

HALF YEARLY ENVIRONMENTAL MONITORING REPORT

COMPLIANCE STATUS OF ENVIRONMENTAL CLEARANCE CONDITIONS
Vide Letter No. J- 13012/54/2010-IA. II (T) Dated 31st March 2015

	MOEF stipulation Khargone	NTPC RESPONSE
A	Specific Conditions:	Status as on 31.03.2017
i	Coal transportation shall be by Rail only. An additional EIA shall be carried out and an EMP shall be prepared for laying down the rail line and alternate mode of transportation, in case rail line gets delayed. The EIA/EMP shall be submitted to the Ministry within one year of issuing the EC.	Will be complied during operation phase of the project.
ii	The Sulphur and ash content of coal shall not exceed 0.5% and 43% respectively. In case of variation of quality at any point of time, fresh reference shall be made to the Ministry for suitable amendments in the environmental clearance.	The said stipulation will be complied during operation phase of the project.
iii	Latest authenticated satellite imagery shall be submitted to the Regional Office of the Ministry on an annual basis to monitor the environmental alterations of the area.	Land use classification based on latest satellite imagery will be submitted to the Regional Office of the MOEF&CC on an annual basis during operation phase of the project.
iv	Vision document specifying prospective plan for the site shall be formulated and submitted to the Regional Office of the Ministry within six months .	NTPC vide letter dated 07.09.2015 has submitted a project vision document to the Regional Office, MOEF&CC at Bhopal.
v	Harnessing solar power within the premises of the plant particularly at available roof tops shall be carried out and status of implementation including actual generation of solar power shall be submitted along with half yearly monitoring report.	NTPC vide letter dated 07.09.2015 has submitted Scheme for harnessing solar power by installation of roof top solar plant within the premises of the proposed project. The scheme will be implemented during the operation phase of the Project.

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vi	One twin flue stack of 275 m height shall be provided with continuous on-line monitoring system of SO _x , NO _x and PM _{2.5} & PM ₁₀ . Exit velocity of flue gases shall not be less than 22 m/sec. In addition to the regular parameters, Mercury emission from stack shall also be monitored of six monthly basis.	A twin-flue stack of 275 meters height has been designed to maintain velocity of 22 m/sec. Continuous online stack monitoring facility (CEMS) will be installed for monitoring of Particulate matter (PM), SO ₂ , NO _x and Hg emissions from stack.
vii	High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm ³ . Adequate dust extraction system such as cyclones/bag filters and water spray system to control fugitive emissions in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.	The High Efficiency Electrostatic Precipitators (ESP) is designed for a guaranteed efficiency of 99.99 %. The particulate emission will not exceed 50 mg/Nm ³
viii	COC of at least 5.0 shall be adopted.	Closed cycle cooling system has been designed with minimum Cycle of Concentration (COC) of 5.0 for optimization of water requirement.
ix	Monitoring of surface water quantity and quality shall be conducted regularly and records shall be maintained. The monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records shall be maintained. The monitored data shall be submitted to the Ministry every six months .	Monitoring of Surface water quality will be carried out regularly as per stipulations and half yearly reports will be submitted to Regional office of MOEF&CC at Bhopal during the operation phase of the project.
x	Monitoring for heavy metals in ground water in the vicinity of plant shall also be undertaken and monitoring report shall be submitted to the ministry every six months .	Regular monitoring of heavy metals in ground water in and around plant area quality will be carried out as per stipulation and report will be submitted to Regional Office of MoEF &CC Bhopal every six monthly during the operation phase of the project.
xi	A well designed rain water harvesting system shall be put in place within six months, which shall comprise of rain water collection from the built up and open area in the plant premises and records shall be kept	Rain water harvesting shall be practiced as per recommendation/stipulations of Central Groundwater Authority/Board.

KHARGONE SUPER THERMAL POWER PROJECT (2X660 MW)

