

KI PASOH

Na ka bynta ban khlong Mawshun na ka

“Brishyrnot Limestone Deposit- II”

Kaba don

Village: Brishyrnot, Tehsil: Khliehriat, District: East Jaintia Hills, State: Meghalaya.

ToR letter no: IA-J-11015/17/2019-IA-II(NCM)

Dated: 18.06.2024

Mining Lease Area- 65 ha.

Cost of Project - Rs 33.96 Crore

Item & Category - 1(a), B

Maximum Proposed Production of Limestone - 3.0 million TPA, Shale - 0.2 million TPA & 0.33 million TPA of waste/OB including soil.

Baseline Season: March, 2023 to May 2023

Laboratory Assigned: M/s Perfect Researchers Pvt. Ltd.

Project Proponent

STAR CEMENT MEGHALAYA LIMITED

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Environmental Consultant

Perfect Enviro Solutions Pvt. Ltd. (PESPL)

NABET Registered List of Accredited Consultant Organisations/ NABET/EIA/2225/RA 0284 (Rev. 01)

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KI PASOH (EXECUTIVE SUMMARY)

1.0. Jinglamphrang

Ka M/s Star Cement Meghalaya Limited ka tyrwa ban khlong mawshun na ka kaja kaba don hapoh ka shnong Brishyrnot kaba la ithuh kum ka “Brishyrnot Limestone Deposit – II (Ka bynta kaba ar jong ka par mawshun kaba don hapoh ka shnong Brishyrnot) kaba lah ban pynmih haduh 3.53 MTPA (Million tonnes per annum) (Kynthup 3 MTPA u mawshun ba kham heh (Hard Block), 0.2 MTPA u mawshun ba kham stang (Shale) bad 0.33 MTPA ka jaboh ba khlehlang bad ka khyndew shyiap). Ka jingheh jong katei ka jaka ba la mang ka long 65 ha kaba don hapoh u pud u sam ka shnong Brishyrnot, Tehsil Khliehriat, District East Jaintia Hills, Meghalaya-793200. Ka jingkhlong ia u mawshun na katei ka par ba tyrwa yn pyndonkam da ki kor ki bor bad ki mashin kiba heh kiba pynduna ia ka jingpynlehnohei ia u mawshun.

2.0 Ka jinglong jingman jong katei ka par mawshun (Project Description):

Ka par mawshun ba la tyrwa ka don hapoh u pud u sam jong ka shnong Brishyrnot, Tehsil Khliehriat, District East Jaintia Hills, Meghalaya- 792300. Katei ka par mawshun ka dang hap hapoh ka Survey of India Topo Sheet No. 83C/8 (Restricted), kat kum u Latitude: 25°09'51.010" N to 25°10'18.600" 'N bad u Longitude: 92°25' 09.717" E to 92°25'55.894" E. Ka jinglong kane kane ka jaka ha jingat bad ka jinghiar jong ka khyndew ba don ka par mawshun ka long haduh 295 mRL bad kaba duna eh ka don hapdeng 95 mRL.

Ka M/s Star Cement Meghalaya Limited ka la ioh pdiang ia ka shithi (Letter of Indent/Authorisation) na ka ophis jong ka Meghalaya Mining bad Geology Department kaba shah ia ka ban khlong mawshun na katei ka par maw kat kum ka shithi No. MG.8/2023/376 dated 22nd September 2023. Ka jingiateh kular jong ka jingaiwai ia katei ka par mawshun la ia soi pynskhem ha ka 02.05.2024 na ka bynta 50 snem haduh ka 01.05.2074.

Ka jaka ka la don ka Land Holding Certificate ba la ai da ka Jaintia Hills Autonomous District Council, Jowai kat kum ka holding no. LHC No. 286 jong u snem 2008 tarik 25.08.2008.

Ka jingpynkreh ban khlong mawshun (Mining Plan) na katei ka jaka ba la tyrwa la ia ka jingmynjur ryngkat bad ka PMCP katkum ka Rule 16 (1) jong ka MCR 2016 la ioh na ka Indian Bureau of Mines, Guwahati kat kum ka shithi no. MCDR-MPCP0CaFI/11/2023-GUH-IBM_RO_GUH tarik 05.02.2024.

La ioh pdiang ruh ia ka syrnod halor katei ka jaka ba la tyrwa na ka Ophis jong ka PCCF (HoFF), kat kum ka shithi No. MFG.39/42/NFLC/MINING/MMMCR /JH/Pt.I/19,130 tarik 30.03.2023 kaba pynshisha ba katei ka jaka ba la tyrwa ka dei ka jaka kaba syllen bad kam dei ka jaka khlaw.

Shuh shuh ka la ioh ia ka jingpynshisha ha ka jingiadei bad ka jingjngai (Distance Certificate) jong ka par mawshun ba la tyrwa na ka Narpuh Wildlife Sanctuary (ESZ & Boundary) kaba la ai da ka Ophis Divisional Forest Officer (Jaintia Hills Wildlife Division, Jowai) kat kum ka shithi No. MWL/JH/299/Mining Plan/2022-23/1225 tarik 03.03.2023.

