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EXECUTIVE SUMMARY

Ka jinglamkhmat

U Nongmih khmat jong ki kam, u Bah Philosopher Iawphniawula apply ia ka mining lease naka bynta u mawshun ba don ha Sohdoit -U-Lum Mawlong, Mawlong Sirdarship, East Khasi Hills District, Meghalaya ka ba don ia ka 4.077 Ha bad ia ka kam la plan naka bynta ban ioh iaka 523130 TPA.

Ha kane ka case ba mynta ka State Expert Appraisal Committee, Meghalaya (SEAC) haka TOR shithi number ML/SEIAA/MIN/EKH/P-13/2020 tarik 24th April 2020 ban peit bniah iaka EIA khnang ban ioh ia ka environmental clearance haka ba iahap bad ki kyndon jong ki jingpyntip jong ka EIA, 2006.

Ban pyrkhat shaphang ka jing bha jong ka mariang ka ba lah ban mih naka jing pyntreikam jong ka jingtih mawshun ha Sohdoit-U-Lum Mawlong, Mawlong Sirdarship, East Khasi Hills District, Meghalaya u Bah Philosopher Iawphniawula pynneh ia ka Indian Mine Planners & Consultants, Kolkata ban shim ia ka Environmental Impact Assessment studies. Ka report ka bthah ia ka jingkhein jong ka jingktah jong katto kane ki dkhot jong ka mariang bad ki jing shim ia ki kyndon ban pynduna ia ka shah ktah.

Jingbatai jong ka kam

Ki jingpynpaw jong ka jingtih mawshun kalong kumne harum:

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Project Name	Sohdoit-U-Lum Mawlong Limestone Mine
Location of mine	Village-Sohdoit-U-Lum Mawlong Mawlong Sirdarship East Khasi Hills District, State- Meghalaya
Latitude	N 25°11'10.4779" TO N 25°11'24.4783"
Longitude	E 91°41'12.9696" TO 91°41'38.2437" E
Topo sheet number	780/12
Land use	4.077Ha
Minerals of mine	Limestone
Total Mineable reserves	2580000 MT
Life of mine	06 years
Proposed production of mine	523130TPA / 1938 TPD
Method of mining	Opencast, semi-mechanized
No of working days	300 days
Water demand	Total water requirement is about 5.0 KLD (1.0KLD Domestic Uses) + 2.00 KLD (Dust Suppression) &2.00 KLD (Green Belt) from nearby water sources.
Sources of water	Water for drinking purpose will be met from nearby villages. For sprinkling and plantation water will be taken in Umium River.
Man power	65 (Approx.)
Nearest railway station	Guwahati Railway Station at the distance of approx.110 km in North direction.
Nearest airport	Guwahati Airport is at the distance of approx. 64 km in North Direction.
Seismic zone	Zone V

Jaka jong ka map kaba don ia ka 10 Km radius tawiar ia ka jaka jong ka projek site la pyni ha ka dur ba 1 bad ba 2.

Ki jingdonkam ban pyntreikam ia ka Project (Basic requirement for proposed project):

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K jingbthah ki long kumne harum:

Sl. No	Requirement	Approx quantity/day
1.	HLD (Diesel)	100 liters
2.	Ammonium Nitrate (Explosives)	5.43 tons of rock/kg of explosive (approx.)
3.	Booster cartridge (Explosives)	

Ki rukom tih par maw (Mining Method):

- ❖ Yn tih bad khlong ia u mar na katei ka par maw da ka Semi mechanized opencast bapura lyngba ka ksam thliew bad pynbthei (Drilling and Blasting).
- ❖ Ka jing iar ka jaka ba long ban trei (Bench) yn iai pynbha bad yn ym duna iaka 6*6m bad ka jingjylliew ban tih maw kadei ban long 220 mRL bad sharing kadei ban long 45 degree.
- ❖ Ia ka ksamthliew bad jingpynbthei:ia ka jingsam thliew kadei ban long diameter -32mm,jingjylliew ka thliew kadei ban long 6m(ba kynthup ia ka sub-grade drilling) spacing 4m burden-3m nangta pynbud sa ka jingpynbthei.
- ❖ Ia ka ingpynbthei yn pynbud da ka jingiarap da ki tiar kum ki booster ANFO bad class-VI explosives(TLD,electric detonators bad ki detonating fuse)
- ❖ Ia ka jing samthliew bad jingpynbthei ba ar sein ha ka juh ka jaka yn nym lah shuh ban leh hynrei dei ban pyndonkam da ka hydraulic rock breaker .
- ❖ Ban iada na ki jingher maw ha thmer lum, la pyndonkam da ka jingpynbthei kaba ki ong ka light charged muffle blasting .
- ❖ Ka dor na ka bynta kawei ka thliew ka long 0.125kg primer,5.5kg per meter jong ka jingpynbthei uwei u detonator.
- ❖ ROM na ka par maw lah ban shallan haduh ka kut jaka.

