

**Item No.2:**

BEFORE THE NATIONAL GREEN TRIBUNAL  
SOUTHERN ZONE, CHENNAI

**Original Application No.30 of 2021 (SZ)**  
(Through Video Conference)

IN THE MATTER OF:

Dharmesh Shah

...Applicant(s)

*Versus*

Union of India  
Through the Secretary, Ministry of Environment,  
Forests & Climate Change, New Delhi and Ors.

...Respondent(s)

For Applicant(s):

Mr. Ritwick Dutta along with  
Mr. Saurabh Sharma.

For Respondent(s):

Mrs. Me. Saraswathy for R1.  
Mr. T.N.C. Kaushik for R2.  
Mr. A.R. Sakthivel for R3.  
Mr. S. Arjun Sruesh for R4.

**Judgment Pronounced on: 30<sup>th</sup> September, 2021.**

**CORAM:**

**HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER**

**HON'BLE Dr. K. SATYAGOPAL, EXPERT MEMBER**

**ORDER**

Judgment pronounced through Video Conference. The Original Application is disposed of with directions vide separate Judgment. Pending interlocutory application, if any, shall stand disposed of.

Sd/-

.....J.M.  
(Justice K. Ramakrishnan)

Sd/-

.....E.M.  
(Dr. K. Satyagopal)

**O. A. No.30/2021 (SZ)**  
**30<sup>th</sup> September, 2021. Mn.**

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BEFORE THE NATIONAL GREEN TRIBUNAL  
SOUTHERN ZONE, CHENNAI

**Original Application No.30 of 2021 (SZ)**

(Through Video Conference)

IN THE MATTER OF:

Dharmesh Shah  
No.92, Thiruvalluvar Nagar,  
3<sup>rd</sup> Street, Besant Nagar,  
Chennai - 600 090.

...Applicant(s)

*Versus*

- 1) Union of India  
Through the Secretary,  
Ministry of Environment, Forests & Climate Change,  
Indira Paryavaran Bhawan, New Delhi.
- 2) Central Pollution Control Board,  
Through the Chairman,  
Parivesh Bhavan, East Arjun Nagar,  
Delhi - 110 032.
- 3) Central Electricity Authority,  
Through the Chairperson,  
Sewa Bhawan, R.K. Puram.  
Sector - 1, New Delhi - 110 066.
- 4) NLC India Limited  
Through the General Manager,  
1<sup>st</sup> Floor, No.8, Mayor Sathyamurthy Road,  
FSD, Egmore Complex of FCI,  
Chetpet, Chennai - 600 031.

...Respondent(s)

For Applicant(s): Mr. Ritwick Dutta along with  
Mr. Saurabh Sharma.

For Respondent(s): Mrs. Me. Saraswathy for R1.  
Mr. T.N.C. Kaushik for R2.  
Mr. A.R. Sakthivel for R3.  
Mr. S. Arjun Sruesh for R4.

**Judgment Reserved on: 27<sup>th</sup> September, 2021.**

**Judgment Pronounced on: 30<sup>th</sup> September, 2021.**

**CORAM:**

**HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER**

**HON'BLE Dr. K. SATYAGOPAL, EXPERT MEMBER**

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

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

**JUDGMENT**

*Delivered by Justice K. Ramakrishnan, Judicial Member.*

1. The Applicant filed this application seeking for framing of proper guidelines in respect of decommissioning of Thermal Power Plant units owned and operated by the 4<sup>th</sup> respondent/NLC India Limited viz., Unit No. 3 of 50 MW, Unit No. 5 of 50 MW, Unit No. 6 of 50 MW, Unit No. 2, 4 & 8 (2x50MW+ 100MW) of Neyveli Thermal Power Station-I, NLC India located at Neyveli, Tamil Nadu.
2. According to the applicant, there are no proper guidelines provided by the Government in respect of decommissioning of such units which include safe management, handling and disposal of hazardous substances found thereupon, as well as the dismantling, reclamation and/or disposal of scrapped thermal power plant sites and structures including machinery, buildings, ash ponds, etc situated thereon. The proposed decommissioning units are part of Neyveli Thermal Power Station-I ('TPS-I'), which had commissioned in 1962. The 600 MW Neyveli Thermal Power Station-I in

which the first unit was synchronized on 23.05.1962 and the last unit on 21.02.1970 and it consists of six units of 50 MW each and three units of 100 MW each. Due to the aging of the equipments / high pressure parts, the Board of Directors of the 4<sup>th</sup> respondent accorded approval for decommissioning the units Neyveli TPS-I.

3. Further, according to the applicant, he is not against the decommissioning of various units of the power plants which were old and at the decommissioning stage, but the substantial environment impact on account of the same will be much more, if it is not properly handled, it is likely to affect soil, water and air in the area surrounding the units which are supposed to be decommissioned, owing to the hazardous nature of certain substances used during their operation.
4. They are expected to intimate the 3<sup>rd</sup> respondent / Central Electricity Authority (CEA) to ensure that the thermal power plant unit sought to be decommissioned is deleted from the All India Installed Capacity database. No other procedure or protocol has been prescribed by the relevant authorities regarding the decommissioning of such units. Typical coal fired thermal power plants have three main sections (i) the coal combustion, (ii) the boiler or steam generation and (iii) the smoke stack. Interspersed among these sections, are numerous pipes, boilers, turbines, pumps, valves, transformers and transmission lines. In order to keep these physical components operational, several hazardous substances such as Asbestos, Arsenic, Lead and Polychlorinated Biphenyls (PCBs) are used for heat retention, lubrication, wear and tear prevention etc. Such hazardous substances are known to cause severe ailments in human beings including but not limited to brain damage, kidney failure, etc. as well as other fatal diseases such as Asbestosis.

5. In the interest of environment as well as health of the citizens, it is important that the respondents have to follow the international best practices for decommissioning of power plants. In case no such practice is followed, it is essential that the 1<sup>st</sup> respondent/Ministry of Environment, Forest, and Climate Change (MoEF&CC) and 2<sup>nd</sup> respondent/Central Pollution Control Board (CPCB) have to frame and mandate guidelines on the decommissioning of thermal power plants, including but not limited to, a proper protocol for remediation and handling of hazardous substances on erstwhile power plant sites as well as the demolition, dismantling, reclamation and/or disposal of machinery, equipment, electrical fixtures, buildings, etc. situated on decommissioned thermal power plants sites.
6. The applicant also mentioned that Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016 mandates that it is the responsibility of the occupier of the thermal power plant to ensure safe disposal of hazardous substances either directly used for the process of thermal power generation or ancillary thereto. The applicant also relied on the decisions reported in **Vellore Citizens Welfare Forum Vs. Union of India and Ors.**<sup>1</sup>, **Indian Council for Enviro-Legal Action and Ors. Vs. Union of India and Ors.**<sup>2</sup> and **M.C. Mehta Vs. Kamal Nath and Ors.**<sup>3</sup>, for the proposition by applying the "*Polluter Pays Principle*" as well as the "*Precautionary Principle*" reiterated the responsibility of the cost of restoration being sole responsibility of the polluting industry/company.
7. The applicant also relied on certain articles by certain experts regarding the impact of decommissioning of thermal power plants and the necessity for

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<sup>1</sup> (1996) 5 SCC 647

<sup>2</sup> (1996) 3 SCC 212

<sup>3</sup> (1997) 1 SCC 388

providing safeguard / protocol to be followed by such units in the interest of protection of environment.