Ka rukom tih mawshun (Mining Method)

Ka jingkhlong ia u mawshun na katei ka par ba la tyrwa yn pyndonkam da ki kor ki bor bad ki mashin kiba heh (Heavy Earth Moving Machinery) kiba pynduna ia ka jingpynlehohei ia u mawshun ryngkat bad ka jingsam thliw kaba jylliew bad ka jingpynbthei ban pynpra ia u mawshun la pynbit pynbiang da ki tiar ki tar jong kane ka juk kumjuh ka jingpynkhreh ia ka rukom ban kit ia u marpoh khyndew. Kiwei pat ki jingthew ba iadei kat kum ka jinglong jong ka khyndew, ka jingbuh ia u mawshun la pynkhreh lypa. Na ka bynta ban pynsuk ia ki nongbylla la ieh ia ki kyndon (Benches) kiba don ka jingheh ym duna 24 metre na ka bynta ban iada ia ki nongbylla na ki mashin bad kiwei kiwei ki tiar khlong mawshun bad ka jingjrong jong ki kyndon (Benches) kan long 9 meter. Shuh shuh ki bynta ba kongsan jong ka rukom khlong ia u mawshun ka long kumne:-

- Ia ka jingtih mawshun bad ksam ia ki thliw ban pynbthei yn pyndonkam da ki kor ki bor bad ki mashin kiba heh (Heavy Earth Moving Machinery).
- Ka jingheh kaba duna eh jong ka jaka trei lane ki kyndon (Benches) kim dei ban duna ia ka 24 m na ka bynta ka jingshngain jong ki nongbylla bad 9 m ka jingjrong jong kawei kawei ka kyndon (Benches).
- Namar ba u mawshun u dei u maw uba eh, ki kyndon (benches) jong kawei pa kawei ka kyndon kidei ban long sharing kumba 90^0 na ka jaka ba long madam.
- Habu shim kyllum baroh ka jinglong sharing ka jaka trei kadei ban don palat ia ka 45^0 na ka jaka ba long madan.
- Ka mashin ksam thliw (Hydraulic drill) kaba don ka jingheh 115 mm (in diameter) yn pyndonkam ha ka por ba ksam thliw ban pynbthei.
- Ki thliw ba la ksam na ka bynta ban pynbthei ki don ka jingjngai kaba 4.5 m na kawei ka thliw bad ka jingtap ban iada na ka jingsaphriang ki maw ka long 3.5 m.
- Yn pyndonkam ia ki tiar pynbthei (kiba heh ka diameter) kum ka umphniang kaba khlehleng bad u Ammonium Nitrate.
- Yn pyndonkam da ki tiar pynbthei ki bym don bording (Non-electric detonators).
- Ka jingtih kaba khatduh kan long 97 mRL ha ka bynta jong ka jaka tih mawshun.
- Ia u surok yn shna ha ka jingkhien kaba 1:16

- Ka rukom trei (Shift) la bynta ha ki ar bynta kata kaba nongkong kan long 8 kynta bad ka sien trei kaba ar (Second shift) ruh kan long 8 kynta. Ha ka 8 kynta ki nongbylla kin trei 7 kynta na ka bynta ban pynmih mar.

3.0 Ka jingbatai shaphang ka mariang (Description of the Environment)

Ia ki jingtip shaphang ka sawdong sawkun jong kane ka jaka ba la tyrwa ban khlung mawshun la sdang ban lum jingtip naduh u bnai March 2023 haduh u bnai May 2023. Ia ki jingshem bad ki jingtip la batai bniah kumne ha harum:

Ki jingtip shaphang ka jinglong ka suinbneng (Micro-meteorological data):

- Ka jingshit jingkhriat (Temperature):** Ka jingshit jingkhriat jong ka jaka ka iapher naduh 14.13°C haduh 35.37°C .
- Ka jingdon um ha suinbneng (Relative Humidity):** Ka jingdon um ha suinbneng ka iapher naduh 21.0 haduh 99.44 %.
- Ka jingstet jong ka Iyer (Wind Speed):** Ka jingstet jong ka Iyer ka long hapdeng 0.10 m/s haduh 6.43 m/s.

Ka jingneh slem jong ka jingbeh jong ka Iyer ka long sha ka phang shathie lam sepngi (South West). Bunsien, ka Iyer ka beh ha ka jingstet kaba don hapdeng 0.50 - 5.70 m/s.

Ka jingmih na ka jinglong ka Iyer ha ki sawdong sawkun jong ka par mawshun (Ambient Air Quality Results):

La shim nuksa na ki 6 tylli ki jaka (Sampling location) kiba don sha ka phang Shathie lamsepngi bad kiba don shaphang Shatei lammihngi, kumjuh na ka shnong Brishyrnot, Sailkan, Umlaper, Lumshnong.

Ka jaka ba kongsan (Core zone):

Ka jingthew ha ka jaka ba kongsan ka don hapdeng (Mean value) jong PM_{10} ka don naduh ($59.27 - 61.11 \mu\text{g}/\text{m}^3$) bad ka $\text{PM}_{2.5}$ ka long naduh ($26.51-27.33 \mu\text{g}/\text{m}^3$). Ka SO_2 ka long naduh ($5.28-5.44 \mu\text{g}/\text{m}^3$). Ka NO_2 ka long naduh ($14.82-15.28 \mu\text{g}/\text{m}^3$) bad ka CO_2 ka long naduh ($0.26-0.27 \mu\text{g}/\text{m}^3$) ki don hapoh hapoh u pud jong ka ka Iyer bakhuid bad ka bym don jingma kat kum ka jingbatai jong ka National Ambient Air Quality Standards(NAAQS). Kat kum ka jingkhein, ka jinglong jong ka suinbneng (As per the Air Quality Index) ha ka jaka ba kongsan (ka jaka ba don ka par mawshun) haba ia nujor ka jingkhein ka CPCB, ka jaka ba kongsan ka long kaba khuid ha ka aiom lyiur.

