Note on the Implementation of the Action Plan and its compliance for the Critically Polluted Area of Visakhapatnam in Andhra Pradesh

Back Ground:

Ministry of Environment, Forest and Climate Change (MoEF & CC) vide its Order No. Q-16017/37/2015-CPA(Pt) dated 9th October, 2015 has issued an order for assessment and periodical review of the Critically Polluted Areas (CPAs) as well as to monitor the progress of implementation of action plans in CPAs. The undersigned has been assigned the areas of Patancheru - Bollaram and Visakhapatnam in Telangana and Andhra Pradesh States respectively.

The undersigned along with Shri S. Jeyapaul, Scientist 'C' of Central Pollution Control Board, Zonal Office, Bangalore, monitored the CPA of Visakhapatnam on 16th and from 19th – 21st November, 2015. The team initially met at Andhra Pradesh Pollution Control Board (APPCB) office in Hyderabad on 16th November, 2015 and had discussion with Member Secretary and the Senior Officers of the APPCB. Shri B. Madhusudhana Rao, Joint Chief Environmental Engineer (JCEE) made a detailed presentation on the implementation of various action points drawn for CPA. The team along with Shri B. Madhusudhana Rao, JCEE, Shri K. Sree Rama Murthy, Senior Environmental Engineer (SEE), Shri R. Lakshminarayana, Regional officer (RO) and Shri P. Srinivasa Rao & Shri Mukunda Rao Assistant Executive Engineers of APPCB visited the industries, and STP's of Visakhapatnam Port Trust and Greater Visakhapatnam Muncipal Corporation (GVMC) from 19th – 21st November, 2015 in the CPA. The team also had discussion with Local Monitoring Committee constituted as per the direction of CPCB and Shri.N. Durgaprasad, Chief Engineer, GVMC.

Observations Made During the Monitoring Visit:

As per the study, the CPCB identified Visakhapatnam area as critically polluted area (CPA) with a CEPI score of 70.82. As identified as CPA, the Ministry of Environment, Forest & Climate Change (MOEF&CC) has **imposed** moratorium on 13.01.2010 for consideration of projects for Environmental Clearance under EIA notification, 2006 in Visakhapatnam.

The important details, an exponential of Greater Visakhapatanam Municipal Corporation (GVMC) is as follows:

Parameter	1991	2001	2015
Industries	85	247	398 (Bowl Area-7 Nos)
Population (Lakhs)	7.52	9.8	20 (Bowl area-11)
Area (Sq. Km)	110	110	540 (Bowl area 60)
Vehicular population	73,948	3,39,573	8,13,867 (Bowl area-4,10,000)
Road Length (Km.)	450	720	1600(Bowl area -945)

Later vide notification dated 15.03.2010 (MOEF&CC) limited the ban to the bowl area (the area between Yarada hill range in the south to Simhachalam hill range in the north and sea on the east and the present NH-5 in the west direction). The total area of the bowl is 60 Sq. Km and population is 11.00 Lakh. A map indicating the bowl area is shown as below:

As per the list provided by APPCB, 4 industries are in the 17 category of industries, 3 are in the highly pollution potential Red category and remaining 34 are in other Red categories with less

pollution potential (List enclosed). It is also learnt from the APPCB officers that while working out the CEPI index for Visakhapatnam, CPCB has considered only the 7 major and highly polluting industries and STPs in the bowl area. It is therefore the present visit was also limited to 7 industries and STPs in bowl area.

List of seven industries (for which the action plan has been prepared) and their production details are as follows:

Sl. No.	Name of the Industry	Products	Consented Capacity (TPD)	Actual Production (TPD)	
				2010 – 2011	2014 – 2015
1.	M/s. Essar Steels Ltd.,	Iron Oxide pellets	22333	14651	11095 (-**25%)**
2.	M/s. Rain CII India Ltd.,	Calcined Petroleum Coke	1460	1455	1416 **(-3%)**
3.	M/s. Andhra Petro Chemicals Ltd.,	a) 2 Ethyl Hexanol b) Normal Butanol c) ISO Butanol	166 78 8.4	117 64 7	42 13 **(-70%)** 2
4.	M/s. HPCL,	Petroleum Products	10 MM TPA	8.141 MMTPA	8.69 **(+0.6%)**
5.	M/s. Coromandel International Ltd.,	Complex Fertilizers	3900	2740	2767 **(+0.01%)**
6.	M/s. Visakhapatnam Port Trust	Cargo Handling	72.69 MMTPA	37.03 MMTPA	42.51 **(+14%)**
7.	M/s.Hindustan Zinc Ltd.,	Zinc Cadmium H_2So_4	4667 TPM 11.5 TPM 7583 TPM	3472 TPM 8.5 TPM 5777 TPM	Closed Since 2012 (308 tons/day of production is reduced)

In order to control the pollution, improve the environmental parameters and to bring down the CEPI index in critically polluted area, APPCB prepared an Action Plan and submitted in November 2010. Subsequently, a local area monitoring committee (LAMC) was constituted on 20.12.2010 as per CPCB directions. The committee regularly inspected the bowl area industries, municipal facilities (sewage

treatment plants and municipal solid waste management), and Bio- Medical waste management facility and reviewed the status of vehicular pollution control measures taken by RTA department.