8. So, the applicant filed this application seeking the following reliefs:-

- (i) *Direct the CPCB/ SPCB to ensure that the process of decommissioning is done following internationally accepted scientific methods and process which is able to prevent the contamination of water, air and soil and ensure that no harm to human health and ecosystem takes place*
- (ii) *Direct the Respondents to place on record the process that required to be followed for decommissioning of power*
- (iii) *Direct that in the absence of proper scientific procedure, the CPCB should develop and ensure implementation of the scientific process for decommissioning of power plants*
- (iv) *Direct that a Committee be formed comprising of Experts in the subject matter to oversee the decommissioning process and ensure that the same is in accordance with internationally accepted best practices."*

9. The 3<sup>rd</sup> respondent/Central Electricity Authority has filed a reply affidavit contending that the application is not maintainable. The setting up of a power plant does not require any licence. The decision for retirement/ decommissioning/ shutting down of the power generating units has to be taken by the Generating Utility itself based on their own techno-economic and environmental considerations. The Board of Directors of NLC India Limited has accorded approval to phase out Neyveli TPS-I from March 2020 to September 2020. Accordingly, NLC India Limited had requested the Central Electricity Authority (CEA) for decommissioning of the capacity of Unit No.1 as on 31.03.2020, Unit No.2 as on 20.06.2020, Unit

No.3 as on 22.07.2020, Unit No.4 as on 23.06.2020, Unit No.5 as on 28.09.2020, Unit No.6 as on 30.09.2020, Unit No.8 as on 06.06.2020 and Unit No.9 as on 31.03.2020 respectively. Based on their decision, the capacity of the said units was deleted from the database of All India Installed Capacity of Central Electricity Authority records and same was informed to NLC India Limited. They have nothing to do with the decommissioning and it is for the 4<sup>th</sup> respondent to take all necessary precautions which they are expected to take while decommissioning the unit. So, they prayed for accepting their contention and pass appropriate orders which this Tribunal deemed fit and render justice in the public interest.

**10.** The 4<sup>th</sup> respondent/ NLC India Limited has filed their reply affidavit contending that the application is not maintainable. The 4<sup>th</sup> respondent is a Central Public Sector Undertaking (CPSU) and a limited company incorporated in the year 1956. It is categorised as a Navratna Company and falls under the administrative control of the Ministry of Coal, Government of India. The 4<sup>th</sup> respondent operates four opencast Lignite mines, five Lignite-based thermal power stations and one Coal-based thermal power plant. The Coal-based thermal power plant is operated on a joint venture basis. It is pertinent to mention that apart from the aforesaid thermal power plants, the 4<sup>th</sup> respondent is also actively setting up renewable energy-based power plants such as wind and solar based plants. The 4<sup>th</sup> respondent unit was set up by the Government of India to ensure that the electricity demands of the State of Tamil Nadu and the neighbouring States such as Andhra Pradesh, Karnataka, Kerala, Telangana and Union Territory of Puducherry are met. The first of the Thermal Power Plants to be installed and operated by the 4<sup>th</sup> respondent was the TPS I and it comprised of the following 9 units:

Unit Nos.	Capacity of Unit	Date of Commencement of operation
1	50 MW	23/05/1962
2	50 MW	23/01/1963
3	50 MW	11/06/1963
4	50 MW	27/10/1963
5	50 MW	29/04/1964
6	50 MW	24/08/1965
7	100 MW	28/03/1967
8	100 MW	12/02/1969
9	100 MW	21/02/1970

11. During the operation of TPS I, other power plants were also installed, commissioned and put into operation by the 4<sup>th</sup> respondent. The 4<sup>th</sup> respondent operated all its power plants and mines in accordance with the law and after following all environmental related safeguards. Due to the age of the units in TPS I, the 4<sup>th</sup> respondent decided to retire the nine units of said TPS-I for techno-economic and environmental reasons. In specific terms, the units of the TPS-I was decommissioned on the following dates:

Unit Nos.	Date of decommissioning
1	31/03/2020
2	20/06/2020
3	22/07/2020
4	23/06/2020
5	28/09/2020
6	30/09/2020
7	22/09/2018
8	06/06/2020
9	31/03/2020

12. Pursuant to the 4<sup>th</sup> respondent's decision to decommission the units of the TPS I, in a phased manner, and the final decommissioning thereof, the 4<sup>th</sup> respondent informed the 3<sup>rd</sup> respondent/Central Electricity Authority of India of the same vide various communications which were also acknowledged by them. As on date, all nine units of TPS I have been

decommissioned or have been phased out and remain inoperative. A tender will be issued for the dismantling of the plant and it is further submitted that the tender conditions would include various safeguards to be taken by the contractor to adhere to all environmental related norms and dismantle the units in the manner that is safe to the environment. In this regard, 4<sup>th</sup> respondent, through its environmental cell comprising of skilled environmental engineers and personnel, shall assess the units for the purpose of assessing the various standard operating procedures or safeguards to be adopted. While dismantling the units of TPS-I, the 4<sup>th</sup> respondents would encounter hazardous waste such as asbestos sheets on the temporary sheds, thermal insulation material containing asbestos provided in the valves and heater flanges, oil sludge (both furnace and diesel oil) which remain in the oil tanks, e-waste such as Switches etc. and polychlorinated biphenyls (PCB) in the oil transformers located within the units. The 4<sup>th</sup> respondent would also encounter bottom ash or dyke ash in the dyke ash pond of TPS-I. The aforementioned hazardous waste and the dyke ash that the 4<sup>th</sup> respondent would encounter would be disposed strictly in accordance with the law and in an environmentally sound manner and upon following all applicable laws, including the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. With regard to the mercury thermometers, the same has been handed over for the purpose of utilisation by the other functional units of the 4<sup>th</sup> respondent. So, the question of mercury wastage from the thermometers or causing any harm or damage to the environment does not arise. In so far as the mercury in vapor lamps, the same would be disposed in accordance with the 2016 Rules. The Asbestos sheets that are used for roofing certain temporary sheds, thermal insulation materials

