MEGHALAYA CEMENTS LIMITED

CIN- U26942ML2003PLC007125

TOPCEM CEMENT
Mazbooti ka bharosa...hamesha

Ref: MCL/ENV/MoEF&CC/Compliance-I/2021-22/25 Date: 19/11/2021

To,

The Addl. Director General (Central),
Ministry of Environment Forest & Climate Change,
North Eastern Regional Office, Shillong,
Meghalaya.

STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
Receipt No.
24 NOV 2021
MEGHALAYA, SHILLONG

Sub: - Submission of half yearly compliance report for 2600 TPD cements plant for the period of April'2021 to September'2021.

Dear Sir,

We are hereby furnishing the half yearly compliance report (hard copy and soft copy) for the period from **April'2021 to September'2021** on Environmental Stipulation for Expansion of Cement Plant (from 900 TPD to 2600 TPD) along with 10MW Captive Power Plant at Village- Thangskai, East Jaintia Hills District, Meghalaya, vide your Environment Clearance letter no SEIAA/PROJECT-2/2007/18 dated: 25th March'2009.

This is for your kind information and perusal. You are requested to kindly acknowledge the receipt of the same.

Thanking You.

Yours Faithfully.

For **MEGHALAYA CEMENTS LIMITED**

(Authorized Signatory)

MEGHALAYA CEMENT THANGSKAI

MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, REGIONAL OFFICE GOVT. OF INDIA

STATE POLLUTION CONTROL BOARD MEGHALAYA SHILLONG 24/11/21

24/11/21

Encl: As stated above

Copy to:

1) **The Member Secretary, Meghalaya State Pollution Control Board, Shillong.**
2) **The Member Secretary, State Environment Impaet Assessment Authority, Shillong.**

Half yearly Compliance Report (for the period April'2021 to September'2021) on Environmental Stipulations for Expansion of Cement Plant (from 900 TPD-2600 TPD), along with 10 MW Captive Power Plant at Thangskai, East Jaintia Hills District by M/s Meghalaya Cements Ltd. – Environmental Clearance Letter No. SEIAA/PROJECT-2/2007/18; Dated 25th March 2009.		
Sl. No. as per letter dated 25.03.2009 of State Environment Impact Assessment Authority		**Compliance Status**
A. SPECIFIC CONDITIONS		
(i)	A stack of 100 m height shall be provided with continuous on-line monitoring system in respect of Thermal Power Plant [TPP] The data collected shall be analyzed and submitted regularly to the Meghalaya State Pollution Control Board.	**Complied with.** A stack of required height is provided and opacity meter for continuous online monitoring (CEMS) is provided. The data transmission of online data to MsPCB and CPCB are being done through the system.
(ii)	High efficiency Electrostatic Precipitators [ESPs] of not less than 99.98% efficiency shall be installed in the TPP to limit particulate emission to 50 mg/Nm ^{3}	**Complied with.** ESP is provided for thermal power plant and it is working effectively.
(iii)	Sorbent limestone shall be fed (12% of coal by weight) along with coal in the boiler of the TPP to reduce formation of Sox and thus help neutralize the impact of sulphur in coal.	**Complied with.** Provision has been made for lime feeding in boiler through over bed feeding system to reduce the formation of Sox. Project proponent is using limestone for above purpose, as per requirement of the process.
(iv)	Space provision shall be made for Flue Gas De-sulphurisation [FGD] unit of requisite efficiency for removal of SO2 when required at a later stage.	**Complied with.** Provision for flue gas De-sulphurisation has been already made.
(v)	Dust extraction and suppression system along with water sprinklers shall be provided for controlling fugitive dust during transportation, in coal storage area and other vulnerable area of the TPP.	**Complied with.** Water sprinkling is being carried out on daily basis in plant premises on the places where fugitive dust particles are present and also on internal roads. Provision of water sprinklers system has made at coal storage area and other vulnerable area of TPP.

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(vi)	Water requirement for the Thermal Power Plant shall be met from the existing water source. No ground water shall be extracted for the power plant at any stage.	**Complied with.** Water requirement for the Thermal Power Plant is meeting from rain water during rainy season and from existing source during non rainy season. No extraction of ground water for Thermal Power plant is being done.
(vii)	Closed Cycle Cooling system with induced draft cooling towers shall be provided in the Thermal Power Plant.	**Complied with.** Closed cycle cooling system has been adopted and recirculation of cooling water is being practiced
(viii)	Fire protection system shall be made in coal stock yard and other vulnerable areas of the TPP. Fire protection equipment and machinery should be tested periodically and shall always be kept in operational mode. Mock drills shall be conducted regularly.	**Complied with.** Regular safety training is being provided. Fire protection system along with fire extinguisher of various types is already installed within the entire premises as well as other vulnerable areas of TPP. The fire protection equipments and machineries are being tested periodically and kept in operation mode. Mock drills are being conducted on regular basis by our Safety & Vigilance Department. Details of Mock drills and trainings are attached herewith. ***(Annexure-i)***
(viii) (a)	The PP is prohibited to use high sulphur local coal in its thermal power plant.	**Complied with.** PP is not using high sulphur local coal in its thermal power plant.
(ix)	The treated effluents shall be re-circulated and reused within the plant area. There shall be no waste water discharge outside the plant boundary.	**Complied with.** The treated water is being utilized for greenbelt development around the plant and colony. Also a surface water sump is made for recycle/Treatment.
(x)	Rain water harvesting shall be practiced. A detailed scheme for rain water harvesting to recharge the ground water aquifer shall be prepared in consultation with Central Ground Water Authority/State Ground Water Board within six months of receipt of Environmental Clearance.	**Complied with.** The PP has upgraded the existing system. Scheme for rain water recharging pit has been made, the lay out copy is submitted earlier. The rain water collection and reuse also being practiced to fulfill the requirement of cooling water as well as drinking purpose during monsoon period.

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(xi)	Permission for drawl of water of the required quantity from the streams in favor of the Cement – Thermal Power Plant complex shall be secured from the competent Authority within 6 (six) months of receipt of Environmental Clearance.	**Complied with**. Permission for drawing of water has been obtained from Executive Engineer (Irrigation), Jaintia, Hills Dist; vide letter no.AID (J) 223/2007-2008, Dated Jowai 24/03/08 was enclosed earlier.
(xii)	Noise level in the Thermal Power Plant premises shall be limited to 75 dB and regular maintenance of equipment should be undertaken. For personnel working in high noise areas, personal protection devices like earplugs /ear muffs, etc. should be provided. Workers engaged in noisy areas such as turbine area, air compressors, etc. shall be periodically examined to maintain audiometric record and for treatment for any hearing loss apart from exercising option of shifting to non noisy/less noisy areas when necessary.	**Complied with.** Noise level in TTP premises is under limit. Necessary PPEs to employee are being provided. We have fully automated system for operation of turbine, so the exposure of employee to the high noise is minimum. The PP has provided an acoustic covered screw air compressor to maintain the noise level within the acceptable limit. The regular routine testing is been carried out as per the manufacturers' manuals and, by using the necessary PPE's. (Half yearly report is enclosed). ***(Annexure-ii)***
(xiii)	Acoustic hoods shall be provided in respect of all equipment that has potential to contribute towards noise pollution and additionally technical improvement measure detailed in Para 4.3.2 of the EIA/EMP report of the project proponent shall be adopted in the TPP towards noise attenuation.	**Complied with.** The project proponent has provided acoustic hoods in the Thermal Power Plant.
(xiv)	Dry ash collection system shall be provided in the Thermal Power Plant. 100% ash utilization shall be ensured from the very first day of commissioning of the Thermal Power Plant.	**Complied with.** Fly ash generated in Captive Power Plant is completely collects in silo through ESP and it is being loaded into tankers for feeding to cement mill hoppers pneumatically. Hence 100% consumption of the ash generated is achieved in our cement plant.
(xv)	The stack emission from various sources shall not exceed 50 mg/Nm3	**Complied with.** (Six month's report is enclosed) as an ***(Annexure-ii)***

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(xvi)	The project proponent shall get the optimum functioning of the environmental protection equipment certified by a technical institution of repute.	**Complied with.** Performance assessment has been conducted as per as the norms by the NCCBM, New Delhi. The test results are submitted earlier. Further the project proponent is continuously maintaining the pollution control devices to maintain the efficiency.
(xvii)	Bag House/Filters shall be provided to control the fugitive emission during loading and unloading of raw materials/intermediate and finished products.	**Complied with.** Nuisance bag filters has been provided to control fugitive emission at Raw Mill, Coal Mill, Kiln and Cement mill. Water sprinkler has also installed at transportation area, Coal storage area and other vulnerable area of the plant.
(xviii)	The project proponent shall store all the raw materials except limestone in covered sheds to control fugitive emission. The coal storage facility should have water sprinkling facility in order to arrest fire hazard, if any.	**Complied with.** Proper water sprinkling on the places of fugitive dust generation is implemented and controlled.
(xviii) (a)	The storage of the coal dump shall be housed by permanent sheds open on all sides and stacked on impervious floor, preferably cemented to prevent Acid Mine Drain (AMD).	**Agreed for compliance.** Construction of permanent shed for storage of coal with cemented flooring has been completed for storage of coal and to prevent Acid Mine Drain (Acid Mine Drain).Also Company has planned to make an additional new permanent storage shed with impervious cemented floor for coal & work will be completed by end of year 2022.
(xviii) (b)	The project proponent shall construct garland drains along with Acid Mine Drains Neutralization tanks, in consultation with and approved by the state pollution control board.	**Agreed for compliance.** Garland drain is provided along the shed and shed is covered from all side to avoid any contamination of surface water due to storage of coal.
(xviii) (c)	No direct discharge of AMD into any drains/natural drains shall be allowed; proper treatment of AMD shall be done by the Project Proponent in the Neutralization Tank before releasing the water to the drain/natural drain, which shall be duly approved by the Meghalaya State Pollution Control Board.	**Agreed for compliance.** Garland drain is provided along the shed and shed is covered from all side to avoid any contamination of surface water due to storage of coal. No direct discharge of AMD will be assured by the PP.

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(xix)	The ambient air quality monitoring stations shall be set up as per statutory requirement in consultation with the Meghalaya State Pollution Control Board **(MsPCB)** and additional stations shall be installed, in the downwind direction as well as where maximum ground level concentrations are anticipated.	**Complied with.** Ambient Air Quality monitors – Installed as required having one point at crusher area where maximum concentration is anticipated. (Six month's report is enclosed) ***(Annexure-ii)***
(xx)	Quarterly reports on emission levels, surface and ground water quality shall be submitted to Meghalaya State Pollution Control Board, Chromium (VI) level in nearby surface water bodies flowing in the eastern site of the Plant, and ground water shall be monitored and reported to the MSPCB. Water in the Common Effluent Pit of the TPP shall be monitored monthly for Chromium (VI) toxicity and ensured that its level dose not rise beyond 0.05 mg/t.	**Complied.** Monitoring of surface water from River pumped to CPP and surface water from water harvesting pit near primary crusher is being tested and reports are being submitted to MsPCB. Chromium (VI) level testing from the effluent is also been tested on monthly basis and reports are attached herewith. ***(Annexure-iii)***
(xxi)	Total water requirement shall not exceed 2000 cum/day [inclusive of the water requirement of the TPP]. The project proponent shall install sewage treatment plant of minimum 120 m^3 /day capacity employing suitable and appropriate technology to treat domestic sewage and treated sewage shall be utilized for green belt development. No waste water shall be discharged outside the premises and zero discharge shall be ensured. No surface runoff from the factory premises shall either reach/contaminate Um-lunar River or any other stream flowing near the industrial location.	**Complied.** Total water requirement will not exceed 2000cum/day including TPP. The PP has install the STP to treat and reuse the residential waste water and ETP to treat and reuse the waste water generated from HEMM workshop to ensure zero discharge.STP treated water is being used for greenbelt development and sprinkling purpose. ETP treated water is reuse for vehicle washing. ***(Annexure-ii)***
(xxii)	The project proponent shall make all out effort to use high calorific value hazardous waste in the kiln towards which necessary provision shall be made.	**Complied with.** The project proponent has made a mechanical arrangement for feeding of plastic waste in Tertiary Air Duct (TAD) at pre- heater and using the waste as alternative fuel on availability basis. NOC for utilization of high calorific waste has been obtained from MsPCB.