Stringent Standards to Industries:

A step forward and as a stringent measure, APPCB has adopted stringent source emission standards to the industries located in the bowl area than industries located in other parts of the state. This is detailed in the Table given below:

Name of the industry	**Parameter**	**National standard**	**APPCB standard to other areas**	**APPCB (stringent) standards for Visakhapatnam**
M/s. Essar Steels Ltd,	SPM	150 mg/Nm^3	115 mg/Nm^3	50 mg/Nm^3
M/s. Rain CII India Ltd,	SPM SO_2	150 mg/Nm^3 --	115 mg/Nm^3 --	70 mg/Nm^3 0.48 TPD
M/s. APCL	SPM	150 mg/Nm^3	115 mg/Nm^3	50 mg/Nm^3
M/s. HPCL, Refinery	SPM SO_2	150 mg/Nm^3 --	115 mg/Nm^3 --	50 mg/Nm^3 11.5 TPD
M/s. Coromandel Fertilizers	SPM Fluorine SO_2	150 mg/Nm^3 25 mg/Nm^3 --	115 mg/Nm^3 10 mg/Nm^3 2.0 Kg/T	50 mg/Nm^3 5 mg/Nm^3 0.65 Kg/T of H_2SO_4
M/s. Hindustan Zinc Ltd.,	SO_2	--	4 Kg/T of H_2SO_4	1.5 Kg/T of H_2SO_4

Investment Made Under CEPI Action Plan:

In order to comply with these standards industries in the bowl area have made an additional investment of Rs. 1845.00 Crores. Industry wise investment details are as given below:

Sl. No.	Name of the industry	Investment made for treatment systems from 1999 – 2008 (in Crores)	Investment made for up-gradation of treatment systems during 2009-2013 (in Crores)
1	M/s. Essar Steels (India) Ltd.,	26.50	19.20
2	M/s. Rain CII (Vizag) Ltd.,	6.50	3.50
3	M/s. Andhra Petro Chemicals Ltd.,	6.00	4.17
4	M/s. HPCL, Refinery	175.00	178.70
5	M/s. Coromandel International Ltd.,	87.50	55.30
6	M/s. Visakhapatnam Port Trust	134.00	1569.50
7	M/s. Hindustan Zinc Ltd.,	16.00	14.66
	TOTAL	Rs.451.5	1845.03

Status of pollution control in the seven industries:

M/s Essar Steels Limited, Visakhapatnam:

Sl.No.	Action Plan	Compliance
1	The industry shall modify / upgrade the existing Air pollution control equipment of PP-I & shall install ESP for the second stream of PP-II in place of multi cyclones in order to meet the Board standards.	Modification of ESP of PP-1 has been completed during the year 2012. Another 2 Nos. of ESP's installed in PP-2 with a cost of Rs. 15 Cr during the year 2013. A.P. Pollution Control Board monitored stack and AAQ. Occasionally the PM values in the stack attached to PP-I are exceeding the limits of APPCB.
2	The industry shall install 2nd CAAQM station in the nearby habitation i.e., towards Gnanapuram area and include the $PM_{2.5}$ parameter in both the CAAQM stations and shall connect to the website.	Complied. 2nd CAAQM station installed towards NE corner of the plant and connected to website of APPCB. PM_{10}, $PM_{2.5}$, SO_2 and NO_x are monitored. Apart from this, the industry is also monitoring the AAQ at 3 locations manually. It is observed that PM_{10} values are occasionally exceeding the limits specified by APPCB. However the monitoring is not conforming to CPCB notification which mandates for monitoring of 12 parameters.
3	The industry shall avoid dumping of waste / ongoing construction material indiscriminately and shall utilize the area effectively for plantation and thereby housekeeping shall be improved.	Complied.