Ka jaka ba pynsah (Buffer zone):

Ka jingthew ba long pdeng jong ka PM_{10} ka long naduh ($64.77-75.53 \mu\text{g}/\text{m}^3$), ka $\text{PM}_{2.5}$ ka long naduh ($28.97-34.17 \mu\text{g}/\text{m}^3$), ka SO_2 ka long naduh ($5.77-7.19 \mu\text{g}/\text{m}^3$), ka NO_2 ka long

naduh (16.19-19.24 $\mu\text{g}/\text{m}^3$) bad ka CO ka long naduh (0.29-0.34 mg/m^3) kiba don hapoh u pud jong ka National Ambient Air Quality Standards (NAAQS). Kat kum ka jingshem jong ka jingpule bniah bad ia nujor bad ka jingshem jong ka CPCB, ka jinglong jong ka suinbneng ha ka jaka ba la pynsah (Buffer zone) ka long kaba biang ha ka por ba lum jingtip. Kumta, lah ban pynkut na ki jingmih haneng ba baroh ki jingthew (parameter) ki don hapoh u pud jong ka jingbha jong ka lyer kat kum ka National Ambient Air Quality Standards (NAAQS) bad haba ia nujor ia ka jingkhein (Air Quality Index) jong ka jinglong jingman jong ka lyer ba la lum jingtip da ka CPCB katei ka jaka ba la pynsah (Buffer zone) ka hap hapoh ka jingthew kaba pynhun ia kiba jingthaw ba im.

Ka jingmih na ka jingbha ki bor jingsawa (Noise Quality results):

La shim nuksa na ki 8 tylli ki jaka (Sampling location) kiba don sha ka phang Shathie lamsepngi, bad ki jaka kiba don shaphang Shatei lammihngi, kumjuh na ka shnong Brishyrnot (Approach road), Sailkan, Surok bah (NH-6), Umlaper, Lumshnong.

Ka jaka ba kongsan (Core zone of the industrial area): N1, bad N2:

Ka bor jingsawa ba la pynmih (Ambient noise level) ha ka por mynsngi na ka jaka ba la tyrwa ban khlong mawshun ka iapher naduh 52.60 dB (A) haduh 53.20 dB (A). Kitei ki bor jingsawa ki don hapoh u pud ba la buh n aka bynta ki karkhana ~ 75 dB (I). Ha ka por mynmiet ka bor jingsawa ha ka jaka ba don ka par mawshun ka long naduh 44.40 dB (A) haduh 45.10 dB (A) kiba don hapoh u pud ba la buh jong ki jaka ba don ki karkhana 70 dB (A).

Ka jaka ba pynsah (Buffer Zone):

Ka jaka iew (Commercial Area):

N3: Ka bor jingsawa kaba don ha ka surok shnong Brishyrnot (Approach Road) ka long 53.40 dB (A) kaba don hapoh u pud jong ka bor jingsawa kaba la buh ha ka por mynsngi jong ka jaka iew (Commercial area) kaba long ~ 65.0 dB (A). Ha ka por miet ka jingpynmih ia ka bor jingsawa ka long 44.80 dB (A) kaba don hapoh u pud jong ka bor jingsawa kaba la buh lypa kaba long ~ 55 dB (A).

N6: Ka bor jingsawa kaba lah ban shah ha ka por mynsngi ka long ~ 65.0 dB (A). Ka bor jingsawa kaba don sawdong jong u surok bah (NH- 6) ka long 62.80 dB (A) kaba don hapoh u pud jong ka bor jingsawa jong ka por mynsngi. Ha ka por miet ka bor jingsawa ba pynmih na ka jaka iew ka long 57.90 dB (A) kaba kham heh khyndiat ban ia ka jingsawa kaba la buh ha ka por mynmiet kaba ka long ~ 55 dB (A). Ka jingkieu jong ka bor jingsawa ha ka por mynmiet ka dei namar ka jingiaid jong ki kali ha surok bah.

Ka jingsawa ha ki jaka sah (Residential Area):

N4: Ka bor jingsawa ha ki sawdong sawkun jong ka shnong Brishyrnot ka long 53.90 dB (A) kaba don hapoh u pud jong ka bor jingsawa kaba la buh ban don ha ka por mynsngi jong ha ki jaka sah (Residential Area) ka long ~ 55.0 dB (A). Ha ka por mynmiet la pynmih ia ka bor jingsawa kaba long 44.60 dB (A) kaba don hapoh u pud jong ka jingsawa ha ka por mynmiet kaba dei jong ki jaka sah ka long ~ 45 dB (A).

N5: Ka bor jingsawa kaba don sawdong ka shnong Sailkan ka long 53.80 dB (A) kaba don hapoh u pud jong ka bor jingsawa kaba la buh ryntih ha ka por mynsngi jong ki jaka sah (Residential Area) kaba long ~ 55.0 dB (A). Ha ka por mynmiet la buh jingthoh ia ka bor jingsawa kaba long 45.1 dB (A) kaba kham heh khyndiat ban ia ka jingsawa kaba la buh ha ka por mynmiet kaba long ~ 45 dB (A). Ka jingkiew ka jingsawa ka dei namar ka jingtreikam jong ki nongshong shnong (Residential Activity) hapoh katei ka shnong.

N7: Ka baor jingsawa hapoh ka shnong Umlaper ka long 54.60 dB (A) kaba don hapoh u pud jong ka bor jingsawa kaba la buh ban don ha ka por mynsngi ha ki jaka sah (Residential Area) kaba long ~ 55.0 dB (A). Ha ka por mynmiet la buh jingthoh ia ka bor jingsawa kaba long 47.20 dB (A) kaba kham heh ban ia ka jingsawa kaba la buh ha ka por mynmiet kaba long ~ 45 dB (A). Ka jingkiew ka bor jingsawa ha katei ka shnong ka dei namar ka jingjan bad ka surok bah (NH-6).

N8: Ka bor jingsawa kaba don hapoh ka Lumshnong ka long 52.10 dB (A) kaba don hapoh ka bor jong ka jingsawa kaba la buh ban don ha ka por mynsngi ha ki jaka sah kaba long ~ 55.0 dB (A). Ha ka por mynmiet la buh jingthoh ia ka jingsawa kaba long 43.90 dB (A) kaba don hapoh u pud jong ka bor jingsawa ha ka por miet kaba long ~ 45.0 dB (A).