containing asbestos used in the valves and flanges of heaters would be dismantled and disposed in accordance with 2016 rules. The gloves and curtains are being utilised by other functioning units of the 4<sup>th</sup> respondent. Pursuant to the stoppage of the units in TPS I, there is bound to be oil sludge in the oil tanks which would also require safe disposal. Further, there would also be some e-waste that remains during the process of dismantling the units. The polychlorinated biphenyl (PCB) is an additive to transformer oil. Transformer oil is used as a coolant and insulating medium in power transformers. Transformer oil with PCB would remain in such transformers pursuant to the decommissioning of the TPS -I. It is pertinent to state that the 1<sup>st</sup> respondent vide Order No. S.0 1327 (E) dated 06.04.2016, has issued the "Regulation of Polychlorinated Biphenyls Order, 2016" (*PCB Order*). Under the said Order, it is mandated that the occupier shall not simply drain the PCB onto land or the effluent treatment plant, but, ought to be disposed as per the provisions of the 2008 Rules (presently, the 2016 Rules). The 4<sup>th</sup> respondent had identified the transformers that contain polychlorinated biphenyl (PCB) by engaging the services of Central Power Research Institute. The 4<sup>th</sup> respondent shall take steps to engage the services of recognised agencies to carry out the de-chlorination of the transformer oil and they shall proceed to dispose polychlorinated biphenyl (PCB) in accordance with the 2016 Rules and the PCB Order. The 4<sup>th</sup> respondent will seek the permission or clearance of the Second Respondent to dispose the dyke or bottom ash, in accordance with the law, after following the necessary safeguards. The 2016 Rules provides for disposal of hazardous waste such as asbestos, mercury and oil sludge through recognised operators of common facilities or authorised disposal facilities which would treat, store and dispose the hazardous waste as

those mentioned above. If there is a possibility of handing the waste mentioned above to an authorised actual user or re-user in terms of the 2016 Rules that possibility also will be explored by the 4<sup>th</sup> respondent. They will identify the authorised agents or entities from the pollution control boards, concerned for this purpose. They will take all necessary steps and ensure safe and environmentally sound measures while disposing the hazardous waste and dyke ash using the scientific technology for this purpose strictly in accordance with the Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016. They further contended that they shall adhere to any direction issued by this Hon'ble Tribunal or any further Standard Operating Procedure or guidelines to be issued by the other respondents with regard to disposal of the hazardous waste while dismantling the units of the TPS-I. So, they prayed for passing appropriate orders after considering the contentions raised by them.

**13.** As per order dated 23.03.2021, this Tribunal had directed the Ministry of Environment, Forests & Climate Change (MoEF&CC), Central Electricity Authority and Central Pollution Control Board (CPCB) to constitute a Joint Committee of their own to evolve a policy or guideline as to how decommissioning of power plant units have to be carried out, prior to the decommissioning of power plants and if guidelines already exists, then the committee can submit a report of the guidelines detailing how it is carried out to protect the environment and if not, evolve a guideline including the manner of creating mechanism to supervise as to how it is being properly implemented by the power plant and the remaining area.

**14.** On the basis of the directions issued by this Tribunal, the Central Pollution Control Board (CPCB) had filed their report dated 22.07.2021 regarding the

Environmental Guidelines for Decommissioning a Coal/Lignite-Fired Power Plant (Draft) e-filed on 22.07.2021 and received on 24.07.2021 which reads as follows:-

*“Environmental Guidelines for Decommissioning a Coal/Lignite-Fired Power Plant (Draft)*

**1.0 Introduction**

*Power plants are decommissioned after completion of their useful life, which varies generally from 30 to 45 year in India. Environmental regulations have had, and will continue to have, a profound influence on the design of new and operation of existing power plants. Thus, the decision regarding decommissioning is primarily driven by plant operability, plant operation and maintenance costs, cost/benefit analysis, projected stricter environmental regulations, projected power demands, modular configuration of units, public support, etc.*

*Plant efficiency, operability, and new environmental standards, are resulting in more and more utilities choosing to decommission certain plants.*

*In last 5 years, 94 units of 9908 MW capacity have retired and another 14 units of 1988 MW capacity have been identified for retirement in near future.*

*Therefore, addressing environmental issues related to decommissioning a power plant properly is a primary concern of environmentalist and regulatory bodies.*

**NGT Order**

*Hon’ble National Green Tribunal (South Bench) in the matter O.A. No. 30 of 2021, Dharmesh Shah Versus Union of India and Others, vide order dated 23.03.2021 directed that:*

*“the Ministry of Environment Forests and Climate Change (MoEF&CC), Central Electricity Authority (CEA) and Central Pollution Control Board (CPCB) to constitute a joint committee of their own and evolve a policy or guideline as to how the decommissioning of Thermal Power Plant unit has to be carried out, prior to decommissioning of a thermal Power Plant and if guidelines, already exists, then the committee can submit a report of the guidelines detailing how it is carried out to protect environment and if not evolve a guideline including manner of creating mechanism to supervise as to how it is being properly implemented by the power plant and mining area”.*

### **Joint Committee**

*In compliance to the above order, a joint committee of Mr. Sundeep, Director, MoEF&CC, Mr. Sunil Kumar Jain, Director, Central Electricity Authority, and Dr. S.K. Paliwal, Additional Director, Central Pollution Control Board was constituted. Further vide letter dated 16.06.2021, CEA nominated Mr. K.B. Jagtap, Director (TE&TD Division) in place of Mr. Sunil Kumar Jain, Director, Central Electricity Authority.*

### **2.0 Preliminary Planning, Options and Strategy**

*The extent of decommissioning and cleanup is also determined by the planned future use of the plant site. Predetermining the future use of the site can help reducing the costs of dismantling and cleanup if buildings and infrastructure are to be retained, properly choosing the environmental remediation methods to meet specific needs, the cleanup standards to be attained may be less stringent. Power generating companies usually approach decommissioning by considering the following:*

*I. Maintain the site at present condition with minimal cleanup to meet environmental compliance and ensure safety (i.e., remove chemicals and oils, restrict access, etc.)*

*II. Perform minimal dismantling and demolition in addition to maintaining the site under control conditions to meet environmental compliance and ensure safety (i.e. remove saleable and salvageable equipment, remove safety hazards, etc.)*

*III. Dismantle to the degree required to meet specific needs of a planned reuse of the site (i.e. remove internals of powerhouse or other buildings so that those structures can be remodeled inside and reused; remove some exterior structures or systems, such as coal handling systems, clean up coal yard, retaining foundations; meet environmental standards regarding cleanups; etc.)*

*IV. Full decommissioning (i.e. dismantle all equipment; demolish all buildings and structures; clean up entire site, including wet and dry disposal areas, coal yards, etc. as per required environmental standards.)*

*Once a decommissioning strategy is selected, the company shall identify the agency to carry out all dismantling, demolition, and clean-up tasks. The following approaches may be taken:*

*The utility manages the project and performs all dismantling, demolition, and clean-up tasks.*

*The utility manages the project but contracts the decommissioning tasks to contractors.*

□ The utility contracts decommissioning as a turn-key operation.