	MOEF stipulation Khargone	NTPC RESPONSE
	for the quantity of water harvested every year and its use.	Action plan for implementation will be submitted to the Regional Office of the Ministry soon after incorporation of the same in various buildings.
xii	No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up/ operation of the power plant.	The said stipulation will be complied both during the construction as well as operation phase of the project.
xiii	Hydrogeology of the area shall be reviewed annually through an institute/ organization of repute to assess impact of surface water and ground water (especially around ash dyke). In case, any deterioration is observed specific mitigation measures shall be undertaken immediately. Reports/ data of water quality shall be submitted to the Regional Office of the Ministry every six months .	The consultancy package for undertaking Hydro-geology of the area has been awarded to National Institute of Hydrology (NIH), Roorkee vide LOA dated 29.06.2015 and final report is awaited. Further, during the operation phase of the project the said study will be reviewed annually from an institute/ organization of repute to assess impact of surface water and ground regime (especially around ash dyke) and reports of water quality monitored will be submitted every six monthly to the Regional Office of the MOEF&CC.
xiv	Wastewater generated from the plant shall be treated before discharge to comply with the standards prescribed by the SPCB/CPCB.	An effluent management scheme will be implemented during the operation phase of the project with the objective to treat the waste water as per the prescribed statutory standards of SPCB/CPCB before its final discharge.
xv	Additional soil for leveling of the proposed site, if require shall be taken from within the sites (to the extent possible) so that natural drainage system of the area is protected.	All additional soil leveling of the project site will be done from within the sites only with all necessary precautions to protect natural drainage system of the area.

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xvi	<p>Fly ash shall be collected in dry from and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed off in the ash pond in the form of slurry. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) will be monitored in the effluents emanating from the ash pond and in the bottom ash also. No ash shall be disposed off in low lying area.</p>	<p>An ash management & disposal scheme will be implemented consisting of dry ash extraction system (DAES) for dry collection of fly ash with storage facility (silos), supply of ash to entrepreneurs for utilization and promoting ash utilization to maximum extent and safe disposal of unused ash in the ash pond area.</p> <p>The plant shall have two different systems for ash disposal – conventional wet slurry disposal with ash water re-circulation for bottom ash and High Concentration Slurry Disposal (HCSD) for fly ash.</p> <p>Periodic monitoring for mercury & heavy metals in the bottom ash and water emanating from ash pond will be done during the operation phase of the project.</p> <p>No ash will be disposed off in low lying area.</p>
xvii	<p>Fugitive emission of fly ash (dry or wet) shall be controlled such that no agricultural or not-agricultural land is affected. Damage to any land shall be mitigated and suitable compensation shall be provided in consultation with the local Panchayat.</p>	<p>Fugitive emission of fly ash & dust will be controlled up to the maximum extent with the aid of suitable pollution control devices such as ESP, dust extraction system and dust suppression system etc.</p> <p>Extensive plantation will be undertaken in all available spaces including coal handling, ash pond area etc selectively with Air Pollution Tolerant (APT) plant species.</p> <p>Ash will be disposed off in the designated area only. Moreover, trucks with closed containers will be</p>

	MOEF stipulation Khargone	NTPC RESPONSE
		used for transportation of fly ash in order to avoid any dust emission.
xviii	Ash pond shall be lined with HDPE/LDPE lining or any other suitable impermeable media so that no leaching takes place at any point of time. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.	<p>To avoid the ground water contamination from bottom ash slurry, one of the bottom ash lagoons is separated by a small temporary bund and the small area will be lined with impervious liner of 300 MM thickness.</p> <p>Ash pond shall be lined with suitable impermeable material like Bentonite blended clay.</p> <p>The structure of ash dykes will be designed, constructed and operated as per State of the Art engineering practices for the design and construction of earth dams with adequate factor of Safety. The design of ash dyke shall also take into consideration the seismic parameters.</p>
xix	A long term study of radio activity and heavy metals contents of coal to be used shall be carried out through a reputed institute and results shall be analyzed every two years and shall be reported to the Ministry along with the monitoring reports. Thereafter, mechanism for an in- built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.	A detailed study on chemical composition of coal used particularly heavy metal and radio activity contents will be carried out through a reputed institute once the project starts receiving the coal during operation phase.
xx	Green Belt of least 50 m width consisting of three tiers of plantations of native species around the plant shall be raised. Wherever 50 m width is not feasible, an adequate justification shall be submitted to the Ministry and appropriate width not less than 20 m shall be planted. Tree density shall not be less than 2500 per ha with survival rate not less than 80 %.	<ul style="list-style-type: none"> • Around 124 acres of land has been envisaged for the green belt development of 100 m width. • Green Belt around the Main Plant area except transmission corridor shall be planted. • Green Belt around the Township area shall be planted.