Ki jingmih na ka jinglong jong ka um (Water Quality Results):

Ia ki nuksa jong ka um la lum na ki 11 tylli ki jaka (Stations), kiba kynthup ia 7 tylli ki jaka um hapoh khyndew (Ground water) bad 4 tylli ki jaka um ba don ha sla khyndew (Surface water).

Ka jinglong jong ka um hapoh khyndew (Ground water quality):

La lum ia ki nuksa um na ki 7 tylli ki jaka sam um dih ba kynthup ia ka shnong Brishyrnot, Sailkan, Umlaper, Lumshnong, Tongseng, Umbadoh bad Umlong.

Ka jinglong jong ka um hapoh khyndew- ha ka jaka ba kongsan ba don ka par mawshun bad ka jaka ba pynsah (Ground water quality- Core zone & Buffer Zone) ki long kumne:-

- Ka jingkhlain (Hardness) jong ka um ha baroh ki jaka ba jurip ka long naduh 18 mg/l haduh 70 mg/l. Haba khein kyllum ka jingkhlain bor jong ki um na ki jaka shim nuksa

la shem ba ki don hapoh u pud u sam jong ka jingthew jong ka um dih (IS:10500) kata 200 mg/l.

- Ka jinglong jong ka um (Alkaline) na ki jaka ba shim nuksa ka long hapoh u pud jong ka um dih kat kum ka (IS:10500) kata. 200 mg/l. Ka jinglong alkaline jong ka ka long naduh 22 mg/l haduh 52 mg/l.
- Ka jingdon ka Calcium ha ki um kiba don ha ki jaka ba la shim nuksa ka long naduh 5.4 mg/l haduh 26 mg/l. Ka don hapoh pud jong ka um dih kata kat kum (IS:10500) kata. 75 mg/l.
- Ka jingdon jong ka Magnesium ha ki jaka um ba la shim nuksa ka long naduh 0.48 mg/l haduh 7.20 mg/l. Ia ka jingdon jong ka Magnesium la shem ba ka don hapoh ki kyndon bad u pud jong ka um dih kiba lah ban pyndonkam kat kum (IS:10500) kata. 30 mg/l.
- Ka jingdon baroh jong ki kynja jingbam kiba lah ban kylla um (Dissolved solids) ka long naduh 68 mg/l haduh 182 mg/l. Ka jingdon jong ki ha baroh ki jaka um ba la shim nuksa la shem ba ki don hapoh u pud jong ka um dih (IS:10500) kata 500 mg/l.
- Ka jingdon jong ka Chloride ha baroh ki jaka um ba la shim nuksa ka long duna naduh 6.80 mg/l haduh 42 mg/l. Ka Chloride ka don hapoh u pud jong ka um dih (IS:10500) kata 250 mg/l.

Ka jinglong ka um ha sla khyndew (Surface Water Quality):

La shim nuksa na 4 tylli ki jaka um kata ka bynta ba kham shaneng jong ka Wah Lukha (Upstream) bad na ka bynta jong ka wah Lukha kaba don kham sharum (Downstream), na ka pung kaba don hajan ka jaka par mawshun bad ka pung kaba don hajan ka shnong Umlaper.

Ka jinglong ka um ha sla khyndew- ka jaka ba la pynsah (Surface water quality- Buffer Zone) –

- Ia ki nuksa um na sla khyndew la shim na ki 4 tylli ki jaka kiba don hapoh u pud jong ka jaka ba la pynlong ia ka jingpule bniah, ki jingmih na ka jingbishar bniah ki la pynpaw ba ki bor jong ka um (pH value) ki don ka jingiapher naduh 7.33 haduh 7.70. Ka jinglongkhlain (Hardness) jong ki um ka iapher naduh 92 mg/l haduh 172 mg/l bad ka jingkhlain kaba ha khliehduh (Maximum hardness) jong ki um na baroh ki jaka ha ba la shim nuksa ka long 162 haduh 218 mg/l katba baroh ki nuksa ki don hapoh u pud ba la shah ban pyndonkam ia ki. La lap ba ka electrical conductivity ka long hapdeng 352 haduh 412 $\mu\text{mho/cm}$.
- Ki nuksa um ba don ha sla khyndew ki hap hapoh ka kyrdan 'B' (Ka um kaba lah ban sum ban sait) bad ka kyndan 'D' kata ka um kaba biang ban dih na ka bynta ki mrad

khlaw bad ki dohkha) kaba hapoh u pud ba la mynjur da ka CPCB ha kaba iadei bad ka um ba don ha sla khyndew.

Ka jingtip na ka jingbha jong ka khyndew (Soil Quality Results):

Ki nongmuna ba la lum na ki 8 tylli ki jaka na ka shnong Brishyrnot, Sailkan, Umlaper, Lumshnong, Tongseng, Umbadoh bad Umlong

Ka jaka ba kongsan (Core zone):

Ki nuksa ba la lum na ki jaka ba kongsan ki pyni ba ka jinglong jong ka khyndew ka long ka dewbyrtha, kaba long 5/3 rong saw, kaba don ka pH kaba 6.87. Ka jingbun ki jingbam kum ka kynja khyndew ba long sbob ka long 1.42 %, ka lyer Nitrogen ka don 102.40 mg/kg ka long kaba duna bad ka Potassium kaba don 41.20 mg/kg ka duna katba ka Phosphorus kaba don 16.20 mg/kg ka don ha ka kyrdan kaba heh. Kumta lah ban pynkut nia ba ka khyndew ka long kaba sbob ha katei ka jaka ba kongsan (Core Zone).