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(xxiii)	The project proponent shall transport raw materials and industrial products through covered means.	**Complied with.** Raw materials like coal and industrial products like clinker are being transported from one location to other location by properly covered with tarpaulin to avoid any spreading of fugitives.
(xxiv)	Thirty three percent of the core project area i.e. 20.143 Ha of land shall be developed as green belt by the project proponent as per the guidelines of Central Pollution Control Board to mitigate the effect of fugitive emission, incurring the expenditure as stated by the project proponent. The program ought to be completed within 5 years from the date of issue of prior Environmental Clearance. Suitable species in respect of the same for the stated area shall be approved by the project proponent from the DFO (Territorial) of Jaintia Hills District.	**Complied with.** Development of Green belt had been started in the Year 2009 and 100% of the project area **(i.e. 20.22 Ha)** plantation has been completed. Suitable local species are being planted as per the suggestions given by the Sr. Engineer, (CPCB) & DFO (Territorial); East Jaintia hills Dist, Jowai. The details are enclosed herewith for your kind reference. Total plantation including project area and around the project area is 19.9253ha. ***(Annexure-iv)***
(xxv)	The project proponent shall provide a Health Care Center with all emergency medicines and ambulance along with regularly serving doctors complete with emergency unit that would function round the clock. Occupational health surveillance of the workers shall be carried out on a regular basis and records shall be maintained in compliance of provisions contained on Chapter III and V of the Factories Act, 1948.	**Complied with.** The Health Care Centre is functioning under qualified Doctor, Nurses and staffs. With all emergency medicine and ambulance to meet up the emergency.
(xxvi)	The salaries of the Cleaners shall be raised by 30% from the present Rs.2500/- p.m. as assured by the project proponent at p.0.15 of the EIA/EMP report in response to concern raised during the Public Hearing.	**Complied with.** The salaries of Cleaners are being reviewed on the yearly basis. The details are already submitted earlier. ***(Annexure-v)***
(xxvii)	Measures shall be taken to prevent impact of particulate emission/fugitive emission, if any, from the proposed plant on the surrounding private forest areas depicted in their land use study.	**Complied with.** Necessary measures such as bag filter maintenance, Dust suppression is being practiced. Ambient Air Quality Analysis nearby plant area is being done on regular basis. ***(Annexure - vi)***

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(xxviii)	The project proponent shall take all such measures as are necessary in the matter of utilization of limestone towards ensuring that no unscientific extraction of limestone is encouraged in the process.	**Complied with.** The Project proponent ensures that no unscientific extraction of limestone is encouraged in the process.
(xxix)	Meghalaya has been recognized as a cradle for several endemic species and an important constituent of the biodiversity hotspots spread over North East India. Therefore, as a measure of protection of rich biodiversity of the region, the project proponent shall cover an area of not less than 2 ha where would be located green house, mist chamber etc. (within the green belt area already stipulated above), locate conservation plots in respect of at least two of the following species of endangered and endemic plants reported to have been occurring within the region: i) *Pteracanthus griffithianus,* Acanthaceae ii) *Nepenthes Khasiana,* Nepenthaceae iii) *Argostemma khasianum,* Rubiaceae iv) *Fimbristylish nigrobrunnea,* Cyperaceae v) *Trivalvaria kanjilali,* Annonaceae vi) *Begonia rubrovenia,* Begoniaceae vii) *Ceologyne ovalis,* Orchidceae A scheme /conceptual plan of raising such thrcatened species shall be prepared in consultation with a reputed institution such as Botanical Survey of India complete with cost and activity schedule within one year from date of issue of prior Environmental Clearance.	**Complied with.** The Project proponent has started the work in co-ordination with Environment Department of North Eastern Hill University, Shillong. The NEHU, officials have already appointed a Project fellow for the Project and he is now working at our site on Biodiversity Conservation Plan with focus on conservation of the schedule –I species in the area. The green house has developed and conservation of three flora species namely: *Fimbristylish nigrobrunnea,* Cyperaceae, *Begonia rubrovenia,* Begoniaceae and *Ceologyne ovalis,* Orchidceae has been initiated Report is already submitted vide letter no. MCL/Env/MOEF&CC/2021-22/05; Dt:19.05.2021 Report attached herewith for reference. ***(Annexure - vii)***  *Ceologyne ovalis,* Orchidceae  *Begonia rubrovenia,* Begoniaceae

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(xxx)	The project proponent shall sponsor research and development for conservation of threatened category of species occurring locally such Hedychium dekianum, [Zingiberaceae], Cymbidium eburneum (Orchidceae), or Dendrobium denonianum (Orchidceae) which would be carried out by an appropriate research or academic institution located in Meghalaya within a year of issue of prior Environmental Clearance. The research project shall be instituted at an expenditure of a minimum of Rs.5 lakh per year spread over at least 3 years.	**Complied with.** The Project proponent has started the work in co-ordination with Environment Department of North Eastern Hill University, Shillong. The NEHU, officials have already appointed a Project fellow for the Project and he is now working at our site on Biodiversity Conservation Plan with focus on conservation of the schedule –I species in the area. The green house has developed and conservation of three flora species namely: *Fimbristylish nigrobrunnea,* Cyperaceae, *Begonia rubrovenia,* Begoniaceae and *Ceologyne ovalis.* Orchidceae has been initiated. Report is already submitted vide letter no. MCL/Env/MOEF&CC/2021-22/05; Dt:19.05.2021 Report attached herewith for reference. ***(Annexure - vii)***
(xxxi)	A Conservation Plan for conservation of wild fauna in consultation with a reputed institution such as Wildlife Institute of India, Dehradun shall be prepared and implemented. Such conservation plan drawn in respect of wild life shall be completed within a maximum of 1 year from the date of issue of prior Environmental Clearance and implemented thereafter by the project proponent.	**Complied with.** Questionnaire survey to account for the existing fauna in the project area and its surrounding has been completed and the list of fauna has provided by NEHU. Further, camera traps have been installed near the project area and final report on existing fauna in the project area prepared by NEHU on the basis of data acquired by camera traps. Plantation of fruit plan bearing species in the project area has done as per Central Pollution Control Board guideline, so as to encourage the increase visitation and roosting of avian species. Report is already submitted vide letter no. MCL/Env/MOEF&CC/2021-22/05; Dt:19.05.2021 Report attached herewith for reference. ***(Annexure - vii)***
(xxxii)	A sum of Rs.2109.52 lakh shall be spent towards capital expenditure as stated by the project proponent towards environment protection and a further sum of Rs.501.60 lakh as recurring cost annually shall be spent by the project proponent towards environmental protection.	**Complied with.** An expenditure detail is enclosed herewith. ***(Annexure - viii)***

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(xxxiii)	A sum of Rs.50 lakh shall be utilized annually by the project proponent till the project subsists towards socio-economic/eco-development activities in the area part of which shall be spent towards distribution of free medicines, malaria eradication program etc. in the nearby villages. A portion of the sum (5%) shall be set apart annually towards creation of employees' welfare fund. Details of expenditure incurred under this Para shall form part of the compliance report to be submitted to the SEIAA/SEAC. Further, a comprehensive long term eco-development plan shall be prepared by the project proponent within six months of receipt of prior Environment Clearance.	**Complied with.** Implementation done towards socio-economic/eco-development activities and the expenditure details are enclosed here with ***(Annexure- ix)*** Further, a comprehensive long term eco-development plan shall be prepared by the project proponent with the help of NEHU Shillong. Report is already submitted vide letter no. MCL/Env/MOEF&CC/2021-22/05; Dt:19.05.2021 Report attached herewith. ***(Annexure- vii)***

B. GENERAL CONDITIONS

In respect of the Cement Plant – Thermal Power Plant project the following general conditions shall be adhered to by the project proponent:

(i)	The project proponent shall strictly adhere to the stipulations of the MSPCB/State Government or any other statutory body as framed/modified from time to time.	**Complied**. Following the stipulation of MSPCB.
(i)-a	The Project Proponent shall not violate applicable provisions of any Acts, Rules Orders of the Government and judicial orders issued by the Hon'ble Supreme Court/High Courts/NGT, applicable to the project.	**Agreed for compliance**. The Project Proponent is not violating applicable provisions of any Acts, Rules Orders of the Government and judicial orders issued by the Hon'ble Supreme Court/High Courts/NGT, applicable to the project.
(ii)	At no point of time, either the clinker production or cement production of either PPC or OPC type shall exceed the limit of 2600 tons per day.	**Agreed for compliance**. Against Letter no.:- ML/SEIAA(2018)/PP/Pt/03/2019/23/510; Dated- 19th August 2019

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(iii)	No further expansion or modification in the plant shall be carried out without prior approval of the Ministry of Environment & Forests or their nominated authority as the case may be. In case of deviation or alteration in the project proposal from those submitted to the Committee for clearance, a fresh reference shall be made to the SEAC through SEIAA to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	**Agreed for compliance.** No further expansion or modification will be carried out without prior clearance.
(iv)	The gaseous emissions (SO_2, NO_x) and particulate matter levels from various process units shall conform to the standards prescribed by the concerned authorities from to time. At no point of time, the emissions shall exceed the prescribed limits. Interlocking system of equipment shall be chosen such that in the event of failure of any pollution control system adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency has been achieved.	**Complied.** 1. Project Proponent confirms that the gaseous emissions (Sox, NOx & PM) level confirmed to standard prescribed by the concerned authorities from time to time. At no point of time the emission will exceed the prescribed limit. 2. ABB make SCADA based Interlocking is in system to control SO_2, NO_x levels in case of failure and working effectively
(v)	The project authorities should adhere to the provisions stipulated in the fly ash notification of September, 1999 as amended in August, 2003 with regard to fly ash utilization.	**Complied with.** Fly ash generation in our Captive Thermal Power Plant is completely collected by the ESP to its hoppers and it is being loaded into tankers for feeding to cement mill hoppers pneumatically. Hence 100% consumption of the ash generated is achieved by our cement plant.
(vi)	The industry shall undertake the following waste minimization measures: • Reuse of by-products from the process as raw materials or as raw material substitutes in other process. • Use of closed pneumatic system for transport of fine material. • All venting systems shall be connected with dust or particulate arresting equipments. • Dust/particulate matter collected in	**Complied with.** The Project Proponent is not generating any kind of bi-product of process. Closed pneumatic system is installed for transport of the fine material in the manufacturing process. All venting systems are connected with dust or particulate arresting equipments such as Bag Filters.

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	pollution control equipments shall be reused.	
(vii)	Fugitive emissions in the work zone environment, product and raw materials storage area shall be regularly monitored. The emissions shall conform to the limits imposed by the State Pollution Control Boards/Central pollution Control Board.	**Complied with.** Monitoring of fugitive emission is already been under taken and the tests were conducted in-house with our team and also by the third party. The Project Proponent is submitting monthly report to MsPCB which is generated by the third party as well as our laboratory team.
(viii)	Dust/particulate matter collected in pollution control equipments shall be reused. Spares would be maintained in respect of all pollution control equipment. Maintenance and optimum functioning of the pollution control equipment shall be ensured by the project proponent.	**Complied with.** The Project proponent has provided different types of Environmental Protection Equipments for collection of dust/particulate matter and to reuse the same in our process. The required spares parts are also maintaining for optimum functioning of the said equipments.
(ix)	The project proponent shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989, as amended from time to time. Authorization from the MSPCB shall be obtained for collection, treatment, storage and disposal of hazardous wastes.	**Complied with.** Authorization letter No (ADDENDUM). MPCB/ATH-21/2007/ 2018-2019/14; dated 5th July 2018 for 2600 TPD cement manufacturing plant, valid up to 30th November, 2020 Authorization letter No (ADDENDUM). MPCB/ATH-46/2017/2018-2019/2; dated July 2018 for 10 MW CPP, valid up to 31st August, 2022 obtained from MSPCB.
(x)	A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the Environmental Management and Environmental Quality Monitoring functions. A state of the art Chromium testing kit shall be maintained in the laboratory.	**Complied with.** Dedicated environmental Management Cell is functioning and Environmental quality functions like Ambient Air Quality Monitoring, Stack Monitoring Emission, and Drinking Water Quality and Waste Water quality are being regularly monitored. Chromium testing for CPP blow down water is also being carried out regularly.
(xi)	All pollution control equipment in STP of the type specified by the project proponent shall be duly installed and manned full time by trained personnel appointed for the purpose.	**Complied with.** The Sewage Treatment Plant (STP) has been installed and the capacity of the same is 100m³/Day, and the treated water being utilized for suppresses the fugitive dust of our internal roads. The Effluent Treatment Plant (ETP) has been installed near Vehicle Work Shop and the

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		treated water is being recycled for the same purpose. The capacity of the ETP is 25 kL/Day. The Neutralization Pit has been also installed at CPP. Rejected water generates through De-mineralization of water is being neutralized in the neutralizing pit and then used for green belt development. Drainage system and STP, ETP and NPT map are submitted earlier.
(xii)	A six monthly compliance status report shall be submitted to SEIAA/SEAC and Regional Office, Ministry of Environment & Forests, Govt. of India, Shillong apart from posting the same on the website of the Project proponent.	**Complied with.** Half yearly compliance reports along with monitoring data are being submitted to concerned officials on the regular basis and posting the same data on the website also.
(xiii)	Implementation of the project vis-à-vis environmental action plans shall be monitored by the Regional Office, Ministry of Environment & Forests duly assisted by the SPCB. The Regulatory Authority may revoke or suspend the clearance on the recommendation of the SEAC, if implementation of any of the above conditions is not satisfactory. The Regulatory Authority may on the recommendation of SEAC reserve the right to stipulate additional conditions, if found necessary. The Project proponent in a time bound manner shall implement these conditions too. The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Waste (Management & Handling) Rules, 2003 and the Public Liability Insurance Act, 1991 along with their amendments and Rules.	**Agreed for compliance.** MEGHALAYA CEMENT LTD. THANGSKAI

C. ADDITIONAL CONDITIONS

(i)	The project proponent to create a good and successful plantation in the green belt area of approximately 18 hectares by using indigenous plant species like *Michelia Chanmpacca, Castanopsis sp, Schima wallichi, Mesua ferrea, Artocarpus hetero-phylla* preceded by establishing well stocked nurseries of above species in the different plots. The project proponent must accord importance & seriousness to undertake the plantation on mission mode. The plantation so create act as a model for all the industrial units located within the district.	**Complied with** The PP has created good plantation & green belt by using indigenous plant species like *Michelia Chanmpacca, Castanopsis sp, Schima wallichi, Mesua ferrea, Artocarpus hetero-phylla* preceded by establishing well stocked nurseries of above species in the different plots.

Annex-I

AWARENESS OF OSH (OCCUPATIONAL SAFETY & HEALTH)

DATE: 7th Aug'2021

- **THEME: Taught about identification & prevention of Hazards & Risk, Elimination of unsafe conditions / Act.**
- TRAINERS NAME : Mr. AV Jambhe – Asst. Director- DGFASLI
- VENUE : MCL – CCR Conference Hall.
- DATE : 7th August'2021
- TIME : 2:30 PM To 3:30 PM

NUMBER OF PARTICIPANTS : 26 Persons were attended.

On 7.08.2021 at sharp2:30 PM up to 3:30 PM at CCR Conference hall we have conducted "AWARENESS PROGRAM ON O.S.H (OCCUPATIONAL SAFETY & HEALTH" By DGFASLI total 26 Persons were participated from various department workers, staff, officers/Engineers. At the time of working in industry how to identify hazards and analyze of risk accordingly precautions to be taken to avoid of occupational hazards and an accidents.

Training Objectives:

- To understand hazards & risk at workplace.
- To understand unsafe condition & unsafe act.
- To understand responsibilities & duty at work place.
- To gain knowledge about finding Hazards.

Needs of OSH Awareness:

1) Safety is essential for all.
2) OSH Awareness creating & improve of knowledge about occupational Safety & health to reduce occupational accidents & occupational disease.
3) To avoid accident & loss of property, equipments & environment.