4	The industry shall provide adequate no. of sprinklers in the coal stock yards and other raw material stock yards in order to suppress the dust from stocking materials.	Complied. Total 7 Nos of high capacity sprinklers have been installed in the coal stock yards to suppress the dust. Wind shields have also been provided with a height of 7.5 M from the ground level.
5	The industry shall store the raw materials not more than 6 m height.	Not Complied. During the visit Storing more than 6 m height at some stock piles was observed.
6	The industry shall construct a retaining wall of 3 m height on all four sides of the stock yards of main plant so that no material should go along with the storm water into drains.	Complied.
7	The industry shall provide sediment traps in the drains to reduce TSS in the water that joins outside drain which ultimately joins the sea.	Provided sediment trap in the drain at the end of the drainage system and some more sediment traps are to be provided at other places.
8	The industry shall avoid leaks at junction boxes by putting adequate air pollution control equipment.	Partially complied. As per PCB officers, sometimes fugitive emissions at junction boxes were observed. During the visit, industry was not in operation. However, spillovers near some junction boxes were observed.
9	The industry shall avoid vehicular movement along the eastern compound wall and to leave buffer zone for avoiding dust emissions to the nearby habitation and also directed to improve housekeeping in and around of all storage areas of raw material stock yards and conveyor belts and junction box areas.	Complied. As per APPCB officers no Vehicular movement is done along the eastern compound wall of the plant. A thick green belt developed all along the compound wall along the eastern side of the plant. Total area of the industry is 110 Acres. Out of this green belt has been developed on 47 Acres.

M/s Rain CII India Limited:

Sl.No.	Action Plan	Compliance
1	The industry shall install sufficient number of water sprinkler guns with adequate capacity at the stock yard entry and at the area where water spray is inadequate and advised to reduce the stocks yards height to 6m.	Complied. The Industry provided 65 mm sprinkler guns for dust separation.
2	The industry shall strictly ensure restriction of stock yards height to 6m at any time and shall ensure to cover total stock yard area for water sprinkling.	Complied.
3	The industry shall obtain necessary permission from the Board for constructing the additional stock yard duly submitting the design details along with dust suppression / control measures to be adopted.	Complied
4	The industry shall restrict the heights of the stock yards to 6m in the new stock yard and install water sprinkler guns and air pollution control equipment at all transfer points of the new stock yard. The industry shall also install water spraying system all along the conveyor system.	Industry has made the arrangements as per the condition. But still some dust problem particularly near the coal stock yard and lime handling plant was observed. Industry needs to provide proper enclosures to the lime handling plant and also to make pneumatic loading and unloading arrangements to avoid spill overs and dust menace.
5	The industry shall develop plantation with 3 year aged plants at new stock yards. The committee directed to submit the details of greenbelt earmarking on layout plan to the Board and to develop greenbelt towards the Port Road.	Complied.
6	The industry shall provide rain water harvesting	Complied.

	system.	
7	The industry shall dispose of the gypsum sludge properly.	Complied.
8	The industry provided 2 on line stack analysers and 2 CAAQM stations and the data is reflected in the Website but parameter $PM_{2.5}$ is not included. The industry shall include the parameter $PM_{2.5}$ and reflect the in the Website.	Complied as far as committee suggestion is concerned. However the monitoring is not conforming to CPCB notification which mandates for monitoring of 12 parameters. The stack emissions from Kiln-I and II are occasionally exceeding the limits specified by APPCB.

M/s Andhra Petro Chemicals Ltd:

Sl.No.	Action Plan	Compliance
1	The industry shall provide stripper before effluents entering into the ETP to bring down the COD levels in the inlet effluent to 5,000 mg/l so as to control the odour problem in and around ETP area.	**Partially Complied.** The industry installed and commissioned a new stripper in the month of February 2013 with a cost of Rs.52 Lakhs and observed some reduction in the odour from the effluents. During the visit it was observed that the problem has not completely eliminated. Some pungent odour still persisted. The industry informed that the COD is reduced but will be in the range of 12000 to 15000 due to soluble organic compounds in the stripped effluents. The industry also informed that the soluble organic compounds in the stripped effluents will not cause any odour nuisance. However, during the visit, it was observed that some smell is still persisted. Project authorities are advised to try activated carbon process to further reduce the odour. It was also observed that ETP was not operated properly. Also, it was observed that the continuous online analyser has been installed at a place where

		mixing of ETP treated effluent and huge quantity of once through cooling tower water (Sea Water) takes place. As a result, the analyser always shows very less COD & BOD values even if the ETP do not work and in fact it was observed also that the ETP is not maintained well. The ETP outlet is required to meet the consent limits and hence the continuous on line analyser should be fixed at the ETP outlet only but not after mixing with once through cooling water.
2	The industry shall treat the domestic effluents in the STP and utilize it on land for plantation. The industry shall arrange flow meter at the inlet and outlet along with sample collection facility.	Complied. Domestic effluents are being treated in the STP and the water is being used for plantation through drip irrigation system.
3	The industry shall upgrade the existing Air pollution control equipment to meet the Board standards for stack–2 (15 TPH) or shall adopt any alternative measures/ technology to reduce the SPM levels.	Complied**.** The industry installed another 2 stages fine air atomized water spray system inside the Boiler stack-2 (15 TPH) in order to reduce the SPM levels.
4	The industry shall take up plantation with 3 years aged plants at the STP area and all vacant places.	Provided.
5	The industry shall install two stack analyzers for 12 TPH & 15 TPH Boilers with online monitoring systems for all the parameters (SPM, SO2, NOx, HCs & CO) and to connect to the website along with the interlocking facility.	Complied**.**
6	The industry shall also provide online HC analyzer also in the CAAQM and shall be connected to the PCB Website.	The industry installed Hydrocarbon analyzer but not Connected to website of APPCB.