Ka jingbatai bniah ia ka sawdong sawkun jong ka mariang(Description of the Environment):

ki jingdonkam jong ka mariang kat kum ka jingling jingman jong ka (Base line data) kiba long kum ha ka Lyer, ka Jingsawa, ka Um, Ka jaka/ kyndew bad ha ka liang ka ioh ka kot kiba la pynmih naduh u bnai December 2019 haduh u bnai February 2020 ban bniah shin ki jaka ba kynthup hapoh 10 Km ha hap ha ka bynta ban tih ia u mawshun. Kiwei ki bynta jong ka mariang kynthup ia ki jingthung jingtep bad ki mrad, land –use pattern, ka khlaw bad kiwei kiwei ba la pynmih lyngba jong ka field survey bad la ioh ruh na ki department jong ka sorkar jylla.

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Ka jinglong jong ka lyer (Air Environment):

L a iit bniah Ka jinglong khuid ka lyer Ambient Air Quality la shim nongmuna na ki 9 tylli ki jaka kiba don sawdong katei ka par maw. Ka result ka kynthup ia ka jingdon jong PM2.5, PM10, SO₂, NO_x ba la buh bynta kyrpang.

PM ₁₀	-	55-89 µg/m ³
Pm _{2.5}	-	21-34 µg/m ³
So ₂	-	4.1-7.6 µg/m ³
No _x	-	6.8-10.7µg/m ³

La thaw ia ka station ban thew ia ka jinglong ka suinbneng ban treikam ha ka projek side ban buh record ia ka micro-meteorological data. Pre-dominant ha ka lynti iaiaid ka lyer ba shem ha por tlang ka dei N, NNE &NNW.

Ka jingsawa bad ki sawdong sawkun (Noise Environment):

Ki lad jingiada ban pynduna ia ka jingsawa ba la buh katkum ki jingbthah dei ban long naduh 53.6dB (A) haduh 56.7 dB (A) ha ka por mynsngi bad 38.5 dB (A) haduh 41.6 dB (A) por mynmiet.

Ka um bad ki sawdong sawkun jong ka (Water Environment):

La shem ba baroh ki physic-chemical parameters bad heavy metals ba la shim samples na ki um -ryngkew bad na ki um- pohliew dei ban long katkum ki kyndon harum. The pH, TDS, bad ka jingeh(hardness) jong ka um ryngkew ka dei ban long na 6.90-7.10,107.0-111.0 mg/land 81.30-74.30 mg/lit ter ter, na ka bynta ki umpohliew la pynmih pH 6.90-7.30, TDS 99.0-117 mg/lit.

Ka jaka ba don ka par bad ki sawdong sawkun (Land Environment):

Ka jingphiah jong ka jingdon ka jaka ban pyndonkam ha ka projek la ai kumne harum:

Breakup of Land Use
Existing Land use

S N o.	Category	Area (Sq. m)	Area (Acres)	At End of Mine Life(area in Ha)

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1	Area to be excavated	-nil-	Area to be excavated	3.600
2	Overburden Dump	-nil-	Overburden dump	0.010
3	Mineralized area(barren)	4.077	Infrastructure	0.010
4	Infrastructure	-nil-	Green belt	0.350
5	Greenbelt	-nil-	-Unused Area	0.107
	Total		4.077	4.077

Ka khyndew (Soil):

Ia ka jingling ka khyndew la pynlong ha ki san tylli ki jaka. Ka jingrben ka khyndew ha ki jaka ba la pynlong iaka jingpule ka long kumba 1.43 haduh 1.60 gm/cm³, kaba kdew iaka jingiahap ban thung bad jinglong jingman sha ki jingthung. Ka jingiapher haka pH jong ka khyndew ha ki jaka bala pule la peit bniah bad shim baka long neutral (6.8 haduh 7.20), namarkatta ka iarap haka jingheh jingsan ki jingthung. Ia ka Organic Carbon bad nitrogen la shem haduh 0.66-0.79 % bad 0.88-1.21%. Kane ka pynpaw bad ka khyndew ka long kaba biang haka jingdon sbob bad duna ia ka jingdon jong ka nitrogen content. Primary nutrient profile ka pynpaw baka khyndew ka duna haka jinglong sbob bad duna ka jingdon jong ka nitrogen bad potassium.

