the commissioning of RLK is not completed. Now the unit is requesting for exemption from the installation of RLK to recycle the Lime sludge. • The unit of the opinion that due to escalating cost of the raw material and fuel required for the production of the burnt lime, cost of purchased burnt lime from external suppliers is much cheaper than the burnt lime. • The matter is in the Hon'ble NGT South Zone, Chennai, the LA committee informed to follow the directions of NGT and also put forth the request before CPCB/KSPCB with justification. 																														
B.	<p>M/s Steel Authority of India Limited, Visvesaraya Iron and Steel Plant, Bhadravathi</p> <p>M/s Steel Authority of India Limited, (Visvesaraya Iron and Steel Plant) is a large red industry located at Bhadravathi, Shimoga Dist. The unit is engaged in the manufacturing of following products:</p> <table border="1" data-bbox="450 1082 1877 1273"> <thead> <tr> <th>S. No.</th> <th>Product</th> <th>Capacity</th> <th>S. No.</th> <th>Product</th> <th>Capacity</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Pig Iron</td> <td>204000 TPA</td> <td>5.</td> <td>Refractories</td> <td>10800 TPA</td> </tr> <tr> <td>2.</td> <td>Mild Steel</td> <td>35200 TPA</td> <td>6.</td> <td>Special Steel Ingots</td> <td>105000 TPA</td> </tr> <tr> <td>3.</td> <td>Alloy & Special Steel</td> <td>77000 TPA</td> <td>7.</td> <td>M.s. Ingots</td> <td>4800 TPA</td> </tr> <tr> <td>4.</td> <td>Steel Castings</td> <td>5400 TPA</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>The status of action plans for VISL as follows:</p>			S. No.	Product	Capacity	S. No.	Product	Capacity	1.	Pig Iron	204000 TPA	5.	Refractories	10800 TPA	2.	Mild Steel	35200 TPA	6.	Special Steel Ingots	105000 TPA	3.	Alloy & Special Steel	77000 TPA	7.	M.s. Ingots	4800 TPA	4.	Steel Castings	5400 TPA			
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	ACTION PLANS	STATUS	OBSERVATIONS / REMARKS
i.	Refurbishing of 190 M³/Hr Sewage Treatment Plant at Town ship	Complied	<p>The VISL has commissioned the Sewage Treatment Plant with a capacity to treat the sewage at the rate of 190 M³/hr. The STP is working satisfactorily & continuously. The operation is made in three shifts to ensure its effective operation.</p> 
ii	Dust Collection system at Blast Furnace Cast House	Complied	<ul style="list-style-type: none"> • The Top ID fan was repaired during October, 2011. • The New Variable Voltage Variable Frequency drive (VVVF) was installed in place of conventional fluid coupling ensuring high speed & durability. • The De-dusting plant is working satisfactorily & emissions are under control.
iii	Revamping of existing Air Pollution control System – Bag Filter at Steel Melting Shop	Partially Complied	<p>The unit shall install fugitive emission control system to trap and control the emission from Steel Melting Shop which consists of following: Basic Oxygen Furnace, Ladle Refining Furnace and Vacuum Degassing.</p> <p>The raw materials storage and handling shall be improved to reduce the fugitive emissions. The industry has to build a closed shed with concrete flooring for handling of coke. Venturi scrubber provided at Basic Oxygen Furnace is not enough to control the source emissions, the day of inspection high emission was observed from the stack. The pollution control system provided needs to be revamped and stack height also needs to be raised with port hole as per Emission norms for monitoring. The photograph given below shows the higher emission.</p>  <p>Photograph showing emissions from stack (BOF) Fugitive emissions from Ladle Refining</p>