### **3.0 Environmental Regulations and Permissions**

#### **3.1 EMP and EIA**

Prior to initiating decommissioning, the plant shall prepare an Environmental Management Plan (EMP) and also carry out an Environmental Impact Assessment (EIA) for the decommissioning process. Post closure EMP should be got approved from the regulatory body Laws on environmental and safety issues, as well as community concerns should be taken into account and necessary permission taken prior to initiating the decommission process.

#### **3.2 Environmental Regulations**

Compliance with environmental statutes must be maintained throughout demolition and remediation. The provisions under the Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution Act, 1981 and the Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016 (HWM Rules 2016), Construction and demolition Waste Management Rules, 2016, the rules/notifications regarding management and utilization of combustion residue/ash and local regulation must be met.

#### **3.3 Occupational Safety and Health Administration (OSHA)**

Prior to permitting demolition operations, an engineering survey of the structure must be made by a competent person. The Building & Other Construction Workers (Regulations of Employment and Conditions of Service) Act, 1996 regulates buildings' demolition in Section 40. Also, The Factory Act, 1948 and regulations therein should be followed at all times for training, planning, personal protective equipment, markings, tools, electrical equipment, scaffolds, hoisting equipment, excavation, blasting, etc. A dedicated in-house team or a competent contractor who is familiar with these requirements should be entrusted this task.

#### **3.4 Permissions**

Existing permissions/consents must be modified, revised, or new permits obtained for demolition and remediation process. The permitting process may include maintaining or revising the old permits/consents/authorization or issuing a new permits/consents/authorization under provisions of the Water

*(Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution Act, 1981, the Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016 (HWM Rules 2016) and Construction and Demolition Waste (Management) Rules, 2016.*

*The conditions of permits/consents/authorization applicable to a plant will depend on the various aspects. Plants located in the middle of a coal field or in an urban areas may have additional environmental concerns that must be considered during decommissioning and that are not common to the general plants.*

*Compliance must also be maintained regarding any permit conditions that have postclosure requirements, such as for ash ponds, hazardous waste storage, or chemical cleaning. Necessary approvals/permits should be obtained from State Environment Department and SPCB before actual commissioning commences.*

#### **3.4.1 Water (Prevention and Control of Pollution) act, 1974**

*Shutdown of operations will result in the reduction or cessation of wastewater discharges to receiving waterbodies. However, storm water discharges may continue during and/or after the demolition and remediation of the plant. Some of these discharges may even need to be re-routed. The Consent To Operate (CTO) must be revised to account for any changes in discharges of wastewater or storm water. For remediation of the coal storage yard or other similar areas where substantial area is disturbed, a storm water permit must be obtained from regulatory officials. Other suitable condition for water and soil protection / remediation may be included in Consent.*

#### **3.4.2 Air (Prevention and Control of Pollution) Act, 1981**

*Decommissioning activities can result in visible emissions from demolition of buildings and disturbance of the soil. Any changes due to expected visible emissions should be communicated to regulators, and changes in permission or new applications should be made.*

#### **3.4.3 Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016**

*Decommissioning/dismantling activities will result in generation of metal scrap, construction and demolition materials, waste oil and oil sludge, and hazardous waste like asbestos bearing sheets, PCBs, mercury thermometers etc. as well as e- waste, which need to be collected, transported, and disposed as per the provisions stipulated*

under HWM Rules, 2016.

Risk Management Plans (RMPs) should be reviewed when onsite storage of chemicals ceases. RMPs must be updated and resubmitted before changes are made at the site.

#### **4.0 Waste Management**

During operation of the plant, water treatment wastes, waste oils, oily refuse, wastewater treatment wastes, degreasers, solvents, blowdown/metal-cleaning, building sump wastes, and general refuse materials, and ash are mainly generated as wastes. These wastes are either treated and/or disposed onsite in permitted facilities, and others are or sent offsite for recycle/disposal as per Consent-to- Operate under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act 1981, respectively. Waste oil and oil sludge are disposed as per HWM Rules, 2016. Coal-fired power plants typically maintain inventories of various types of chemicals and materials essential to the operation of the plant. Prior to ceasing the plant operations, plans should minimize onsite inventories, either through use or transfer to other facilities.

Due to decommissioning and dismantling of the plant in addition to ash, other materials and wastes like metal scrap, and hazardous waste like waste oil, oil sludge, asbestos bearing sheets, PCBs, mercury thermometers etc. and e- waste need to be managed in environment friendly manner. If decommissioning involves demolition then the construction and demolition waste shall be disposed off in an environment friendly manner as per the Construction and Demolition Waste (Management) Rules, 2016.

#### **4.1 Ash Management**

Fly ash, boiler ash and boiler slag are not characterized as hazardous waste under Schedule I of HWM Rules, 2016. These wastes have instead been identified as "high volume low effect wastes.

Fly ash and bottom ash is generally disposed into ash ponds or utilized for some gainful purposes by cement industries, brick making or ash dyke raising etc. as per CTO and as per provisions of the fly ash utilization notification 1999, as amended in 2003, 2009 and 2016. Some plants may have permits/consents for dry stacking of bottom ash or both bottom ash & fly ash.

##### **4.1.1 Closure of ash ponds and ash impoundments**

Closure of ash ponds (surface impoundments) probably will be the most challenging tasks to undertaken during a decommissioning process. Permitted solid waste landfills or surface impoundments should

be closed as per the post closure plans approved by SPCB. Many of the plants being decommissioned are very old. Some of these permitted facilities may not be designed for proper containment per the latest regulations (i.e., clay or synthetic liners) and will require coordination with the SPCB to determine proper closure.

Surface impoundments permitted under Consent order during operation phase may not have a specified post-closure plan on record with the pertinent regulatory office and may require separate permission for closure. Surface impoundments may be included in the revised / new Consent order and regulated under solid waste regulations until after operation of the impoundment has ceased for a specified number of days.