M/s Hindustan Petroleum Corporation Limited, (Visakha Refinery):

Sl.No.	Action Plan	Compliance
1	The industry shall use the low sulphur crudes (<0.5 %) during the winter season to avoid the prevailing problems.	Partially complied. As per APPCB the industry processed crude containing sulphur in the range of 0.76 to 0.95% during the winter season i.e., from October-2014 to January-2015.
2	The industry shall carryout thorough study on the odour nuisance emanating from HPCL which is felt in the city.	The industry awarded a study in 2012 for IISC Bangalore for odour nuisance problem. The IISC team has visited and conducted monitoring in and around the city and report is awaited. This is a long pending issue. It is learnt that IISC has completed the study in 2014 and submitted the draft report. Final report with the comments of Expert Committee is still awaited. Industry would have perused the matter as it is a public concern. During the visit the team did feel the odour problem. The nearby Cormandel township people also informed that they are suffering from the odour problem.
3	The industry shall evaluate the performance of the ETP-I to ETP-IV and submit report to the Board as they are exceeding the standards for phenols & sulphides.	As per the consolidated analysis of APPCB, the refinery is not meeting the wastewater discharge standards in respect of Pb, TSS, Phenols, BOD and Sulfides which are exceeding the standards stipulated by the Board during the period from Jan – 2015 to Oct -2015. The industry has not implemented zero discharge project and not constructed STP to treat 348 KLD of domestic effluents. During the visit, it was observed that the ETP No 4 was not working properly. DO meter was also not working. Hazardous waste was seen stored

		openly in a very bad condition (in torn out bags) near ETP.
4	The industry shall maintain the bio-remediation plant effectively for treatment of oily sludge.	Complied. Bio-remediation of low oily sludge is being done in a dedicated area by Oil Zapper bacteria as suggested by M/s. TERI.
5	The industry shall dispose of non-saleable catalysts to TSDF, Parawada.	Complied. Non-saleable catalysts are being disposed to TSDF, Parawada,
6	The industry shall complete the installation of FGD and commission by April'2012.	FGD-I & FGD-II have been commissioned in July & December 2013 respectively
7	The industry shall take up the greening of the natural hill which was cut for developmental activity.	Not complied. No work has started so far and no convincing reply was given by project authorities for not taking up the greening works.
8	The industry is having 3 CAAQM stations with PM2.5 & PM10 parameters. The industry is having 30 stacks, out of 30 stacks Board directed to provide stack analyzers for 15 stacks only. The committee directed the industry to install and commission all the 15 stack analyzers and connect to the APPCB website.	Complied as far as condition on installation of the stack analysers is concerned. As reported by APPCB, SPM levels are exceeding the load based standard. The Industry has provided CAAQM stations as per the CFO condition. As far as CAAQ Monitoring is concerned, it is not conforming to CPCB notification which mandates for monitoring of 12 parameters.

Apart from the above, it was observed that the industry is also not complying with many of the conditions like ,providing mobile van for AAQ monitoring, recycling of the treated effluent, fresh water consumption, control of noise levels, providing 33% green cover, and disposal of treated effluent through a single outlet. These are long pending issues for compliance. During the discussion with the project authorities it was observed that they are not serious about the environmental issues.

M/s Coromandel International Limited:

Sl.No.	Action Plan	Compliance
1	The industry shall recycle all process and washing effluents after treatment into the process and ensure zero discharge.	According to APPCB, the condition is partially complied as the industry is recycling treated process effluent up to 84%. Remaining 16% of process effluent after treatment is being discharged into Sea along with once through cooling effluents. During the discussion officers of the industry informed that based on the CEPI guidelines the industry explored the recycle and reuse of the process discharges and treated waters over a period of 2 years and submitted documents periodically to APPCB. A maximum of 60-70% of the treated effluent only could be recycled and reused till now. ZLD is technically not possible. Frequent variations in raw material qualities and stochiometric parameters are not making 100% recycle and reuse possible. ZLD is not viable and not possible based on the process chemistry of Phosporic and Sulphuric acid plants and sought exemption from ZLD.
2	The industry shall get analyze the ETP sludge before disposal. The industry shall store ETP sludge in the closed area as it is Hazardous.	Not submitting analysis report of ETP sludge. The waste is recycled in the process of PAP plant. The industry is storing the waste openly in the premises.
3	The industry has to dispose of 20.0 Lakh MT of accumulated Gypsum completely which is stored in an area of about 100 Acres.	Partially Complied. As per the action plan submitted by the company, they are supposed to dispose of all the stock by March 2016. Till now about 14 lakh tones of the old stock has been disposed off. Company may not likely to meet the target