Ka jaka ba pynsah (Buffer Zone):

Ki nuksa ba la lum na ki jaka ba la mang ban pynsah (buffer zone) ki pyni ia ka jinglong jong ka khyndew kum ka dei ka dewbyrtha kaba khleh shyiap (Clay & Clay Loam) kaba don 5/3 ka long ka rong saw dum, 5/3 ka rong saw bthuh bad ka rong saw (3/4). Ka pH jong ka khyndew ka long naduh 6.90 haduh 7.70 bad ka jingdon khyndew sbob kum ki Organic matter 0.25 haduh 2.12 %, ka Nitrogen kaba lah ban ioh 82.40 mg/kg haduh 122.60 mg/kg ka duna, ka Potassium ka long 12.20 mg/kg ruh u duna bad ka Phosphorus kaba don naduh 8.60 mg/kg haduh 19.10 mg/kg, Ka jinglong tynrai jong ka khyndew ka pyni ba ka khyndew ka long kaba seisoh namar ka jingdon duna ka nitrogen bad ka jingdon ka potassium.

Ki jingmih na ka mariang bad ki jingthaw ba im (Ecology and Biodiversity Results):

Ka jingtih mawshun ka lah ban ktah ia ki jingthung jingtep ha ka jaka ba kongsan (Core zone) namar ka jingpynmih ia u pum pum kaba lah ban ktah ia ka jait jingthung jingtep kiba don hajan ka par mawshun.

Ki jingthung jingtep ha ka jaka ba tyrwa (Flora of Core zone):

Ha ka jaka ka par mawshun ba la tyrwa ban khlong mawshun, la pynlong ia ka jingwad bniah bad la shem ba ka jingdon jong ki jingthung jingtep bad ki mrad ki mreng ka long kaba duna bha namar ba ha katei ka jaka bad ki sawdong jong ka ki la don lypa ki karkhana. Kumta, ka jingdon ki jait ki jait dieng ka long kaba duna bha, la lap ruh ba ki don katto katne tylli ki dieng kum ki Duabanga grandiflora, ki Gmelina arborea, ki Tetrameles nudiflora, ki Albizzia spp, ki Betula alnoides, ki Terminalia spp, ki Ficus spp, ki Artocarpus spp, ki dieng synsar (Broomstick lessea), ki diengkiat, ki skhen bad kiwei kiwei de.

Ki jingthung jingtep ha ka jaka ba pynsah (Flora of Buffer Zone):

Halor ka nongrim jong ka jingwad bniah ba nyngkong bad ki jingtip ba ar ba la lum na ka ophis khlaw (Forest Department) la shem ba bun jait ki dieng, ki jingthung kiba itynnad bad ka khyndew kaba sboh kaba iadei bad ka jinglong ka suinbneng jong kane ka thain.

Ki mrad kiba don ha ka jaka ba la iitbniah (Fauna of the Study area):

Ki don 15 jait ki mrad haba shim kyllum baroh kiba hap hapoh ka Schedule I ba la buh kyrteng hapoh ka ain ban iada ia ki mrad khlaw bad ban pynneh pynsah ia ka jinglong jingman jong ki. Kine ki jait mrad ki long ka Hog Badger (*Arctonyx collaris*), ka Golden Jackal (*Canis aureus*), ka Himalayan Serow (*Capricornis sumatrenis*), ka khla miaw (Leopard Cat) (*Felis bengalensis*), ka Domestic Cat (*Felis Catus*), ka Indian Grey Mongoose (*Herpestes edwardsii*), ka Hoolock Gibbon (Hoolock Gibbon). hoolock), Indian Crested Porcupine (*Hystrix indica*), Pangolin (*Manis pentadactyla*), Slow Loris (*Nycticebus bengalensis*), Indian Python (*Python molurus*), Indian Cobra (*Naja naja*), Indian Peafowl (*Pavo cristatus*), Great Pied Hornros (*Buce. bicornis*), U Khnai uba don ka ryndang kaba lieh (*Gyps bengalensis*).

Ki jingmih na ka jingpule ia ka imlang sahlang (Socio Economic Study Results):**Ka rukom synshar jong ka jaka pule (Administrative structure of the study area):**

La jied kumba 28 tylli ki shnong na ka bynta ka jingpule. Ka jingbun briew baroh ha ka jaka ba la pynlong ia ka jingpule bniah ka long 12858 ngut kaba pynlong 2294 tylli ki longiing. Ka jingkhein kyllum ka jingdon ki kynthei bad shynrang ka long 944 ngut ki kynthei na ka 1000 ngut ki shynrang.

Ka Jinglong jong ka Imlang Sahlang (Social structure):

Ka jingdon jong ki Scheduled Caste (SC) hapoh ka jaka ba la pynlong ia ka jingpule bniah ka long 0.05 % bad ki Scheduled Tribe (ST) ki long 97.49 % bad kiwei pat ki long 2.46 %.

Ka jingnang jingstad (Literacy):

Kiba la nang ban thoh bad pule ha ka jaka ba pynlong ia ka jingitbniah ki long 68.04 % bad ki bym nang thoh bad pule baroh ki long 31.96%. Na baroh kiba nang ban thoh ki shynrang ki long 68.53% bad ki kynthei ki long 67.54 %.

Ka Kam ka jam bad ka lad kamai (Occupation and Livelihoods):

Na ka jingbun briew baroh, ka ki nongbylla baroh ki don 36.04% ha kaba ka jingbun briew bad na ki nongbylla baroh kiba kham kongsan (Main working population) ka long 81.70 % katba ka jingbun briew kaba bylla ha ki kam ba kham rit (Marginalise population) ka long 18.30 %.