iv	Raw Material Handling section is not maintained scientifically.	Complied	The raw material is stored separately & scientifically in order to maintain the quality of material and to avoid land contamination.
v	Extension of concrete yard for storing coke	Complied	The concrete bed was extended for another 180 meters (earlier 150 meters) and started using the same from October-2011.
vi	Performance study of ETP	Complied	<ul style="list-style-type: none"> • The performance study of ETP is being carried out on monthly basis by the unit. It is observed that all the parameters are well within stipulated norms. • The Regional Office, KSPCB, Shimoga is also collecting the samples once in fortnight. The samples are confirming the standards prescribed by the board. • Strengthening of lagoon bund has been done during June 2012 to arrest the seepage.
v	Provide air pollution control devices for Ladle Refinery Furnaces	Complied	<ul style="list-style-type: none"> • Induced Draft Fan Motor has been installed for the ladle Refinery Furnaces. • The repair jobs of APC pipelines are completed. • The modification of the water cooled Hood of the Ladle Refinery Furnaces required for the pipeline hookup is completed. • The unit is working satisfactorily.
vi	Disposal of huge quantity of slag stored near blast furnace area	Complied	<ul style="list-style-type: none"> • Slag generated from Blast Furnace as by-product is converted as granulated slag and sold to outside parties/interplant transfers.
vii	Implementation of online stack emission and effluent monitoring system as per directions of CPCB/SPCB	Complied.	<ul style="list-style-type: none"> • Purchase order has been placed and informed that Installation and commissioning will be completed by September, 2015. Needs to be verified.
viii	Control of fugitive emission at cast house blast furnace	Not Complied	<ul style="list-style-type: none"> • The project has already been taken up by the unit. Status need to be assessed.
ix	The industry shall go for ISO-14001 certification and shall submit time bound action plan for the same	Complied	<ul style="list-style-type: none"> • The Environment Management System as per ISO 14001-2004 standard was implemented during 2012. The EMS recertification done during March 2015 and valid till 2018.

C	Other Informations for CEPI evaluation		
	S. No	Description	Status
	1	Sewage Management	The city is having population of 1.5 Lakhs as per 2011. The city is divided into 35 wards. Only 75% of the underground drainage (UGD) work is completed in 13 wards and 16 wards coming under MPM and VISL colony. No work has been taken up in the balance 6 wards. In this regard, DPR work is entrusted to KUWS & DB authorities. Under the NRCP funding STP – Waste Stabilization Pond (WSP) constructed for 5.83 MLD. But presently this system is not in operation, there is no sewage at WSP. The entire sewage generated from the Bhadravati is ending at river. During last LAC, the authorities were requested to submit the details about sewage generation, treatment and discharge.
	2.	Solid Waste Management (SWM)	<ul style="list-style-type: none"> • The total amount of solid waste generated in the city about 53 tonnes per day. Total amount of waste collected by CMC is about 42 tonnes per day, which is disposed in solid waste dumping site at Hiriyr village with a total area of 19.4 acres, which is about 6 Kms away from Bhadravati. About 10 TPD solid waste is generated from MPM and VISL colony. • SWM Cess collection started since April 2015. • Presently door to door collection being done.
3.	Status of adequacy of CETPs/FETPs/CHWTSDFs and their compliance of stipulated norms for the CPA.	<ul style="list-style-type: none"> • No CETPs/FETPs/CHWTSDFs existing in Bhadravathi. • One CBMWTSDf i.e M/s Shushrutha Bio-Medical Waste Management Society is located about 5kms away from Bhadravathi town, CPCB has issued direction under Section 5 of EPA for its compliance w.r.t. source emission. • The industries located in the cluster have got their own ETPs and are being regularly monitored by KSPCB. • The Hazardous wastes generated by the industries are sent to Common Facility at Dabaspet for treatment and landfilling. 	
3.2	MANGALORE - BAIKAMPADY INDUSTRIAL CLUSTER, KARNATAKA		
	<p>Baikampady Industrial Cluster, Mangalore is located in Dakshina Kannada District of Karnataka State. Mangalore is an important city situated on the west coast. The city is an administrative, commercial, educational and industrial center. An all-weather port is located in Mangalore and is the only major port of Karnataka. The topography of the city is from plain to undulating with four hilly regions natural valleys within the city. The ambient temperature varies from 17°C to 37°C. The annual precipitation is about 4000mm. The cluster area is surrounded on the West by Arabian Sea, East by Kunjathbail, South by Mangalore city and North by Surathkal. The major rivers Gurupura is located adjacent to the boundary of Baikampady Industrial cluster & Nethravathi is located at a distance of 20 km from the cluster area towards south. The major source of water to the Industrial Cluster is from Nethravathi river and bore wells. The Baikampady Industrial Cluster is spread over in an area of about 30 Sq.KM which includes 450 acres of Baikampady industrial area developed by Karnataka State Industrial Area Development Board (KIADB). The Baikampady</p>		

industrial area is having 304 operating industries namely major refinery, storage of crude and finished petroleum products, LPG storage & bottling, fertilizer plant, Pharmaceutical industry, Brewery, Edible oil processing units, Sea food processing units, lead refining unit, cashew processing units, paint & dispersion unit, Iron ore pelletization plant and pig iron plant apart from few engineering, fabrication, plywood plants and ready mix plants. The category wise details of industries are depicted below:

