Executive Summary

Ka Star Cement Meghalaya Limited (SCML) ka tyrwa ban buh iaka Clinker Capacity kaba 5300TPD bad ka 30MW Captive Thermal Power Plant. Ka SCML ka tyrwa ban wanrah haka jylla iaka art technology naka bynta ka jingmih ba kajuh ha Lumshnong, District Jaintia Hills,Meghalaya. Ka jingheh jong ka jaka ha kane ka project ka long E 92°22'52 bad N 25°10'16.

KA JING TIP JONG KANE KA PROJECT

Ia kane ka project kin shna haka jaka private badon ka total area kum ka 75 hectares. Ka tynrai jong ki parkhyndew, mawshun kadei na ki mawshun kiba don hajan jong kane ka plant kiwei pat ki par khyndew kum u dewiong, shale mill scales/iron ore etc. la ban ioh nangne na jaka la jong hi.La pyndap ai ka jing donkham jong ka um ha kane ka industry naka wah umtyrgnai bad ka wah ummutha nallas badka um borewell kiba la don hapoh ka plant.

Salient Features Jong Ka Project

Ka Nature jong ka project	**Industrial Greenfield Project (Naka bynta ka proposed Cement Plant bad ka Captive Thermal Power Plant)**
Ka jingheh jong ka project.	Ka Cement plant production capacity ka long 5300 TPD bad ka Captive Power Plant capacity ka long 30MW
Ka jaka jong ka Project	
District & State	Jaintia Hills, Meghalaya
Taluk	Khliehriat
Village	Lumshnong
Land Availability	75 Hectares
Nature of the Area	Barren Land
Latitude	N 25°10'16"
Longitude	E 92°22'52"
Jinglong Jingman ka Suin Bneng	
Maximum Temperature	26°C
Minimum Temperature	9°C
Annual Rainfall	4000 mm
Wind Pattern During Study Period	Predominantly from SE
Elevation Above Mean Sea Level	406 m above MSL
Accessibility	
Road Connectivity	NH – 1.5 KM na ka plant site
Rail Connectivity	Ka Badarpur kadon kumba 85 kms naka plant
Airport	Shillong & Silchar kaba 145 kms bad 125 kms naka Plant
Historical / Important Places	
Archaeological/ Historically Important Site	None within 10 kms radius of the site
Sensitive Places	None within 10kms radius of the site
Sanctuaries / National Parks	None within 10 kms radius of the site

Ka jingbatai ne jingtip jong ka Environment

Ka proposed 5300 tpd clinkerisation plant bad ka 30MW captive thermal plant yn buh ha Lumshnong, P.O. Khliehriat of Jaintia Hills district,Meghalaya. Ki installation bad commissioning jong ki additional facilities naka bynta ka project yn buh ha ka proposed land kaba 75 hectares. Ka study area ka long 10 km sawdong ka project site.

Ki jaka ha kane ka study area ki long lum bad at phyllung. Ki Jaintia rock of formations ki kynthup ia u mawshun bad sandstone bands bad shale band hajrong, Ka kopli kaba form ia ka Garo group ki kynthup iaki alternate shale bad sandstone bands ryngkat bad buntylli ki nala bad ki dendritic pattern kiba pynlong iaki tributaries.

Ka jinglong ka suin hakane ka jaka ka long kaba pdeng. Ka Jaintia hills District haka por lyiur kadon ai ka suin bneng kaba u slap u jur, ka jingsngem bad kham syiad bad ka bym da khriat ka ba pdeng ha ka por tlang. Ki jaka kiba long them ki kham mad ia kajing khluit ne jingshit hajan baroh shisnem kaba don ia ka maximum temperature 23 haduh 26 bad ka minimum temperature naduh 12 haduh 17 ^{0} C.

Meteorology

- Ka jing beh jong ka lyer ha plant site hapdeng ka study period ka long na SE, ESE and SSE bad ka jingjia ryngkhat kaba 25%, 20% bad 20%
- Ka average velocity jong ka lyer ha plant site ka long 0.7 m/s
- Ka jinghap u slap ka long 203. mm.
- Ka temperature jong ka Study period kata ha u bnai January'07 haduh u bnai March'07 ka long ka bym duna eh ne palat kata 35^{0} bad26^{0} C.

