BEFORE THE NATIONAL GREEN TRIBUNAL
(WESTERN ZONE) BENCH, PUNE
APPLICATION No. 40/2014(WZ)
(M.A. No.55/2015)

CORAM:

Hon'ble Mr. Justice V.R. Kingaonkar
(Judicial Member)
Hon'ble Dr. Ajay A. Deshpande
(Expert Member)

B E T W E E N:

1. **Mr. Charudatt Pandurang Koli**
Age 50 years, Occn : Service,
R/o. Pandurang House, Near Khari
Bawadi, Mahul Village, R.C. Marg,
Chembur, Mumbai 400 074

2. **Mr. Dayaram Harishchandra Mahulkar,**
Age 49 Yrs. Occn : Business,
R/o. Chereshwar Co-operative Housing
Society Ltd., Near BMC School,
Flat No.504, 5th Floor, Mahul Village,
Mumbai 400 074.

3. **Mr. Mohan Laxman Mhatre,**
Age 42 Yrs. Occn: Fishing,
R/o. Katkar House, Ambapada Village,
Mahul Road, Chembur,
Mumbai 400 074.

4. **Mr. Dattaram Laxman Koli,**
Age 59 yrs., Occn : Service,
R/o. Chereshwar Co-operative Housing
Society Ltd., Near BMC School,
Flat No.201, 2nd Floor, Mahul Village
Chembur, Mumbay 400 074.

....Appellants

A N D

1. **M/s. Sea Lord Containers Ltd.,**
   Having its Chemical Storage plant at
   Ambapada, Mahul Village,
   Near BPCL Refinary, Main Gate,
   Chembur, Mumbai – 74.

2. **Aegis Logistics Ltd.,**
   Having its office at 403, Peninsula
   Chambers, Peninsula Corporate Park,
   G.K. Marg, Lower Parel (W),
   Mumbai 400 013.

3. **State of Maharashtra,**
   Through : Its Environment Department,
   Having office at 15th Floor,
   New Administrative Building,
   Madam Cama Road, Mantralaya,
   Mumbai 400 013.

4. **Maharashtra Pollution Control Board,**
   Having Regional Office at Kalpataru
   Point, 3rd and 4th floor,
   Opp. Cine Planet, Sion Circle,
   Mumbai 400 022.

5. **Maharashtra Pollution Control Board,**
   Having Sub-Regional Office at Raikar
   Chambers, 2nd floor, Nr. Jain Mandir,
   Govandi Gaon Road, Govandi
   Mumbai 400 088.

6. **The Commissioner,**
   Municipal Corporation of Greater Mumbai
   A statutory Body incorporated under
   Mumbai Municipal Corpn. Act,
   Head office at Mahapalika Marg, Fort,
   Mumbai 400 001.

7. **Board of Trusties of Port of Mumbai,**
   Incorporated by Major Port Trust Act 1963,
   Having office at 3rd Floor, Vijay Deep,
   S.V.Marg, Ballard Estate,
   Mumbai 400 001.

8. The Collector, Mumbai Suburban,
10th Floor, Administrative Building,
Opp. Chetna College, Bandra East,
Mumbai 400 051.

9. Bharat Petroleum Corporation Ltd.
Mahul Village, Chembur,
Mumbai- 400 074.

10. Hindusthan Petroleum Corporation Ltd.,
Mahul Road, Chembur,
Mumbai 400 074.

11. Tata Power Limited,
Mahul Road, Gavanpada Village,
Chembur, Mumbai 400 074.

12. Natural Oil Blending Limited,
Mahul Road, Gavanpada Village,
Chembur, Mumbai 400 074.

13. Chemical Terminal Trombay Limited,
Mahul Road, Gavanpada Village,
Pir Pau, Chembur, Mumbai 400 074.

14. Rashtriya Chemical Fertilizer Limited,
Mahul Road, Washigaon,
Chembur, Mumbai 400 074.

...Respondents

Counsel for Appellant :

Mr. Asim Sarode, W/Mr. Vikas Shinde,
Mr. Gajendra Waity,

Counsel for Respondent No.1 & 2:

Mr. Gaurav Kothari, w/o. Mr. Gaurav Joshi, Sr. Advs.
Mr. Nikhil Sakhardande, Ms. Swagata Naik,

Counsel for Respondent No.3 to 5:

Mr. D.M. Gupte, Mrs. Supriya Dangare,
Mr. Saurabh Kulkarni,

Counsel for Respondent No.6:

Mr. U.H. Deshpande, Mr. K.N. Gaikwad, i/b.
Mr. P.A. Purandare,

Counsel for Respondent No.7 :

Mr. P.M. Deshmukh, holding for Mr. M.V. Kini, & Co.

Counsel for Respondent No.11 & 13 :

Mr. R.B. Mahabal, Adv.

Date: December 18th, 2015

J U D G M E N T

1. The Applicants are residents of Ambapada and Mahul villages situated at outskirts of Mumbai. They have filed this Application raising a substantial issue of air pollution, allegedly caused by the industrial operations of Respondent Nos.1 and 2, in terms of Volatile Organic compounds (VOC) emissions and associated adverse health impacts on the surrounding population.

2. Respondent Nos.1 and 2 are the companies registered under the Companies Act, 1956 and engaged in the business of Logistic Services to the oil, gas and chemical industry. Respondent No.1 is located at Ambapada and Mahul since 2007. This organic storage Terminal of Respondent 1 comprises of 5 (five) units of 10,000 KL and 5 (five) units of 5,000 KL capacity Chemical Storage Tanks. All the 10 (ten) storage tanks located at the Terminal have closed roof and 5 (five) of these storage tanks are fitted with internal floating roofs. The chemical storage facility (Terminal) of Respondent No.1 is sea-shore based tank farm. Various types of chemicals coming through sea-way are unloaded at the new

Pir Pau Jetty along side Mahul village and through interconnected pipelines; is brought and stored in chemical storage tanks at the Terminal of Respondent No.1, and subsequently sent to various users.

3. The Applicants have raised concern over the air pollution caused due to polluted emissions mixed with obnoxious smell i.e. Volatile Organic Compounds (VOC) from the loading, storage and unloading operations of the chemicals at the Terminal of Respondent No.1. The Applicants submit that such operation which involves handling of large quantities of various hazardous chemicals, is causing air emission of Volatile Organics at various stages from various and sources including pressure and vacuum valves located at the top of each storage tank, cleaning of tanks prior to change in chemical which is to be stored, pigging operation besides the chemical dispensing mechanism. The Applicants claim that such continuous emissions of Volatile Organics which are essentially hazardous chemicals and many of them being carcinogenic, are posing serious threat to health of the local residents, in particular residents of Mahul and Ambapada villages which are located in proximity of the Terminal of Respondent No.1.

4. Respondent Nos.1 and 2 have filed detailed reply affidavit on 26th May 2014 and have resisted the Application. Subsequently also, certain affidavits have been filed which are essentially in compliance of directions given by the Tribunal

and also, for placing certain documents on record. Shorn of un-essentials, it is the stand of the Respondent No.1 that the industrial activities of Respondent No.1 are conducted in strict compliance with the national and international norms and utmost care is taken to avoid any sort of pollution or environmental degradation. All the ten (10) chemical storage tanks have been provided with closed roof and five (5) amongst them, even with latest technology, floating roofs. These 5 (five) tanks with floating roofs are especially used for the purpose of storage of highly volatile chemical like Toluene and Benzene. Respondent Nos.1 and 2 submit that the turnaround time for chemical storage at their Terminal is as long as 30 to 60 days and none of their operations can result into emissions of dust, SO_2 and NOx. Respondent Nos.1 and 2 further submit that as per the report of MPCB itself, their industrial operations are not the only source of Volatile Organic Compound emissions in the area but there are other major industries like BPCL and HPCL refineries, besides industries like RCF and Tata Powers. They also point out that existence of several sources of VOCs including transport, domestic use of solvents etc. which are also significant while considering overall VOC emissions. They also claim that their storage capacity is very small when compared to BPCL and HPCL which is more than 1 million tons respectively, and many of the petroleum storage tanks of these refineries are open i.e. without roof. It is the contention of the Respondents

1 and 2 that though their Terminal is comparatively near to the Applicants' residential area, their industrial operations is not causing any VOC emissions and the report of MPCB expert Committee also have the similar findings. Respondents have also placed on record various scientific and technical documents which are related to characteristics of the chemicals handled, standard operating procedure and also, operation manuals besides previous litigations.