What in Accident:

- An understand & unexpected event.
- An unfortunate event.
- Un planned & unexpected event giving rise to injury, illness, death and damage or loss to property, damage to Environment or any combination of these.

Incident: Any event that could have resulted (Near miss) or died result (Accident) in:

- ✓ Injury & illness, Property damage.
- ✓ Environmental release.

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Annex- I

What is Safety: Being Safe, freedom from risk or danger. Freedom from un expectable risk of Harm.

What is Hazard: Any potential condition that can cause injury illness or death, damage to equipments/Property/ Environment.

What is Risk: Hazard, Peril, jeopardy, an expression of the impact & possibility of a mishap/accident in terms of potential mishap severity and probability of occurrences.

Probability of an event (P) X Consequences (C).

Terminology-Injury-Damage-Loss

- ✓ Injury includes all personal physical harm including both traumatic injury & diseases.
- ✓ Damage covers all types of property damage including Fires.
- ✓ Severity of Losses involved physical and property damage by application of certain counter measures.

Effect of Accident:

Effect on the management of Factory-
Cost of Accident-The momentary loccss associated with an accident or incident.

Direct cost: 1. Medical Expenses
2. Hospitalization cost.
3. Reduce of Capability/ability.
4. Production loss.
5. Cost of repair of equipments machineries.

Indirect cost: 1) Investigation time.

2) Cost of hiring and/or training replacements.

Effect of accidents on worker:

Why to prevent accident?

- ➢ Legal responsibility.
- ➢ Moral responsibility.
- ➢ Loss of Production.
- ➢ Avoid bad publicity.

Safety Philosophy:

- All injuries are preventable.
- Management has the responsibility for preventing personal injuries

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- It is possible to safeguard all operating exposures that may result in injuries. It is necessary to train all to work safely

Human Cause (Personal Factors)

- Unsafe working
- Operating machines without knowledge
- Working at unsafe speed.
- Working for long duration of work, shift duty etc.
- Use of improper tools.
- Working with mental worries.
- Not using personal protective devices.
- Lack of knowledge or skill, improper motivation and physical or mental problems

Environmental Causes (Job Related Factors)

- Working at improper temperature and humidity.
- Presence of dust fumes and smoke in the working area.
- Poor housekeeping, congestion, blocked exits, bad plant layout etc.
- Inadequate illumination.
- Improper ventilation.

Inadequate work standards, inadequate design or maintenance, inadequate purchasing standards, abnormal usage.

Mechanical Causes:

- Continued use of old, poor maintained or unsafe equipment.
- Use of unguarded or improper guarded machines or equipments.
- Unsafe processes, unsafe design and unsafe construction of building structure.
- Improper material handling system and improper plant layout.
- Not using of safety devices.

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ACCIDENT PREVENTION:

- Basic Requirements
  - Strong commitment from top management.
  - Good safety program.
  - Established safety culture.
  - Safety accountability in place

BENEFITS:

- Reduced injury claims
- Improved employee job satisfaction
- Lower insurance premiums
- Improved quality
- Improved productivity

ACCIDENT PREVENTION:

- THREE BASIC STEPS
  - Hazard identification
  - Elimination of unsafe act
  - Elimination of unsafe condition

ELIMINATE UNSAFE ACT

- Personal adjustments
- Education and Training
- Supervision
- Discipline

Role/Responsibility of Occupier/Manager

- Every occupier shall ensure health, safety and welfare of all workers .
- Maintenance of plant and systems of works for safe , should be carried out.
- Arrangements for ensuring safety and health in connection with the use, handling, storage and transport of articles and substances;

MEGHALAYA CEMENT LTD. THANGSKAI

- The provisions of information, instruction, training and supervision to ensure the health and safety at work should be carried out.
- The maintenance/ monitoring of all places/environment of work in the factory for safety of workers, should be carried out.

ROLE AND RESPONSIBILITIES

Engineer / Supervisor

- Enforce safety rules, safety work permit system, exercise close supervision on workmen, ensure competence and discipline
- Take immediate corrective action on any unsafe acts and/or unsafe conditions are noticed/reported
- Explain in detail the specific hazard and safety measures in case of jobs being assigned to workmen and ensure safety
- Ensure that all hazards are eliminated, all passages, stairways, entrances and exits are clear and safe in all respects
- Set himself, as an example of excellence in safety observance for others to emulate
- Ensure prompt reporting and a thorough investigation of all accidents and near misses in the prescribed form and suggest remedial measures to avoid rec

Controlling of Hazards

Whenever possible, hazards should be eliminated. If not possible, hazards must be controlled.

Controls, in order of preference, include:

• Engineering Controls

• Administrative Controls

• Personal Protective Equipment (PPE)

- Housekeeping.
- Safe signage, Posters, Liabiling.
- Storage Hazard.
- Handling of Hazardous materials.
- Noise & Vibration Hazard.
- Emergency response.
- Electrical energy hazard & control.
- General Safety measures.

MEGHALAYA CEMENT LTD. THANGSKAI

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- Working at height.
- Control measurement for fall accident.
- Material handling.
- Hazards of Manual handling.
- **Machine Guarding.**
- **Hand tools.**
- **Illumination**

Finally all participants got well knowledge and ensure in-future while working obey those necessary steps and working with risk free environment at working place.

Safety Officer

DGM-Safety

MEGHALAYA CEMENT THANGSKAI

Annex-I

Meghalaya Cements Ltd.

Vill: Thangskai,P.O.Lumshnong, East Jaintia Hills, Meghalaya-793210

Attendance Sheet for IMS/EnMS/External Agency Training

Doc.No: MCL/IMS&EnMS/HR& A/TAF/019
Rev No.:01
Date: 01.04.2016

Training Details : "Awareness of OSH". (Occupational Safety & Health)

Agency : DGFASLI

Date : 07.08.2021

Time : 02:30 pm to 03:30 pm

Name of Trainers : Mr. A. V. Sambhe - Asst. Director (Safety)

Attendance Record:

Sl. No.	*Emp Code*	*Employee Name*	*Department*	*Designation*	*Signature*
1	[illegible]	Mr. Binod Bapumatang	*Civil*	*SUPERVISOR*	
2	[illegible]	Mr. Kanchan Dey	*Civil*	*CARPENTER*	
3	5720	*Mr. Sanju Dey*	*Prod.*	*JR. ASSISTANT*	
4	3334	*Mr. Bimal Bora*	*Prod.*	*PATROLLER*	
5	3284	*Mr. Dhananjai Rai*	*QC*	*SR. SUPERVISOR*	
6	2589	*Mr. Nagen Talukder*	*QC*	*SUPERVISOR*	
7	2105	*Mr. Raju Sharma*	*Electrical*	*CHARGE HAND*	
8	2100	*Mr. Santosh Singh*	*Electrical*	*SR.ELECTRICIAN*	

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9	5550	Mr. Islam Uddin	Instrument	JR. TECHNICIAN	Islam
10	5548	Mr. Ramkon Bora	Instrument	JR. TECHNICIAN	
11	2844	Mr. Kadam Das	Logistic	JR.OFFICER	
12	2855	Mr. Bikram Mahato	Logistic	SR. SUPERVISOR	
12	3090	Mr. Rajesh Kumar Dubey	Mines/HEMM	ASST.FOREMAN	
14	2645	Mr. Rakesh Kumar Yadav	LDT Optr-mining	LDT Optr-	Rakesh
15	10000814	Mr. Ravi Ranjan	CPP	2nd CLASS BOILER ATTENDANT	
16	10000227	Mr. Manashjyoti Deka	CPP	2nd CLASS BOILER ATTENDANT	
17	3096	Mr. Satyendra Tiwari	S&V	SUPERVISOR	Satyendra Tiwari
18	4039	Mr. Navajyoti Gogoi	S&V	PUMP OPERATOR	
19	5731	Mr. Pradip Paul	S&V	TRAINEE	P. Pal
20	5730	Mr. Souvik Mandal	S&V	TRAINEE	Souvik Mandal
21	2956	Mr. Rajesh Kanu	S&V	SUPERVISOR	
22		Mr Dipak Kumar	ENV		
23		Suman Kumar	Elect	Electrician	Suman
24		Bikash Kumar	Mech	Fitter	
25		Balaraman Narzary	mech		Balaraman
26		O. P. Mishra	Mech		

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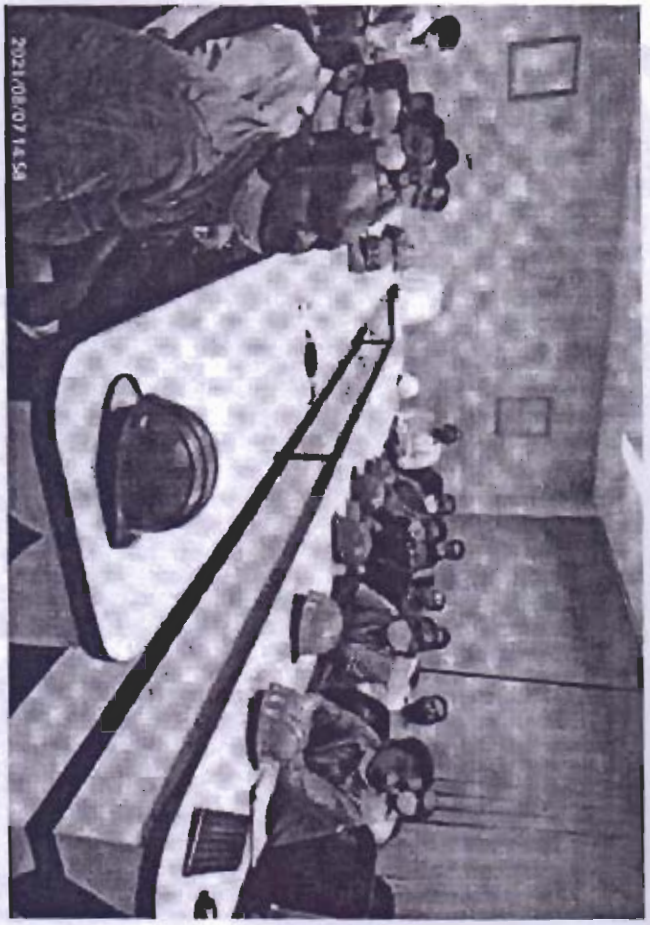

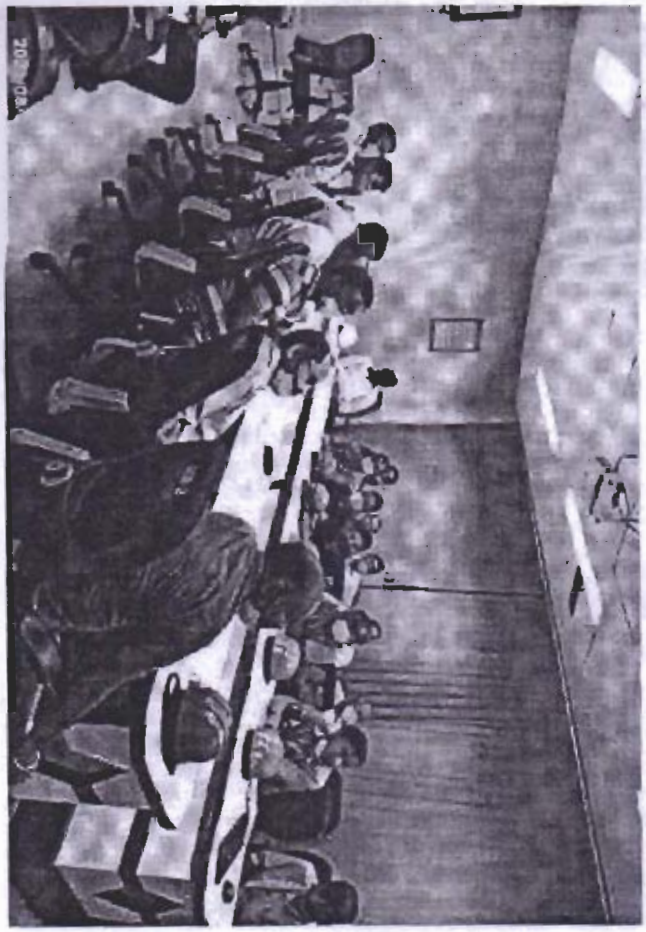

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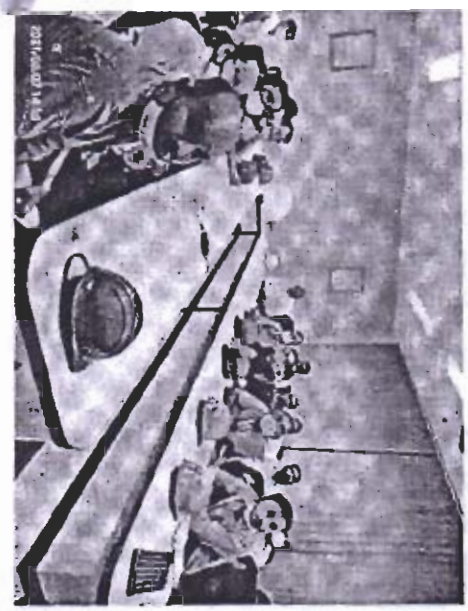
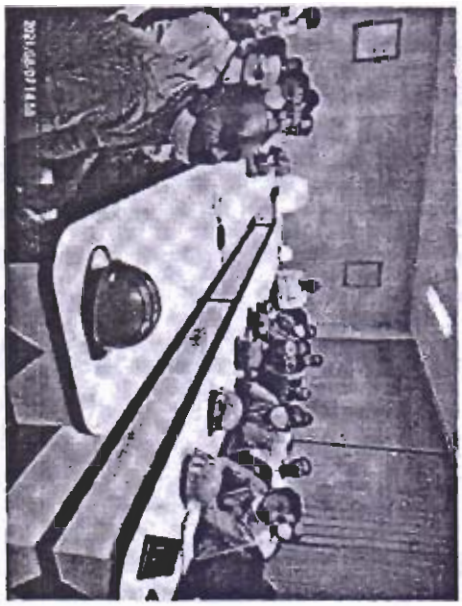



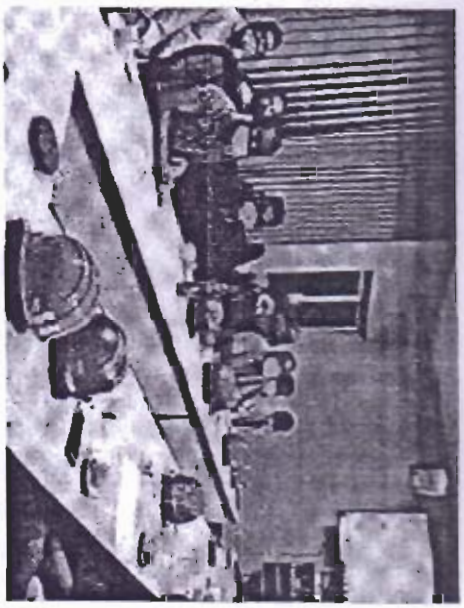

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Annex - I

FIRE FIGHTING TRANING REPORT

Date: 18/06/2021

THEME: Fire fighting training conducted for all workers, staff & engineers of Process depts. Topic based on studies of Emergency preparedness or activation, sirens code of practice distinguish the type of fire & fire extinguishers using process and how to fight with i.e. fire fighting procedure etc.