Ki jingthung bad ki mrad (Flora and Fauna):

Ka jingbun ki jingthung haki jaka hapdeng kyllum ka long kaba duna namar ka jingdon ki jaka ba don maw bad duna ka khyndew ki jingthung ha baroh ki jaka bala pule ki pynpaw khmat ia ka Tropical Montane Forest, Tropical Semi Evergreen, Moist – Broadleaf, Tropical Deciduous /Semi- Deciduous, Broadleaf Forest bad Tropical Sparse trees. Hangne kam don ka jingpynbeit ia ki kynja jingim mrad bala shem haki jaka pdeng bad kumjuh haka buffer zone. Ki jingthung kyrpang bala thung haki jaka ba marjan ki long u kew, khaw, phan bad ki shana.

Ka ioh ka kot bad ka imlang sahlang (Socio-economic status):

Kane ka jingpule ka dei kaba la pynlong daka primary survey bad secondary data source naka census jong ka ri India 2011

Ka jingpule ia ka primary socio economic la pynlong ha saw tylli ki shnong. Ia ki result la batai harum:

- **Core zone:** Hangne kam don ka jingshong shnong haka core zone
- **Buffer zone:** Ka jingdon ki ingbriew haki jaka bala pule ha shnong kyndong ka long10329 katkum ki jingtip bala ai harum.

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- **Population**

Ka jingkhein haka jingdon ki briew ha ki jaka bala pule ka long 52787 ha kaba26618 ki dei ki shynrang bad 26169 ki dei ki kynthei.

- **Social Structure**

Ka jingkhein jong ka jingdon briew jong ka Schedule Caste (SC) hapteng ka jaka pule kalong 4.21 % bad ka percentage jong ka Schedule Tribe (ST) ka dei 81.83 %.

- **Literacy**

Ka jingkhein kyllum jong ki briew ki ba la don ha ka kyrdan jong ka jingpule puthi hapteng ka jaka pule ka long 60.76% jong ka jingdon jong ki briew kyllum lang. Haka percentage ki shynrang ki ba la ioh ia ki jing pule ki long 31.25 % bad ki kynthei ki ba la ioh ia ki jingpule ki long 29.51%.

Ka jingagnud ban pynduna bad ban pynbiang ia ka jingktah ia ka mariang:

1. **Ka jaka bad ki sawdong sawkun (Land Environment):** ka jingpyntreikam jong ka jingkhlong mawshun kan wanrah ia ka jing bujli ha ka khyndew. Tangba ia ka jaka yn sa shim biang da kine ki lad haruh:

- Ban pynduna ia ki jingpynjulong ha ki jingtih yn pynlong kumba 7.5m sawdong jong ka par jaka bad hadien ba la dep pyndonkam ia ki thliw jaka yn sa pynkylla biang sha ki jaka jyrngam (green cover). Hadien bala dep tih kin sa mih ki jaka sboh bad yn sa pyndonkam ia haki jingthung jingtep.
- Ka jingtih ne jingkhlong ia ka mar kan long thik haka jaka bala buh.
- Ka khyndew ne ki jingkhia (2,70,840 MT)bala weng na ka jaka par maw yn buh ha ka stack-yard khnang ban ioh pyndonkam ban shna surok bad thung jingthung.
- Ki pumpum ba mih na ki jingtih yn pynduna daka ba synreit da ka um na ki jingsynreit um.
- Yn ym don jingpynjulong ha ki building briew ne jingtei barim namarba ym don building briew ne jingtei barim hajan kine ki jaka tih ba ai wai.

2. **Ka um bad ki sawdong sawkun jong ka (Water Environment):** Ka jindonkam kyllum jong ka um ha ka jaka tih ne khlong kadei 5KLD. Yn pyllang ia ki pumpum ba mih na ki thlieh um ba pyllang na u slap. Ia ka um dih yn shim na ki shnong ba don hajan. Ka jingtih ne jingkhlong yn shah tang haduh 40m ha ka jingjylliew. Yn ym lah ban tih ne khlong tad haduh ban da iakynduh bad ki

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met um (water body). Ban lait naka jinglang jong ka um madan na ka jingleit jakhlia jong ki nongtrei, yn pynbiang ia ki jaka painkhana ba tikna na ka bynta ki nongtrei ha ki jaka pyntreikam kumjuh ruh ki septic tank bad ki soak pit.