Industries operating at Baikampady Industrial Cluster:

	Red	Orange	Green	Total
Large	11	03	05	19
Medium	03	10	13	26
Small	35	30	194	259
Total	49	43	212	304

Presently, there are five major 17 category industries located in the cluster. The major industries which are in operation within Baikampady industrial cluster are:

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Mangalore Refineries & Petrochemicals Ltd (MRPL), Kuthethur 2. BASF India Ltd.,Bala 3. Mangalore Chemicals & Fertilizers Ltd.,Panambur 4. Sequent Scientific Ltd.,Baikampady Industrial Area 5. Kudremukh Iron Ore Company Ltd (Pellet Plant), Panambur 6. GWASF Quality Castings Pvt Ltd., Baikampady Industrial Area 7. New Mangalore Port Trust (NMPT), Panambur 8. United Breweries Ltd., Baikampady Industrial Area 9. Ruchisoya Industries Ltd., Baikampady Industrial Area 10.Rajshri Packagers Pvt. Ltd., Baikampady Industrial Area | <ol style="list-style-type: none"> 11.Blue water Foods & Exports Pvt. Ltd., Baikampady Industrial Area 12.Kalimiya Exports, Baikampady Industrial Area 13.Total Gaz Ltd., Baikampady Industrial Area 14.Bharath Petroleum Corporation Ltd (BPCL LPG Filling plant), 15.Bharath Petroleum Corporation Ltd (BPCL), (Coastal Installation), 16.Indian Oil Corporation Ltd (IOCL),Panambur 17.Hindustan Petroleum Corporation Ltd (LPG Import Facility), 18.Hindustan Petroleum Corporation Ltd (HPCL POL Terminal), 19.Eshwari Metal Industries, Baikampady Industrial Area |
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Declaration as CPA: Baikampady Industrial Cluster, Mangalore declared as critically polluted area with a CEPI score of 73.68 vides MoEF office Memorandum No. J-11013/5/2010-1A.II (i) dated 13.01.2010. As per the direction of MoEF, Action Plans were developed for the enhancement of pollution control measures to bring down the prevailing pollution loads and CEPI score. The step-wise follow-up actions taken are as follows:

3.2.2 Constitution of Local Area Committee(LAC) for Mangalore

The Karnataka State Pollution Control Board (KSPCB) has constituted the Local Area Committee (LAC) for Mangalore under the Chairmanship of Director, NITK, Surathkal. As on date, the Regional Office, Mangalore has conducted seven review meetings at a regular interval to review the status of implementation of CEPI action plans. The tenure of LAC got expired on March, 2015. As per

	the advice of CPCB, the KSPCB has re-constituted LAC on 27th June, 2015. Further the tenure of this committee is valid for the period up to 31st March, 2017.		
3.2.3	Status of Industries Action Plan : There are five numbers of industries (17 category) located in 10 Sq. Km area of Baikampady Industrial Cluster, Mangalore, viz.		
A	BASF India Ltd, Bala Village M/s BASF India Ltd, is manufacturing the following: Dyes (2,225 TPA), Dispersions (70,000 TPA), Micronutrient (15,000 TPA), Automotive Coatings (13,000 TPA), Construction Chemicals (94,000 TPA).		
	ACTION PLANS	STATUS	OBSERVATIONS / REMARKS
i	Installation of diffused aerator system for biological treatment	Complied	<p>The ETP comprises Primary -Chemical, Secondary -Biological and tertiary treatment system – filtration system. The unit has installed diffused aeration system for the treatment of effluent. The unit is discharging its treated effluent (800 M³/Day) in to sea for sea disposal. The DO, Flow rate, Temperature are monitored with online measuring.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>DO Meter</p> </div> <div style="text-align: center;">  <p>Flow Meter</p> </div> </div>
ii	Installation of Scrubber for monomer storage tanks to control fugitive emissions	Complied	Packed column scrubber installed in the monomer tank farm for scrubbing the vent gases emanating from the storage tanks during the unloading of raw materials into the storage tank. Scrubber contains a packed bed with the circulation of diluted caustic solution as scrubbing medium. Caustic with 2-3% strength is used with pH value above 10. The connecting lines from tank to scrubber are provided with Flame arrestor.