- TRAINER's NAME: - Prajjal Rajkumar – Safety officer / Ganesh Quila- Asst. Fire officer
- VENUE: - At coal mill area.
- DATE:- 18/06/2021
- TIME: - 5:00 PM TO 7:00 PM
- DURATION: - 2:00 Hours
- NUMBER OF PARTCIPANTS: - [20] Twenty participants were attended.

On 18th Junc' 2021 from 5 PM to 7:00 PM at Coal Mill area we have conducted "FIRE FIGHTING TRAINING" along with studied emergency preparedness function and accident indicator siren alarming procedure" i.e accident indicator siren alarming procedure also taught the classification of fire & using of different extinguishers. Total 20 persons were participated in the training. Our Motto is about to educate all & knowing about using procedures of fire extinguishers during any fire emergency.

Methods of Fire Extinction: Following methods are used for extinguishing the fire according to fire Triangle.

1) Starvation: In this method we discussed & shown how to remove un-burnt materials from surrounding of fire occurrence area & to control the fire.
2) Blanketing: In this method we discussed & shown how to cut oxygen from the fire by using of extinguishers & wet blanket to stop the fire by blanketing process:
   - Foam, ABC, DCP extinguishers are used for blanketing.
3) Cooling: In this method we bring down temperature of fire below auto ignition temperature of fuel & fire extinguishers.
   - Foam, Water, CO2 extinguishers are used for cooling.

Classification of Fire: Fire is five [5] types.

- **A class Fire**: Fire involving combustible materials of Organic nature.
- **B class Fire**: Fire involving Flammable liquids.
- **C class Fire**: Fire involving flammable Gases.
- **D class fire**: Fire involving combustible metals.
- **E class Fire**: Fire involving on Electrical appliances.

- At the time of any fire emergency how to fight with fire & what precaution to be taken during that situation.
- Which type of Fire extinguishers can be use on what type of Fire.
- Classification of Fire and according to it explanation & types of fire.
- Communication procedure during emergency.
- During Fire what can do or not.

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- Explanation of locations where Fire can catch at our factory premises & in vehicles.
- Introduction and function of Fire fighting tanker along with Fire equipments.
- During fire accident siren alarming procedure.
- Operating procedure of fire extinguishers & Fire fighting tanker if necessary.
- Practical Demonstration.

Finally we have conducted practical demo program on fire by use of fire fighting equipments like Fire extinguishers, Fire fighting tanker & given the training to all participants, observed each and every one can operate the extinguishers and understood fire fighting process. Finally we have seen most of the persons learnt well & satisfactory as practice training will be continued for further progress.

SAFETY OFFICER

DGM [SAFETY]

MEGHALAYA CEMENT
THANGSKAI

Annex – I

Meghalaya Cements Ltd.

Vill: Thangskai,P.O.Lumshnong, East Jaintia Hills, Meghalaya-793210

Attendance Sheet for IMS/EnMS/External Agency Training

Doc. No: MCL/ IMS & EnMS/MR/G10
Rev No.:00
Date: 01-03-2016

Training Details : Fire fighting training.
Agency : Safety dept.
Duration : 02 Hour
(a) Date/s From: 18.06.21 To: —
(b) Time From: 05:00pm To: 7pm
Names of Trainers :
1. P. Rajkumar. 2. Ganesh Guria

Attendance Record:

Sl.	Employee Name	Department	Designation	Signature
01.	P Nagaraja Rao	Process	DGM	
2.	Ravishankar	process	Sr Engg	
3	SAURABH KUMAR	PROCESS	GET	Saurabh Kumar
4	Narayan prasad Singh	"	Trainee	
5.	Sanju Bey	"	Trainee	
6.	Samrat Rout	"	GET	S.R.
7	Sanjay Singh Rathaur	"	D.E.T	
8.	Jitendra prasad	"	Manager	
9.	mehraj Alam	"	Foremen	
10.	Kajal karmakar	"	Driver	
11.	Dil Bahadur chetri	"	petroller	
12.	Denial Basumatary	"	Misson	
13.	Babul Bora	"	petrolleg	
14.	Murti Runkuya	"	petroller	

MEGHALAYA CEMENT LTD. THANGSKAI

HOD

Meghalaya Cements Ltd.

Vill: Thangskai,P.O.Lumshnong, East Jaintia Hills, Meghalaya-793210

Attendance Sheet for IMS/EnMS/External Agency Training

Doc. No: MCL/ IMS & EnMS/MR/G10
Rev No.:00
Date: 01-03-2016

Training Details : Fire Fighting training
Agency : Safety Dept.
Duration :
(a) Date/s From: 18.06.21 To: —
(b) Time From: 05:00pm To: 7:00pm
Names of Trainers :
1. Poojit Rajkumar 2. Ganesh Gurung.

Attendance Record:

Sl.	Employee Name	Department	Designation	Signature
15.	Mantu Das	Process	Petroller	Mantu Das
16.	Suraj Lumbo	"	Worker	Suraj Lumbo
17.	Ganesh Malakar	"	carpenter	Ganesh Malakar
18.	Atul Basumatary	"	miller	Atul Basumatary
19.	Bolin Hazarika	"	petroller	Bolin
20.	Laxmi Nath	"	petroller	Laxmi Nath

MEGHALAYA CEMENT LTD. THANGSKAI

HOD

Annex – II

MEGHALAYA CEMENTS LIMITED

Six Monthly Reports: Stack Emission Report, 2021-2022

Chimney		Suspended Particulate Matter (PM):mg/Nm^3							
		Apr' 2021	May' 2021	Jun' 2021	Jul' 2021	Aug' 2021	Sep' 2021	Avg.	Concentration not to exceed, in mg/Nm^3
Pr. Crusher		16.00	15.39	12.29	18.28	19.48	-	16.29	30
Sec. Crusher		20.12	21.34	21.12	23.73	21.69	-	21.60	30
Coal mill 1		27.68	26.05	24.11	12.71	15.89	-	21.29	30
Coal mill 2		21.43	14.38	21.27	13.77	19.64	-	18.10	30
RABH 1	PM	20.20	21.69	14.94	25.69	22.89	-	21.08	30
	SO_2	633.79	618.02	597.24	536.68	514.35	-	580.02	1000 (Based on pyritic sulphur presence in limestone)
	NOx	317.75	302.53	279.48	242.47	264.24	-	281.29	600
RABH 2	PM	17.00	19.38	12.28	20.89	24.64	-	18.84	30
	SO_2	682.26	629.47	618.59	634.93	602.52	-	633.55	1000 (Based on pyritic sulphur presence in limestone)
	NOx	270.60	251.08	288.20	276.17	259.46	-	269.10	600
ESP 1		28.39	27.61	27.81	28.55	27.34	-	27.94	30
ESP 2		23.51	28.98	25.19	26.95	23.97	-	25.72	30
Cement Mill No-1		22.59	29.80	24.69	27.22	26.59	22.41	25.55	30
Cement Mill No-2		24.82	28.55	27.49	25.51	24.79	20.68	25.31	30
Packing House-1		18.36	16.95	14.68	10.27	16.36	19.24	15.98	30
Packing House-2		21.33	13.71	16.49	14.46	13.49	15.19	15.88	30

Prepared by

Arti Singh

MEGHALAYA CEMENTS LTD. THANGSKAI

Checked & Verified by

Vijwal Anurag

Annex-II

MEGHALAYA CEMENTS LIMITED

Six Monthly Report: Ambient Air Quality Report, 2021-2022

Location		Ambient Air Quality (AAQ): µg/m^3							
		Apr' 2021	May' 2021	Jun' 2021	Jul' 2021	Aug' 2021	Sep' 2021	Avg.	MoEF notification G.S,R 826(E), dated 16.11.2009, Concentration not to exceed,
Near CCR Building	PM_{10}	50.24	51.36	55.16	57.64	59.21	46.92	53.42	100
	$PM_{2.5}$	34.95	35.81	32.57	31.59	32.60	29.84	32.89	60
	SO_2	08.38	10.47	12.34	17.28	16.32	11.38	12.70	80
	NOx	06.18	09.24	08.60	05.84	07.92	04.76	07.09	80
Guest House	PM_{10}	39.56	36.84	32.59	34.68	38.26	32.58	35.75	100
	$PM_{2.5}$	26.64	24.30	20.10	23.71	22.68	19.67	22.85	60
	SO_2	12.63	14.56	13.59	16.64	13.41	10.68	13.59	80
	NOx	08.14	08.31	09.17	06.92	09.38	06.42	8.06	80
Crusher	PM_{10}	48.13	44.72	41.12	43.51	45.09	39.19	43.63	100
	$PM_{2.5}$	35.09	33.02	32.28	29.86	32.54	25.89	31.45	60
	SO_2	15.08	12.69	15.46	11.09	10.02	06.39	11.79	80
	NOx	06.27	05.79	06.48	08.34	06.27	03.97	06.19	80
DG House (Downwind direction)	PM_{10}	44.39	42.09	42.29	41.69	44.38	46.92	43.63	100
	$PM_{2.5}$	27.61	24.97	21.37	22.14	28.92	29.84	25.81	60
	SO_2	13.62	12.17	11.02	13.51	11.26	11.38	12.16	80
	NOx	05.93	07.26	06.89	07.66	05.89	04.76	06.40	80

Prepared by

Arti Singh

MEGHALAYA CEMENTS LIMITED THANGSKAI

Checked & Verified by

Ujjwal Anurag

Annex – II

MEGHALAYA CEMENTS LIMITED

Six Monthly Reports: Noise Intensity and Water Consumption, From Apr'2021 to Sep'2021

Location		Noise Intensity: dB (A) Leq							
		Apr' 2021	May' 2021	Jun' 2021	Jul' 2021	Aug' 2021	Sep' 2021	Avg.	Noise Level not to exceed, in dB (A) Leq
DG House	Day	68	71	70	67	69	72	**69.50**	**75**
	Night	60	58	62	56	54	61	**58.50**	**70**
Guest House	Day	49	51	58	50	53	56	**52.83**	**75**
	Night	43	41	43	42	44	46	**43.16**	**70**
Crusher	Day	70	74	73	67	69	72	**70.83**	**75**
	Night	49	52	61	55	57	61	**55.83**	**70**

NOTE : Day Time (6:00AM to 9:00PM), Night Time (9:00PM to 6:00AM)

Location	Water Consumption(Monthly) : M^3							
	Apr' 2021	May' 2021	Jun' 2021	Jul' 2021	Aug' 2021	Sep' 2021	Avg. (m^3/Day)	Water Consumption not exceed
Domestic	11,772	12,173	11,015	12,143	13,095	13,606	**403.30**	**1236 m^3/Day**
Industrial	9,512	4,960	3,566	13,761	6,706	9,465	**262.13**	

Prepared by

Arti Singh

MEGHALAYA CEMENTS LIMITED THANGSKAI

Checked & Verified by

Ujjwal Anurag

Regd. Office and Works: Village Thangskai, P.O. Lumshnong, Dist Jaintia Hills, Meghalaya Pin-793200 Ph.:03655-278324/363/364
Corporate Office: BE-77, Salt Lake City, Sector – 1, Kolkata – 700 064, Ph.:033 23340666/0004, Fax:03655 278327

Annex-II

MEGHALAYA CEMENTS LIMITED

Six Monthly Report (CPP): PM & AAQ Report, 2021-2022

Chimney : CPP	Suspended Particulate Matter (PM) & Gaseous Emission: mg/Nm^3								
		Apr' 2021	May' 2021	Jun' 2021	Jul' 2021	Aug' 2021	Sep' 2021	Avg.	Concentration not to exceed, in mg/Nm^3
	PM	21.66	28.19	26.89	23.69	22.68	-	24.62	50
	SO_2	452.67	441.27	459.42	426.48	468.26	-	449.62	600
	NOx	223.41	234.05	209.17	201.37	212.47	-	216.09	300

Location: CPP		Ambient Air Quality (AAQ): µg/m^3							
		Apr' 2021	May' 2021	Jun' 2021	Jul' 2021	Aug' 2021	Sep' 2021	Avg.	MoEF notification G.S.R 826(E), dated 16.11.2009, Concentration not to exceed,
S↔E	PM_{10}	59.23	62.71	66.39	78.01	68.29	74.36	68.17	100
	$PM_{2.5}$	41.67	46.20	44.69	52.31	54.98	55.62	49.25	60
	SO_2	13.45	12.86	17.69	14.64	15.27	12.96	14.48	80
	NOx	12.67	09.28	11.21	13.47	12.59	14.28	12.25	80
S↔W	PM_{10}	62.24	54.21	61.57	68.36	72.17	71.96	65.09	100
	$PM_{2.5}$	46.69	47.82	54.21	44.39	50.26	51.48	49.14	60
	SO_2	11.21	16.94	08.42	14.23	10.84	13.17	12.47	80
	NOx	12.89	10.48	07.34	14.87	11.91	10.09	11.26	80
N↔E	PM_{10}	61.36	67.54	66.16	64.69	68.34	71.59	66.61	100
	$PM_{2.5}$	43.24	44.98	53.12	51.64	52.59	55.69	50.21	60
	SO_2	12.35	11.92	14.89	10.32	11.48	12.19	12.19	80
	NOx	09.22	12.67	10.31	13.59	08.47	14.68	11.49	80