KHARGONE SUPER THERMAL POWER PROJECT (2X660 MW)

	MOEF stipulation Khargone	NTPC RESPONSE
		<ul style="list-style-type: none"> • Extensive afforestation will be undertaken at all available spaces in and around project, after construction is complete. • Avenue Plantation along the Road shall be done. • Shelterbelt Plantations along the vicinity of ash storage/ disposal sites/ water reservoirs and along boundary walls • During 2016-17 approx. 20000 plants inside the plant area, 50000 bamboo saplings & 4.0 lacs teak saplings have been planted outside the plant area at MP Rajya Van Vikas Nigam Limited's sites.
xxi	Green belt shall also be developed around the Ash Pond over and above the Green Belt around the plant boundary.	Will be complied during operation phase of the project.
xxii	CSR schemes identified based on need based assessment shall be implemented in consultation with the village Panchayat and the District Administration starting from the development of project itself. As part of CSR, prior identification of local employable youth the eventual employment in the project after imparting relevant training shall be also undertaken. Company shall provide separate budget for community development activities and income generation programmes.	<p>Various CSR schemes will be implemented based on need based survey in consultation with the village Panchayat and the District Administration;</p> <ul style="list-style-type: none"> • Infrastructural development i.e improvement in roads, electricity, supply of drinking water, sanitation, educational institutions and transportation facilities will be implemented. • Scholarships to students and facilitation for sports will be implemented. • Training for self employment (computer, stitching, embroidery etc) will be taken care. • Training / financing facilitation for development of rural small scale industries i.e bee keeping,

KHARGONE SUPER THERMAL POWER PROJECT (2X660 MW)

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		<p>poultry, dairy farming etc will be implemented.</p> <ul style="list-style-type: none"> • Computer training to school children/local youths, tailoring & Tie & dye training to local peoples. • Separate budget has been earmarked for implementing R&R and CSR-CD activities during the construction & operation phase of the project. This budget shall be utilized in accordance with the said stipulations. • In addition to this we have already provided solar lights & toilets in villages, distributed scholarship to school children & organized medical camp for local population. We are in the process of development of bus stops, internal roads of villages O/H water tank & water supply pipeline, construction of community hall. • More than 133 Crores were spent during FY 2016-17 in comparison to approx. 87 Crores in previous FY 2015-16. Till date over Rs 261 Crores were spent for the development of the local population in the vicinity of the project.
xxiii	For periodic monitoring of CSR activities, a CSR Committee or a Social Audit committee or a suitable credible external agency shall be appointed. CSR activities shall also be evaluated by an independent external agency. This evaluation shall be both concurrent (every six months) and final.	Will be complied.

KHARGONE SUPER THERMAL POWER PROJECT (2X660 MW)

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xxiv	An Environmental Cell comprising of at least one expert in environmental science/engineering, ecology, occupational health and social science shall be created preferably at the project site itself and shall be headed by an officer of appropriated seniority and qualification. It shall be ensured that the Head of the cell shall directly report to the Head of the Plant who would be accountable for implementation of environmental regulations and social impact improvement/mitigation measures..	An Environment Management Group (EMG) headed by DGM (EMG) is already functional at the Khargone project site. The EMG will be responsible for implementing and monitoring the stipulations. EMG shall have sufficient trained manpower and equipment for environmental monitoring and other environmental related activities to ensure compliance with statutory requirements. It will interact regularly with the State Pollution Control Board. A laboratory at Khargone STPP will be established for monitoring of ambient air quality, stack emission water/effluent quality, etc.
B	General Conditions:	
i	Space for FGD shall be provided for future installation, if required.	Adequate space has been provided in the layout for installation of FGD plant in future use, if necessary.
ii	The treated effluents conforming to the prescribed standards under Environment (Protection) Act. 1986 only shall be re-circulated and reused within the plant. Arrangements shall be made that effluents and storm water do not get mixed.	The feasibility of zero discharge shall be adopted based maximum recycle/reuse of waste water thereby reducing and optimizing the quantities of water requirement and effluent generation to the extent feasible. Provision is being kept to re-circulate cooling water and ash pond effluent. The entire cooling tower blow down shall be used in fire fighting and as makeup to BAHP. The effluent treatment system comprising of neutralization pit, oil and grease separator, sediment tank, cooling towers etc are being provided. The effluents will be