		as per the action plan. The main consumers of the Gypsum are the cement manufacturers. The consumption is again based on the market fluctuations for the cement demand. The other factors governing is the quality of the gypsum. Being 30 to 40 year old its quality is not appreciable compared to the imported fresh material. Hence, there has been a miss mach in the time schedule for disposal. Industry is requesting another 2 years time for disposal of remaining 6lakh tones of the old stock.
4	The industry shall store all newly generated dry gypsum in the lined area only and provide required lining within 3 months (At present industry is having lining for 5 Acres only).	Partially Complied. During the visit it was observed that some of the gypsum has been stored outside the lined area.
5	The industry shall submit the action plan for developing plantation with suitable species possible to be grown in the evacuated gypsum pond.	Complied. Industry has done green belt development on gypsum pond through bio remediation technology by the TERI, New Delhi. The TERI has developed a nursery at site. As per the plan, plantation on an area of 18 acres with 18,000 no. of plants has been carried out.
6	The industry shall develop plantation near raw material go-down area in 20 Acres land by 2012-2013 and a 100 m wide plantation all along the periphery of the boundary wall at the backside of the Coromandel International Ltd and submit the layout plan earmarking the plantation along with the action plan.	In the year 2012 and 2013 industry has taken up the plantation on 20 acres of area near material go-down but due to bad soil condition did not get good success. Later on the line of TEERI technology bio-remediation was carried out and again the plantation has been taken up. So far about 7000 saplings have been planted over 7 acres out of which about 5500 are surviving. Regarding the 100m wide plantation project,

		authorities informed that this is a leased land of the VPT which they wants to take back for their utility. In view of this Coromandal could not initiate any work on the plantation and this matter has been informed to APPCB.
7	The industry has to complete the development of greenbelt on gypsum pond in an extent of 18 Acres with 18,000 No. of plants in the duration of 2 years through bio-remediation technology as committed by the industry.	Partially Complied. So far 13000 saplings on an area of 15 acres have been planted. Further plantation is in progress.
8	The industry shall provide necessary control equipment to control the steam emitting from A, B & C trains as plant is located nearer to the air port and habitation.	Industry submitted study report carried by GITAM University, Visakhapatnam. As per the study: a)The saturated steam need to be either super heated or has to be cooled/chilled down to separate the moisture. b) Condensers are also to be used to remove ammonia by converting the gas to liquid. c) The evaporated steam may be further heated and converted to super heated steam. d) The saturated steam may be condensed and removed before leaving the stack. The study also made the observation that "Additional fuel and energy is required to employ either of the two options (method 3 & 4). Large Heat Transfer surface is also required. Condensing and removal of water vapour can lead to increase in concentration of other pollutants." and finally it was concluded that the present operating procedure in Coromandel International appears to be a common practice i.e., universally adapted in these kinds of fertilizer plants and no abnormalities are envisaged.

9	The industry shall maintain good housekeeping near gypsum storage & handling area.	It was observed that housekeeping is not that appreciable and needs further improvement.
10	The industry shall install four online CAAQM stations (south west corner i.e., at maintenance garage, north east corner i.e., at Bagging plant, south east corner i.e., at cafeteria and in east i.e., at Mulagada (V)) and connect to APPCB Website.	Within the plant area three Continuous monitors have been set up, near garage, bagging plant and near shared services. Out of these two have been connected to APPCB website. The station near bagging plant was completely damaged during HUD HUD cyclone (October 2014) and has been replaced by new one in September 2015. This is in the process of reconnecting to the APPCB server. During the replacement period of the new monitor company monitored the air quality manually at the same location. The forth station at Mulagada village was jointly maintained by M/s Coromandal and M/s Hindustan Zinc Ltd. The later industry has been closed from February 2012 and hence they are not looking after the same. The instrument has also damaged during HUD HUD cyclone in 2014. As on date the issue of maintenance of this station is in dispute between the two companies and hence the instrument is still in the damaged state. As per the officers of M/s Coromandal, the matter has been reported to APPCB for their intervention.
11	The industry shall ensure proper calibration and maintenance of the stack / AAQM analyzers regularly.	Complied.
12	The industry shall provide on line stack analyzer to the Complex plant stacks for continuous monitoring of the parameters SPM, Flourine and the Ammonia duly considering the moisture	Complied. Sporadic instances of Fluoride and SO2 exceeding the limits has been observed by APPCB during their monitoring.

	content in the stack emissions.	