Prepared by
Arti Singh

Checked & Verified by
Ujjwal Anurag

MEGHALAYA CEMENTS LIMITED THANGSKAI

Regd. Office and Works: Village Thangskai, P.O. Lumshnong, Dist Jaintia Hills, Meghalaya Pin-793200 Ph.:03655-278324/363/364
Corporate Office: BE-77, Salt Lake City, Sector – 1, Kolkata – 700 064, Ph.:033 23340666/0004, Fax: 03655 278327

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MEGHALAYA CEMENTS LIMITED

Location: CPP	Water Consumption(Monthly) :M^3							
	Apr' 2021	May' 2021	Jun' 2021	Jul' 2021	Aug' 2021	Sep' 2021	Avg. (m^3/Day Cons.)	Water Consumption not exeeed
	26,260	14,527	29,479	32,543	8,492	0.00	608.20	2000 m^3/Day

Prepared by

Arti Singh

MEGHALAYA CEMENTS THANGSKAI

Checked & Verified by

Ujjwal Anurag

Annex- II

MEGHALAYA CEMENTS LIMITED

Location		Meteorological Data (Monthly Avg.)					
		Apr' 2021	May' 2021	Jun' 2021	Jul' 2021	Aug' 2021	Sep' 2021
Temperature	Min	13.77	10.59	9.30	8.02	10.53	12.35
	Max	33.96	31.56	32.21	32.25	32.46	32.15
	Avg.	22.50	23.04	21.26	22.09	21.45	21.09
Humidity	Min	24.90	45.71	43.10	44.74	49.74	50.73
	Max	95.11	92.61	93.20	96.37	96.86	92.19
	Avg.	69.39	82.30	81.86	87.37	87.92	89.99
Rain Fall	MTD	543.50	896.50	837.54	624.31	906	732
	YTD	543.50	1440	2277.54	2901.85	3807.85	4539.85

MEGHALAYA CEMENTS LIMITED THANGSKAI

Annex- II

MEGHALAYA CEMENTS LIMITED

Six Monthly Reports: Noise Intensity from Apr'2021 to Sep'2021

Location	Period	Noise Intensity: dB (A) Leq							
		Apr' 2021	May' 2021	Jun' 2021	Jul' 2021	Aug' 2021	Sep' 2021	Avg.	Noise Level not to exceed, in dB (A) Leq
TG Area	Day	68	67	71	73	69	68	69.33	75
	Night	64	67	63	66	68	65	65.50	70
Boiler Area	Day	73	69	71	67	72	71	70.50	75
	Night	65	63	62	66	65	64	64.17	70
Near ID Fan	Day	72	74	71	72	71	69	71.50	75
	Night	63	66	65	66	66	61	64.50	70
Near FD Fan	Day	73	72	71	67	72	69	70.67	75
	Night	67	64	66	65	64	63	64.83	70
Compressor Area	Day	73	70	72	66	69	71	70.17	75
	Night	66	63	65	62	66	64	64.33	70
Coal Crusher Area	Day	72	71	73	72	71	73	72.00	75
	Night	68	66	64	67	66	64	65.83	70

NOTE : Day Time (6:00AM to 9:00PM), Night Time (9:00PM to 6:00AM)

Prepared by
Arti Singh

MEGHALAYA CEMENTS LIMITED THANGSKAI

Checked & Verified by
Ujjwal Anurag

Regd. Office and Works: Village Thangskai, P.O. Lumshnong, Dist Jaintia Hills, Meghalaya Pin-793200 Ph.:03655-278324/363/364
Corporate Office: BE-77, Salt Lake City, Sector – 1, Kolkata – 700 064, Ph.:033 23340666/0004, Fax: 03655 278327

Annex- III

TOPCEM

MEGHALAYA CEMENTS LIMITED

CAPTIVE POWER PLANT

WATER ANALYSIS REPORT

Date ...10:04:2021.....

SL NO	PARAMETER	UNIT	DM WATER		FEED WATER		CBD		SAT. STEAM		S.H. STEAM		CONDENCER		RAW WATER	COOLING WATER		
			NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	MEASURED (SHIFT A)	MEASURED (SHIFT B)
1	pH	µs/cm	8.5-8.8		8.8-9.2		9.8-10.2	10.07	8.8-9.2		8.8-9.2		8.8-9.2					
2	Conductivity	ppm	5		10		200	37	5		5		5					
3	TDS	ppm	3		5		100	22.2	3		3		3					
4	Total Hardness	ppm						NIL										
5	Ca Hardness	ppm						NIL										
6	Mg Hardness	ppm						NIL										
7	P - Alkalinity	ppm						7										
8	M - Alkanlity	ppm						12										
9	Silica	ppm	<0.02		<0.02		<5	0.16	<0.02		<0.02		<0.02					
10	Phosphate	ppm					<10	7.56										
11	Iron	ppm																
12	Hydrazine	ppm			<0.1													
13	Chloride	ppm																
14	FRC	ppm																
15	Turbidity	NTU																
16	Cr^{+6}							0.017										

MEGHALAYA CEMENT LTD THANGSKAI

Annex - III

Annex-III

TOPCEM

MEGHALAYA CEMENTS LIMITED

CAPTIVE POWER PLANT

WATER ANALYSIS REPORT

Date ...12.:06.:2021....

SL NO	PARAMETER	UNIT	DM WATER		FEED WATER		CBD		SAT. STEAM		S.H. STEAM		CONDENCER		RAW WATER	COOLING WATER		
			NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	MEASURED (SHIFT A)	MEASURED (SHIFT B)
1	pH	µs/cm	8.5-8.8		8.8-9.2		9.8-10.2	10.06	8.8-9.2		8.8-9.2		8.8-9.2					
2	Conductivity	ppm	5		10		200	416	5		5		5					
3	TDS	ppm	3		5		100	27.6	3		3		3					
4	Total Hardness	ppm						NIL										
5	Ca Hardness	ppm						NIL										
6	Mg Hardness	ppm						NIL										
7	P - Alkalinity	ppm						7										
8	M - Alkanlity	ppm						12										
9	Silica	ppm	<0.02		<0.02		<5	0.16	<0.02		<0.02		<0.02					
10	Phosphate	ppm					<10	8.40										
11	Iron	ppm																
12	Hydrazine	ppm			<0.1													
13	Chloride	ppm																
14	FRC	ppm																
15	Turbidity	NTU																
16	$Cr+^{6}$							0.023										

MEGHALAYA CEMENT LTD. THANGSKAI

Annex-III

Annex- III

TOPCEM

MEGHALAYA CEMENTS LIMITED

CAPTIVE POWER PLANT

WATER ANALYSIS REPORT

Date ..10:06:2021.....

SL NO	PARAMETER	UNIT	DM WATER		FEED WATER		CBD		SAT. STEAM		S.H. STEAM		CONDENCER		RAW WATER	COOLING WATER		
			NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	MEASURED (SHIFT A)	MEASURED (SHIFT B)
1	pH	µs/cm	8.5-8.8		8.8-9.2		9.8-10.2	10.02	8.8-9.2		8.8-9.2		8.8-9.2					
2	Conductivity	ppm	5		10		200	124	5		5		5					
3	TDS	ppm	3		5		100	264	3		3		3					
4	Total Hardness	ppm						NIL										
5	Ca Hardness	ppm						NIL										
6	Mg Hardness	ppm						NIL										
7	P - Alkalinity	ppm						7										
8	M - Alkanlity	ppm						12										
9	Silica	ppm	<0.02		<0.02		<5	0.20	<0.02		<0.02		<0.02					
10	Phosphate	ppm					<10	7.20										
11	Iron	ppm																
12	Hydrazine	ppm			<0.1													
13	Chloride	ppm																
14	FRC	ppm																
15	Turbidity	NTU																
16	$Cr+^{6}$							0.016										

MEGHALAYA CEMENT LTD. THANGSKAI

Annex - II

Annex - I

TOPCEM

MEGHALAYA CEMENTS LIMITED

CAPTIVE POWER PLANT

WATER ANALYSIS REPORT

Date ..12:07:2021.....

SL NO	PARAMETER	UNIT	DM WATER		FEED WATER		CBD		SAT. STEAM		S.H. STEAM		CONDENCER		RAW WATER	COOLING WATER		
			NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	MEASURED (SHIFT A)	MEASURED (SHIFT B)
1	pH	µs/cm	8.5-8.8		8.8-9.2		9.8-10.2	10.12	8.8-9.2		8.8-9.2		8.8-9.2					
2	Conductivity	ppm	5		10		200	46	5		5		5					
3	TDS	ppm	3		5		100	27.6	3		3		3					
4	Total Hardness	ppm						NIL										
5	Ca Hardness	ppm						NIL										
6	Mg Hardness	ppm						NIL										
7	P - Alkalinity	ppm						7										
8	M - Alkanlity	ppm						12										
9	Silica	ppm	<0.02		<0.02		<5	0.16	<0.02		<0.02		<0.02					
10	Phosphate	ppm					<10	8.10										
11	Iron	ppm																
12	Hydrazine	ppm			<0.1													
13	Chloride	ppm																
14	FRC	ppm																
15	Turbidity	NTU																
16	Cr^{+6}							0.020										

MEGHALAYA CEMENT LTD. THANGSKAI

Annex - II

Annex-X

MEGHALAYA CEMENTS LIMITED

CAPTIVE POWER PLANT

WATER ANALYSIS REPORT

Date ..09.08.2021.....

SL NO	PARAMETER	UNIT	DM WATER		FEED WATER		CBD		SAT. STEAM		S.H. STEAM		CONDENCER		RAW WATER	COOLING WATER		
			NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	NORM	MEASURED	MEASURED (SHIFT A)	MEASURED (SHIFT B)
1	pH	µs/cm	8.5-8.8		8.8-9.2		9.8-10.2	10.05	8.8-9.2		8.8-9.2		8.8-9.2					
2	Conductivity	ppm	5		10		200	50	5		5		5					
3	TDS	ppm	3		5		100	30	3		3		3					
4	Total Hardness	ppm						NIL										
5	Ca Hardness	ppm						NIL										
6	Mg Hardness	ppm						NIL										
7	P - Alkalinity	ppm						7										
8	M - Alkanlity	ppm						12										
9	Silica	ppm	<0.02		<0.02		<5	0.21	<0.02		<0.02		<0.02					
10	Phosphate	ppm					<10	8.50										
11	Iron	ppm																
12	Hydrazine	ppm			<0.1													
13	Chloride	ppm																
14	FRC	ppm																
15	Turbidity	NTU																
16	Cr^{+6}							0.018										

MEGHALAYA CEMENT LTD. THANGSKAI

Annex-II

Annexure: -IV

YEAR WISE PLANTATION DETAILS
M/s MEGHALAYA CEMENTS LIMITED
Plant area - 52.949 Ha

Date: - 08- 11 - 2021

Year	Saplings planted (Nos.)	Area covered (Hect.)	Saplings Survive (Nos.)	Survival Rate	Remarks
2009-20	79900	19.1898	61195	76.59%	Planted at different locations such as Northern, Northeastern and eastern side of the project area, CPP campus, Lawn of residential blocks & Topcem Public School Campus, Interspaces in plant boundary, road & internal road side, Children park etc. before the amendment of reduction of existing of plant area from 59.269 Ha to 52.949 Ha vide letter no-SEIAA/PROJECT-2/2007/8/1818 dated Shillong, the 30th September, 2020.
2020-21	- 3475	0.2185	2955	85.04%	Planted CPP back side and interspaces along plant boundary.
2021-22	10548	0.5170	8697	82.45%	Planted LS Reclaimer back side,CPP back side, Topcem Public School Campus, Mazagine Area, Clay Shed back side, Cricket Ground road side and interspaces along plant boundary.
Total	**93923**	**19.9253**	**72847**	**77.56%**	