Ka Lyer habaroh sawdong

Iaka result jong ka existing ambient air la monitored haka study area. Ia kane la pyni ha ka report.Ka jiniathuh ba lyngkot la pyni kumne harum.

Ka Parameter	Minimum Concentration	Maximum Concentration
SPM	78 µg/m^3	119 µg/m^3
RSPM	17.4µg/m^3	43.2 µg/m^3
SO_2	2.8 µg/m^3	9.2 µg/m^3
NOx	3.7 µg/m^3	13.3 µg/m^3
HC	<1ppm	<1ppm
CO	<1ppm	<1ppm

- Ka ambient air quality ka pyni ba ka SPM, RPM, SO_2, NOx, HC bad ka CO habaroh ki jaka ki long katkum ka NAAQ Standards.
- Ki tiar bad ki lad ban pynduna ia ka jing jakhlia jong ka lyer la buh ha man ki jaka hapoh kane ka plant ban pyntikna ba ka lyer jakhlia ka nym palat ia ka limit bala buh da ka State Pollution Control Board, CPCB & MoEF.

Ka Jingsawa ha sawdong

- Ka jingsawa kalong hapoh ka limit bala buh haba ia nujor bad ka jinglong ka ambient air.
- Lah ban pynduna ia ka jingsawa da ka ba pyndonkam iaka low noise producing equipment kata kaba long hapoh 85dB (A) haka jing jngai ba shi meter.

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Ka Environment jong ka um

Ka jindonkam ne jing dawa jong ka um ha kane ka project kan long 1800 kL/d nabynta ki clinkerisation plant bad 3116 kl/d nabynta ka power plant, bad nabynta ki jingtrei ba bunjait iaka jingdonkam ka um la ban ioh na ki pungum bad ki perennial nallas haka study area. Ia ka iaka jinglong jingman jong ka surface bad ground water la wanrah.bad iaka result la pyni haka report. Ia ka summary jong ka results la pyni harum.

Location Code	pH	TDS (mg/l)	Hardness (mg/l)	Fluorides (mg/l)	TC (mpn/100ml)
Ground Water					
GW1	7.6	200	150	0.5	Nil
GW2	7.5	210	140	0.6	Nil
GW3	7.8	250	160	0.6	Nil
GW4	7.3	130	80	0.45	Nil
GW5	6.95	34	18	0.25	Nil
GW6	7.4	160	110	0.5	Nil
GW7	7.6	230	160	0.5	Nil
GW8	6.8	60	36	0.3	Nil
GW9	7.1	38	20	0.25	Nil
GW10	7.4	26	105	0.40	6

- La lah ban khmih thuh ba ka pH jong ki um samples ka long 6.7 sha ka 7.8.
- Ki Total dissolved solids (TDS) ha ki samples kilong 34 sha ka 250 mg/l haka sla um.
- Ka total hardness jong ka um bad ka ground water samples ka long 18 shaka 160.
- La lap habaroh kine ki samples ia ki heavy metal concentrations.l
- Ia ki water samples bala shim nabaroh ki jaka ha ka study area ki ia long jan mar ia kumjuh bad ka water standard.
- Hakane ka process 90% ka um la pyniohpat ne pyndonkam biang. Narmar kata ym don um jakhlia bala pynmih na kane ka jingtrei.

Land Environment

<u>Land Use Pattern</u>

Ka Jaka bala pyndonkam haka study area kalong 10km radius sawdong ka project site ka long kumne harum

S.No	Land use	Area (sq km)	% of total area
1	Settlement	4.71	1.5
2	Agriculture	58.14	18.5
3	Forest	216.85	69
4	Grass & Scrub	18.85	6.0
5	Barren land	15.71	5.0
Total		**314.28**	**100.0**

Ki jingthung kiba kongsan kiba ki thung ha kine ki jaka ki long u phan, u sying, u sohmynken, u riewhadem bad u kba. U sohniamtra bad u soh trun kidei ki jait soh kiba shait shalan bha.

Jinglong Jingman Ka Khyndew.
Ia ka khyndew la wanrah nuksa ha ki hynriew jaka. Ka jingpher haka jinglong ka khyndew ka long kumne harum.

pH : 5.0 to 6.6

Electrical Conductivity : 46 to 180 uS/cm

Texture : Sandy Loam to Sandy Clay Loam

Organic Carbon : 0.05% to 0.70%

Jinglong Jingman habaroh sawdong

Jingthung Jingtep

Ki jingthung jingtep jong ka buffer area la pyn bynta ia ki kum ka tropical evergreen forest ryngkat bad ka tropical moist deciduous bad ka sub tropical forest vegetation.