	MOEF stipulation Khargone	NTPC RESPONSE
		<p>treated adequately conforming to the stipulated regulatory standards.</p> <p>An independent plant effluent drainage system will be constructed to ensure that plant effluents do not mix with storm water drainage.</p>
iii	A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt/plantation.	All domestic sewage emanating from plant and township will be treated in a sewage treatment plant. The treated sewage conforming to prescribed standards shall be utilized for plantation & raising greenbelt to the extent possible. The balance effluent shall be discharged.
iv	Adequate safety measures shall be provided in the plant area to check / minimize spontaneous fires in coal yard, especially during summer season. Copy of these measures with full details along with location, plant layout etc. as and when finalized, shall be submitted to the ministry as well as to the regional office of the Ministry.	<p>Hydrant system for covering the entire power station including all the auxiliaries and buildings in the plant area shall be implemented. The system will be complete with piping, hydrants, valves, instrumentation, hoses, nozzles, hose boxes/stations etc.</p> <p>Copy of these measures with full details will be submitted to RO, MOEF&CC after detailed Engineering Completion.</p>
v	Separate storage facilities for auxiliary liquid fuel such as LDO/HFO/LSHS shall be made in the plant area in consultation with Department of Explosives, Nagpur. Sulphur content in the liquid fuel will not exceed 0.5%. Provisions of the Manufacture, Storage and Import of Hazardous Chemical Rules and the Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996 shall be applicable as per the quantity stored. Disaster Management System shall be established as per the Disaster Management Plant to meet any eventuality in case of an accident taking place due to storage of oil.	<p>Storage facilities for auxiliary liquid fuel LDO/HFO are designed conforming to the safety standards and where risk is minimal.</p> <p>A detailed Disaster Management Plan & Risk assessment including fire and explosion issues will be prepared and finalized in consultation with Department of Explosives, Nagpur and regular mock drills shall be conducted as per plan in order to address any eventuality in case of an accident.</p>

	MOEF stipulation Khargone	NTPC RESPONSE
vi	First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	<p>All arrangements related to first aid, health & safety and sanitation for workers during construction phase of the project have been kept under the scope of EPC contractor. However, NTPC will ensure effective compliance of the said stipulations.</p> <p>Various measures implemented during construction phase through contractor are;</p> <ul style="list-style-type: none"> • Adequate infrastructure facilities, such as sanitation, fuel, restroom, medical facilities, safety, and suitable water supply are being provided at various stages of project construction to the labor colonies housing the work force during construction phase of the project. The sanitary waste from these areas will be accorded suitable treatment. • Safety equipment such as earplugs and earmuffs, helmets, face shields, safety goggles etc. is being provided to workers engaged in high risk areas. • A first aid center is being established to provide immediate medical aid to the workers and their family members. An ambulance service is available at site to transport injured workers to nearby hospitals.
vii	Noise levels from turbines in work zone shall be limited to 85 dB (A) from source. For people working in the high noise area, requisite personal protective equipment like earplugs/ear muffs etc. shall be provided. Workers engaged in noisy areas such as	Design specification for the equipments has been made to comply with the stipulation. Personal protective equipment has been arranged through contractors during construction phase. Periodic

	MOEF stipulation Khargone	NTPC RESPONSE
	turbine area, air compressors etc. shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non noisy/less noisy areas.	<p>examination of workers during operation phase shall be done as stipulated.</p> <p>The workers of generator hall and other high noise area will be provided with appropriate ear protection devices.</p>
viii	Regular monitoring of ambient air ground level concentration of SO ₂ , NO _x , PM _{2.5} & PM ₁₀ and Hg shall be carried out in the impact zone of the project and record shall be maintained. In case these levels exceed the prescribed limits, necessary control measures shall be taken immediately. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Monitoring reports shall be submitted to the Regional Office of this Ministry every six months . The data shall also be uploaded on the website of the company.	<p>Regular monitoring of AAQ will be done during the operation of the plant. The four locations of AAQMS shall be finalized in consultation with MPSPCB.</p> <p>Four (4) no. of AAQMS equipments will be installed at site and the infra structure requirements for the stations are being established. Data will be submitted to the Regional Office of the MOEF&CC every six monthly.</p> <p>The data shall also be put up on the website of the company during the operation phase of the project.</p>
ix	Fly Ash generated shall be utilized 100% from the 4th year of operation of the power plant. Status of fly ash utilization shall be reported each year to the Regional Office of the Ministry.	Ash Utilization Plan has been prepared and shall be implemented in compliance to fly ash gazette notification dated 03.11.2009.
x	Provision shall be made for the housing of construction labor (as applicable) within the site with all necessary infrastructures and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structure to be removed after the completion of the project.	<p>A labour colony with necessary infrastructure facilities such as housing, sanitation, mobile toilet, fuel, medical facilities, safety, drinking water supply etc. has been provided for construction labour.</p> <p>The same has been kept have been kept under the scope of EPC contractor. However, NTPC will ensure effective compliance of the said stipulations.</p>

KHARGONE SUPER THERMAL POWER PROJECT (2X660 MW)