Ka jingpule bad twad jingtip na ki nongshong shnong (Primary Study):

Na ki 28 tylli ki shnong kiba don hapoh ka jaka ba pynlong ia ka jingpule bniah (Study area) la jied 5 tylli ki shnong na ka bynta ka jinglum jingtip. Kat kum ka jinglum jingtip ba la ioh na ki nongshong shnong (Primary survey), ka jingbun briew jong ki shnong ba la iitbniah ka long 2290 (Shynrang 48.47%, Kynthei 51.53%) haba ia nujor bad ka Primary Census Abstract (PCA) jong ka snem 2011 ka long 1744. Baroh ki longiing ha ki shnong ba la iitbniah ki long 432 tylli ha ba ia nujor bad ka PCA Census 2011 ka jingdon briew ka long 5.30 ngut ha kawei ka longiing ha ba ia nujor bad ka jingkheih briew jong ka PCA ha u snem 2011 ka long 5.46 ngut. Ka jingdon jong ki kynthei na ka 1000 ngut ki shynrang ha ka jaka ba iitbniah ka long 1063 bad ha ba ia nujor bad ka jingkhein briew jong ka PCA 2011 ka long 1019. Ka jingbun briew baroh jong ki Schedule Caste (SC) ha ka jaka ba la jurip ka long 0.40% ha ba ia nujor bad ka jingkhein briew jong ka PCA 2011 ka long 0.06%. Ka jingdon jong ki Schedule Tribe (ST) baroh ha ka jaka ba la jurip ka long 99.60% ha ba ia nujor bad ka jingkhein briew jong ka PCA 2011 ka long 99.37%. Ka jingkhein kyllum ia ki briew kiba la nang la stad ha ki shnong ba la jurip ka long 66% ha ba ia nujor bad ka PCA Census 2011 ka long 48.42%.

Ki jingmih na ka jingpule ia ka leit ka wan (Traffic Study Results):

Yn nym don ka jingkit jingbah ia ki marpoh khyndew lyngba ki surok paidbah. Ia ki tiar yn kit haduh ka jaka kaba la don lypa ka mashin tyllait maw kaba don ha ka jingingai kaba 1.8 km lyngba ka surok shimet.

Shuh shuh u marpoh khyndew uba don naduh ka kor tyllair maw sha ka karkhana pynmih dewbilat yn pynkit lyngba ka conveyor belt kaba la buh lypa kaba jrong 1.5 km.

4.0 Ka jingktah ia ka mariang ba la khmih lynti bad ki lad ban pynduna (Anticipated environmental impact and mitigation measures)

Ka lyer bad ki sawdong sawkun (Air environment):

Ban pynduna ia ka jingktah jong ka jingtih mawshun yn pyntreikam ia ki lad ki lynti kiba donkam n aka bynta ban iada na ki jingduh ka mariang bad kiba don ha ka. Ka jingsynreit um ban pynduna ia u pum pum, ka jingsumar ia ki mashin ban pynduna ia ka jingpynmih jingsawa, ban don ki tiar iada ialade, ka jingpeit bniah ia ka koit ka khiah jong ki nongtrei, ka thung dieng (Green belt), ka jingksam thliw bad tih mawshun da kaba pynsngem da ka um bad kiwei kiwei ki la don lypa ki jingpynkhreh. Da kaba pyrkhath ia ki kam ha baroh ki liang kham kaba iadei bad ka jingtih mawshun, la pynkhreh lypa ban iada ia ka jinglong jingman jong ka lyer ha ka par mawshun. Ka jingpynshna ia ka jaka thung dieng (green belt) yn leh ha ka jaka kaba heh 2.71 ha ka jaka ba don lypa hapoh ka jingiada kaba heh 7.5 ha hapoh kine ki san snem ba nyngkong jong ka jingtih mawshun. Nalor kata, ha kaba kut jong ka por ba la iakut

baroh ka jaka kaba heh 65 ha, ka jaka ba la ai wai, na katei ka jingheh 61.93 ha yn tih mawshun bad ka jaka kaba heh 2.71 ha kaja kaba la don lypa hapoh jingiada (safety zone 7.5 m) yn thung dieng kat kum ba la buh da ka ain. Shuh shuh ka jaka kaba don ka jingheh 0.36 ha ka jaka bym don jingpynthut ruh yn thung dieng. Kane ka jaka ka ladon lypa hapoh ka jaka ba la don ka jingiada (hapoh u pud u sam jong ka jaka kaba don ka jingheh 7.5 m). Ia ka jaka ba la dep tih mawshun kaba heh 61.93 ha yn pynbha pat da kaba thung dieng bad pynlong sbob pat ia ka jaka.

Ka jingsawa ha ka mariang (Noise Environment):

Ia ka jingkhlong mawshun bad ka jingsam ia ki thliw pynbthei ban pynbait ia u mawshun yn pyntreikam da ki kor ki bor bad ki mashin khlong maw kat kum kane ka juk n aka bynta ban pynduna ia ka jingsawa. Yn sumar bad pynneh pynsah ia ki mashin ha ka jinglong kaba bha, yn ai ia ki nongtrei par mawshun ia ki tiar iada kum ki jingiada khmat, jingiada khlieh, jingiada kti, jingtap skhor, ki jingtap khmut ban iada na u pum pum. Ki kyndon ba donkam baroh yn bud ryntih bad yn pynbha shuh khnang ban ioh ia ka jingpynbthei kaba duna eh ka jingpynmih jingsawa bad jingkhieh ka khyndew.

Ka um bad ka sawdong sawkun (Water environment):

Ka jingdonkam um na ka bynta ka par mawshun kan long kumba. 45 KLD kaba yn pyndonkam kham bun na ka bynta ban dih bad ban pyndonkam ban synreit um ia ki jingthung jingtep, ia ka surok kit mar ban pynduna ia ka jingpynmih ia u pum pum. Ia ka jingdonkam um yn shim lyngba ki kor tan um na ka jaka pynmih dewbilat jong ka kompeni kaba la don lypa ka jing pynkhreh.