MEGHALAYA CEMENTS LIMITED THANGSKAI

Authorized Signatory

Annex- V

SALARY DETAILS OF CLEANER FOR THE MONTH OF SEPT'2021								
S.N.	NAME	CODE NO.	SEX	D.O.J.	GRADE	DEPT	DESIG	SALARY
1	DISWONLANG BAREH	2260	FEMALE	01.04.2011	WKM	HR&A	CLEANER	13866
2	EDEN LALOO	3323	FEMALE	01.04.2011	WKM	HR&A	CLEANER	13067
3	PRAS BAREH	2261	FEMALE	01.04.2011	WKM	HR&A	CLEANER	16131
4	SABINA SYIH	2262	FEMALE	01.04.2011	WKM	HR&A	CLEANER	11836
5	KHALMISS SUTING	2263	FEMALE	01.04.2011	WKM	HR&A	CLEANER	13603
6	PHINIAL DHAR	2264	FEMALE	01.04.2011	WKM	HR&A	CLEANER	11663
7	IBASHISHA KHARSATI	2267	FEMALE	01.04.2011	WKM	HR&A	CLEANER	12629
8	ESTAR PUSIEN	2268	FEMALE	01.04.2011	WKM	HR&A	CLEANER	12380
9	PHIMAI SUTNGA	2271	FEMALE	01.04.2011	WKM	HR&A	CLEANER	13302
10	HILDIS SYRTI	2272	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9668
11	LILY POHBAN	2273	FEMALE	01.04.2011	WKM	HR&A	CLEANER	10015
12	KYRSOI SYIH	2275	FEMALE	01.04.2011	WKM	HR&A	CLEANER	12517
13	PHYRNAI SYRTI	2276	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9993
14	RIDAMON SUCHEN	2277	FEMALE	01.04.2011	WKM	HR&A	CLEANER	10122
15	JUBLI LAPASAM	2307	FEMALE	01.04.2011	WKM	HR&A	CLEANER	10302
16	METHILDA SYIEMLIEH	2315	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9675
17	SPELBHA SUCHIANG	2322	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9882
18	WONDERFUL PALE	2330	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9720
19	RANCHI PUSSEIN	2343	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9720
20	SAPHA SIANGSHAI	2344	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9720
21	EMLI DHAR	2345	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9675
22	MARGRED KHONGLAM	2348	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9720
23	TALITHA RYMBAI	2349	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9720
24	SHANIAHLANG SHYLLA	2352	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9720
25	CHEBARIMA BAREH	2362	FEMALE	02.06.2011	WKM	HR&A	CLEANER	10464
26	MINA KHONGLAH	2269	FEMALE	01.04.2011	WKM	HR&A	CLEANER	11362
27	NILDIS KHLUNG	3288	FEMALE	07.08.2012	WKM	HR&A	CLEANER	9720
28	LUTMON LAMARE	3030	FEMALE	03.08.2012	WKM	HR&A	CLEANER	9612
29	SHIBA SUMER	3249	FEMALE	01.05.2013	WKM	HR&A	CLEANER	9612
30	SHIDA SUTNGA	3316	FEMALE	01.07.2013	WKM	HR&A	CLEANER	9720
31	HEL PAJAT	3244	FEMALE	03.08.2013	WKM	HR&A	CLEANER	9720
32	PALDIS SUTING	3247	FEMALE	01.08.2013	WKM	HR&A	CLEANER	9720
33	SABITRI PUSEIN	3248	FEMALE	03.10.2013	WKM	HR&A	CLEANER	9612
34	RIMAIA SHADAP	4014	FEMALE	01.12.2014	WKM	HR&A	CLEANER	9612
35	KEEPHIM SYMPLI	5436	FEMALE	13.08.2018	WKM	HR&A	CLEANER	9612
36	DARI PUSEIN	5697	FEMALE	15.03.2021	WKM	HR&A	CLEANER	9000
37	BEAUTIFUL PALE	5699	FEMALE	16.03.2021	WKM	HR&A	CLEANER	9000
38	SYNDONG SYRTI	5703	FEMALE	18.03.2021	WKM	HR&A	CLEANER	9000
39	MUNI SUTING	5706	FEMALE	19.03.2021	WKM	HR&A	CLEANER	9000

MEGHALAYA THANGSKAI

Annex- VI

M/s MEGHALAYA CEMENTS LIMITED

AMBIENT AIR QUALITY SURVEY

MCL/ENV/PB-AAQM/2021-22/01

Location of sampling	Forest Area (Near by plant boundry)
Date duration of sampling	01.06.2021 to 02.06.2021
Time Duration of sampling	48 hours
Weather	Clear
Total Rain Fall, mm (On Date)	0.00 mm
Ambient Temperature (°C) :	Max. - 18.37°C, Min. - 15.17°C
Relative Humidity (%) :	Max. - 84.53%, Min. - 71.15%
Wind direction	→NW(305.96°)

Pollutants	Analysis Results			Permissible Limits for Rural Areas (By MSPCB 24 hrs Monitoring)
	Village Name & Air Quality Survey No.			
	A1. Near Wahiajer Village V/01/21-22	A2. Near Shiehrvphi Village V/02/21-22	A3.Near Thangskai Village V/03/21-22	
	48 hrs.	48 hrs	48 hrs	
Particulate Matters PM10 ($\mu g/m^3$)	48.26	43.89	37.08	100
Particulate Matters PM2.5 ($\mu g/m^3$)	34.04	32.44	25.69	60

Remarks : The Parameters analysed were found to be within the permissible Limits of Ambient Air Quality Standards (National) for Rural Areas as per EPA Notification GSR 176, April 1996.

Prepared By

(Arti Singh)

Checked & Verified By

(Ujjwal Anurag)

Annex- VI

M/s MEGHALAYA CEMENTS LIMITED

AMBIENT AIR QUALITY SURVEY

MCL/ENV/PB-AAQM/2021-22/02

Location of sampling	Forest Area (Near by plant boundry)
Date duration of sampling	23.09.2021 to 24.09.2021
Time Duration of sampling	48 hours
Weather	Clear
Total Rain Fall, mm (On Date)	0.00 mm
Ambient Temperature (°C) :	Max. - 19.80°C, Min. - 11.17°C
Relative Humidity (%) :	Max. - 90.35%, Min. - 60.81%
Wind direction	→SW(209.15°)

Pollutants	Analysis Results			Permissible Limits for Rural Areas (By MSPCB 24 hrs Monitoring)
	Village Name & Air Quality Survey No.			
	A1. Near Wahiajer Village V/04/21-22	A2. Near Shiehrvphi Village V/05/21-22	A3.Near Thangskai Village V/06/21-22	
	48 hrs.	48 hrs	48 hrs	
Particulate Matters PM10 ($\mu g/m^3$)	62.35	55.48	49.17	100
Particulate Matters PM2.5 ($\mu g/m^3$)	42.91	27.07	31.26	60

Remarks : The Parameters analysed were found to be within the permissible Limits of Ambient Air Quality Standards (National) for Rural Areas as per EPA Notification GSR 176, April 1996.

Prepared By

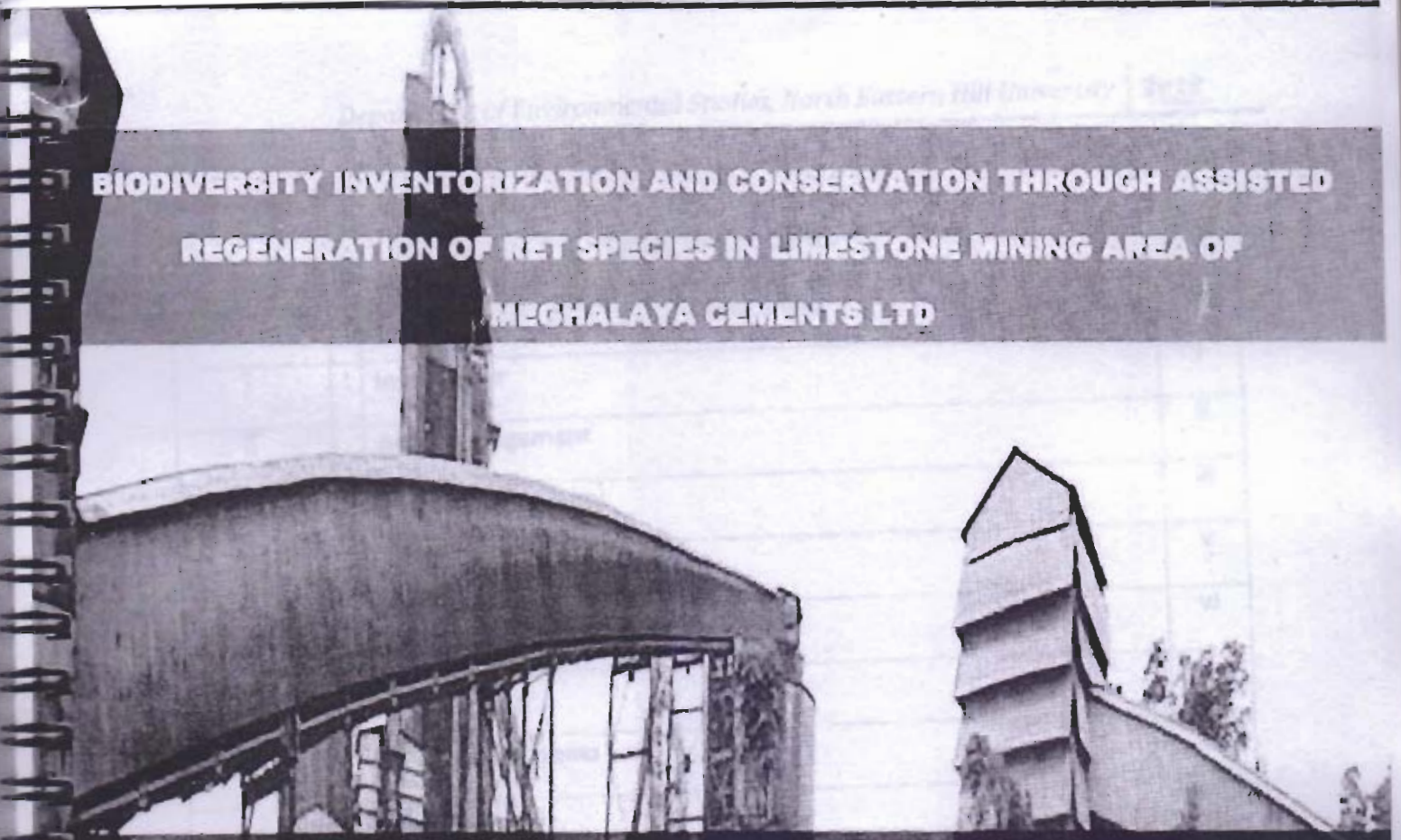
(Arti Singh)

Checked & Verified By

(Ujjwal Anurag)

Annex- VII

BIODIVERSITY INVENTORIZATION AND CONSERVATION THROUGH ASSISTED REGENERATION OF RET SPECIES IN LIMESTONE MINING AREA OF MEGHALAYA CEMENTS LTD



PROJECT TEAM

Prof. D. Paul Principal, Investigator
Dr. S. S. Chaturvedi, Co-investigator
Paka I Yo Suja, Project Fellow

Department of Environmental Studies
North Eastern Hill University, Shillong-793022

April, 2019

MEGHALAYA CEMENTS LTD. THANGSKAI

Annex- VII

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MEGHALAYA THANGSKAI

Biodiversity inventorization and conservation through assisted regeneration of RET species in Limestone mining area of Meghalaya Cements Ltd.

Final Report

Project Team

Prof. D. Paul: Principal Investigator

Dr. S. S. Chaturvedi: Coinvestigator

Paka I Yo Suja: Project Fellow

Department of Environmental Studies

North Eastern Hill University

Umshing, Shillong-793022

Meghalaya

April, 2019

MEGHALAYA CEMENT THANGSKAI

Annex- VII

Acknowledgement

It is a pleasure to place on record, my appreciation for all the help and support received from different quarters towards completion of the project.

I am thankful to Meghalaya Cements Ltd. for reposing their faith in NEHU for undertaking the project. I am especially appreciative of Shri R. K. Pareek (President), Shri Vijay Kumar Pant (Vice President, Technical), and Shri Vikas Saraf (Vice President, Commercial) for their cordial support and fruitful deliberations during the formulation of modalities of the project.

The efforts of Mr. Sunil Kumar Choudhary (Sr. Manager-Environment) and the field station managers and staff of MCL, through their support and hospitality during the field visits, access to documents, and consultations during the course of the project is gratefully acknowledged and appreciated.

I am thankful to my teammate Dr. S. S. Chaturvedi for his valuable observations and inputs, both during field visits, and during compilation of the report.

My confidence in my project staff Mr. Paka I Yo Suja who is a past student of the department has been amply rewarded by the excellent discipline and meticulous work ethics he exhibited during the field work and data collection. I am thankful to him and am confident that this experience would have exposed him to new domains of discourse and enriched his hands on knowledge.

Finally I am extremely grateful to all the respondents of the project area and adjoining villages for their valuable inputs which were indispensable in the fruition of the work and its logical culmination into the present report.

April, 2019

Dibyendu Paul

MEGHALAYA CEMENT THANGSKAI

Executive Summary

Meghalaya Cement Ltd. (MCL) is located at Thangskai in District Jaintia Hills, Meghalaya. The area forms a part of the Shillong Plateau characterized by a rugged hilly topography. The geo-tectonic activities in the past have resulted in the development of deep gorges, valleys & steep cliffs, with several streams dissecting the hilly terrain. The elevation of plant area is 754msl.The plateau area around village Thangskai is dissected by numerous streams which drain the area and ultimately join the rivers Prang and Lubha. The company intended to increase the production capacity of its existing plant from 900 TPD clinker to 2,600 TPD clinker along with a 18 MW captive thermal power plant and captive limetone mines including 33.45ha ML. The plant is based on nearby limestone deposits in the villages of Moing, Kheliegari and New Kheliejari, and proposed mines in South Khlehjeri in Jaintia hills district of Meghalaya. The environmental clearance for the expansion was accorded by the State Environmental Impact Assessment Authority (SEIAA), Govt. of Meghalaya, wherein, it was stipulated that an area not less than 2 ha within the green belt of the project area would be year marked to construct a green house. It was also stipulated that a conceptual plan for raising threatened species would be prepared in consultation with a reputed institution.

The Department of Environmental Studies, North Eastern Hill University (NEHU) was entrusted to undertake the stipulations prescribe by SEIAA through a 3 year project entitled "Biodiversity inventorization and conservation through assisted regeneration of RET species in Limestone mining area Meghalaya Cements Ltd."

An extensive survey of the flora & fauna of the project area was undertaken. Line transact and quadrat sampling revealed that the flora of the project area comprised of 54 tree species and 50 species of shrub, herb and climber and species. A questionnaire survey undertaken for fauna documented the presence of 29 animal species comprising Amphibians, Reptiles, Aves and Mammals. However, camera traps failed to document the presence of animals in the project area. In consonance with the stipulations of SEIAA, several species of herbaceous plants and orchid species were collected for establishment in an installed green house and subsequent planting out

MEGHALAYA CEMENT LTD. THANGSKAI

Annex – VII

in the designated plot/s in the project area. Further, seedlings of other indigenous tree species and fruit bearing species have been raised in the green house and/ or procured from the Forest department for planting out in designated plots. The company has been advised to utilize the green house for continuous raising of recommended species which are to be planted out in vacant locations within the project area.

For the eco-development of the project area, it is prescribed that mine spoils are properly stacked and managed with mulches to discourage erosive losses. It is also advised that roads within the project area should have avenue plantations so as to mitigate aerial dispersal of dust due to movement of heavy vehicular traffic within the project area. The mined pits should be appropriately managed for rain water and runoff water harvesting and also as ground water recharge pits. Barren and or open areas should be provided with plant cover through green house raised seedlings of recommended tree and fruit bearing species so as to encourage visitation of fauna.