M/s Visakhapatnam Port Trust (VPT):

Sl.No.	Action Plan	Compliance
1	The coal stockyards height at GCB area is more than 10-12 M and vehicles are plying on the stockyards and unloading the coal. Trucks are laid on top of the coal berth. The industry mechanized the GCB and is operational from 1st April'2013 and thereby transportation of coal through above 3000 No. of trucks from GCB to stock yards at East yard is avoided. VPT was directed to clear the remains of coal in the stock yards near GCB and shall submit the Action Plan for development of greenbelt with 3 years old plants in the GCB area which is very nearer to the habitation.	VPT has cleared the coal stock in the GCB area but yet to start the plantation in that area. The Member secretary, A.P. Pollution Control Board has insisted to plant 1,10,000 Plants/annum for 5 years i.e., from 2012 to 2017 in Green Visaka Plantation programme. Compliance was found very poor when compared with the targets fixed.
2	Directed to cover the conveyor in GCB with removable sheet along the length of the conveyor belt of 356m to avoid dust emanation into the air.	Partially Complied. Conveyer is not covered fully. At some portion of its length, the covers are not provided leading to dust pollution in the surrounding.
3	The VPT shall re-organize the cargo handling in the berths and stock yards as soon as the mechanization of the GCB completed.	Re-organization of stockyards is planned to be completed by December 2016.
4	The VPT shall submit the greenbelt details and clearly demarcate the proposed greenbelt being developed through BOT (Built Operation and Transfer) operators in the following areas and shall submit the action plan: I. Along the VPT compound wall near the flyover at convent junction. II. Along the high rise wall which is under construction near iron ore	Development of greenbelt is in progress. So far around 35,000 plants have been planted in the port area.

	plots area which is proposed backup area for WQ-8 berth implemented through PPP (Public Private Partnership) mode. III. Near warehouses of GCB in the existing gaps.	
5	The VPT shall store all the dusty cargo in east yard only except iron ore after mechanization of the port.	Proposed to be Complied by June 2016.
6	. Directed to reduce the stock yard heights at the East yard in the coal stock yards to reduce the dust emanating from the stocking materials, particularly during loading / unloading operations.	Improving the existing MDSS system and proposed new MDSS system. Works are planned to be completed by January 2016
7	The VPT shall provide mechanized truck type washing facility and provide height gauge overloaded cargo at all stock yards.	Works are in progress and PO raised for the procurement of truck tire washing facility. Proposed to be completed by December 2015.
8	APPCB directed VPT to maintain the stock yard height not more than 6 m. Board in the CFE of M/s.Vizag General Cargo Berth Private Ltd, GCB & East yards of M/s.VPT, Visakhapatnam stipulated a condition that the stacking height of coking coal and steam coal not be more than 6 M. M/s. SEW, Vizag Coal Terminal Private Ltd and M/s. Adani Vizag Coal Terminal Private Ltd have been permitted to store the cargo to 10 M height.	Certain locations the stacking heights are exceeding the limits stipulated. The cargo heights are also exceeding 10 mtrs height limits in some locations. Tarpaulin covers are not properly provided. At many locations it was observed that the stock yards are exposed due to improper coverage.
9	The VPT shall isolate the dusty cargo by constructing a wall up to a height of 7.5 m and geo-net above the wall for a height of 4 m and provide Mechanical Dust Suppression System all along the wall to eliminate the dust emissions from the stock yard i.e. at east yard.	About 200 m length & 7.5 m height concrete wall in between convent junction railway crossing at R-11 Area has been constructed. Another wall of 800 m length & 11.5 m height from H – 8 Junction to Mini-Super Bazar junction towards the interface of Kotaveedhi

		& 1 town area has also been constructed. Further proposed 2 km length & 11.5 m height wall from Sea horse junction to Convent Junction towards the interface of the Chavulamudum, Kobbarithota & Old Ambedkar Nagar residential areas. Construction is in progress. Mechanical Dust Suppression System (MDSS) is under operation to control the dust emissions from the stockyards.
10	The VPT shall take corrective measures in order to avoid slippage of cargo into the sea while loading / unloading from the ships i.e., at the gaps between the vessel and jetty.	Though actions have been taken but needs further improvement.
11	The VPT shall maintain proper housekeeping as heavy vehicles are moving and the mud and dust are pounded into finer particles and are lifted by wind frequently.	Water spraying is being carried out as a part of dust containment measure. However housekeeping especially in the areas of dusty cargo handling and stock yards needs improvements.
12	The VPT shall remove the solid wastes or soil pushed along road side instantaneously.	Seen Complied.
13	The VPT shall ensure the cleaning of all roads in port area including flyovers, bulb area, Ramakrishna area and road connecting the convent junction to Naval dockyard.	Partially Complied. As informed by APPCB officers, at present VPT is sweeping the roads manually at Convent junction and Y-Junction to naval Dock yard. GVMC is carrying sweeping at Ramakrishna area and bulb areas. National highways authority carrying the sweeping at New flyover area
14	The VPT shall provide iron barriers all along the length of the two flyovers (Opp. Essar and the other on Scindia Flyover) on both the side.	The barrier provided opposite ESSAR has been completely damaged due to HUD HUD cyclone. VPT informed that the proposals are in progress to reconstruct the barrier by June-