Ka khyndew bad ka sawdong sawkun (Land environment):

Ka jingheh jong ka jaka ba la aiwai na ka bynta ban khlong mawshun ka long 65 ha. Ka jingtih mawshun kan long da kaba plied ia ka khyndew da ki mashin ryngkat bad ka jingsam thliw bad jingpynbthei ia u mawshun. Ka jingpynmih mawshun kaba heh tam ka long 3.2 MTPA (kynthup 3.0 MTPA u mawshun bad 0.2 MTPA u mawshun ba khleh khyndew shyiap). Ka jingkhlong mawshun kaba heh tam na katei ka par ba la tyrwa ka long 3.53 MTPA (kynthup 3.2 MTPA u mawshun bad u mawshun ba khleh khyndew shyiap bad 0.33 MTPA ki jaboh khyndew). Ha kaba kut jong ka por jong ka jingpynkhreh (Land development) na ka 65 ha ka khyndew ba la shim ai ka jingheh jong ka jaka ban khlong mawshun ka long 61.93 ha. Ka jaka kaba don hapoh ka jingiada (Safety zone) ka don ka jingheh 7.5 m. ha kane ka yn thung dieng ha ka jaka kaba don ka jingheh 2.71 ha kumba la buh da ka ain. Ka jaka kaba don ka jingheh 0.36 ha ka bym don jingpynthut (Undisturbed area) ruh yn thung dieng. Ia ka jaka ba

la tih kaba heh 61.93 ha yn pynbha pat da kaba thung dieng ban pynlong sboh pat ia ka hadien ba la dep khlong ia u mawshun.

Ka jingthaw ba im bad ka sawdong sawkun (Biological Environment):

- Yn pynwandur ia ka jaka thung dieng (Green belt) ha ka par mawshun kaba la ai wai khnang ban pynduna ia ka jingktah ia ki jingthung jingtep bad ki mrad ki mreng.
- Yn ker sawdong ia u pud u sam jong ka par mawshun kaba la ai wai ban khanglad ia ka jingrung jong ki mrad.
- Ka jingtih mawshun ka lah ban ktah ia ki jingthung jingtep ha ka jaka ba kongsan (core zone) namar ka jingtih mawshun kan pynmih ia u pum pum kaba lah ban ktah ia ki jaka kiba don hajan kane ka jaka ba la tyrwa. Katei ka jaka kaba la tyrwa ban khlong mawshun ka long kaba syllen bad ka bym don khlaw. U Warden jong ka Chief Wildlife u la pynlong ka jingialang bad ki trai par mawshun (Industries) bad ki tnad sorkar jong ka jylla Meghalaya na ka bynta ban pynkhreh ia ka Regional Conservation plan na ka bynta ka East Jaintia Hills District hapoh ka jingpeit bad jingpyniaid jong ka CWLW, Meghalaya bad ka jinglut na ka bynta ban pynkhreh bad pyntreikam ia ka Regional Conservation Plan lah ban iasam da ki nongkyrshan jong ka projek bapher bapher. Ka jingthmu jong katei ka jingpynkhreh ka long ban ia ka mariang bad ki jingthaw b aim naduh ki dieng ki siej bad ki mrad ki mreng kynthup ia ka jaka sah jong mrad. Ki nongbei pisa jong ka par mawshun ki la pynthikna ruh ba ki long shi bynta jong ka plan pynneh pynsah ia ka mariang bad kin siew ruh ia ka dor katkum ba la buh na ka bynta ka projek jong ki.

Ka imlang sahlang bad ka ioh ka kot (Socio-Economic environment):

Ka jingdon jong ka par mawshun kan kyntiew ia ka ioh kam jong ki nongshong shnong jong ka thain. Namarkata ka jingkiew ha ka ioh ka kot baroh kawei jong ka thain kan urlong hadien ba la sdang ia ka jingklhlong maw na kane ka par mashun na katei ka par ba la tyrwa.

Ki jingktah namar ka jingkit jingbah (Impacts due to transportation):

Ka jingktah jong ka jingkit jingbah ia u marpoh khyndew kan long kaba duna bha namar yn kit ia ka ROM da ka dumper/tipper sha ka jaka tyllait maw kaba la don lypa ha ka karkhana pynmih dewbilat jong ka kompani lyngba ka surok shimet kaba don shabar jong ka jaka ai wai tih mawshun.

5.0 Ka prokram peit ban bniah ia ka mariang (Environmental Monitoring Programme)

Ka jingpeit pyrman ia ka jinglong jingman jong ka mariang ha ki jaka bapher bapher, hapoh ka jaka ba la ai wai ban khlong mawshun bad ha ka jaka ba la iitbniah kaba don 10 km

sawdong (Radius) yn pynlong man ka por. La pynkhreh ia ka rukom kaba bniah na ka bynta ban buddien ia ki jinglong jingman jong ka mariang. La iitbniah ia ki jaka ba la shim nuksa da kaba pyrkhath ia ka tynrai jong ka jingmih ki jaboh namar ka jingtih ia u mawshun, ka rukom pyntuid um, ka jinglong ka jaka jong ka par mawshun bad ka mariang kaba don ki jingthaw ba im ruh ban pynkhreh ia kino kino ki jingma kiba lah ban mih n aka jingkhlong mawshun.