#### **4.1.2 Capping of ash ponds and impoundments**

Closure of most surface impoundments of the power plant will require drainage, placement of an impermeable cap, and topping with soil and a vegetative cover until full compliance with ash utilization notification is achieved. Proper placement of the cover and specified slopes will be required. The type and depth of cover required may vary based on the waste disposed in the impoundment.

The caps for the impoundments will require continued maintenance to maintain the site contours, vegetative cover, and drainage. Such impoundments will require the installation and monitoring of groundwater wells.

#### **4.2 Construction and Demolition Waste Management**

During dismantling the plant buildings, chimney, overhead tanks, cooling towers, ETP and other civil facilities, large amount of debris will be generated which is categorized as Construction and Demolition waste. The C&D waste to be generated needs to be managed in an environment friendly manner as per Construction and Demolition Waste (Management) Rules, 2016. Improper demolition, collection, transportation and disposal of C & D waste may generate dust and noise and cause air pollution. Because the volume of waste to be disposed may be drastically increased with a plant's decommissioning, the CTO should be reviewed for possible amendments required regarding changes in amounts and types of wastes.

Plant authorities/agency involved in dismantling of plant must adhere to the provisions of Rules and shall take all preventive measures. The C & D waste shall be disposed of through waste processing facility having authorization as per Rules from the concerned SPCB.

The general conditions / procedures for control of air pollution as prescribed in environmental clearance for construction activities should be imposed as Consent condition for carrying out dismantling

activities.

### **4.3 Hazardous Waste Disposal**

*Inventory of hazardous waste, waste oil, oil sludge, asbestos containing sheets, PCBs and mercury thermal meters shall be prepared. These wastes shall be transported and disposed in accordance to the provision of HWM Rules, 2016.*

*A plants may have surface impoundments for metal-cleaning wastes, boiler blow down or makeup water treatment sludge. Such temporary storage must be closed as per the approved post-closure plan under HWM rules 2016.*

#### **4.3.1 Asbestos**

*The removal of asbestos-containing material (ACM) in older plants will involve significant expense and require completion before workers can safely begin equipment salvage and demolition activities. ACM abatement work should begin with a survey of ACM at the plant site to estimate the scope of the task. Authorization under HWM Rules 2016 will be required before removal of asbestos, good recordkeeping, and proper disposal techniques. ACM is difficult to identify in a survey, and some locations where ACM was used often are not discovered until the demolition process has begun. Therefore, contracts for second party ACM abatement should be carefully written and reviewed.*

#### **4.3.2 PCBs and Toxic Metals**

*Old plants will have instrumentation/equipment containing, polychlorinated biphenyls (PCBs) at regulated concentrations. PCB is an additive to transformer oil. Transformer oil is used as coolant and insulating medium in power transformers. Transformer oil with PCB is remained in transformers. The PCBs should be removed and disposed, or the equipment containing PCBs should be disposed as per HWM Rules 2016.*

*In addition, PCBs may also be present in electrical cables, wiring, fire retardant coatings, hydraulics, relays and controls inside the control room, and various items of switch yard equipment. All equipment or cables containing PCBs or toxic metals must be managed per regulations specified by the HWM Rules 2016.*

*Similarly, mercury containing light bulbs and florescent lighting should also be removed and disposed through authorized hazardous waste recycling facility under HWM Rules 2016 and under intimation of concerned SPCB.*

#### **4.3.3 E-Waste Disposal**

*During dismantling, E-Wastes like switches, desktops, electric*

and electronic panels need to be disposed/recycled as per the E-Waste (Management) Rules, 2016. Proper authorization for management of E-Waste need to be taken as per Rule 13 of the E-Waste (Management) Rules, 2016.

#### **4.3.4 Chemicals and Materials Removal and Disposal**

During dismantlement, other chemicals and materials should be removed and disposed or recycled. Any laboratory chemicals or inventories of chemicals, which cannot be completely used before shutdown, should be sent for reuse at other company facilities, sold, or disposed properly. Freon, batteries, and residual oil, used lubricants, fuel, metal-cleaning chemicals etc. should be reused, recycled, or disposed of with proper authorization from SPCB under HWM Rules 2016.

If a plant has Underground Storage Tanks (USTs), the plant should already be registered with regulatory officials. Removal of the USTs should be performed in accordance with UST regulations.

#### **5.0 Monitoring**

Decommissioning and dismantling activities waste transportation/disposal shall be supervised by with a dedicated team of the concerned power plant headed by officer of the level of General Manger. The process shall be monitored by SPCB through periodic inspections.

#### **Notes:**

1. These draft guidelines are based on the knowledge and expertise available with the Committee members with limited consultation with stakeholders. Wider consultation with major stakeholders will be undertaken before its finalization and issuance.

2. As regards any captive mines associated with the power plant to be decommissioned, Indian Bureau of Mines (IBM) has already have guidelines for preparation of Mine Closure Plan. Waste Management”

**15.** After receipt of the same, this Tribunal had directed the applicant to file objections (if any) to the draft guideline provided, so that, that can also be considered while disposing the matter.

16. Accordingly, the applicant made his suggestions to the draft guidelines provided which reads as follows:-

**“SUBMISSION ON BEHALF OF THE APPLICANT TO THE DRAFT GUIDELINES PREPARED BY CPCB DATED 23-09-2021**

1. That pursuant to the direction of this Hon'ble Tribunal, the Central Pollution Control Board has prepared a draft Guidelines titled “Environmental Guidelines for Decommissioning a Coal/ Lignite Power Plant, July, 2021”. The specific direction dated 23.3.221 were as follows:

“the Ministry of Environment Forests and Climate Change (MoEF&CC), Central Electricity Authority (CEA) and Central Pollution Control Board (CPCB) to constitute a joint committee of their own and evolve a policy or guideline as to how the decommissioning of Thermal Power Plant unit has to be carried out, prior to decommissioning of a thermal Power Plant and if guidelines, already exists, then the committee can submit a report of the guidelines detailing how it is carried out to protect environment and if not evolve a guideline including manner of creating mechanism to supervise as to how it is being properly implemented by the power plant and mining area”.

2. That the Draft Guidelines, July 2021 correctly identifies the need for such a Guidelines in the following manner:

In last 5 years, 94 units of 9908 MW capacity have retired and another 14 units of 1988 MW capacity have been identified for retirement in near future. Therefore, addressing environmental issues related to decommissioning a power plant properly is a primary concern of environmentalist and regulatory bodies.

3. The Applicant submits that though the Draft Guidelines are a significant development as opposed to the present situation where no guidelines exists: however, the Draft Guidelines lack the details as well as compliance with the specific direction of the Hon'ble Tribunal that the guidelines must deal with the manner in which it will be supervised.