		July, 2016. NHAI constructed iron barriers at Scindia flyover.
15	The VPT shall see the conveyor belt in proper operation while handling iron ore in order to suppress the dust emanating while transfer.	The Iron ore conveyor is in damaged condition at most of the places and need to be refurbished immediately. It is one of the source of dust emission
16	The roads adjacent to the cargo carrying rail tracks and at the track areas shall be cleaned at frequent intervals.	As per APPCB cleaning is being carried out as per the direction.
17	At the vizag sea port area railway wagons are loaded with cargo (coal) much above the brim level. APPCB has issued directions to the facilitator and the railway department officials not to load more than the height to avoid spillovers and dust carry over.	Not complied. This issue needs to be resolved at highest level. As explained by the Dy. Chairman, VPT. Railway is charging on the basis of 60 tonnes of load /wagon. In case of loading to brim level the load comes around 50 tonnes but the party has to pay for 60 tonnes. So on every consignment party has to lose money for 10 tonnes on each wagon loaded.
18	The VPT shall speed up the installation of CAAQM stations.	Process of installing 3 CAAQMS and PO raised for installation. Proposed to be completed by January 2016.
19	The VPT shall closely monitor while loading done into wagons and ensure that no excess material is dumped into wagons.	Monitoring is being done. Reference may please be made to the compliance status reported in condition No 17 above. As per APPCB PM-10(RSPM) levels are exceeding the annual average standards. The RSPM trends from 2010 to 2015 shows reduction in RSPM values from 119.5(2011) to 71.54 $\mu g/Nm^3$ (2015 up to November 2015) at Gnanapuram, 95.9(2010) to 86.59 $\mu g/Nm^3$ at Police barracks and 96.1(2010) to 87 $\mu g/Nm^3$ at St. John Parish school

20	The VPT shall speed up the study on the consequences of marine environment arising during deepening the sea.	Study has been completed and report submitted.
21	The VPT shall improve the performance of the STP.	Partially complied. During the visit it was observed that STP (10MLD capacity) was not working properly. The sewage is tapped from the sewage canal and treated. There is no flow measuring devise. According to the expert committee about 6 MLD of sewage is treated and remaining untreated sewage is drained in the sea.
22	The VPT shall provide MDSS at all other areas like EQ-1A before 31.10.2013 as per the direction of the Board.	Not complied.
23	The VPT shall conduct a study on evaluation of the performance of STP and shall submit the action plan for incorporating the necessary improvements as per the study	Yet to be complied
24	The VPT has to submit the report on the study taken up by CWPRS, Pune on the consequences of marine environment arising during deepening the sea.	Report of the study done by BARC, Mumbai and the recommendations are yet to be implemented.

VPT officers appears not very much serious about the environmental issues.

M/s Hindustan Zinc Limited:

This industry has been closed since 2012. Due to closure 308 tonnes/day of production has been reduced so also the corresponding pollution load. During the visit to the industry discussion was carried out with Shri. Vijay Patil, AGM and Shri Shekar Babu, Sr. Manager Environment. The industry has 145 Ha of land (100 plant and 45Ha township). It was observed that presently dismantling works are in progress. Some of the dismantled parts are washed (as required) and the washings in the form of solid waste along with other wastes like glass wool and other packing materials is disposed off into the hazardous waste dumping site developed on 4 ha area. Another

adjoining such site developed on 6 ha has been capped in the year 2010. Company has provided 11 peizometric wells for monitoring. The liquid waste of the washings is treated in the ETP and disposed off. The company has a stock of about 2000 tonnes of zinc slag. It is planned to use the same for capping of the operational hazardous waste dump site. The slag has been delisted from the hazardous list. But for these aspects company is not contributing to any other pollution.