6.0 Ki jingpule bniah ban nang pynbha shuh shuh ia kaba la don lypa (Additional Studies) Risk Assessment & Disaster Management Plan:

Ka Jingpeit bad pule bniah ia ki jingma kiba lah ban mih n aka jingtih ia u mawshun bad ka jingpynkhreh ban pynlait ia ki nongshong shnong bad ki jingthaw baroh na ki jingjia ba sngewsih. Ia ka jingtih mawshun yn pynlong da kaba tih bad khlong ia u maw da ki mashin, da kaba ksam thliw bad pynbthei. Yn pyndonkam da ki tiar tih mawshun kiba khlain bor bad ki kor ki bor kat kum kane ka juk, ki kali kit mar kum ki dampers/tipper bad kiwei kiwei de. Ia ka jingtih mawshun yn leh hapoh ka jingpeit bniah kaba pyrkhing bha da ki briew kiba shemphang kumta ka jingma ha ka jingtreikam ka long kaba duna bha.

Ka jingpynbha pat bad jingwanphai ki nongshong shnong (Rehabilitation and Resettlement):

Kane ka jaka par mawshun kaba don ka jingheh 65 ha ka dei ka jong ka Star Cement Meghalaya Limited. Ha kane ka jaka par mawshun kam don ki shnong shong briew, namar kata ka jingpynbha pat bad ka jingwanbiang ki briew sha kane ka jaka kam don. Kumta ka Rehabilitation and Resettlement kam long kaba donkam ha kane ka par mawshun kaba la tyrwa.

Ka koit ka khiah bad ka jingshngain ha ka kam (Occupational Health & Safety):

Ka kompeni kan shim khia bad ka jingkitkhlieh na ka bynta ban iada ia ki nongtrei bad kan ai ia ka jingsumar halor ka koit ka khiah kaba mih na ka jingtrei ia ka kam (Occupational Health) da kaba pynbha ia ka jaka trei ki nongbylla khnang ba kan long ka jaka trei kaba shngain. Ia kine ki lad jingpynbeit harum yn pyntreikam rynti n aka bynta ban pynneh ia ka koit ka khiah bad ka jingshngain ha ka kam:

- Ka jingpyndonkam ia ki tiar iada/iada kum ki glove, ki juti iada, ki jingtap khlieh (Helmet), ki jingda ia ka pum pum bad kiwei kiwei kan long kaba donkam. Ia ki jingpeit bniah yn pynlong man ka por ban pynbha ia ki jinglong jingman jong ka jaka trei da ka Environmental Cell.
- Yn ai jinghikai man ka por bad ki jingbuddien ba pynthymmai halor kane ka bynta ban pynbha ia ki jingtip jong ki nongbylla.

- Ka jingpeit bniah ia ka jinglong ka um, ka lyer, ka jingsawa, bad ka jinglong jingman jong ka koit ka khiah ha ka kam jong ki nongtrei jong ka par mawshun bad ki jaka sah ba marjan.
- Ka prokram peit bniah ia ka jingtreikam jong ki bynta bapher bapher jong ka par mawshun bad ki lad jingiada kat kumne ka juk.
- Yn don ka prokram ban peit bniah ia ki jingthung ban pynthikna ia ka jingim bad jingroi jingsan jong ki.
- Yn dro bad aiti ia ka plan ban peit ia ka koit ka khiah jong ki nongtrei bad ki paidbah kiba don hajan ryngkat bad ka jingmang pisa.

7.0 Ki jingmyntoi kiba mih na ka jingkhlong mawshun (Project Benefits):

Ka par tih mawshun ba la tyrwa ka wanrah ka jingmyntoi kaba khraw ia ka imlang sahlang bad kan iarap ban kyntiew ia ka ioh ka kot bad ka roi ka par jong ka thain. Katei ka par tih mawshun ba la tyrwa kan iarap ruh ban pynioh kam sha ki 94 ngut ki briew bad shibun kiwei ki jaitkam kum kaba die dukan, pynbiang bam ia ki nongbylla. Shuh shuh da kaba pynlong ia ki health check-up camp kaba man ka por, ki prokram ban pynsngewthuh shaphang ka roi ka par nongkyndong kiba ia dei ha ka liang ka pule puthi, ka jingsumar ia ka koit ka khiah shimet bad ki jingpynroi ia ki sap ban kyntiew ia ka jinglong jingman ha ka thain.

Kumba T. 24 Klur ka royalty, T. 2.4 klur ka DMF, T. 48 Lak ka NMET bad T. 18 klur ka Cess yn siew sha ka sorkar jylla ha ka shisnem na ka bynta ka roi ka par jong ka thain.

8.0 Ki jingpynkhreh ban iada ia ka Mariang (Environment Management Plan)

Ki jingpynkhreh na ka bynta ban iada ia ka mariang ha ka par mawshun da kaba bud ryntih ia ki kyndon ba la buh da ka IBM/MoEF&CC.

Ka rukom pyn treikam ka kynthup ia ka jingpeit ia ka rukom pyntreikam ia ki kyndon ban iada ia ka mariang bad ki jingim kiba donha ka. Da kaba pynshong nongrim ha ki jingbatai shaphang ka par mawshun (Project) bad ki kam kiba iadei bad ka, la pynkhreh ia ka plan ban iada ia ka mariang bad na ka bynta baroh, ka kompani ka la Mang Tyngka Rs. 647.27 lak kum ka baiseng (capital cost) bad Rs.24.88 lak kum ka jingpynlut (recurring cost) man ka snem. Ia ka jingpeit bniah ia ka mariang yn leh bad bud ryntih kat kum ki kyndon jong ka EC/CTE/CTO.

9.0 Jingpynkut (Conclusion)

Kumta, lah ban pynkut ha ka jingmut kaba bha ba hadien ba la pyntreikam ia ki lad jingiada mariang, ka jingtreikam kaba man ka sngi jong ka projek kan don tang khyndiat eh ka jingktah ia ka mariang.