5. The Respondent Nos.4 as well 5 is the Maharashtra Pollution Control Board. MPCB has filed an affidavit on 8th May 2014 and submitted that a Committee of Officers and subject experts has been formed. The Committee has submitted the Report and has dealt on the issue of the air pollution and presence of VOCs in Chembur-Mahul-Ambapada areas. The said MPCB committee also identified various other industries like HPCL, BPCL, RCF, Tata Powers etc. as potential source of VOCs. The Committee gave its final report wherein the Committee has recorded its observations regarding the provision of the Pollution Control systems and performance thereof, at all identified sources and also come out with various industry specific recommendations including certain actions to be taken by MPCB itself. This report was also presented to the KEM which has conducted certain health related studies in the area of Mahul and Ambapada.

6. Considering such report of MPCB as well as in order to get a clear picture about the air pollution at the residential

areas of Applicants, the Tribunal had appointed Institute of Chemical Technology (ICT) on 6th April 2015 to submit a report on following issues :

1. The nature and composition of VOC emissions from activities and unit process at Respondent No.1 Terminal including the digging operations, pressure valves mounted on storage tanks and dispensary units etc.
2. The nature of chemicals storage at Respondent No.1's unit and health impacts of potential emissions on human health.
3. Adequacy and efficacy of pollution control system at Respondent No.1 unit in terms of operational standards, adopted by Respondent No.1 unit for its processing and activities.
4. The potential impacts and change in the Air Pollution and Water Pollution, resulting from change in capacity from maximum 75000 KL/p.m. to 75,000 at a time and its environmental implications.

Besides that the KEM Hospital was also directed to make a comparative studies on health hazards viz-a-viz observed air quality monitoring data in order to decide the liabilities in case of adverse health impacts. Both organizations have submitted such reports which will be dealt with hereinafter during course of further discussion.

7. Respondent Nos.3, 7 and 8 have not filed any affidavit and they being not the main contesting parties, it is not necessary to have their affidavits on record for final adjudication of the present matter. The other newly added Respondents i.e. Bharat Petroleum Corporation Ltd and

Hindusthan Petroleum Corporation Ltd., Rashtriya Fertilizers Ltd., Tata Powers Ltd., have filed their affidavits to essentially submit that they are strictly complying the consent conditions stipulated by the MPCB and contend that they are not causing any air pollution. They have also elaborately given the pollution control systems installed and operated by them. They further submit that they are willing to improve their pollution control systems if so directed by this Tribunal or MPCB.

8. Considering the present controversy and documents on record, including the reports of MPCB, ICT and KEM/(Government Hospital) following issues can be culled out which needs to be adjudicated in the present matter:-

1. Whether the ambient air quality at the residential areas of the Applicants is deteriorated below the prescribed standard and norms ?

2. Whether there is any threat or anticipated threat to the health of residents of Mahul and Ambapada due to prevailing air quality in the area ?

3. What are the important probable sources of air pollution in the disputed area in question regarding presence of Volatile Organic Chemicals ?

4. Whether the industrial operations of Respondent Nos.1 and 2 are causing air pollution and associated health impacts or such inference can be drawn on basis of their proximity and use of precautionary principle under Section 20 of the National Green Tribunal Act, 2010 ?

5. Whether any specific steps are required to improve the air quality in the disputed area to ameliorate any potential threats to the health of the local residents ?

6. Whether any specific directions are required to be given by the Tribunal for the purpose ?

9. The main contention of the Applicants is that the chemical handling activities at the Terminal of Respondent Nos.1 is causing air emissions of Volatile Organic Compound, thereby polluting ambient air in the nearby residential areas, causing adverse health impacts. They have relied on the KEM Report to substantiate their claim of increased incidents of upper respiratory track diseases which according to them, can be directly related to the air pollution. The Applicants have claimed that the obnoxious smell of the chemicals which is spread in the entire area of Mahul and Ambapada villages that is causing air pollution and health impact. We have gone through the report of MPCB appointed Expert Committee's, both final and supplementary report, which are submitted through the affidavits dated 21st August 2014 and 6th December 2014 respectively. It is observed that the MPCB has not clearly defined the ambient air quality prevailing in the Mahul and Ambapada area. Certain reports of stack and ambient air quality which appears to be monitored by the respective industries themselves are attached with the report, besides some ambient air quality data, mainly for criteria

pollutants, monitored through outsourced agency. However, specific air quality monitoring, addressing the issues raised by the Applicants i.e. presence of VOCs have not been submitted by the MPCB.

10. Reverting to the question of status of air quality in the said area, it would be pertinent to understand the conspectus of the term 'Air Pollution' and 'Ambient Air Quality' with reference to the provisions of Air (Prevention and Control of Pollution) Act 1981. The term 'Air Pollution' has been defined in section 2 of the Air (Prevention and Control of Pollution) Act, as follows :

> ***2(a)*** *: "air pollution" means <u>any</u> solid, liquid or gaseous <u>substance</u> (including noise) <u>present in the atmosphere</u> in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment;*
>
> ***2(b)*** *"air pollution" means the <u>presence</u> in the atmosphere of <u>any</u> air pollutant;*
>
> **2(c)** - - - - -
>
> **2(d)** - - - - - -
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> **2(e)** - - - - - -
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> **2(f)** - - - - - - -

11. Section 16(h) of the Air (Prevention and Control of Pollution) Act 1981, the Central Pollution Control Board (CPCB) is required to lay down the standard for the quality of air. Further, the State Pollution Control Boards (SPCB) are

required to lay down standards for emissions of Air Pollutants into the atmosphere from the industrial plants and automobiles or for discharge of any air pollutants into the atmosphere from any other sources whatsoever, not being a ship or aircraft and such standard needs to be notified in consultation with Central Board and having regard to standards for quality of air laid down of Central Board.

12. The Central Pollution Control Board (CPCB) in exercise of the powers under Section 16(h) of the Air (Prevention and Control of Pollution) Act has notified the National Ambient Air Standard Quality (NAAQS) vide notification dated 18th September, 2009 which are as under :

SCHEDULE VII
(See Rule 3(3-B)
National Ambient Air Quality Standards

S.No.	Pollutant	Time weighted average	Concentration in Ambient Air	
			Industrial, Residential, Rural and other Area	Ecologically Sensitive Area (Notified by Central Government
1	Sulphur Dioxide(SO_2)ug/m^3	Annual 24 hrs.	50 80	20 80
2	Nitrogen Dioxide (NO_2)ug/m^3	Annual 24 hrs.	40 80	30 80
3	Particulate matter (Size less than 10 um) OR PM_{10} ug/m^3	Annual 24 hrs.	60 100	60 100
4	Particulate matter (less than 2.5 um) or $PM_{2.5}$ ug/m^3	Annual 24 hrs.	40 60	40 60
5	Ozone (O_3) ug/m^3	8 Hrs.	100	100

		1 Hr.	180	180
6	Lead (Pb) ug/m^3	Annual 24 Hrs.	0.50 1.0	0.50 1.0
7	Carbon Monoxide (CO) ug/m^3	8 Hrs. 1 Hr.	2 4	2 4
8	Ammonia (NH_3) ug/m^3	Annual 24 Hrs.	100 400	100 400
9	Benzene (C_6H_6) ug/m^3	Annual	5	5
10	Benzo(a)Pyrene(BaP)-particulate phase only, ng/m^3	Annual	1	1
11	Arsenic (As), ng/m^3	Annual	6	6
12	Nickel (Ni), ng/m^3	Annual	20	20

13. Now, considering the definition of 'air pollution' provided by the Air (Prevention and Control of Pollution) Act 1981, it is manifest that the term 'air pollution' is an inclusive definition which is not restricted to the 12 numbers of parameters prescribed in the notification dated 18th November, 2009. The term 'air pollution' has a wider connotation and encompasses presence of any solid, liquid or gaseous substance (including noise) in the atmosphere in such concentration, as may be or tend to be harmful. Obviously, the Legislature, with the vision of ever improving knowledge of complexity of air pollution, has included the term 'any' in the definition of air pollutant and air pollution, and also clearly set out priority by correlating the definition of air pollutant and air pollution with its adverse impacts on

the health or environment. The terms Air pollutant and Air Pollution therefore, have a capacious meaning. There are three (3) broader criterias which can be evolved from such definition, such as a) presence of such substance, b) presence in such concentration and c) whether it may be or tend to be injurious/ harmful to health and environment. It is, therefore, necessary to understand such technical composition of the air quality in order to verify whether there is any air pollution? Obviously, such understanding cannot be and should not be restricted to the twelve (12) parameters notified in the NAAQS.

14. The CPCB in its report on the Criteria for Comprehensive Environmental Assessment of Industrial Clusters published in the year 2009 has also taken a holistic approach and has given substantial weightage to the presence of toxins in ambient air while arriving at the air pollution index. These toxins have been enlisted in Appendix-1 of the report, categorising them as group 'B': Probable Human Carcinogens. Obviously, the CPCB was of the considered opinion that the presence of such toxins in the ambient environment is harmful and therefore, gave substantial weightage to such presence of toxins in the assessment of pollution index.