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MEGHALAYA THANGSKAI

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MEGHALAYA CEMENT LTD. THANGSKAI

1. Preamble :

Meghalaya Cement Ltd. (MCL) is located at Thangskai in District Jaintia Hills, Meghalaya.The area forms a part of the Shillong Plateau characterized by a rugged hilly topography. The geo-tectonic activities in the past have resulted in the development of deep gorges, valleys & steep cliffs, with several streams dissecting the hilly terrain. The elevation of plant area is 754msl.The plateau area around village Thangskai is dissected by numerous streams which drain the area and ultimately join the rivers Prang and Lubha.

The climate of the Khasi and Jaintia hills districts is uniquely pleasant. It is warm and humid except in winter. The mean monthly minimum temperatures ranges from 5.77°C in January to 18.15°C in July, and the mean monthly maximum temperatures ranges from 15.13°C in January to 24.38°C in June.

The area enjoys an average annual rainfall of 2415 mm. The water immediately flows down from the higher ranges downwards due to steep slopes. These drainage streams and rivulets hold water during most of the year. However, some of them become dry during summer.

Meghalaya Cement Ltd. (MCL) intended to increase the capacity of its existing plant at Thangskai in Jaintia Hills, Meghalaya, India from 900 TPD clinker to 2,600 TPD clinker along with a 18 MW captive thermal power plant and captive limetone mines including 33.45ha ML. The plant is based on nearby limestone deposits in the villages of Moing, Kheliegari and New Kheliejari and proposed mines in South Khlehjeri in Jaintia hills district of Meghalaya.

The environmental clearance for the expansion was accorded by the State Environmental Impact Assessment Authority (SEIAA), Govt. of Meghalaya, wherein, it was stipulated that an area not less than 2 ha within the green belt of the project area would be year marked to construct a green house. It was also stipulated that a conceptual plan for raising threatened species would be prepared in consultation with a reputed institution.

The Department of Environmental Studies, North Eastern Hill University (NEHU) was approached by MCL to undertake the stipulations prescribe by SEIAA. In response, NEHU submitted a proposal for a 3 year project entitled "**Biodiversity inventorization and conservation through assisted regeneration of RET species in Limestone mining area of Meghalaya Cements Ltd.**", the same was sanctioned by MCL in April 2016.

MEGHALAYA CEMENT LTD. THANGSKAI

2. **Work Components:** The duration of the project and the work components are detailed hereunder:-

Project Duration : 3 years (2016- 2019)

1. Survey and inventorization of project area : An extensive survey of the project area will be conducted to create an inventory of the flora (tree species) and fauna (mammals).
2. Setting up of nursery for propagation of species as per TOR and recommendations of SEIAA.
3. Afforestation / regeneration / gap filling of the project area as allocated by MCL.
4. Planting and conservation of bird and mammal food plant species (grasses wild fruit trees etc.) based on assessment of camera trap data
5. Formulation of Eco Development Plan and recommendations for medium/ long term upkeep of project area.

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3. **Results:**

Work component 1: Survey and inventorization of project area: An extensive survey of the flora & fauna of the project area was undertaken.

Sampling: Sampling for flora was accomplished using Line transect Method and Quadrat Method.

Line transact method: 500 m line transacts (Measuring tape) were laid out randomly at different locations in the project area and species in contact with the tape were recorded/ collected.

Quadrat method: Quadrats were laid out randomly at different locations in the project area and species falling within quadrats were recorded/sampled. For tree species quadrat size was $10m^2$ and for herbaceous vegetation, the quadrat size was $1m^2$

Preparation of herbaria and identification: Herbaria were prepared with the collected plant samples and identifications were done using existing herbarium collections of NEHU. Samples which could not be identified at NEHU were referred to the BSI for identification The samples identified are listed in **Tables 1 and 2**

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Table .1. Tree species in and around the project site

Sl.no	Name	Family	Vernacular name
1.	*Actinodaphne obovata* (Nees) Blume	Lauraceae	Dieng-lakrao (K)*
2.	*Aesculus assamica* Griff.	Sapindaceae	Dieng-dula(K)
3.	*Alchornea tiliifolia* (Benth.) Müll.Arg.	Euphorbiaceae	
4.	*Asplenium phyllitidis* D. Don.	Aspleniaceae	
5.	*Bauhinia khasiana* Baker.	Leguminosea	
6.	*Callicarpa arborea* Roxb.	Verbanaceae	Dein-lakhoit(J)**
7.	*Caryota urens* L.	Arecaceae	
8.	Caseria sp		
9.	*Castanopsis echinocarpa* Mig.	Fagaceae	Dien-sning(J)
10.	*Castanopsis indica* (Roxb. ex Lindl.)	Fagaceae	
11.	*Castonopsis purpurella*	Fagaceae	Dein-soltap (J)
12.	*Castonopsis tribuloides* (Sm.) ADC	Fagacea	Dien sa-ut (J)
13.	*Cinnamomum bejolghota* (Buch.-Ham.) Sweet	Lauracea	Dieng-pathi (K)
14.	*Duabanga grandiflora* (DC.) Walp.	Lythraceae	Dieng-bai (K)
15.	*Elaeagnus pyriformis* Hook. f.	Elaeagnaceae	Sashang
16.	*Eurya accuminata* DC.	Theacea	Dienpyrchin(J)
17.	*Ficus hirta subsp. roxburghii* (King) C.C.Berg	Moraceae	Spunae (J)
18.	*Ficus semicordata* Buch.-Ham. ex Sm.	Moraceae	
19.	*Lithocarpus elegans* (Blume) Hatus. ex Soepadmo.	Fagaceae	Sarangkhlo (J)
20.	*Lithocarpus fenestratus* (Roxb.) Rehder.	Fagaceae	
21.	*Litsea citrata* Blume.	Lauraceae	Soh-sying (J)
22.	*Litsea laeta* Wall. ex Nees.	Lauraceae	
23.	*Litsea lancifolia* (Roxb.ex Nees.)	Lauraceae	
24.	*Litsea monopetala* (Roxb.) Pers.	Lauraceae	
25.	*Litsea thomsonii* Hook.f.	Lauraceae	
26.	*Macaranga sp.*		Lakhar (j)
27.	*Macropanax disperma* (Bl.) O.	Analiaceae	Dieng-la-rasi
28.	*Mallotus nepalensis* Müll. Arg.	Euphorbiaceae	Sla-lakhar khiam (J)
29.	*Melastoma nepalensis* Lodd.	Melastomaceae	Dien-slidong(J)
30.	*Micromelum integerrimum* (Roxb.)Wight &Arn.	Rutaceae	Dieng-tyrpei (J)
31.	*Morinda angustifolia* Roxb.	Rubiaceae	
32.	*Ostodes paniculata* Blume	Euphorbaceae	Dein-lashitkhlow(J)
33.	*Persea kingii* Hook f.	Lauraceae	
34.	*Phyllanthus glaucus* Wall.		Samatan(J)
35.	*Pithecellabium montanum* Benth.	Mimosaceae	
36.	*Pterospermum lancifolium* Roxb.	Sterculiaceae	Dieng-khoh(K)
37.	*Quercus serrata* Roxb.	Fagaceae	
38.	*Rhus javanica* (L) Merr.	Anacardiaceae	Dien-sama (J)
39.	*Sapindus attenuate/erecta* Wall.	Sapindaceae	
40.	*Sapium baccatum* Roxb.	Euphorbiaceae	Dieg-jalangeh (K)
41.	*Sarcosperma griffithii* Hook.f. ex C.B.Clarke	Sapotaceae	Dein-pai (K)
42.	*Schima wallichi* (DC.) Korth.	Theaceae	Shyrngan (J)
43.	*Solanum melongena* Linn.	Solanaceae	
44.	*Solanum torvum* Sw.	Solanaceae	
45.	*Styrax serrulatum* Linn.	Styracaceae	Deing-jalaipai (K)
46.	*Symplocos glomerata* King ex Cl.	Symplocaceae	Tiewdiengneiong (K)
47.	*Symplocus sp*	Symplocaceae	
48.	*Syzigium formosum* (Wall) Mas.	Myrtaceae	Soh-slidong (J)
49.	*Syzigium macrocarpum* (Roxb.) Balak.	Myrtaceae	
50.	*Syzygium cumini* (L.) Skeels.	Myrtaceae	
51.	*Syzygium tetragonum* (Wt.) Kurz.	Myrtaceae	Dien-sohsyrie (J))
52.	*Trevesia palmata* (Roxb.) Vis.	Araliaceae	Dienglakor (K)
53.	*Vernonia volkameriifolia* DC	Asteraceae	
54.	*Wendlandia tinctoria* (Roxb.) DC.	Rubiaceae	Chamot (J)

***K=Khasi,**J=Jaintia**

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Table.2. Shrubs,Herbs, and climbers in and around the project site

Sl.no	Name	Family	Vernacular name	Habit
1.	*Acacia oxyphylla* Graham ex Craib.	Leguminosae	Mei-suai(K)	Climber
2.	*Acacia pennata* (Linn.) Willd.	Leguminosae	Jermai-sheih-lyngkshiah (K)	Climber
3.	*Ageratina adenophora* (Spreng.) R.M.King & H.Rob.	Compositae	Sla-barma(J)	Shrub
4.	*Ageratina riparia* (Regel) R.M.King & H.Rob.	Compositae		Shrub
5.	Amorphophallus			
6.	*Ardisia nerifolia* DC.	Myrsinaceae		Shrub
7.	*Artemisia nilagirica* (Cl.) Pamp.	Compositae		Shrub
8.	*Asplenium phyllitides* D.Don.	Aspleniaceae		
9.	*Boehmeria glomerulifera* Mig.	Urticaceae	Diengsohkhar (K)	Shrub
10.	*Boehmeria macrophylla* D.Don.	Urticaceae		Shrub
11.	*Beaumontia grandiflora* Wall.	Apocynaceae		Climber
12.	*Calamus erectus* Roxb.	Arecaceae		Shrub
13.	*Caryota urens* Linn.	Arecacea		
14.	*Citrus maxima* (Blume) Merr	Rutaceae	Soh-syrman (J)	
15.	*Derris thysiflora*	Fabaceae		Climber
16.	*Desmodium trifolium* (L.) DC	Fabaceae		
17.	*Desmos longiflorus* (Roxb.) Safford	Annonaceae		Shrub
18.	*Dicranopteris linearis var. alternans* (Mett.) Holttum	Gleicheniaceae	Tyrkhang (J)	
19.	*Dioscorea sp*	Dioscoreaceae		Climber
20.	*Fissistigma verrucosum* (Hook.f. &Th.) Merr.	Annonaceae	Jyrmi soh-ram khlaw (K)	Liana
21.	*Gourphandra tetrandra* (Wall.) *Sleumer*	Stemonuraceae		
22.	*Jasminium sp*	Oleaceae		
23.	*Lantana camara* Linn.			shrubs
24.	*Leea alata* Edgew.	Leeaceae		shrubs
25.	*Leea indica* (Burm.f.) Merr.	Leeaceae	Rin-khongpieng (K)	Shrub
26.	*Lycopodium paniculatum* Desv. ex Poir.	Lycopodiaceae	Tmain-khla (J)	
27.	*Lypodium hexuosum* (L.) SW	Lygodiacea		
28.	*Melastoma nepalensis* Lodd.	Melastomaceae	Dien-sIidong (J)	Shrub
29.	*Maesa indica* (Roxb.) Wall.	Myrsinaceae	Dien-pyllein dacha(J)	Shrub
30.	*Paedera foetida* L.	Rubiaceae	Rme-sma ait(J)	Climber
31.	*Pandanus odoratissimus* (Lamk) Linn.	Pandanaceae	Chlain (J)	Screwpine
32.	*Pericampylus incanus* (Colebr.) Miers.	Menispermacea		Climber
33.	*Phlogacanthus thyrsiflorus* (Roxb.) Nees.	Acanthecene		Shrub
34.	*Pothos scandens* L.	Araceae		
35.	*Phrynium pubineria* Blume	Marantaceae	Sla-met(K)	
36.	Pittosporum	Pittosporaceae		
37.	*Prinsepia utilis* Royle.	Rosaceae		Shrub
38.	Pteris	Pteridaceae	Tyrkhang (J)	
39.	*Rhaphidophora calophylla* Scott.	Araceae		
40.	*Rourea minor* (Gaertn.) Leenh	Connaraceae		Shrub
41.	*Sarcanda glabra* (Thunb.) Nakai.	Chloranthaceae	Soh-kristmas(J)	Shrub
42.	*Smilax roxburghiana* Wall. Ex A.DC.	Smilaceae	Soh-krot (J)	Shrub
43.	*Stemona tuberose* Lour.	Stemonacea		Climber
44.	*Tabernaemontana divericata* (Linn) R. Br.	Apocynacea		Shrub
45.	*Tetrastigma obovatum* (Laws.) Gagnep.	Vitaceae	Soh-sarpung (J)	Climber
46.	*Tetrastigma bractatum*	Vitaceae		Climber
47.	*Thysanolaena maxima*	Poaceae	Saro (J)	Grass
48.	*Triumfetta pilosa* Roth.	Liliaceae	Soh-byrthid (K)	Shrub
49.	*Uncaria sessilifructus* Roxb.	Rubiaceae		Climber
50.	*Urena lobata* L.	Malvaceae	Sohbyrthit (J)	Shrub
51.				

(K- Khasi and J - Jaintia)

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the fauna are listed in Table 5. Additionally, camera traps were installed within the project area to record and document the movement of mammals and other fauna in the project area.

Work component 2 : Setting up of nursery for propagation of species as per TOR and recommendations of SEIAA.

For the nursery, a polyhouse with a metal framework was installed and covered with polythene sheet. Soil preparation for the nursery bed was undertaken and soil amendments in the form of dried and powdered cowdung was used. (Plate 1)

The selection of species as per the TOR and recommendations of SEIAA was initiated. The Meghalaya Biodiversity Board was approached for permission to collect *Nepenthes khasiana* but the same was denied. Therefore natural populations of other selected species in accordance to the list provided in TOR was undertaken.

Specimens of *Fimbristylis nigrobrunnae* were collected from Dainthlen, Sohra, East Khasi Hills after detailed reference from the herbarium of Botanical Survey of India, Shillong. The specimens was then transferred to TOPCEM for plantation and rejuvenation and the specimens are being nursed by the concerned Department of Meghalaya Cement limited for acclimatization, before transplanting in the designated area in the project site (Plate 1).