			 <p>Installation of Packed Scrubber</p> <p>LEL detectors: The unit has installed LEL detectors at strategic locations to identify the leakage of Butadiene if any. This is linked to our distributed control System (DCS).</p>
iii	Planting of 1000 saplings	Complied	The unit has planted 35,000 trees in 60 acres of land, which is earmarked to cover 33% of area for green belt development.
Iv	Installation of filter press	Complied	The volume of sludge generated is high and volume reduction is done by installing filter press, drying to reduce the moisture and disposed to Cement plants for co-processing.
V	Water auditing through competent agency	Complied	The water auditing was conducted by TERI and suggestions are implemented.
Vi	Recycling of treated effluent besides installation of MEE	Not complied.	The total effluent discharge will be about 822 KLD against the consented quantity of 850 KLD. The LAC insisted to explore the possibility of recycling / reutilization of treated effluents.
B.	<p>Sequent Scientific Ltd., Baikampady</p> <p>M/s Sequent Scientific Ltd is a Basic Drugs and Pharmaceutical Manufacturing unit located in industrial area. The unit has its own incinerator for the incineration of hazardous wastes. Unit has installed closed loop system for handling of solvent and has solvent recovery plant. The unit is directed to do regular monitoring of VOC.</p>		

	ACTION PLANS	STATUS	OBSERVATIONS / REMARKS
i	Monitoring of VOCs	Complied	<p>The unit has purchased handy sampler (Entry RAE) for total VOC measurement and started monitoring total VOC. On the day of monitoring the total VOC measured was 6 ppm.</p>  <p>Handy VOC sampler</p>
ii	Monitoring of Incinerator stack as per bulk drug industry	Under progress	As per the CPCB direction online monitoring system for the incinerator stack is under commissioning. KSPCB has directed to carry out monitoring of stack emission as per the bulk drug industrial standards.
iii	Improve the operation of WWTP & installation of flow meters at strategic locations	Complied	The unit has installed flow meters as per suggestions of LAC.
iv	Installation of Multiple Effect Evaporator (MEE)	Under progress	<ul style="list-style-type: none"> Existing force draft evaporator has been upgraded by the unit, need to be assessed. The status of installation of MEE to be assessed.
v	Water auditing through external agency	Under progress	<ul style="list-style-type: none"> Water audit would be completed by September 2015. The status to be reviewed in next LAC meeting.
3.	Mangalore Refineries & Petrochemicals Ltd., Kuthethur		
	ACTION PLANS	STATUS	OBSERVATIONS / REMARKS
i	ETP with RO plant	complied	Phase I & II : The Phase I & II ETP consists of Free Oil Removal Section (Tilted Plate Interceptor), Chemical Treatment section for removal of hydro carbons, sulphides, phenols and emulsified oils, Biological treatment (ASP) section for removal of BOD, COD etc), Tertiary filtration (DMF) for removal of Suspended solids etc.

			<p>Phase III: The Phase III ETP consists of primary (API, TPI, DAF), secondary (Sequential Batch Reactor & Membrane Bio Reactor) followed with Reverse Osmosis treatment.</p> <p>Mode of Disposal of Effluent: Treated Effluent is being discharge to Sea at a distance of 700 m inside and at a depth of 6.5 m off Chithrapur Beach.</p>
ii	Condensate Recovery System - 2 units	Complied	It is informed that condensate from re-boiler, steam heater are recovered and condensate from several steam traps in process unit collected together and pumped to condensate heater. There are 2 nos of Crude Distillation Units (I& II), where steam traps (Flash Steam Recovery System) are provided to recover the condensate, the rate of recovery is about 3 T/Hr. Condensate Recovery System at CDU -1 is commissioned during October 2011, and commissioning at CDU -2 is in progress.
iii	Installation of Continuous Ambient Air Quality Monitoring System	Complied	M/s MRPL has commissioned 2 Nos of Continuous Air Quality Monitoring Systems (CAAQMS) and 7 nos of Ambient Air Quality Monitoring Stations. The number of parameters monitored are 10 at CAAQMS -II, and 4 at CAAQMS-I.
iv	Installation of sulphur pastillation unit for phase III	complied	M/s MRPL has installed 3 trains of sulphur pastillation unit for Phase III of 185 T/D each. The performance need to be assessed by the committee.
v	Planting of 10,000 saplings	Under progress	M/s MRPL awarded the work to Karnataka Forest Department for 45,000 saplings (Secondary nursery), which are grown at Forest Department site, will be shifted to MRPL complex. After Phase III the total plantation area will be 344.8 acres.
vi	Installation of flow meters for keeping a record of quantity of treated effluent into sea and to conduct a proper water audit	Complied.	The unit has installed flow meters and the meters are calibrated periodically.