15. The importance of Organic compounds produced due to anthropogenic activities into the atmosphere was first recognized during the studies of Los Angeles smog

commonly known as photochemical smog. Volatile Organic Compounds (VOC) which are the main group of hydrocarbons in the atmosphere, play an important role in formation of Ozone, and other photochemical oxidants like PAHs in the troposphere. Benzene, Toluene, Ethyl-benzene and Xylene are the most typical components of VOC present in the air. The studies and literature have shown presence of such VOCs in the vicinity of petroleum refineries, storage tanks and industrial areas.

16. Now, coming back to the available data, MPCB in its final report of the Committee submitted the ambient air quality data collected in June 2014. MPCB has monitored total 16 (sixteen) parameters including NMHC (Non Methanogenic Hydro Carbon), Toluene, Xylene and ethyl-benzene. It is observed that the Toluene concentration varies at different locations and at Ambapada village, it varies from 15.3 to 45.9 micrograms/Nm^3. Similarly, at Mahul (Chereshwar Society), it is varies from below detectable limit to 15.3 micrograms/Nm^3. However, the duration of sampling and frequency of sampling have not been specified. MPCB has also conducted ambient air quality sampling and analysis through the agency, named, Goldflinch which was submitted to the Tribunal by MPCB on affidavit dated 4th July 2015. It is observed that the MPCB has submitted the report which includes results of ambient air monitoring conducted in May 2015 in the said

area. The monitoring was conducted at three (3) locations i.e. Chereshwar Co-operative Housing Society, Ambapada village and Sea Lord containers Ltd. The analysis reports are enclosed with the affidavit (page 2384 to 2410). We regret to record that in spite of our critical observations in earlier judgments, the present analysis results have also been annexed to the affidavit without any analysis, interpretation and correlation studies. They have been enclosed just as a formality without going into the findings, particularly, when the matter is heard by the Tribunal. We had directed the Member Secretary of the Board in "*Application No.33(THC)/2013 Janardan Patil & Anr. Vrs. Union of India & Ors.*" to take necessary steps to avoid such instances. We have taken a judicial note of such practices which we will deal in the final directions. The Tribunal is, therefore, required to go through these results and make its own analysis, interpretation and findings.

17. It is also noted that the Chembur area has been declared by Central Pollution Control Board as `critically` polluted area. Subsequently, in the comprehensive environmental assessment (CEPI study), CPCB had categorised the Chembur area as 'severally' polluted area. The area in question also falls in the said severally polluted area. We have noticed that MPCB has conducted detailed VOC assessment studied in areas of Tarapur, Navi Mumbai, Chandrapur, Aurangabad and Dombivali and such

comprehensive report is available on MPCB website. However, in spite of specific VOC issue involved in the present matter, such studies have not been carried out and some monitoring in piecemeal manner has been conducted. We do not know the reasons for not conducting such studies, but would expect Member Secretary to look into the matter for further necessary action.

18. The reports of Goldflinch, submitted by MPCB, provide some information on ambient air quality. MPCB had engaged this agency for conducting ambient air quality in pursuance to directions of NGT which primarily were issued to MPCB to produce ambient air quality data. The concentrations of Benzene, Toluene etc. as referred in the report, are substantially less than the concentrations reported by the MPCB in the June 2014 report. There is no justification or any discussions about such significant variation. Secondly, the report shows certain standards for Toluene, xylene, methanol etc. in terms of PPM though mere reading of NAAQS referred above would show that the information given in the report is not as per the NAAQS. It is not clear or explained from where such standards have been obtained by the said firm. It is also observed that the samples were collected by the laboratory itself and there is no involvement of MPCB in collection or analysis of the samples. We are constrained to bring out such inadequacy in the report only due to the fact that the MPCB has not

applied its mind on such report before presenting it to National Green Tribunal. These lacunae or shortcomings should have been addressed by MPCB at its own level, before submitting such reports to National Green Tribunal. We are not satisfied with such reports which do not provide a realistic picture on a scientific database. It is also not clear why MPCB has conducted such critical monitoring work through outside agency rather than conducting it through in house expertise and laboratory. It is also surprising that the monitoring is carried out without expert scientific supervision. Under these circumstances, it is difficult to rely upon the findings of such monitoring report.

19. Still, however, we find one important aspect that the concentrations of Nickel and Benzopyrene are regularly exceeding the standards in all the samples. In fact, highest Benzopyrene concentration is 32.88 micrograms/Nm^3 against the standards of 1 micrograms/Nm^3, whereas highest Nickel concentration is 151 against the standards of 20 micrograms/Nm^3.

20. Considering the above data, it is obvious that there is a significant presence of the Volatile Organics, Benzene, Toluene, Xylene, Ethyl Benzene, though there are no specific ambient air quality standards for then except Benzene.

21. The MPCB visit indicates strong foul smell due to presence of chemicals, particularly the VOCs and the report dated 12th March 2015 clearly mentions the presence of strong smell from the chemicals. It is also noted that there is a report of KEM which is placed on record by the Applicants along with Application which indicate that the respiratory morbidity is significant in the Mahul and Ambapada villages. Now, therefore, considering the above information conjointly with the definition of air pollution as provided in the Air (Prevention and Control of Pollution) Act, we are of the considered opinion that there is 'air pollution' in the Ambapada and Mahul areas and the issue No.1 is answered in Affirmative.

Issue No.2 :

22. The Applicants have mainly relied on the report of KEM and also the information given in ICT Report to contend that there are pertinent threats to human health in Mahul and Ambapada villages due to air pollution and excessive organics emissions from Respondent-1 industry. The Applicants submit that all the chemicals which have been authorised by the MPCB, for storage in the tanks of Respondent No.1, are highly inflammable and hazardous. The health impact of such chemicals is well documented and even the ICT report has produced a table showing potential health impacts of such chemicals. The KEM hospital has conducted respiratory morbidity survey in

Mahul and Ambapada villages and reported on 16.7.2013 that in Mahul area, 67.1 per cent population had complains of breathlessness more than three times in a month, 76.3 per cent reported the complaints in all season, 86.6 per cent complained of eye-irritation and 84.5 per cent have history of persisting chocking sensation in chest. On pulmonary function testing 7.3 % had mild restriction and 5% had mild obstruction from Chereshwar CHS ltd. Similar observations were recorded for Ambapada village, 66.5 % reported cough as a complaint, 61.3% reported eye irritation, 51.4% reported chocking sensation in chest, 53.3% had complaints of frequent colds and running nose and 81% reported strong smell in the area. The Applicants, therefore rely on this interim report of KEM wherein environmental pollution containment measures were recommended to be taken up on priority.

23. The interim report of KEM has concluded that the results and analysis of health assessment of five (5) areas of Chambur which includes Anikgaon, Ambapada, Mahul, Gavanpada in Vishnu Nagar shows significant respiratory morbidity. The report has dealt with the co-relation aspects of the ambient air quality and increased prevalence of Asthma which reveals statistically significant relationship between air pollution and respiratory/cardio-vasculature outcomes. The report further demonstrates "Asthma" as an indicator of environmental health and goes on to suggest

various activities which required to be undertaken which are as under :

1. Establishment of Environment and Lung Health Institute for city of Mumbai by 2015.
2. Environment aspect should include study regarding effect of traffic management solutions, building architectural aspects of newer constructions and HVAC systems maintenance criteria to be laid down for better health of citizens.
3. Environment containment measures to be undertaken during construction, demolition work, solid and e-waste management.
4. Lung Health Institute to further research and offer practical solutions for treatment of chronic respiratory disorders, impart education to people at large e.g. workplace (occupational) safety, precautions during use of pesticides, mound (fungus) prevention at workplace/homes.
5. Establish a Global Information system for mapping, trend identification and analysis of environment and health in Mumbai city and provision of environmental alerts for sensitive population which include children, women, elderly and people with respiratory and cardiac disorders.

24. Considering such report and also the report of expert committee of MPCB, KEM was directed to look into the report of MPCB expert committee and give its report. The KEM in its report dated 16th October 2014, has noted that the standard air quality monitoring of the criteria pollutants may not be sufficient for the health impact

assessment, in view of inventory of chemicals, volatile organic chemicals, used by the industries in the vicinity of subject area and therefore, it was necessary to look for organic and inorganic air pollutants. The report further indicates that the MPCB report of June 2014 indicated Toluene levels of 41 and 15.3 mg/m³ of Ambapada and Chereshwar Society respectively. It is noted that though there is no ambient air quality standard specified for the Toluene, such high concentrations and its possible health impacts are matching with the health effects observed in the area which are similar to the exposure to 'Toluene diiso-cyanate'. A strong co-relation is found from the available record and documents to establish such co-relationship between the excessive concentrations of VOCs in ambient air in the areas of Ambapada and Mahul and the adverse effects on the health of local residents. KEM has noted that on referring to the properties and possible health effects of the various chemicals stored in industries in this area and their possible chemical derivatives, the health effects observed in this area are matching that of Toulene diisocynate (TDI) like; human systemic effects by inhalation, unspecified changes to eye, sense of smell, respiratory obstruction, cough, sputum and other pulmonary and gastrointestinal changes. KEM has further recommended to conduct specific studies for Toulene diisocyanate for concentrations up to 0.5 µg/m3. We have

also noted that the Ontario ambient air quality standards has current air quality standards for TDI of 1 µg/m3 for the half-hour Point of Impingement (POI) and 0.5 µg/m3 for the 24-hour Ambient Air Quality Criterion (AAQC). These values are based on considerations of human health.