Orchids species were collected from Moopun falls, Mukhaialong, East Jaintia Hills, Meghalaya and Mawsawa, Sohra, Meghalaya. The collected species were then brought to TOPCEM for re-plantation in green house. Jack fruit seedlings for plantation were also collected from Umsning, Ri bhoi, Meghalaya but failed to survive.

Other endemic species : *Phyllanthus emblica* (*Amla*) seeds were germinated for planting out in the project area.

Seed extraction:

Amla fruits were collected from local market. The seeds were extracted by alternate boiling and drying.The fruits were thoroughly cleaned under tap water to remove dust, it was then boiled for about 15 min for easy removal of fleshy parts.

After removing the fleshy pulp, the seeds were sun dried for 2-3 days. When the seed coat broke along the ridges, seed coat and seeds were separated out manually. Seeds were then collected and stored for planting.

A Survey was carried out in Nongwet village, Pynursla and Nonthymmai,Tyrna village East Khasi Hills for locating natural populations of two of the listed rare and endangered species

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i.e *Argostemma khasianum* and *Begonia rubrovenia*. *Begonia rubrovenia* was spotted in both the surveyed sites and specimens have been collected for replantation in the project area (TOPCEM). The species that were being nursed and hardened in the greenhouse have survived, and appropriate nursery operations are being undertaken. *Begonia rubrovenea* is being propagated through stem cutting outside green house. Orchids were also transplanted from green house to trees outside the green house (Plate 1).

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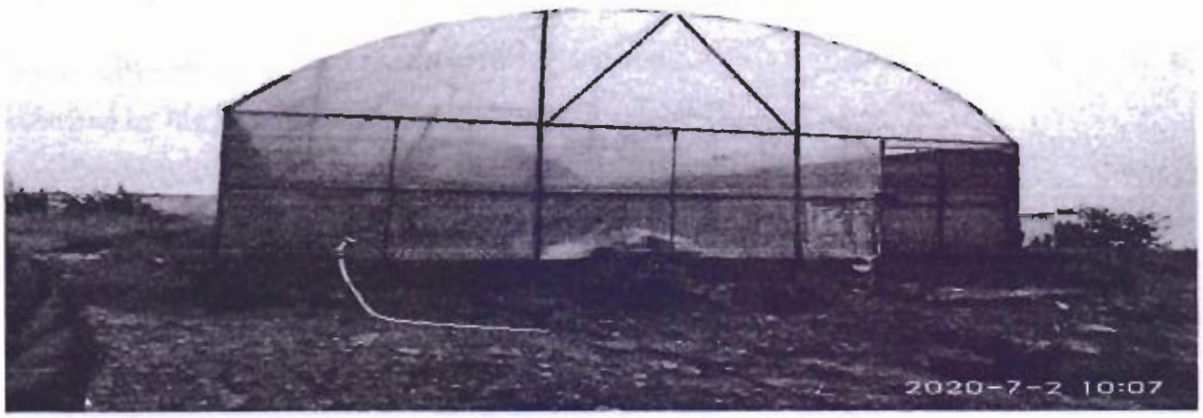
Annex- VII



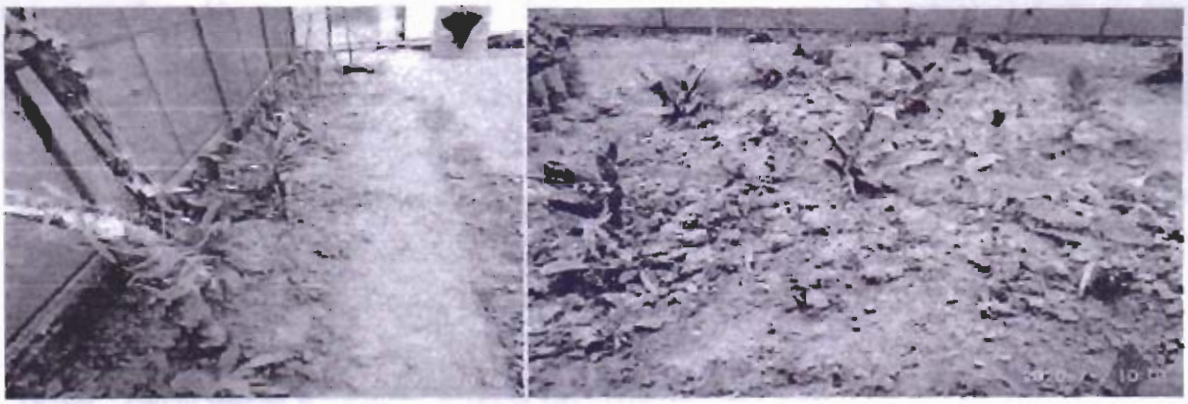


Plate I : The installed Green house and the different species being raised at MCL

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Work Component 3. Afforestation / regeneration / gap filling of the project area as allocated by MCL.

The following species (Table 3) are recommended for plantation and gap filling in the project area (as reported earlier).

Table.3 Some of the tree species that are proposed for planting in the project area.

Sl.no	Scientific name
1.	*Alnus nepalensis*
2.	*Syzygium cumini*
3.	*Rhus javanica*
4.	*Schima wallichi*
5.	*Syzigium formosum*
6.	*Grevellia robusta*
7.	*Daubanga grandiflora*
8.	*Phyllanthus emblica*
9.	*Sapium baccatum*
10.	*Actinodaphne obovata*
11.	*Lithocarpus fenestratus*
12.	*Castonopsis tribuloides*

200 saplings of indigenous tree species and fruit species were introduced in the project area. The saplings were collected from the Forest Department Social Forestry, Jowai Range. These saplings were propagated by planting out nursery raised seedlings at a spacing of 1m in 30 cm deep pits (Plate 2). The plantation area has been fenced to ensure that the seedlings/saplings are established without disturbance. Some of the species that were introduced are listed below (Table 4)

Table4. List of species introduced in the project area for gap filling

Sl.no	Scientific name	Family	Common name
1	*Alnus nepalensis* D.Don	Betulaceae	Alder
2	*Chukrasia tabularis* A.Juss	Meliaceae	Indian mahogany
3	*Castanopsis tribuloides* (Sm.) A.DC.	Fagaceae	
4	*Syzygium sp*	Myrtacea	
5	*Terminalia arjuna* (Roxb. ex DC.) Wight & Arn	Combretaceae	Arjun
6	*Grevillea robusta* A.Cunn. ex R.Br.	Proteaceae	Silver oak
7	*Exbucklandia populnea* (R.Br. ex Griff.) R.W.Br.	Hamamelidaceae	Pipli tree
8	*Azadirachta indica* A.Juss.	Meliaceae	Neem

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Plate II: Nursery raised seedlings planted out in designated areas within the project site

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Annex- VII

Work component 4: Planting and conservation of bird and mammal food plant species (grasses wild fruit trees etc.) based on assessment of camera trap data

A questionnaire survey to account for the existing fauna in the project area and its surrounding area was undertaken and is presented in Table 5. In addition to the questionnaire survey, Camera traps have been installed in the project area (Plate 3) to document the presence of different faunal elements. Till the completion of the project, the camera traps failed to record any movement of wild animals. The authorities at MCL have been advised to raise fruit bearing plants in the nursery for planting out in the project area on a regular basis.

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Plate III: The housing for Camera traps at different locations in the project area

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Table 5. List of fauna in the project area generated through questionnaire survey

Sl.no	Scientific name	Vernacular name	Remarks
1	*Bambusicola fytchii hokinsoni*	Chyng-Kiar	Aves
2	Black drongo	Larwat	Aves
3	*Bubo flavipes*	Dhoh	Aves
4	*Bufoides meghalayana*	Khroh Chyrtob	Amphibian
5	*Calotes versicolor*	Chieh Cherko	Reptile
6	*Cannomys badius*	Khnae Piahlang	Mammal
7	Indian pangolin	Rbae	Mammal
8	*Callosciurus erythraeus*	Rasang	Mammal
9	*Herpestes edwardsii*	Mongoose	Mammal
10	Himalayan black bear	Dngiem	Mammal
28	*Hoolock gibbon*	Hulu	Mammal
11	Indian muntjac	Skae	Mammal
12	*Kalij pheasant*	Syiar Khloo	Aves
29	Indian Squirrel	Rasang stem kpoh.	Mammal
13	*Mus booduga*	Khne Lum	Mammal
14	*Opheodrys vernalis*	Psain Rngam	Reptile
15	*Panthera pardus*	Krong	Mammal
16	*Passer domesticus*	Chyrkia	Aves
17	*Hystrix sp.*	Ynkhet	Rodent
18	*Presbytis pileatus*	Chrieh	Mammal
19	*Psarisomus dalhousiae*	Purong	Aves
20	*Rana clamitans*	Khroh Rngam	Amphibian
Sl.no	Scientific name	Vernacular name	Remarks
21	*Rana danieli*	Khroh	Amphibians
22	*Rattus rattus*	Khne iung	Mammals
23	Red-vented bulbul	Riah Blong	Aves
24	*Rhinolopus pearsoni*	Labit	Mammal
25	*Suncus murinus griffithi*	Khnae Jit	Mammal
26	*Sus scrofa*	Sniang Bri	Mammal
27	*Varanus bengalensis*	Tyrpit	Reptile
28	*Milvus migrans lineatus*	Khlein	Aves
29	Indian woodpecker		Aves

Work component 5: Formulation of Eco-Development Plan and recommendations for medium/ long term upkeep of project area:

Management and use of mine spoils:

Medium Term Plan: Overburden generated during mining should be properly managed and stacked to discourage erosive losses. Topsoil and/or subsoil should be evenly spread out in areas where plantation activity can be undertaken. Mulches should be provided so as to ensure enrichment of soil fertility, insulation of soil against extreme temperature fluctuations and erosive losses due to impact of rainfall. Mulching shall also ensure accelerated growth of microorganisms

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and reduce evaporative losses. Spoils of larger size dimensions should be crushed so as to generate soil.

Water harvesting and ground water recharge: The mined out pits should be explored for their potential to harvest rainwater and/ or surface runoff through the creations of channels into such mine pits. Such pits can also form effective means for ground water recharge.

Reforestation of barren/open areas:

The listed native species should be propagated in the greenhouse and used for reforesting open areas and/or those affected by mining. Roads used for movement of mining equipment/ heavy vehicles should be subjected to avenue plantations/shelter breaks so as to reduce the movement and aerial dispersion of dust.

It is also advised to plant more fruit bearing species in the project area so as to encourage the increased visitation and roosting of avian species. Open/ sparsely vegetated locations within the project area should be subjected to gap filling with fodder and fruit bearing plants and grasses to encourage visitation of mammals for grazing. The greenhouse should be used for generating more seedlings/saplings on a continuous basis for future plantation programs in the project area. Cultural operations should be undertaken intermittently in the locations where new plantations have been made so as to ensure survival and proper growth of the seedlings/saplings.

Long-term Plan: The sites currently being used for Waste Dump and Soil Dump shall be developed into green zone by planting indigenous plants listed in Table 3 and rare and threatened tree species viz., *Argostemma khasianum*, *Fimbristylis nigrobrunnae* and *Begonia rubrovenia*. Wherever possible, orchids will be planted with an objective of adding aesthetic beauty as well as conserving the fast dwindling population of orchids in the region. The lands with poor soil may be planted with trees listed in Table 4. The seedlings of such tree species shall be raised in the green house developed for the purpose. In the long run when the mining operations shall be over, the pit shall be filled, as for as possible, with the soil and overburden collected nearby for landscaping the area into a socially acceptable landuse. The remaining part of the pit particularly deeper parts shall be developed into a water bodies. (Pit lake) which shall be used for fisheries, water sport and other recreation purposes. The whole mining area shall be developed into an eco-park for the inhabitants of village Thangskai.

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Annex-VIII

MEGHALAYA CEMENTS LIMITED

Village –Thangskai, P.O.-Lumshnong, District- East Jaintia Hills,
Meghalaya, PIN – 793210.

The capital expenditure & revenue expenditure incurred on an environmental protection equipments / Machineries.

From **1st April'2021 to 30th September'2021.**

Sl.No	Type	Heading	Amount in Rs.
1.	Capital	STP	0.00
2.		ESP	0.00
		Gross Total	**0.00**

Sl.No	Type	Heading	Amount in Rs.
1.	Revenue	Bag Filters (Cement mill, Raw mill, Coal mill & Crusher)	2219870.14
2.		ESP	7131876.83
3.		RABH	3953832.10
4.		Sewage Treatment Plant & Neutralization Pit	7697.85
5.		SOX Reduction System	58844.81
6.		RO Treatment Plant	30301.70
7.		Environment Miscellaneous	37456.01
		Gross Total	**Rs.13,439,879.44**

For **MEGHALA CEMENTS LIMITED**

MEGHALAYA CEMENT LTD THANGSKAI

(Authorized Signatory)

Annex-IX

MEGHALAYA CEMENTS LIMITED

Village –Thangskai, P.O.-Lumshnong, District- East Jaintia Hills,
Meghalaya, PIN – 793210.

Expenditure Incurred for Socio-Economic Development under CSR activities for 900-2600TPD Cement Plant Project

From **01st April'2021 to 30th September'2021.**

Sl.No	Heading	Amount in Rs.
1.	Emphasis on Education	66,000.00
2.	Encouraging/Felicitation program for Students.	39,500.00
3.	Polio Immunization Camps, family planning, etc.	378,929.00
4.	Infrastructure development of Hospitals / Schools	282,378.00
5.	Cement Distribution Programme.	1,784,273.00
6.	Plant Distribution programme	11,844.00
7.	Donation to Churches, Road & House Repairing etc.	41,200.00
8.	Drinking water supplying scheme.	71,606.00
9.	Village development funds.	187,500.00
10.	Corona Pandamic	2,000.00
	Gross Total	**2,865,230.00**

For **MEGHALA CEMENTS LIMITED**

MEGHALAYA CEMENTS LTD. THANGSKAI

(Authorized Signatory)