	MOEF stipulation Khargone	NTPC RESPONSE
xi	The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned within seven days from the date of receipt of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the State Pollution Control Board/Committee and may also be see at Website of the Ministry of Environment and Forests at http://envfor.nic.in .	The information of Environmental Clearance was published in Two news papers widely circulated in the region; Hindustan Times (English) and Nai Dunia (Hindi) on dated 04.04.2015.
xii	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila parisad/ Municipal Corporation, urban local body and the Local NGO, if any, from whom suggestions/representations, if any, received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	Copy of clearance letter were sent vide our letter dated 06.04.2015 to Sarpanch of village panchayat of Selda & Dalchi village, CEO of Khargone Distt & CEO of Khargone Municipal Corporation. The environmental Clearance was also uploaded on the NTPC website on 03.04.2015.
xiii	The proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same every six months . It shall simultaneously be sent to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB.	Will be complied.
xiv	The criteria pollutant levels namely; SPM, RSPM (PM _{2.5} & PM ₁₀), SO ₂ , NO _x (ambient levels as well as stack emissions) shall be displayed at a convenient location near the main gate of the company in the public domain.	Online continuous Stack Emission Monitoring System (CSEMS) for the parameters like particulate matter (PM) NOX, SO2, will be installed. Once the pollution control equipment are in operation the data will be displayed at a convenient location near the main gate of the company in the public domain during operation phase of the project.

	MOEF stipulation Khargone	NTPC RESPONSE
xv	The environment statement for each financial year ending 31 st March in Form-V as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall be submitted by the project proponent to the concerned State Pollution Control Board. The same shall also be uploaded on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.	The environment statement for each financial year ending 31 st March in Form-V shall be submitted once the plant becomes operational by the project proponent to the concerned State Pollution Control Board.
xvi	The project proponent shall submit six monthly reports on the status of the implementations of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environment of the environmental clearance conditions on their website and update the same every six months and simultaneously send the same by email to the Regional office, Ministry of Environment and Forests.	Six monthly progress reports for the period April 2015 to September 2015 is submitted herewith.
xvii	Regional office of the Ministry of Environment & Forests will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring.	A complete set of documents including Environmental Impact Assessment (EIA) Report and Environment Management Plan (EMP) along with the additional information/clarifications is being submitted herewith.
xviii	The details of the funds along with item-wise break-up of Rs.1421.2 crores allocated for implementation of environmental protection measures shall be submitted to the Ministry. This cost shall be included as part of the	The requisite funds for environmental mitigation measures have been included in the project cost. Financial provision stipulated towards environmental mitigate measures

KHARGONE SUPER THERMAL POWER PROJECT (2X660 MW)

	MOEF stipulation Khargone	NTPC RESPONSE
	project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure shall be reported to the Ministry.	shall not be diverted for other purposes.
xix	The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project by the concerned authorities and the dates of start of land development work and commissioning of plant.	Project Financial closure has been done on 31.03.2015 which is also date of EC clearance. Site leveling / Land development work started on July 17 th , 2015. Draft application for Consent to establish has been submitted on 18.08.2015.
xx	Full cooperation shall be extended to the Scientists/officers from the Ministry / Regional Office of the Ministry/ CPCB /SPCB who would be monitoring the compliance of environmental status.	Full cooperation shall be extended to the Scientists / officers from the Ministry / Regional Office of the Ministry at Bhopal / CPCB / SPCB during monitoring of the project.
5	The Ministry reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction. The Ministry may also impose additional environmental conditions of modify the existing ones, if necessary.	Noted.
6	The environmental clearance accorded shall be valid for a period of 5 years from the date of issue of this letter to start operation of the power plant.	Noted.
7	Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.	Noted.
8	In case of any deviation or alteration in the project proposed including coal transportation system from those submitted to this Ministry for clearance, a fresh	Noted.

KHARGONE SUPER THERMAL POWER PROJECT (2X660 MW)

	MOEF stipulation Khargone	NTPC RESPONSE
	reference should be made to the Ministry to assess the adequacy of the condition(s) imposed and to add additional environmental protection measures required, if any.	
9	The above stipulations would be enforced among others under the water (prevention and Control of pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and rules there under, Hazardous Wastes (Management, Handling & Transboundary Movement) Rules, 2008 and its amendments, the public Liability Insurance Act, 1991 and its amendments.	Noted.
10	Any appeal against this Environmental Clearance shall lie with the National Green Tribunal, if preferred, within 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Noted.