4. As a preliminary matter, it should be noted that some of the text in the draft guidelines is copied verbatim from a 2004 industry-funded report by the US based Electric Power Research Institute (EPRI), entitled Decommissioning Handbook for Coal-Fired Power Plants. 1 For example, the entirety of Section 2.0 of the draft is copied with only slight modification from pages 2-1 through 2-3 of the EPRI report.

5. While the draft guidelines may provide some benefit by helping TPP operators plan the decommissioning process, it is no substitute for enforceable requirements for the process. Many aspects of

*environmental remediation involved in TPP decommissioning will be covered by existing environmental laws and standards, MOEF&C should adopt enforceable requirements regarding the process for decommissioning, including development of a preliminary Environmental Assessment (EA) that is subject to regulatory approval; and development of a decommissioning plan that is subject to regulatory approval, which takes into account the future use of the site, the data from the EA, and public input.*

*6. The following are the comments on Draft Guidelines.*

*Para 3.1 in guidelines: The document recommends carrying out an EIA and EMP prior to the decommissioning process. However, there are no TORs for the preparation of these documents. The guidance should include TORs on the EIA and EMP and also provide clarity on the provision of law under which these studies are to be carried out. The term regulatory body is ambiguous - decommissioning should come under the purview of the State Pollution Control Boards and Committees. This section should be expanded to include much more detail about the preliminary environmental assessment that should be performed prior to decommissioning work. Unlike an EIA, which evaluates future environmental impacts of a proposed project, an environmental assessment evaluates the existing environmental conditions at a site. The draft should set forth in detail the various conditions that should be evaluated before decommissioning and environmental management plans can be developed. These conditions should include:*

- o A complete accounting of all hazardous materials stored or disposed at the site, including all asbestos-containing materials, PCBs, solvents, waste oils, SCR catalysts, etc.*
- o Baseline groundwater monitoring data for the entire site, including all ash disposal areas.*
- o Ash dyke stability assessment.*

*Sec 3.4.2 in guidelines: The section on compliance to the Air Act should include guidance on the prevention of dust and other airborne pollutants during demolition activities. These could be drawn from the C&D Waste Rules 2016.*

*Sec 2.0 in guidelines: While the guidelines talk about the future land use it is silent on the process or strategy of determining future land use. The issue of future land use is at the crux of the decontamination and remediation efforts and will determine the nature of technology and rigour of decontamination efforts. It is hence important to include a process of determining future land use as part of the guidelines.*

*Section 4.1 Fly Ash Management : As the draft notes, closure of ash ponds is often the most challenging and expensive activity*

*associated with decommissioning a TPP site. As such, much more detail is needed in this section to address all of the issues that may arise with ash pond closure.*

*5. That in addition to the above points, there are other issues of concerns.*

*5.1 Qualification of Contractors: The major administrative task is the establishment of contracts for the actions to be taken in decommissioning. The types and number of contracts will be determined by the contracting strategy established by management and project planners. The guidelines are silent on the issue of qualifications of the contractors engaged in the process of decommissioning. Given the hazardous nature of the dismantling and demolition works - it is important that these tasks be carried out by qualified personnel. Furthermore, it is important that the plant operators demonstrate links or agreements with authorised hazardous waste handling and disposal facilities especially when dealing with hazardous wastes. It is important to have a qualified inspector or environmental engineer onsite throughout dismantling to make sure that asbestos-containing or other hazardous wastes are not introduced into the non-hazardous scrap.*

*5.2 Coal Residue Management - After surplus coal is removed, any coal residue that is mixed with the soil in the coal yard should be removed and disposed in the onsite ash landfill or surface impoundment or hauled to an offsite permitted facility. After the coal and soil mixture is removed, the coal yard should be backfilled with clean material and contoured as needed for stormwater runoff. The management of coal ash residue will be determined by the future use of the site as discussed in Sec 2.0 of the guidelines.*

*5.3 Site Investigations: The site investigation phase should focus on confirming whether or not contamination exists at a site, locating any existing contamination, and characterizing the nature and extent of that contamination. Based on the site assessment, sampling of potentially contaminated areas should be performed following established protocols. If predicted by the site assessment or by results from sampling during this phase, migration pathways of contaminants should be evaluated. Historically, contaminants of concern for coal-fired power plants include: (1) arsenic, cadmium, chromium, iron, lead, mercury, nickel, selenium, manganese, and zinc from the fly ash and coal pile areas; (2) polychlorinated biphenyls, polycyclic aromatic hydrocarbon, BTEX (benzene, toluene, ethyl benzene, xylene), and other petroleum hydrocarbons from oil storage and mechanical and electrical equipment; and (3) copper, iron, nickel, chromium, and zinc from metal cleaning and cooling tower blowdown wastewaters.*

*Special circumstances, such as historical spills, may require*

*investigation for contaminants. This is especially true for sites like NLC (respondent No.4) who had been listed as a PCB contaminated site under an evaluation conducted by the United Nations Industrial Development Organisation (UNIDO) in March 2015. The results of the site investigation can be used to perform a baseline risk assessment to calculate risk to human health or the environment and the concentration levels of contaminants that will require clean up. The Guidance Document for Assessment and Remediation of Contaminated Sites issued by the MoEF&CC in 2015 can be employed in this case. It is important to point out that the Draft Guidelines makes no mention of the Guidance Document on Contaminated Sites.*

*5.4 Monitoring and Sampling: Relying on the data collected from the site assessment and investigation phases, clean-up alternatives are evaluated. The technologies should be evaluated for their capability to meet specific clean-up levels and redevelopment objectives, such as schedules, costs, and compatibility with the surrounding environment, area (urban, rural, etc.), and demographics. The need for future monitoring or controls also should be considered when evaluating the various technologies. After the areas of contamination are identified and the clean-up technologies are selected, the clean-up plan can be designed and implemented. Following clean-up of the site area, confirmatory sampling should be performed using specific sampling and analytical protocols.*

*Successful confirmatory sampling results are a prerequisite for owners and/or regulatory officials who certify that the property is clean and can be accepted for transfer. This is important as some power plant sites convert land use to residential or other purposes of general public use. In the case of two of Delhi's flagship thermal power plants in Rajghat and Badarpur, the government proposes to convert the sites into solar and eco parks. The project to convert the 884 acre Badarpur plant site into an eco-park only proposes to bury the ash under soil cover and vegetation as part of its remediation efforts.*

*5.5 The draft states "Post closure EMP should be got approved [sic] from the regulatory body," but does not specify which regulatory bodies would have authority to issue or deny such approval. The draft should describe which authorities would have jurisdiction over such approvals, including the role that MOEF&CC would play in this process.*

*5.5 The draft also states, "Laws on environmental and safety issues, as well as community concerns should be taken into account and necessary permission taken prior to initiating the decommission process," but does not explain how community concerns should be identified and taken into account.*

*That in view of the above facts, it is important that the Draft Guidelines be revised in light of the concerns raised. This is important in order to ensure that the Guidelines becomes an effective tool to ensure safe decommissioning of power plants.*

*Dated at Chennai on this 23rd day of September, 2021."*

17. When the matter came up for hearing on 27.09.2021, the learned counsel appearing for the applicant as well as the official respondents and the project proponent namely, the 4<sup>th</sup> respondent submitted that after considering the draft guideline as well as the submissions made by the applicant, necessary directions be given to the authorities to frame the final guideline and issue notification accordingly, so that the same can be applied to all such units which proposes to decommission their old units in an environment friendly manner.