25. We are conscious of the fact that such co-relations are scientifically and statistically very subjective and there may be variable attributes like sample size, sample distribution, sampling period besides individual variables like occupation, nutrition and life style of individual subjects. Notwithstanding such delicate but significant dependencies, it is always statistically prudent to consider basis when large cases of similar kind, namely, respiratory disorder have been noticed by KEM, in relation to people from above two (2) villages and considering the human health on priority and therefore, we do not find any reason for not accepting the KEM report. Considering such observations and also, the demonstrated link between the prevalent ambient air quality at Mahul and Ambapada villages with the health impacts in those areas, it can be observed that there is a perceptible threat to health of the residents of village Mahul and Ambapada due to prevailing air quality in the area.

26. In the case of "*T.N. Godavarman Thirumulpad Vs. Union of India 2012 (3) SCC 277*", the Hon'ble Supreme Court held :

"Environmental justice could be achieved only if we drift away from the principle of anthropocentric to eco-centric. Many of our principles like sustainable development, polluter-pays principle, inter-generational equity have their roots in anthropocentric principles. Anthropocentrism is always human interest focused and non-human has only instrumental value to humans. In other words, humans take precedence and human responsibilities to nonhuman based benefits to humans. Eco-centrism is nature centred where humans are part of nature and non-human has intrinsic value. In other words, human interest does not take automatic precedence and humans have obligations to non-humans independently of human interest. Eco-centrism is therefore life-centred, nature-centred where nature includes both human and non-humans."

27. The Respondent No.1 has also produced documents, titled 'Reference guide to odour thresholds for hazardous air pollutant listed in the Clean Air Act Amendment of 1990' published by United State Environment Protection Agency (USEPA) which gives the odour threshold for various chemicals, particularly volatile organics. The document demonstrates the relationship between the odour threshold values for various hazardous air pollutants and the health based exposure criteria which also advocates for health based ambient air quality criteria in order to truly protect the human health. The report also deals with various human exposures variable, including ambient exposure, sensitivity of the individual, occupation profile,

besides inhalation risk factors. The odour thresholds can be therefore, useful as a screening level criteria which may be of semi-quantifiable approach for acceptance of the air quality for its hazard identification, in case, the chemical identity of the odour can be reasonable presumed and toxicity data are available, with appropriate health based ambient criteria. In other words, the odour threshold values have been recommended as screening criteria or acceptable ambient air quality in view of strong industry linkage of such hazardous air pollutants and the human health. Based on above discussions and also having answered the issue No.1 in affirmative, the logical corollary would naturally lead to answering the issue No.2, also in **Affirmative**.

Issue No.3 :

28. Now, coming to the important issue of the dispute i.e. whether the Respondent Nos.1 and 2 are causing air pollution and associated health impacts, it is necessary to understand the conspectus of the air emissions including the VOCs, in the said area, and the sources of such air pollutants. The Chambur Mahul area is known to be an industrial belt and accommodate major industries like refineries of HPCL and BPCL, Coal and gas based Thermal power plant of Tata Power Company and fertilizers plant of RCF predominantly. The area also experience very heavy traffic in view of the Bombay Port Trust activities besides

connectivity to the main land. Chambur area was one of the 17 critically air polluted area which were identified by C.P.C.B. in 1990s. Subsequently, in the Comprehensive Environmental Pollution Index, 2010 (CEPI) the Chembur area was identified as 'severely' polluted area. In pursuance to this Application, MPCB had constituted a Committee to study the Air Pollution in this area and final report of the Committee was submitted by affidavit dated 21st August 2014. The report deals with various industries, which were subsequently added as Respondents in the present matter. and has observed that the levels of the criteria pollutants are mostly within CPCB norms. The report also identifies the Toluene as a critical parameter.

29. Another important parameter which is necessary to be considered in the present matter is the atmospheric tropospheric Ozone. It is well documented that the ground level ozone is mainly generated by the atmospheric reactions of Nitrogen oxides and Volatile Organic Compounds. In some scientific studies, the atmospheric Ozone has been considered as an indicator i.e. surrogate for assessing the presence of hazardous air pollutants in the ambient air. USEPA has enlisted more than 160 organic chemicals as hazardous air pollutants under provisions of Clean Air Act, 1972, which are in addition criteria pollutants which are regularly monitored. It is an admitted fact that such a composite system of notifying the

ambient air pollutants i.e criteria air pollutants and hazardous air pollutants, is presently not adopted in the country. However, as discussed in above paras related to issue No.1, these hazardous air pollutants are very important in view of its severe health impacts, even at very small concentrations and also with a limited exposure. Ozone has already been included as a criteria pollutant, as per NAAQS-2009. The ambient air quality monitoring submitted by the MPCB in its Committee Report through an outsourced agency indicates that the Ozone values are substantially lower than the prescribed standards i.e. range of 6.1-23.2 against the standard of 180 µg/m3. However, the values of Benzene, Toulene, Benzopyrene and Nickel are very high.

30. It is well documented that the transportation, petroleum refineries, handling of petroleum products, chemical industries and use of solvents by industrial/domestic users are important sources of the VOCs. Considering the typical industrial setting of the Chembur area, the large scale handling and storage of petroleum products and chemicals can be considered as major source of VOCs, besides the transport and other issues. The Nickel is natural element of the soil and may be found in fraction in ambient air. However, Nickel being extensively used as catalyst in petroleum refineries and also, present in crude which may be released on refining,

would make refineries as major source of ambient Nickel. The emission standards notified under Environment Protection rules for the petroleum refineries have also listed Nickel and Vanadium as air pollutant. In view of these peculiar circumstances and the data available on record, it is evident that the Respondent Nos.1, besides Respondent No.9 and 10 are the important industrial sources. Obviously, therefore, as far as the industrial sources are concerned, Respondent No.1, 9 and 10 are major contributory industrial sources in ambient air pollution of the area. The issue No.3 is accordingly answered.

Issue No.4 :

31. The main contention of the Applicants is that the industrial activity of Respondent No.1 is causing air pollution and resultantly causing adverse health impacts on the residential areas of village Mahul and Ambapada. They have contended that the industrial operations of Respondent No.1 have started somewhere in 2007 and only thereafter, they have started facing recurrent problem of air pollution and associated health problems. Per contra, it is the contention of Respondent No.1 that they have adopted all the necessary safeguards including provision of pollution control systems, safety measures and hazard prevention measures which will ensure that there is no pollution, even incidental one, causing such a problem. Sr. Counsel Shri Gaurav Joshi appearing for Respondent Nos.1

and 2 would submit that it is an admitted fact that industrial operations of Respondent-1 are relatively minuscule when compared to operations of Respondent Nos.9 and 10 petroleum refineries. He further contend that petroleum product storage tanks of Respondent Nos.9 and 10-industries, particularly BPCL, are also located in proximity i.e. about 300m from the residential Society of the Applicants and further, many of these crude storage tanks are not covered, thereby causing excessive volatile emissions. Learned Sr. counsel would further state that though the Chembur area has been declared as critically polluted area and predominantly an air polluted one, but the problem lies somewhere else and authorities have already attempted to resolve this persistent problem by carrying out source approportionment studies through NEERI and has also placed copy of such report on record. He would also submit that the study of air pollution in such industrial areas, where air pollution due to VOCs are claimed, is a complex study, and the overall emissions from all the industries in the area besides the background concentrations should be taken into account. He however, assures that the Respondent-1 is willing to comply with any directions of the Tribunal, if they are equitably applied. He further stated that as far as chemical storages are there. Respondent No.1 has already provided fixed roof to five tanks and floating roof to remaining five tanks. He would

submit that though there are no standards for floating roof for chemical storage tanks, Respondents are open to such improvement, if such a policy decision is taken by MPCB or such standards are notified by the Authorities.