Ki Jait Mrad.

Katkum ka wild protection Act 1972 na ki 42 ki jait mrad tang artylli na ki la ioh jingtip na ka study area.

Jingioh Jingkot Ka imlang ka sah lang.

Ka jingdon ki shnong ha ka study area ki long 19tylli. Ka jingdon jong ki briew bad ka jingtrei jongki katkum ka 2001 cencus ka long kumne harum.

Particulars	Census 2001	Decadal Growth
Total Population	6148	52.7%
Population density (persons per sq.km)	19.58	52.8%
Sex Ratio (nos. of female per thousand males)	947	6.1%
Total Household	1160	47.4%
Schedule Castes Population	3.76%	32.9%
Schedule Tribes Population	89.13%	(-)6.2%
Overall Literacy Rate	37.05%	30.1%
Total Workers		48%

Kim don kino kino ki jingshna ne ki jaka ba la pynsah da ki longshuwa mynshuwa hapoh ka 10 km radius sawdong ka project site.

Socio-economy jongka Study area

- Ka Study area kaba 10 km na ka project area ka kynthup ia ki 19 tylli ki shnong.
- Ka jingdon ki briew baroh ka long 6148 kata 947 ki kynthei bad 1000 ki shynrang.
- 89% naki kidei ki schedule tribe.
- Ka population density jong ka study area ka long 19.58 persons per square km. Ka literacy rate ka long 38.74% nabynta ki shynrang bad 35.27% nabynta ki kynthei.

Ki Infrastructural facilities.

Ha kane ka study area la pynkhreh bad la buh ki jaka pule, ki jaka sumar, ka um dih, ki post offices, ki surok ba lam sha kane ka jaka.

Ki surok

Ka study area kadon ia ki road network kiba bha. Kumba 55% na ki shnong ki don ia ki pucca approach roads.

Umbam Umdih

Ka umbam umdih la ban ioh ha baroh kine ki shnong. Ka tyllong jong ki umbam umdih kadei lymba ki umpoliew bad ki pung.

Ka Bording

Jan baroh ki shnong (67%) ha ka study area ki la ioh ia ka bording ne don light.

Historical/Tourist/Archaeological Places

Ym don kino kino ki jingshna ne ki jaka bala pynsah da ki longshuwa mynshuwa , ki jaka don nam ne jaka jngoh kai hapoh kane ka 10 km radius sawdong kane ka project.

Ki buit pynkhiah bad ki jaka sumar paidbah.

Tang laitylli ki shnong kidon iaki jaka sumar. Bun ki doctor ba shimet ki ai ia ka jingsumar hakane ka jaka.

Ka Anticipated Environment impacts bad ki mitigation measures.

Ka jinktah iaka lyer

La mang ia kane ka project ba kan pynmih iaki lyer jaboh ha ka dur jong ki lyer tdem na ka clinkerisation plant. Kane kajuh ka jingktah ia ka sla khyndew ladep assessed ia ka.

24- Hourly Concentrations	SPM ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_X ($\mu g/m^3$)
Predicted Ground Level Concentration (*Max*)	**14.0**	**0.9**	**10.3**
Baseline Scenario (*Max*)	**119**	**9.2**	**13.3**
Overall Scenario (*Worst Case*)	133	18.2	23.6
CPCB limits for Industrial areas	500	120	120
CPCB limits for rural & residential areas	200	80	80

Ia ka ground level la ring lang ha ka juh ka jaka hapor ba impose ia ka base line concentrations kat kum ka NAQQ standards. Ban punduna ka jingmih jong ki jakhlia ne lyer bymkhuid la pynkhreh ia ki tiar kum ka ESP bad ki bag filters.

Ka Jingktah ia ki tyllong um.

Hakane ka plant ia ka um ba la dep pyndonkam lah ban pyndonkam biang, te kane kan nymdon ka jingktah iaki tyllong um. Ka um jaboh na ing briew lah ban pyndonkam biang ha ka sewage treatmeant plant.