18. Heard the counsel appearing for the applicant as well as the respondents and considered the pleadings and also the draft guideline as well as submissions made by the application to the draft guideline provided by the Central Pollution Control Board on the basis of the directions issued by the Tribunal.

19. The points that arise for consideration are:-

(a) What is the nature of direction that can be issued by the Tribunal in cases of this nature?

(b) If so, what is the nature of directions to be given by the Tribunal to the authorities to frame a guideline of general and specific nature in respect of such situations namely, decommissioning of thermal power plants?

**Points:-**

20. It is an admitted fact that the 4<sup>th</sup> respondent is the Coal Based Thermal Power Plant of Central Public Sector undertaking owned and managed under the Ministry of Coal, Government of India. It is also an admitted fact that the 4<sup>th</sup> respondent had decided to decommission/retire the old units of TPS-I having nine units mentioned in their reply affidavit and the same was also communicated to the 2<sup>nd</sup> respondent as required under law.

21. It is not in dispute that while decommissioning such thermal power plants, there is a possibility of hazardous substances being left out or to be encountered either during dismantling of the machineries or during disposal of the hazardous waste which are already in existence. It is also admitted by the 4<sup>th</sup> respondent that there is a possibility of environmental encounters while dealing with decommissioning of the units and they will have to follow the Hazardous and Other Waste (Management and Transboundary) Rules, 2016 and E-Waste Management Rules, 2016 and other waste management Rules and also the directions issued by the MoEF&CC in respect of disposal of polychlorinated biphenyls by their notification namely, S.O. 1327 (E) dated 06.04.2016. It is also in a way admitted that there is no general guideline or monitoring system to supervise such decommissioning process of thermal power plants.

22. So under such circumstances, the prayer made by the applicant regarding necessity of framing a guideline for this purpose appears to be genuine and it is necessary for the purpose of protection of environment as well. If it is not properly handled, there is a possibility of

environment damage being caused, which the 4<sup>th</sup> respondent is liable to restore applying the "*Polluter Pays Principle*" as envisaged by the Hon'ble Supreme Court in the decisions reported in **Vellore Citizens Welfare Forum Vs. Union of India and Ors. (1996) 5 SCC 647**, **Indian Council for Enviro-Legal Action and Ors. Vs. Union of India and Ors. (1996) 3 SCC 212** and **M.C. Mehta Vs. Kamal Nath and Ors. (1997) 1 SCC 388**.

23. Being a policy decision, it is not possible for this Tribunal to frame any guidelines and direct the parties to follow the same. Further, it may require further studies and consultation before finalization as even mentioned in the draft guideline submitted. On the other hand, the only legal process that will be available is to direct the policy makers namely, the Ministry of Environment, Forests and Climate Change (MoEF&CC) and the Central Pollution Control Board (CPCB) to evolve a policy on this aspect and prepare necessary protocol or guidelines in this regard and issue necessary notification in this regard under Section 3 and 5 of the Environment (Protection) Act, 1986. With this in view, this Tribunal had appointed a joint committee comprising of the Ministry of Environment, Forests and Climate Change (MoEF&CC), Central Pollution Control Board (CPCB) and Central Electricity Authority and directed them to constitute a joint committee of experts for the purpose of evolving proper guidelines or protocol to be followed by the thermal power plants when they decided for decommissioning of their old units. Accordingly, they have framed the draft guidelines and they produced the same which was extracted above. The power of National Green Tribunal to give direction for future guidance and direction to evolve guidelines by the authorities was upheld by the Hon'ble Supreme Court in **The Director General (Road Development), National Highways Authority of India Vs. Aam Aadmi Lokmanch & Ors.** reported in **(2020) SCC Online SC 572** applying the "*Precautionary Principle*" to protect environment.

24. The applicant also made certain suggestions which they want to be included in the guidelines to be prepared before finalizing the guidelines and issuing necessary notification in this regard. On going through the

submissions made by the applicant, we feel that those are all the matters to be considered by the committee or the policy makers before issuing the necessary final guidelines in this regard.

25. So under such circumstances, we feel that the application can be disposed of by directing the Ministry of Environment, Forests and Climate Change (MoEF&CC) and the Central Pollution Control Board (CPCB) to consider the submissions made by the applicant to the draft guidelines provided by them and after following the procedure for finalizing the same and issuing notification and considering the objections to be raised by other stakeholders and then issue necessary guidelines in the form of notification so that, that can be followed by all the thermal power plants who propose to decommission due to its old age or techno-economic and environment reasons. So, the application can be disposed of with the following directions:

a) The Ministry of Environment, Forests and Climate Change (MoEF&CC), Central Pollution Control Board (CPCB) and Central Electricity Authority are directed to consider the submissions made by the applicant which was extracted in the earlier paragraph and after following the procedure of publishing the draft guidelines incorporating all relevant aspects and then getting objections of the stakeholders and also after consultation with the experts (if any) required, then issue final guidelines in the form of notification as early as possible and at any rate within a period of 6 (Six) months from the date of receipt of this judgment invoking Section 3 and 5 of the Environment (Protection) Act, 1986.

b) Once the final guidelines are formulated, then the Ministry of

Environment, Forests and Climate Change (MoEF&CC), New Delhi is directed to issue notification as required under the Environment (Protection) Act, 1986 in accordance with law within the time specified above.

- c) While considering these aspects, the policy makers are also expected to consider the possibility of air, soil and other pollution likely to be caused and provide the remedial measures to be taken by conducting studies by the power plant units and ensure proper supervisory mechanism by the regulators of the remedial measures to be carried out till the completion of decommissioning are carried out properly by the thermal power plants.
- d) The existing thermal power plants which have proposed decommissioning of their units and if the decommissioning process is not complete, then they are also directed to follow the guidelines to be issued by the authorities as directed in this regard in the interest of protection of environment applying the "Precautionary Principle".
- e) In the meantime, the 4<sup>th</sup> respondent is directed to follow the procedure enumerated in the draft guideline produced before this Tribunal, as far as possible, while carrying out the process of decommissioning by applying the "*Precautionary Principle*" for the purpose of protecting environment.