32. The Applicant contradicted such claims by stating that the industrial operations of Respondent Nos.9 and 10 are of petroleum refining nature and the smell of ambient air, as even felt by MPCB officials, is of the chemicals handled at Respondent No.1 industry. They even cited activities/units of Respondent No.1 i.e. storage of hazardous chemical, breather valves, pigging, cleaning of storage tanks and dispensing systems as the important point sources of the air emissions. Having regard to nature of such controversy and also the fact that the MPCB appointed Expert Committee has not covered those aspects which were elaborately alleged by the Applicants in their Application itself, the Tribunal by its order dated 3rd February 2015, appointed Institute of Chemical Technology, Matunga to submit report on the certain specific issues. The report has come out with following findings which are summarised below along with the issue framed;

1. *The nature and composition of the VOC emissions from activities and unit processes at Respondent No.1 terminal including the pigging operations, pressure valves mounted out on storage tanks and dispenser units etc.*

ICT has identified possible sources of emissions such as storage tank filling, pressure valves mounted on top of tanks, tanker loading and unloading, scrubber absorber units. However, report states that pigging operations are outside scope of study. Also, the composition of VOC emissions from various activities and unit processes at SCL are outside scope of study. Further findings reported are;

- The possible sources of emission are identified during the activities such as storage tank filling, pressure valve mounted on the top of storage tank, tanker loading and scrubber-absorber unit.
- The storage tanks are mounted with adequate equipments in order to suppress the vapour emission.
- Vapor losses in the tanker filling area are suppressed with the help of a scrubber-absorber unit.
- The processes followed in SCL are in line with the best practices followed internationally.
- AAQM carried out by M/s. Goldfinch Engineering Systems Pvt. Ltd. will provide the actual composition of the VOC emission.

2. *The nature of chemicals stored at Respondent No.1-unit and health impacts of the potential emissions on human health.*

ICT has reviewed the consented list of chemicals handled/ stored and their possible health impacts and summarised that;

- The data related to health effects of various products handled/ stored at SCL clearly

indicates that inhalation and/or ingestion of the product can cause adverse effect on human health if it exceeds the permissible limit.

- The common effect on human health includes irritation to eyes and mucous membrane, headache, dizziness etc. However, overexposure to some of the products is also reported to cause respiratory failure, rapid breathing, CNS depression, coma and can result in death.
- Therefore, it is necessary to verify the possibility of such emissions and adequacy of pollution control system, in the company premises.

3. *Adequacy and efficacy of the Pollution Control System at the Respondent No.1-Unit in terms of the operational standards adopted by Respondent No.1-unit for its processes and activities.*

Adequacy of pollution control system is assessed by ICT in terms of operational standards adopted by the industry for its processes and activities. The findings on this issue are;

- Storage tanks at SCL are well equipped with pollution control as well as safety system.
- The possibility of vapour losses in the tanker filling area is avoided using a scrubber absorber unit.
- The scrubber unit is well maintained and final discharge water also meets necessary standards.
- In Addition, the terminal has a state of art fire safety system. Thus, the pollution control

system at SCL is adequate and in line with the best practices followed globally.

4. *The potential impacts and change in the air and water emissions resulting from change in capacity from maximum 75,000 KL per month to 75,000 KL at a time and its environmental implications.*

ICT notes that for incompatible product, storage tank and connected pipelines takes 10 hrs for 5000 KL tank and 16 hr for 10000 KL tank. There are no discussions on emission during such cleaning and/or increased handling due to change in consent regime. The observations of ICT are;

- Change in capacity from maximum 75,000 KL per month to 75,000 KL at a time is an unlikely event.
- The company also follows a proper operating procedure during product changeover.
- Also as discussed earlier, the company has an adequate pollution control system.

33. Institute of Chemical and Technology, Matunga (ICT) has stated that the composition of Volatile Organic Compound emissions from various activities and unit processor at the industry is beyond the scope of study and therefore, they have only inspected the Ambient Air Quality Monitory (AAQM) at different locations performed by M/s. Goldflinch Engineering System Pvt. Ltd. It is also stated that the pigging operation is not carried out in the Respondent No1's premises and therefore, it is beyond the scope of the common study.

34. In addition, the ICT Report has come out with following conclusions and recommendations :

Conclusions and recommendations

The detailed study on various aspects related to the "Issue of Volatile Organic Emission causing health impacts on surrounding population allegedly. In respect of M/s. Sea Lord Containers Pvt. Ltd." is presented in this report. Following are the major outcome of the present study :

1. *Various products handled/stored at M/s. Sea Lord Containers Pvt. Ltd. are reported to cause harmful effect on human health if it exceeds the permissible limit.*
2. *The possible sources of vapour emission are identified during the activities such as; storage tank filling, pressure valve mounted on the top of storage tank, tanker loading and scrubber absorber unit.*
3. *However, the storage tank, pressure valves and tanker loading area are well equipped to suppress the vapour emissions.*
4. *AAQM carried out by M/s. Goldfinch Engineering Systems Pvt. Ltd. will provide the actual VOC emission levels.*
5. *The pollution control system at SCL is adequate and in line with the best practices followed globally.*
6. *The company also follows a proper operating procedure during product changeover.*
7. *The terminal has a state of art fire and safety systems in case of any emergency.*
8. *The company also organizes periodic safety related trainings and workshops (including training on emergency evacuation, emergency response drill, first air, fire prevention and protection etc.).*

35. Subsequently, the Applicants sought to rely on an opinion of one Expert, Shri Ajit Ulhas Apte, challenging the findings of ICT Report. In short, the objections to the ICT Report may be summarized as under :

1. The Report is mainly based on visual observations and information gathered from the Respondent-Industry and there is no physical examination, verification or monitoring, particularly, appropriate findings on issue Nos.1 to 3. The report conveniently avoids the monitoring of emissions from identified sources and performance evaluation of air pollution control systems as far as composition of VOCs and adequacy/efficacy of pollution control system, by simply stating that this is out-side scope of the study, though it was specifically directed by the National Green Tribunal.
2. The ICT has not verified the performance of pollution control system, nor measured the air emissions in terms of the VOCs. It is alleged that the report is based on secondary information which is primarily supplied by the Respondent-Industry and there is no substantial inputs of the ICT on the issues framed by the National Green Tribunal while proposing such study.

36. The ICT submitted its reply to this affidavit of Shri Ajit Apte and have point-wise rebutted his objections to the IIT Report. The ICT has stated that they have conducted the study related to adequacy and efficacy based on review of design criteria of various pollution abatement equipment

and also, review of operation and maintenance protocol of the same. The ICT report has used ambient air monitoring data collected by M/s. Goldflinch Services Pvt. Ltd and based on such comprehensive consideration, it has been concluded that there are no significant VOC emissions due to chemicals handled/stored at the premises of Respondent no.1.

37. We have carefully gone through our directions dated 3rd February 2015, the ICT report of May 2015 and objections filed by Applicants and response of ICT thereto. In our order dated 3rd February 2015, the ICT was given a specific mandate and more particularly, to assess the nature and composition of the VOC emission from the activities and unit process of Respondent No.1 Terminal and efficacy of pollution control system at Respondent No.1. The order was a detailed one, setting out the background why such a specific study is required and also, need of third party expert evaluation of the issues framed in the order. We have noted that ICT has identified possible VOC emission sources i.e. storage tank filling, pressure valve tank loading and scrubber unit. However, pigging operations are claimed to be conducted outside the premises and not covered in the study. We find it difficult to understand how said important activity, though may be conducted at the other location, but which is intrinsically connected to the Respondent No.1 terminal, in terms of continuous pipelines and also, effect of

such operation on the emissions at Respondent No1 unit, can just be avoided without seeking permission of the Tribunal. It is pertinent to note that the pigging operation is claimed to be an important source of VOC emissions and should have been covered in the study. Another aspect of nature and composition of VOC emissions is also not answered in said report and it is stated that composition of VOC emissions on various activities and unit processes at HCL is behind the scope of this study.

38. We find it difficult to understand as to how such important aspect of the study can just be skirted by stating that it is beyond scope of the study. The proposed study was commenced with a particular aim to identify and assess the strength of the VOC emission sources in order to have an effective control on the emissions at the sources level by providing necessary air pollution control system. The ICT report has only dealt on the ambient air i.e. receptor level air quality. Such ambient quality data was also produced by MPCB in earlier report in August 2014 and study was commenced to understand the nature and strength of various sources of VOC emissions at Respondent No.1. It seems that ICT has even not considered the earlier monitoring reports of MPCB nor it has commented on Goldflinch report. We regret to note that such critical inputs which are required in terms of composition of VOC emissions, adequacy and efficacy of pollution control

systems are not adequately and definitely answered in the report. The report is based on secondary data and system analysis. In view of the specific mandate given to ICT in our order, the ICT should have been more specific and in case of any difficulty in ascertaining scope of work, it was always open for ICT for approach NGT for clarification.