	through competent agency		
vii	Time bound action plan for sludge management	Not fully complied.	Oily sludge is being treated in closed bioremediation installed in Phase-III ETP. Usage of Oily sludge in delayed coker unit need to be assessed by the committee. .
viii	Study on Ground water movement through NGRI	Complied	Total 13 watersheds falls under entire MRPL complex and their water movement has been studied by NGRI. Final report submitted by NGRI to MRPL. The recommendations to be implemented by MRPL/ KSPCB.
4.	Mangalore Chemicals & Fertilizers Ltd., Panambur		
	ACTION PLANS	STATUS	OBSERVATIONS / REMARKS
i	Changeover of fuel from Naphtha and Furnace oil to Natural Gas and Re Liquefied Natural Gas	Partially complied	<ul style="list-style-type: none"> • MoEF&CC has granted EC for the project and CFE from KSPCB is also obtained. • Engineering studies for conversion of feed stock and fuel to gas is completed. • Detailed engineering study is in progress.
ii	Planting of 4000 saplings	Complied	M/s MCF informed that 5000 sampling done in 2011 -12, in the total green belt area of 55 acres and planned for additional 5000 sampling. The total built up area is 75 acres.
iii	Installation of CAAQM data display Board in front of the factory gate	complied	The unit has installed display board in May 2013.
5.	Kudremukh Iron Ore Company Ltd (KIOCL), Pamanbur		
	ACTION PLANS	STATUS	OBSERVATIONS / REMARKS
i	Up gradation of the existing STP with latest technology	Complied	The STP of 80 KLD with Membrane Bio Reactor technology has been commissioned in March 2013. Daily average of sewage treatment is 50 KLD. The treated sewage is confirming to KSPCB norms and the same is being recycled in filtration & grinding process.

ii	Installation of ETP for treatment of effluent generated from Desulphurisation plant of CPP	Complied	The M/s KIOCL has submitted revised action plan to treat CPP flue gas desulphurization scrubbed effluent in place of installation of ETP. The revised action plan is to switch over to low sulphur oil furnace oil (sulphur content <2% Max) in place of furnace oil with sulphur content 3.2% Max in CPP. As per revised action plan, the CPP is presently operated with low sulphur furnace oil from 30.4.2012.
iii	Asphalting of all internal roads	complied	Dense Bitumen Macadam Road for 350 M X 5 M is completed. The unit informed that concretization of roads of 400 m and dry fog system is completed. The unit have installed mist type water sprinkler.
iv	Providing of closed sheds for raw material storage	Complied	Closed sheds for raw material storage completed and installed mist type water sprinklers. The performance and operation are to be assessed by the committee.
v	Plantation of 10,000 saplings	In progress	About 1500 saplings completed, remaining is planned by the unit.
6.	New Mangalore Port Trust (NMPT), Panambur		
	ACTION PLANS	STATUS	OBSERVATIONS / REMARKS
i	Mechanization of Iron Ore Cargo Handling	Partially complied	M/s NMPT informed that they have revisited the proposal of mechanization of coal handling facility and same will be completed by 2017.
ii	Concretization of roads to minimize spillage of cargo	Complied	50% of the concretization of internal roads is completed and rest to be completed by December 2014, the completion to be verified by the committee.
iii	Green belt development along the NH 17 and Beach Road for One Km length, Near VTMS building and at Meenakaliya village	Complied	M/s NMPT informed that they have planted about 10,000 saplings during 2010-11 and about 10,000 saplings during 2011-12. NMPT shall be asked to do more plantations because the land area available with NMPT is about 2350 acres.
iv	Providing permanent sprinkling system along the concrete roads 600 M	complied	M/s NMPT is provided sprinklers along the concrete roads, but accumulation of slurry on road is an additional problem need to be addressed.
v	Providing bunds to	Complied	Bunds provided.