Jingktah ia ka khyndew.

Ia ki solid waste lah ban pyndonkam biang ha ka manufacture. Iaki pumpum la ban buh biang ia ki ha ka process katkum ki product. Ia ki jakhlia ba mih na ka treatmeant facility kum ka sewage treatmeant plant ki long kumba la batai hangne harum.

	Source	**Quantity (Tonnes/ month)**
1	Sludge from STP	1.9
2	Raw water treatment plant	2.5
3	Waste Oil	3.0

Iaka ktieh kaba mih naka STP la pyndonkam biang kum ka sboh naka bynta ka jingroi ka greenbelt. Ia ka umphniang jaboh la pyndonkam ia ka haka klin ryngkat bad u dewiong.

Green Belt Development

Kumba 33% nabaroh kawei ka jaka(25 hectares) la thmu ban pynkiew pynroi iaka green belt da ka jingthung jingtep.

Environmental Monitoring Programme.

Ka periodic monitoring programme jong ki bunjait ki environmental parameters kan pyniaid iaki haka rukom ban pynlong iakine harum.

- Ka jinglong haka jingiadei jong ka lyer, jingsawa, ka um, ka sla khyndew pollution haka bad sawdong ka plan.
- Iaka Micro meteorological parameters yn pyntreikam man ka kynta.
- Kan pynmih ia ki data ban iada iaka jing jakhlia(pollution).
- Ban khmih iaka jingtrei kam bha ki pollution control equipment bala buh haka plant bad ban pyntreikam bad pynbeit iaka jinglong jingman jong ka environment man la ka por.

Additional Studies.

Jingkoit Jingkhiah bad Jingiada

- Kynbuh shibun ki Occupational Health bad safety management plan ha ki jaka ban khmih la da don kinokino ki jingja.
- Kynbuh ia ki periodic Occupational Health Checks.

Ki jingmyntoi jong ka Project

Ka iew dewbilat ka la kiew raidbah na kadaw ba ka sorkar kmie kala pyllait iaki policies haba iadei bad ka industrial development bad ki schemes ki ba thymmai na ka bynta ki ing, surok projects, hydel projects etc. ka jing dawa ia ka dewbilat ka nang kiew katba nang mih ki snem kata na 9 sha 10%. Ka jingdawa ka ia bteng haban shalan sha ki ri South – East Asian ryngkat bad ka jing kiew ha ka jingdawa jong ki domestic sector ka la lam ia ki cement manufacture ha ka ri kumno ban thaw ki lad bad pynkiew iaki capacities. Ka jingkiew ha ka jingmih kan pynkiew ne pynroi ia ka jingioh jing kot ka ri.

Ka jingmyntoi jong ki Socio- economic

- Kumba 107 ngut kyn pynrung kam hakane ka plan. Kane ka project kan pynmih bun ki lad ki lynti ban iarap na pynbha iaki auxiliary industries, ki lieng ne jhaj, jaka shong jaka sah lane rukom im bad pynmih ki indirect employees.

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- Ka Industrial development ha kane ka jaka kan iarap ban pynbha bad pynkiew shuh shuh ia ki amenities kum ka water supply, ki surok babha, ki jaka sumar bad ki jaka pule puthi kiba kham bha.

Ka Management Plan jong ka Environment.

Ka SMCL ka adopt iaka corporate philosophy jong ka eco-friendly development. Ka management ka ngeit bad shaniah haka concept jong ka sustainable industrial operations habaroh ki lad kiba ka ka don. Ban sumar ia ka ecological balance jong ka jaka baroh kawei ka SCML ka la shim ia ka synjam ban punduna ia ki jingsniew kiba lah ban mih nakane ka project., Ka amount kaba Rs. 13.30 crores la mang naka bynta ban pynduna ne control ia ka pollution bad ban monitor ia ki tiar ba la pynkhreh.

Conclusions

- Ka Rapid Environmental Impact Assessment study ka pynpaw ne pyni ba ka jinktah jong ka plant ia ka lyer, ka jinglong ka um, ka jingsawa ka jinglong ka khyndew ka long kaba duna.

- Kane ka pyni ba ka industrial development ha Lumshnong P.O. Khliehriat, Jaintia Hills district, Meghalaya kan lam sha ka jingkyrshan ha ka development hakane ka jaka.