39. But at the same time, the findings of ICT report cannot be completely negated in totality, though we find some merit in the submissions of the Applicants that ICT has evaluated the design criteria and operations and maintenance manual to assess the efficacy and adequacy of the air pollution control system. The adequacy and performance evaluation of any pollution control systems generally is assessed based on evaluation of design criteria, operation and maintenance procedures, field inspection and emission monitoring. Moreover, all these aspects have to be dealt in complementary manner as most of the times the performance of the pollution control system is dynamic in nature and variable subject to multiple factors which may be due to process variations of industrial operations and therefore, such a composite approach would have been re-assuring to satisfy ourselves about the efficacious performance of the pollution control system. Nonetheless, in view of the secondary information collected by the ICT and theoretical extra-pollution technique allegedly adopted by the experts of the ICT, the report and findings needs to be

considered and adopted, with a pinch of salt, at present. However, we would expect the Vice Chancellor of ICT to take note of these observations and issue suitable instructions to the concerned for avoiding such instances in future.

Issue Nos.5 & 6 :

40. As stated supra, the Chambur area, which also includes Mahul and Ambapada villages, is already identified as critically polluted area (CPA) by the Central Pollution Control Board. Chembur is also identified as 'severely' polluted industrial area under the comprehensive environmental pollution index (CEPI) by the Central Pollution Control Board in the year 2010. The air quality monitoring data available in the report on the 'Air Quality Assessment, Emission Inventory and Source Apportionment studies' for Mumbai prepared by the NEERI in November 2010 describes the trends in ambient air quality at various locations in Mumbai. The report indicates that the air quality at Mahul is generally exceeding the standards as far as PM_{10} is concerned. It also presents air quality status for non-criteria pollutants like formaldehyde, non-methyl hydro-carbon and Elementary carbon (EC)/ organic carbon (OC) which generally gives picture which is not of a sound air quality. The limited air quality produced by MPCB through its Expert Committee as well as agency from where the data was outsourced in May 2015 shows some distinct features of air quality in terms of special parameters like Benzopyrene,

Toulene and Nickel. However, both these reports show a contradictory picture of the parameter such as sulphur-di-oxide, nitrogen-di-oxide, Benzene, Toluene and Nickel. However, significantly, both report show particulates with within the NAAQS which is very different from findings of NEERI.

41. Be that as it may be, it is necessary to take precautionary approach in case such conflicting air quality data is available which is not in any way explained by the MPCB which is mandated to regulate the air pollution in the State. Besides that, as already discussed hereinabove, the issue No.3 and 4 above, it is manifest that the Respondent1, 9 and 10 are the major industrial sources of air pollution as far as VOCs are considered, the contribution of such Respondents, particularly Respondent-1 has not come out clearly on record. Rather the Report of ICT, though on secondary and empirical data would conclude that there are no excessive emissions, even of instantaneous nature from the industrial operations of Respondent Nos. 1 and 2. It therefore, becomes necessary to adopt the precautionary approach regarding all the identified sources of emissions. The KEM report dated 16.10.15 which is placed on record has stressed for undertaking a study regarding human exposure assessment of the part causality assessment, in view of the specific air pollutants prevalent in the area.

42. In the instant case, the Tribunal is faced with a controversy where certain level of uncertainty is involved as far as ambient air quality data and also the source emission contribution. We are conscious of the fact that in case of such uncertainty, the environment protection and human health needs to be the cardinal principles on which the Tribunal has to adjudicate. This is well settled principle of the environmental jurisprudance.

43. Some conclusions of the foregoing discussions can be summarised by recording our findings in the present matter as under:

a. There is a persisting problem of air pollution in Mahul, Ambapada and Chembur areas.
b. There is strong evidence that this air pollution is linked and can be scientifically correlated to the adverse health effects on the surrounding population as observed through KEM (Govt. Hospital) studies.
c. There is an urgent need to control this air pollution by devising the suitable action plan as per section 17 of the Air (Prevention and Control of Pollution), 1981, may be on the lines of CEPI action plan prepared by MPCB for some other areas.
d. The contribution of individual source of air pollution in the air quality in the area is not available on record (source approportionment). However, considering the complexity involved in measurements, prediction and modelling of VOCs, it is prudent to evolve such an action plan for all the identified sources of VOCs. However, considering the principle of proximity and findings of ICT/KEM, it would be necessary to deal with emission from

Respondent-1 on priority, in the first phase of such action plan.

44. It is also well settled that pollution is a civil wrong. By its very nature, it is a Tort committed against the community as a whole. A person, therefore, who is guilty of causing pollution, has to pay damages for restoration of environment and ecology. (*M.C. Mehta Vs. Kamalnath 1997(1)SCC 388*).

45. The "precautionary principle" was elucidated by Honb'le Apex court in Vellore Citizens 'Welfare Forum v. Union of India and Ors., [1996] 5 SCC 647, inter alia as follows:

(1) The State Government and the statutory authorities must anticipate, prevent and attack the causes of environmental degradation.

(2) Where there are threats of serious and irreversible damage, lack of scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

(3) The "onus of proof" is on the actor or the developer to show that his action is environmentally benign.

(4) It cannot be gainsaid that permission to use automobiles has environmental implications, and thus any "auto policy" framed by the Government must, therefore, of necessity conform to the Constitutional principles as well as overriding statutory duties cast upon the Government under the EPA.

(5) The "auto policy" must, therefore,…….

46. In the case of Indian Council for Enviro Legal Action Vs. Union of India and others (1993 (3) SCC 579) the Hon'ble Supreme Court has observed that :

> *"A law is usually enacted because the legislature feels that it is necessary. It is with a view to protect and preserve the environment and save it for the future generations and to ensure good quality of life that the Parliament enacted the Anti-Pollution Laws, namely the Water Act, Air Act and the Environment (Protection) Act, 1986. These Acts and Rules framed and Notification issued thereunder contains provisions which prohibit and / or regulate certain activities with a view to protect and preserve the environment. When a law is enacted containing some provisions which prohibits certain types of activities, then, it is of utmost importance that such legal provisions are effectively enforced. If a law is enacted but is not being voluntarily obeyed, then, it has to be enforced. Otherwise, infringement of law, which is actively or passively condoned for personal gain, will be encouraged which, will in turn lead to a lawless society. Violation of anti-pollution laws not only adversely affect the existing quality of life but the non-enforcement of the legal provisions often result in ecological imbalance and degradation of environment, the adverse effect of which will have to be borne by the future generations."*

47. The Applicants have prayed for closure of Respondent-1 industrial operations in view of the health problems arising due to air emissions of Respondent-1. At the same time we are conscious of the principle of Sustainable development which has been elaborately discussed by Hon'ble Principle Bench of NGT in Appeal No. 57 of 2013 [Appeal No. 22 of 2013 (SZ)] And Appeal No. 58 of 2013 [Appeal No. 23 of 2013 (SZ)] and has noted the complexity of sustainable development:

113. Article 21 of the Constitution of India which provides that no person shall be deprived of his right to life or personal liberty, except according to the procedure established by law, is interpreted by the Indian courts to include in this right to life, the right to clean and decent environment. Right to decent environment, as envisaged under Article 21 of the Constitution of India also gives, by necessary implication, the right against environmental degradation. It is in the form of right to protect the environment, as by protecting environment alone can we provide a decent and clean environment to the citizenry. Right to clean environment is a guaranteed fundamental right. Various courts, particularly the superior courts in India are vested with wide powers, especially in terms of Articles 32 and 226 of the Constitution of India to deal with issues relating to the fundamental rights of the persons. The courts, in fact, can even impose exemplary damages against the polluter. Proper and healthy environment enables people to enjoy a quality life which is the essence of the right guaranteed under Article 21. The State and the citizens are under a fundamental obligation to protect and improve the environment including forests, lakes, rivers, wild life and to have compassion for living creatures. Right to have living atmosphere congenial to human existence is a right to life. The State has a duty in that behalf and to shed its extravagant unbridled sovereign power and to forge in its policy to maintain ecological balance and hygienic environment. The power to issue directions and other powers should be exercised by the State to effectuate and further the goals of approved scheme, zonal plans, etc. The hazards to health and environment of not only the persons residing in illegal colonization but of the entire town as well as the provisions and schemes of the relevant Acts have to be taken into consideration. The most vital necessities, namely air, water and soil having regard to the right to life under Article 21 cannot be permitted to be misused or polluted so as to reduce the quality of life of others. Risk of harm to the environment or to human health is to be decided in public interest, according to a "reasonable person's" test. Life, public health and ecology have priority over unemployment and loss of revenue. It is often said that development and protection of environment are not enemies but are two sides of the same coin. If without degrading the environment or by