	settling tanks and extension of settling tank		
vi	Providing acoustic enclosures for 2nos of 1000 KVA DG set	Complied	M/s NMPT has provided acoustic enclosures for 2 nos of D.G. sets, the work completed during July 2011.
vii	Providing paver bloc near KK gate and near main gate	complied	Completed.
viii	Restriction of coal stacking-adhere to KSPCB stipulation	Complied	All the port users are instructed to stack the coal 3 ft below compound wall.
ix	Providing dry fog system around coal handling activity	Under progress	Status need to be updated by the NMPT to the committee.
x	Monitoring of vehicles carrying urea from port		Port has instructed all the port users to cover the trucks with tarpaulin before going out of port premises
xi	Provide weigh bridge within port premises	Under progress	Operationalization of weigh bridge is under process and will be completed by March 2016.
7.	Ruchisoya Industries Ltd, Baikampady Industrial Area : M/s Ruchisoya Industries Ltd. is an edible oil manufacturing unit.		
	ACTION PLANS	STATUS	OBSERVATIONS / REMARKS
i	Concreting of roads	Complied	As per action plan, the unit concreted the road from main gate to inside the plant.
ii	Planting of 625 saplings	Complied	The unit has planted sapling as directed.
8.	Rajashri Packagers Pvt Ltd, Baikampady Industrial Area		
	M/s Rajshri Packagers Ltd is an edible oil manufacturing unit. The unit was using rice husk in their boiler, causing dust pollution.		
	ACTION PLANS	STATUS	OBSERVATIONS / REMARKS
i	Replacement of fuel	Complied	The unit has replaced their fuel from rice husk to coal. The coal consumption per hour is 30 /hr,

	from rice husk to imported coal		which will generate about 1 Ton of ash per day.
ii	Incorporating closed loop ash handling system (silo's)	Complied	The unit has provided dust collector followed with bag filter to control the dust emissions. All the ash collected from bag filter is routed to silo by closed loop system. The capacity of silo is 20 Tones.
iii	Facilities for in-house testing of ETP parameters	Complied	The unit has established environmental lab – in house for analyzing Environmental parameters.
9.	Eshwari Metal Industries (Unit 1), Baikampady Industrial Area M/s Eswari Metal Industries is manufacturing lead ingots from used Lead Acid Battery Plates, Lead Ash, Lead Slag, Lead Dross, Solder Dross and Other Lead Bearing Wastes. The installed capacity of rotary kiln is 10 tones per Batch. The unit takes about 5 batches per day i.e. 50 Tones /Day processed.		
	ACTION PLANS	STATUS	OBSERVATIONS / REMARKS
i	Installation of Rotary kiln furnace with scrubber	Complied	Installation of new Rotary Kiln Furnace with bag filters and scrubbers has been commissioned. Stack of 30 m height is installed. The unit required to dismantle / remove the old furnace from the industrial premises.
ii	Installation of mechanical battery dismantling/breaking unit	Complied	The unit has installed mechanical battery dismantling/breaking unit.
iii	Regular monitoring of lead at both inside and outside the unit	Complied	Regular monitoring of lead is being carried out. A report of the same is furnished to KSPCB.
iv	Regular blood checkup of the workers to check the Lead content in blood samples	Complied	Blood checkup of the workers are being done regularly. Reports of the same are being furnished by the unit to the committee. The unit also informed that job rotation is being practiced for the workers.
v	Possibility of utilization of slag	In progress	<ul style="list-style-type: none"> The study on utilization of slag generated from the process has been carried out through NITK and IISc, Bengaluru. Based on the outcome of the study the slag could be utilized in place of sand (about 20 to 30%) for roads/RMC.