26. The points are answered accordingly.

27. In the result, this application is disposed of as follows:

- (i) The Ministry of Environment, Forests and Climate Change (MoEF&CC), Central Pollution Control Board (CPCB) and Central Electricity Authority are directed to consider the submissions made by the applicant which was extracted in the earlier paragraph and after following the procedure of publishing the draft guidelines incorporating all relevant aspects and then getting objections of the stakeholders and also after consultation with the experts (if any) required, then issue final guidelines in the form of notification as early as possible and at any rate within a period of 6 (Six) months from the date of receipt of this judgment invoking Section 3 and 5 of the Environment (Protection) Act, 1986.
- (ii) Once the final guidelines are formulated, then the Ministry of Environment, Forests and Climate Change (MoEF&CC), New Delhi is directed to issue notification as required under the Environment (Protection) Act, 1986 in accordance with law within the time specified above.
- (iii) While considering these aspects, the policy makers are also expected to consider the possibility of air, soil and other pollution likely to be caused and provide the remedial measures to be taken by conducting studies by the power plant units and ensure proper supervisory mechanism by the

regulators of the remedial measures to be carried out till the completion of decommissioning are carried out properly by the thermal power plants.

(iv) The existing thermal power plants which have proposed decommissioning of their units and if the decommissioning process is not complete, then they are also directed to follow the guidelines to be issued by the authorities as directed in this regard in the interest of protection of environment applying the "Precautionary Principle".

(v) In the meantime, the 4<sup>th</sup> respondent is directed to follow the procedure enumerated in the draft guidelines produced before this Tribunal, as far as possible, while carrying out the process of decommissioning by applying the "Precautionary Principle" for the purpose of protecting environment.

(vi) They are directed to produce the final notification issued by them in this regard before this Tribunal, so as to report compliance of the directions issued by this Tribunal within a period of 6 (Six) month as directed above.

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

(viii) The Registry is directed to communicate this order to the Ministry of Environment, Forests and Climate Change (MoEF&CC), New Delhi, Central Electricity

Authority, Central Pollution Control Board for their information and compliance of the directions issued.

28. With the above observations and directions, this application is disposed of.



सत्यमेव जयते

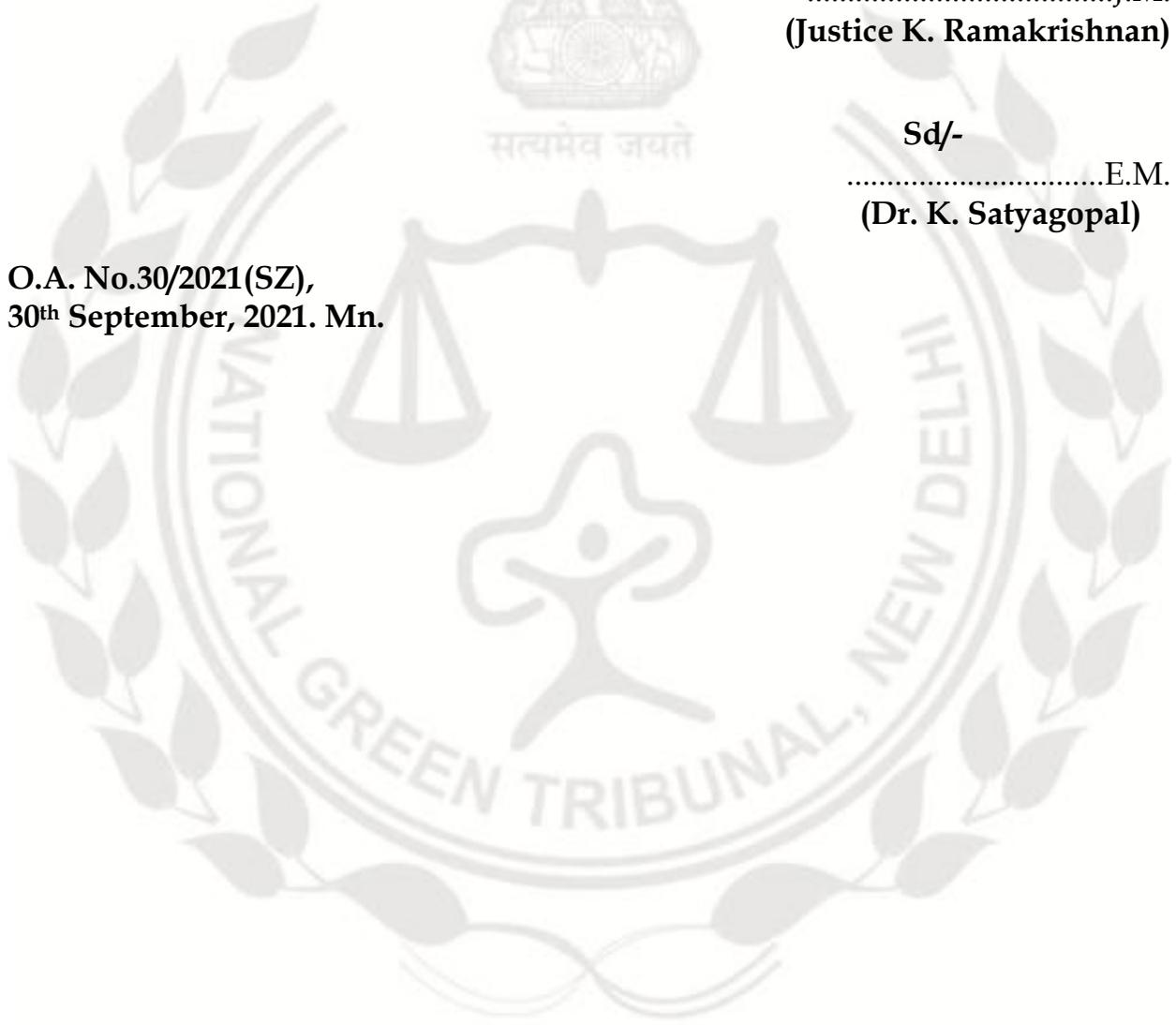
Sd/-

.....J.M.  
(Justice K. Ramakrishnan)

Sd/-

.....E.M.  
(Dr. K. Satyagopal)

O.A. No.30/2021(SZ),  
30<sup>th</sup> September, 2021. Mn.



NGT