minimizing the adverse effects thereupon by applying stringent safeguards, it is possible to carry on developmental activities applying the principle of sustainable development, in that eventuality, development has to go on because one cannot lose sight of the need for development of industry, irrigation resources, power projects, etc. including the need to improve employment opportunities and the generation of revenue. A balance has to be struck. Courts have exercised the power of imposing exemplary damages against the pollutants in order to protect the environment and to restore the damage done to the environment as well. In fact, even the disturbance in the environment by undesirable sound of various kinds, amounts to noise pollution. It is a shadowy public enemy whose growing public menace has increased in the modern age of industrialization and technological advancement. Noise has become one of the major pollutants and has serious effects on human health. Consistent judicial opinion in India has recognised the right to live in freedom from noise pollution as a fundamental right also, protected under Article 21 of the Constitution. If anybody increases the volume of speech and that too with the assistance of artificial devices so as to compulsorily expose unwilling persons to hear a noise raised to unpleasant or obnoxious levels, then the person speaking is violating the right of others to a peaceful, comfortable and pollution-free life guaranteed under Article 21. Courts have even held that Article 19(1)(a) cannot be pressed into service for defeating the fundamental right guaranteed under Article 21 of the Constitution. Thus, the right of an individual to healthy and clean environment including air, water, soil and noise-free environment is of paramount consideration and it is impermissible to cause environmental pollution and particularly in violation of the prescribed standards. Since the different facets of environment are relatable to life and human rights and concern a person's liberty, it is necessary that resources are utilised in a planned manner. Wherever industrialisation has an impact on utilisation of essential resources like air, water and soil and results in irreversible damage to environment, then it may be impermissible to utilise these resources in that fashion. In the recent times, there has been accelerated degradation of the environment, primarily on account of lack of effective enforcement of laws and non-compliance

with the statutory norms. Concentrated industrialisation in some pockets has been the other reason for enhanced damage to the environment. It emerges from the desire of the people to operate from the areas where the industry presently exists. [References:Subhash Kumar v. State of Bihar (1991) 1 SCC 598; Virendra Gaur v. State of Haryana (1995) 2 SCC 577; A.P. Pollution Control Board v. Prof. M.V. Nayudu (1999) 2 SCC 718; M.C. Mehta v. Kamal Nath (2000) 6 SCC 213; Narmada Bachao Andolan v. Union of India (2000) 10 SCC 664;Hinch Lal Tiwari v. Kamla Devi (2001) 6 SCC 496; T.N. Godavarman Thirumulpad v. Union of India (2002) 10 SCC 606; M.C. Mehta v. Union of India (2004) 6 SCC 588; M.C. Mehta v. Union of India (2004) 12 SCC 118; In Re: Noise Pollution (2005) 5 SC 733; Milkmen Colony Vikas Samiti v. State of Rajasthan (2007) 2 SCC 413].

48. It is true that the present case is unique in nature due to multiple factors. Firstly, the entire area of Mahaul and Chembur is a predominantly industrial area, accommodating several hazard prone industries, including Terminal of Respondent-1, refineries, RCF fertiliser plant etc. There is significant population surrounding these industrial locations thus exposing this population to pollution generated by these industries, besides safety concerns and associated health effects. Such a scenario is a culmination of a failure of the planning authorities, over a time, to plan and maintain a minimum buffer area; between the industrial areas and residential areas, resulting into conflicts and proven health concerns to the residents, as presented in this Application. Still however, at this stage, it would be difficult for any court to close any industry or direct it to shift elsewhere unless and until there is sufficient evidence to show their contribution, leave apart significant contribution.

49. Hon'ble Apex Court in *M.C. Mehta & Anr. Etc vs Union Of India & Ors. Etc on 17 February, 1986, 1986 SCC (2) 176 Equivalent citations: 1987 AIR 965, 1986 SCR (1) 312,* while passing certain orders has noted that;

> *We have formulated these conditions with a view to ensuring continuous compliance with the recommendations of Manmohan Singh Committee and Nilay Choudhary Committee and strict observance of safety standards and procedures, so that the possibility of hazard or risk to the workmen and the community is almost reduced to nil. We would like to point out that the caustic chlorine plant of Shriram is not the only plant which is carrying on a hazardous industry. There are many other plants in Delhi which are employing hazardous technology or are engaged in manufacture of hazardous goods and if proper and adequate precautions are not taken, they too are likely to endanger the life and health of the community. We would therefore suggest that a High Powered Authority should be set up by the government of India in consultation with the Central Board for overseeing functioning of hazardous industries with a view to ensuring that there are no defects or deficiencies in the design, structure or quality of their plant and machinery, there is no negligence in maintenance and operation of the plant and equipment and necessary safety devices and instruments are installed and are in operation and proper and adequate safety standards and procedures are strictly followed. This is a question which needs serious attention of the Government of India and we would request the Government of India to take the necessary steps at the earliest, because the problem of danger to the health and well-being of the community on account of chemical and other hazardous industries has become a pressing problem in modern industrial society. It is also necessary to point out that when science and technology are increasingly employed in producing goods and services calculated to improve the quality of life, there is a certain element of hazard or risk inherent in the very use of science and technology and it is not possible to totally eliminate such hazard or risk altogether. We cannot possibly adopt a policy of not having any Chemical or other hazardous industries merely because they pose hazard or risk to the community. If such a policy were adopted, it would mean the end of all progress and development. Such industries, even if hazardous have to*

be set up since they are essential for economic development and advancement of well-being of the people. We can only hope to reduce the element of hazard or risk to the community by taking all necessary steps for locating such industries in a manner which would pose least risk of danger to the community and maximising safety requirements in such industries. We would therefore like to impress upon the Government of India to evolve a national policy for location of chemical and other hazardous industries in areas where population is scarce and there is little hazard or risk to the community, and when hazardous industries are located in such areas, every care must be taken to see that large human habitation does not grow around then. There should preferably be a green belt of 1 to 5 k.m. width around such hazardous industries.

50. Hon'ble Apex Court in "*Intellectuals Forum, Tirupathi vs State Of A.P. & Ors in Appeal (civil) 1251 of 2006*" on 23 February, 2006, decided on 23/02/2006 has elaborately dealt on sustainable development, principle of state responsibility to protect environment and principle of public trust. Some of the relevant paras are reproduced for ready reference:

"The responsibility of the state to protect the environment is now a well-accepted notion in all countries. It is this notion that, in international law, gave rise to the principle of "state responsibility" for pollution emanating within one's own territories [Corfu Channel Case, ICJ Reports (1949) 4]. This responsibility is clearly enunciated in the United Nations Conference on the Human Environment, Stockholm 1972 (Stockholm Convention), to which India was a party. The relevant Clause of this Declaration in the present context is Paragraph 2, which states:

"The natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural ecosystems, must be safeguarded for the benefit of present and future

generations through careful planning or management, as appropriate.

Thus, there is no doubt about the fact that there is a responsibility bestowed upon the Government to protect and preserve the tanks, which are an important part of the environment of the area".

51. The conflict between the industries involved in hazardous chemical handling and surround population has been dealt by Hon'ble High court of Bombay, wherein emphasis has been laid on the proper planning process which would ensure that there is sufficient buffer zone available between the industries and the population, may be for development of green belt. Hon'ble High Court of Bombay in the case of Buyer (India) Limited and Others Versus State of Maharashtra and others 7 AIR 1988 SC 712 have considered the powers of the Municipal Commissioner at length under section 45, 46 and 154 of the M.R.T.P. Act, 1966 at length. The relevant paragraphs of the said judgment are thus :

"3. *Where human habitation is permitted in proximity of units dealing with hazardous chemicals and processes, there is an immediate two-fold danger; the first being the exposure to health hazards which would have its own long-term deadly effects and the second being the danger to life which is something irreplaceable. Both these aspects are crucial and are of equal concern and we do think that it is of fundamental necessity that the Planning Authorities, the Government and the Public bodies, who are entrusted with the task of deciding on the location of residential areas, must be alive to these very real and basic necessities at all times. These are the Hindustan Petroleum Corporation ... vs The Municipal Corporation Of ... on 12 April, 2012 Indian Kanoon - http://indiankanoon.org/doc/38560249/ 29 issues on which there can be no compromise, nor can there be any leniency.*

4. In our considered view and in the present set-up, where the planning processes are left to the Government and to the public bodies, it is inherent that overriding considerations of Public health and danger to life must be issues to which top priority consideration is bestowed.