			<ul style="list-style-type: none"> • The KSPCB has already permitted the industry to utilize the slag on trail basis. • Some of the RMC unit authorities have shown keen interest to utilize the slag. 	
10	M/s Cardolite			
	ACTION PLANS	STATUS	OBSERVATIONS & REMARKS	
i	Monitoring of VOC	Complied	The unit is having VOC meter and VOC measurement is being carried out at 28 locations.	
ii	Implementation of ZLD	Complied	The ZLD policy has been implemented in the industry	
iii	Rectification of odor nuisance	Complied	As per KSPCB, the unit has rectified the odor nuisance by installation of scrubber with caustic solution	
11	M/s OMPL			
	ACTION PLANS	STATUS	OBSERVATIONS & REMARKS	
i	Installation of condensate recovery unit	Complied	The unit has installed and commissioned the condensate recovery unit with a capacity of 140MT/hr .	
ii	Hydro geological study of water shed	Complied	The Hydro geological study of water shed is conducted by the National Geophysical Research Institute, Hyderabad. The report is yet to be received	
iii	Installation of AAQM station	Under Progress	AAQM station tendering is under process and will be installed by March 2016.	
10	Status of action taken by other organizations on action plan			
	Sl.No	Organization	Description of the action proposed	Present status
	1	Mangalore City Corporation (MCC)	<ul style="list-style-type: none"> • Commissioning of other two STPs • Creating awareness among the public to connect sewer line • Explore the possibility of establishing exclusive STP for Baikampady Industrial cluster. 	<ul style="list-style-type: none"> • STP at Jeppinamogaru has already commissioned for trial runs. STP at Surathkal is completed in all aspects and awaiting for power connection and clearance from railways. • All the old Mangalore area has been connected to Kavoov STP. House connection to the tune of 40% achieved for Pachanady STP. • KIADB has assured to take action on priority and pursue with MCC/KUWSSB regarding setting up of dedicated STP for Baikampady industrial cluster.

	2	KIADB	Obtain DPR from KUW&DB at the earliest and to interact with MCC for implementation	<ul style="list-style-type: none"> • Progress report awaited
	3	KSPCB	Monitoring of Air/water & soil in cluster for special parameters	<ul style="list-style-type: none"> • Monitoring of the Baikampady Industrial cluster has been carried out during 2013, 2014 & 2015 for the ambient air quality and ground water quality at identified locations and it was found that the ambient air quality and ground water quality has improved in 2015 as compared to previous years.
Up gradation of Regional Laboratory, including strengthening of infrastructure of Regional office			<ul style="list-style-type: none"> • Procurement of key instruments started • All steps are taken to strengthen the regional laboratory facility. • Stack monitoring kit & VOC meter has been already supplied to local laboratory. • The local laboratory will be upgraded to secure recognition from MoEF&CC under E(P)Act, 1986. 	
Continuous Ambient Air Quality Monitoring Stations – 1 Nos.			<ul style="list-style-type: none"> • KSPCB, MCF, NMPT and KIOCL have agreed for contribution. • Requested financial assistance from CPCB. 	
Preparation of feasibility report for infrastructure development of common engineered landfill site for non-hazardous solid waste			<ul style="list-style-type: none"> • Feasibility study is yet to be taken up 	
Monitored Data transfer from the industries to Board and creation of necessary infrastructure in the Board			Three major industries identified and work in progress	
Establishment of a center to promote waste minimization and waste exchange, adoption of cleaner technologies & fuels			Modalities to be worked out.	

	4	NITK, Surathkal	Source Apportionment Studies (SAS) at Industrial Cluster	The SAS was carried out in 7 locations at different seasons. . Study report yet to be submitted to the committee.
	5	M/s MSEZ	<ul style="list-style-type: none"> • Installation of AAQM station 	<ul style="list-style-type: none"> • The procurement of equipments for AAQM station is under process • The location of AAQM station is yet to be decided
			<ul style="list-style-type: none"> • Development of Green belt 	<ul style="list-style-type: none"> • About 90 acres of green belt development is under process and will be completed by September 2016.
C	Overall Recommendations			
	<ul style="list-style-type: none"> • The most of the industries started implementing the action plans, but getting delayed in implementation. The industries deviated /delay from implementation shall be directed accordingly. • Present status of implementation of action plans need to be reviewed and also new action plans if any also shall be added for continual improvements in respective areas, by inspecting individual units. • The frequency of Local Area Committee meeting shall be not more than 3 months. In year at least 4 review meeting shall be conducted by KSPCB. • The Local Bodies shall tap and treat the entire quantity of sewage generated from the respective city. Similarly the municipal solid management too. 			