Sewage Treatment Facilities:

The total population of the bowl area is 11,00,000 and the total sewage generated from this area is 118.8 MLD. Presently there are three STPs of total capacity of 73.0 MLD (25 MLD STP at Appughar, 38.0 MLD STP at Old town area & 10.0 MLD STP in Port area) to treat the sewage. Two more STPS of 54MLD each are under construction at Narava village about 30 KM from Visakhapatnam. During the visit it was observed that the two STPs at Appughar and Port area were not working properly. It is also understood from the local operator that the STP at Appughar is not working for last three years. No back up power supply is available. In the port area part of the sewage is tapped from the sewage canal and treated. There is no flow measuring devise. According to the expert committee about 6 MLD of sewage is treated and remaining untreated sewage is drained in the sea. The STP at old town was also not in operation for its full capacity. Part of the facility was under maintenance. During the visit it was also seen that at many places the untreated sewage was joining the sea through open channels. When the matter was discussed with the GVMC Chief Engineer, he did not provide any information and showed no seriousness about the issues.

Industries have their own treatment facilities. Some of the industries have STPs and some disposing off through septic tank and soak pits.

Municipal Solid Waste Management:

In bowl area about 550 TPD of municipal solid waste (MSW) is generated. At present the waste is disposed of at Kapulauppada village about 12 KM from Visakhapatnam which is not a scientific disposal site. No proper monitoring is being carried out by the municipal corporation. M/s. GVMC has identified one site at Gidijala village about 35 KM from Visakhapatnam measuring 106 acres for scientific disposal of municipal solid waste.

BMW Facilities:

Presently 264 numbers of hospitals with bed strength of 7733 are existing in the Bowl area generating 1.420 TPD Bio Medical Waste (BMW). Bowl area has no handling/disposal facilities. The waste is being disposed off in the facilities existing at Maridi Eco industries Ltd., (CBMWTF), Kapuluppada village Visakhapatnam for safe handling. It is about 12 KM from Visakhapatnam

Vehicular Pollution Control in Bowl Area:

The transport department is implementing emissions norms stipulated to the vehicles and monitoring pollution levels through testing centers. Pollution Under Control (PUC) certificates are issued for the vehicles which passes the test and notices will be issued to the vehicles which fails to comply with the norms. There are 25 test centers existing in bowl area.

In order to discourage operation of the old vehicles the Government of Andhra Pradesh is levying Green tax based on their classes. Details of the levy imposed is provided below:

Sl. No.	Class of Vehicles	Tax Levied
1.	Transport Vehicles that have completed 7 years of age from the date of their registration	Rs. 200/- (per annum)
2.	Non - transport vehicles that have completed 15 years of age from the date of their registration	
	a) Motor Cycles	Rs. 250/- (for 5 years)
	b) Other than Motor Cycles	Rs. 500/- (for 5 years)

There will not be any levy of Green Tax if the vehicle is operated by LPG, CNG, battery or solar power. Lead free petrol has been made available in the Visakhapatnam.

Also to discourage purchase of more vehicles by an individual, Government is taxing more on second/ subsequent vehicle.

Sl. No	Type of vehicle	At the time of registration of 1st Vehicle	Second of subsequent vehicle
1	Motor Cycles	9 % of the cost of the Vehicle	14 % of the cost of the Vehicle
2	Four wheeler motor vehicles whose cost is below Rs. 10 Lakhs	12%	14%
3	Four wheeler motor vehicles whose cost exceeds Rs. 10 Lakhs	14%	14%
4	All vehicles owned by companies/ institutions	14%	14%

The RTA is imposing fine for the vehicles moving in the port road which are moving with load and the material not covered with tarpaulin i.e., non-compliance of Motor Vehicle Rules.

Recommendations:

- Due to implementation of the above said measures by industries, bio medical waste treatment facility and vehicular pollution control by transport department, the situation has improved. On the line of CPCB calculations, APPCB also has calculated the index which is coming to 52.31.
- The team observed that there is an improvement in the pollution control status among the 7 industries visited but total compliance is still not achieved in spite about 5 years passed to the action plan prepared. In the cases of M/s HPCL and M/s VPT, lot more is expected to be achieved.
- The GVMC and VPT needs to improve the operation of the STPs on priority, plug all the sewage flowing in the open channel to sea and complete the construction of new STPs to treat all the sewage generated in the bowl area.
- It is true that the 7 industries are the major contributors to the CEPI index but nevertheless the collective contribution of remaining industries and other activities in bowl area cannot be ignored. The team hence recommends that the external impact of the nearby industries/activities (in the immediate outskirts of the bowl area) shall also be considered. The local committee may concentrate in this area too. The contribution from this area may also be considered while reworking the CEPI index.
- The Local committee constituted earlier may be reconstituted by including officers from Regional Office, MoEF&CC, Chennai and Zonal Office, CPCB, Bangalore.
- Considering the geography of bowl area and location of seven large industries of highly polluting nature being operated from this bowl area and 100% compliance of action plan prepared in the year 2010 still to be achieved by all these units and government departments like GVMC etc., the team feels that it may not be appropriate to lift the moratorium at this point of time.

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