Where there is a failure in this regard, the Court will have to step in, in exercise of the inherent powers vested in them and strike down or prohibit any action that offends these basic tenets. Nothing can be more fundamental than the issue of public safety and the right to life and where these are infringed upon, the Courts will have to act in the general interest of the citizens. Where a breach has occurred, either due to lethargy, negligence or for other familiar reasons, the role of the Courts becomes all the more important. We are conscious of the fact that it is not the function of the Courts to direct and advise the Planning Authorities or to substitute their decisions by judicial decisions in the last resort. Unfortunately where it 8 1994 (4) Bom.C.R. 309 kvm wp1973_11 is demonstrated that public authorities have acted in a manner, or permitted activity that endangers public health and human life, the Courts, as of necessity, will have to take the exceptional step of remedying the mischief. No amount of technical pleas can justify a situation where a large number of people are permitted to reside in the close vicinity of industries dealing in hazardous chemicals and processes and under normal circumstances where such a situation has occurred, the Court would be justified in ordering demolition of the structures and removing the people residing in them in their own interest. One needs, however, to balance the equities in such instances and if it appears unduly harsh and unfair to order demolitions, a Court would still be justified in prohibiting any further new construction within a prescribed area.

5. There can be no absolute standards with regard to what constitutes a safe distance; as of necessity one is require to go by expert advice and past experience. The Court is also required to evaluate the possible danger in the event of an adverse happening and balance it, on the other hand, with the pressures that exist in areas where there is a shortage of accommodation. Taking all these considerations into account, a Court would prescribe what may judicially be categorised as a reasonably safe distance, within which it would be permissible to prohibit residential accommodation. In so doing, the issue as to whether the particular land comes within the residential

zone or otherwise would be wholly irrelevant and for that matter the normal principles and rules that govern general situations would be wholly inapplicable. The situation in these cases is exceptional and it, therefore, requires consideration on special lines, even if the relevant Acts and rules do not make provision for that, as obviously they have not."

52. Hon'ble High Court of Bombay has also decided a matter regarding permission granted to one Oswal industries for residential development, which is located near HPCL, Respondent-10 herein at Chembur (*HPCL Vs Municipal Corporation of Mumbai in WP 1973 of 2011*) and while quashing the said permission, the Bench has noted in para 56 that the security and health aspect in respect of public at large is a part of planning which the authorities ought to have considered as mandatory duty before sanctioning any plan or permitting development or before permitting change of use/r. It further notes that even environmental permissions given to the development is without any security and health aspects, before setting it aside.

53. As far as environmental issues are concerned, some statues like Noise rules, clearly stipulate that the planning authorities shall consider the noise as a parameter in planning process. The relevant rule is as under :

Noise Rules, 2000 :

Rule 3 (4): All development authorities, local bodies and other concerned authorities while planning developmental activity or carrying out functions relating to town and country planning shall take into consideration all aspects of noise pollution as a

parameter of quality of life to avoid noise menace and to achieve the objective of maintaining the ambient air quality standards in respect of noise.

Air Act, 1981 : It is observed that as per provisions of Section 17 (h) of Air Act, the MPCB need to give advice to the State government on suitability of location of industries which can cause pollution. The relevant provisions are reproduced as under:

Section 17: Functions of the Board.

(h): To advise the state government with respect to the suitability of any premises or location for carrying on any industry which is likely to cause air pollution.

It is manifest from records of the case that such an exercise has not been carried out in the state. We are of the considered opinion that such provision needs to be effectively utilised on precautionary principle, to avoid such conflict between the industries and surrounding population, besides protection of environment and human health.

54. We would like to note one important aspect of the proceedings of this Application is that the level of environmental awareness and literacy observed at the Applicants end. They have tried their best to get the scientific data and information, may be through the external expert who submitted critical observation on the ICT report, which we have dealt above. In addition, the written submissions also gave a futuristic scenario. We are sure with such type of awareness in the people about the environmental degradation and litigation; the cause of creation of NGT is

being accomplished. We would also appreciate the assistance of Sr. counsel Shri. Gaurav Joshi, who would maintain that the Application is not an adversial one and tried to place on record all relevant facts and documents.

55. The information available on record, particularly, the KEM Report, shows significant occurrence of incidents of air pollution related health effects in the local population. Though, the linkage of air pollution and health is well known, this Report of KEM is unique in view of the fact that the report has identified a particular air pollutant related to the adverse health impacts observed in the local population. It is high time now that the subject of air pollution control and air quality management be identified and treated as "Public Health Issue" and be given due priority and importance it deserves. It is necessary to acknowledge the multi-disciplinary nature of the subject. In our considered opinion, the first priority in this direction would be to establish credible and quantifiable air quality-health linkages, which we hope, will trigger cascading actions towards air pollution control. Another priority would be to promote advance multi-disciplinary research in the field of non-criteria pollutants, more particularly, hazardous air pollutants, (HAP's) including VOC which have significant health impacts, even at very small concentration and short exposure duration. The science of atmosphere chemistry of such HAPs is a complex subject due to its reactive behaviour

and formation of secondary air pollutants which would need a much complex multi-disciplinary approach. Traditionally, the monitoring, research and even action plans for air pollution control are focused on criteria pollutants, that too, mainly the particulates either PM_{10} or $PM_{2.5}$. But now with the improved understanding of several non-criteria pollutants mainly HAPs, it is essence of time that such pollutants are also considered as an integral part of the air quality management.

56. In the present case, the MPCB expert committee has dealt on the improvements required to be carried out by the Respondent Industries and also, tasks which were required to be done by MPCB. Though this report is placed on record in August, 2014, MPCB has not placed on record compliance of the recommendations of its own committee.

57. In view of the foregoing discussion, and after considering all the records of the Application, arguments of the learned counsel, the Application is partly allowed with following directions which are being issued under provisions of Section 18 r/w. 20 of the National Green Tribunal Act, 2010.

a. MPCB shall prepare a comprehensive action plan for control of air pollution in Mahul, Ambapada and Chembur areas, with a focus on control of VOCs within 2 months, and submit it to CPCB for its concurrence/approval which shall be confirmed in next 2 months. Such action plan shall be implemented by

CPCB and MPCB within next 12 months through the MPCB.

b. MPCB shall immediately issue necessary directions for implementation of the recommendations of its expert committee as per report of August 2014, and ensure that these directions are complied with in 12 months.

c. The health impact assessment studies as proposed by KEM shall be conducted for the minimum period of 3 years. KEM shall give necessary proposal including the associated air quality monitoring which can be conducted through reputed institute like NEERI, Mumbai to MPCB within 2 months and such studies shall be co-ordinated by MPCB. The cost of such studies shall be equally borne by Respondent-1, 9,10,11 and 14.

d. MPCB shall carry out the VOC assessment studies in line with CEPI studies as per CPCB protocol for the areas of Mahul, Ambapada and Chembur on yearly basis for next 3 years to assess the trends of such problem.

e. Respondent-6, Commissioner, MCGM shall provide necessary medical facilities and treatment for the residents of Mahul, Ambapada and Chembur, in view of the adverse health effects observed. Respondent-1,9,10, 11 and 14 shall provide all necessary assistance and financial support for such measure to Respondent-6.

f. SEIAA and MPCB shall assess the environmental compliance of activities of Respondent-1 as far performance of air pollution control measures, by monitoring of VOCs and also, change in capacity of chemical handling which is changed from 75000 KL/month to 75000 KL, within a period of 3 (three) months. In case of non-compliance of this direction, the Respondent-1 shall operate the plant maximum at the

present chemical handing rate (maximum of last six months on monthly basis), till such assessment by SEIAA and MPCB is done, on the basis of precautionary principle. MPCB to serve the copy of this order to Member Secretary SEIAA for further necessary action.

g. The observed air quality in Chembur area and associated health impacts necessitates considerations of VOC in ambient air quality and also, source emissions standards for chemical storage terminals. MPCB shall evolve such standards under the powers available under section 17 of Air Act, in consultations with CPCB, within next 4 months.

h. Respondent-3 is hereby directed to form a committee of experts to suggest the location criteria for industries and activities involved in hazardous chemicals handling and more specifically the environmentally safe distance from residential areas, which shall be formulated in next 4 months, as per provisions of the Air act and Environmental (Protection) Act, 1986.

i. Respondent Nos.1, 9 and 10 shall pay amount of Rs.5,00,000/- (Rs. five lakhs) to each Applicant as litigation costs.

58. We would also place on record our appreciation of the continuous work of health impact assessment being carried out by KEM Hospital, led by Dr. Amita Athawale, which has developed an important database for evolving co-relation between air pollution and health. We urge the Municipal Commissioner, Mumbai and Dean, KEM Hospital Mumbai, to take suitable note of this and would also expect them to support and expand this activity in the interest of public health.

59. Now coming to Misc. Application No.55/2015 in which certain cost was imposed on MPCB for non-compliance of directions of Tribunal, particularly, air quality monitoring. Considering the above discussions, we would not like to dispense with this cost, but however, would note that the payment of cost shall not be taken as any adversial action against MPCB or should not be deemed as penalty on MPCB. The amount so directed shall be paid in 3 (three) weeks. The M.A. is accordingly disposed of.

.....,JM
(Justice V. R. Kingaonkar)

....., EM
(Dr. Ajay. A. Deshpande)

Date : December 18th, 2015.

ajp