3. **Ka jinglong jong ka lyer (Air Environment):** Ka pui pui jong ka lyer ki pynmih ia ka jingjakhlia ha ka ba iadei bad ka jingtih da ka ba pyndonkam ia ki tiar ksam thliew bad pynbthei (drilling and blasting). Katto kane lashem ba mih na ka jingpyntreikam jong ka jingtih ha ka par jaka. Tangba yn shim biang ia kine ki jaka da kine ki lad harum:
 - Ki tiar ksam thliew (drilling machine) ba don bad ki tiar ban pynlang pumpum bad yn da donkam yn pyndonkam da ki tiar ksam thliew ki ba jhieh ban lait naka jingsaphriang jong ka pumpum.
 - Yn pynbiang ia ki lad jingiada naka bynta ki nongtrei (Personal Protective Equipments) kum ki jingiada khmut, khlieh bad kiwei kiwei ki tiar iada. Yn peit ia ka koit ka khiah bad yn ai jingsumar (health checkup) arsien shi snem nakabynta ki nongtrei.
 - Yn pynlong ia ka jingpeit tista jong ki kali bad ki mashin.
 - Yn pyntreikam da ki kali ban synreit um ha ki surok bad ki jaka bym trei kam ban pynduna iaka jingmih pumpum.
4. **Ka jingsawa bad ki sawdong sawkun (Noise Environment):** Ka jingpyntreikam jong ka jingtih jingkhlong mawshun yn pynlong da ki buit thymmai katkum ka juk ba mynta bala tip kum ka open cast semi mechanized mining method. Yn sa pyndonkam da u Hydraulic excavator ha kapor tih. Kumjuh ruh yn pynbiang ia ki tiar iada kum ki jingiada khmut, khmat, kti, khlieh, shkor sha baroh ki nongtrei bylla. Yn thung da ki jingthung khnang ban pynduna ia ka jingsted jong ka sawa. Yn leh da ki task rotation ia ki nongtrei bylla ban lait na ka jingshah ka jingsawa palat.
5. **Ki jingthaw ba im bad ki sawdong sawkun (Biological Environment):** Yn ym donkam ban pynkhih ia ki khlaw hakane ka jingpyntreikam jong ka jingtih mawshun. Yn ym shah ban don mrad ha ki sawdong jaka ba pyntreikam ia ka jingtih lait noh khyndiat ki jait mrad. Yn duna ki jingsniew haka sla khyndew (terrestrial eco-system) ka ba kynthup ia ki sim bad ki mrad namar ka ML area ka don tang 2.499Ha. Ha kawei kaling pat, da ka jingroi jong ki jingthung jingtep, ka sla khyndew ka lah ban kham bha ha ka por ban wan. Yn ym shem ia ki Schedule-I species haki jaka pule.
6. **Ka ioh ka kot bad ka imlang sahang (Socio-economic Environment):** Kane ka project kan wanrah iaka lad kamai ban pyniohkam pynioh jam (direct and indirect

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employment) ha ka jaka. Ka jingkhmih lynti ba ka ioh ka kot jong kane ka thain kan kiew hadien ba la sdang ia kane ka project. Ka project kan ai ruh ia ki training sha ki nongshongshnong bad kumta kan wanrah iaka lad kamai ha shnong.

7. Jakhlia bamih na ka par maw (Mine waste):

8. Ka jinktah haka ban kit ban bah ia une u mar (Impacts due to transportation):

Baroh ki mar yn kit sha ka cement plant da ki truck. Ia ki jingkit yn pynlong da ki 4 no. jong 10 tonner truck. Katkum ka jingpule ba la leh yn ym don ka jingkhapniah ka ba mih nakane ka project ha ki surok.

Ka jingpeit bniah ia ka jinglong ka mariang (Environmental Monitoring Programme) : Ka jingpeit bniah ia ka jinglong kamariang ka long ka ba donkam hakaba peit ia ka jing trei jong ka tiar ba control ia ki jaboh jakhlia (pollution control equipment) bala pyntreikam baleh ia ka project. Ki nongmuna ki ba la shim naka bynta ban pynlong ia ka jing pule bniah ia ka sawdong sawkun yn pynlong katkum ka guideline jong ka Central Pollution Control Board/ State Pollution Control Board

- Ka jingpeit jong ka sawdong sawkun yn pynlong jan man kapor da ka Bah Philosopher lawphniaw ban khein/peit ia ki jakhlia hapoh bad sawdong ka jaka project.
- Katto katne ki jingkhein naka liang pisa yn long shaphang ka jing pyntreikam jong ka Environmental Management Plan.

Ka jingpynkhreh ia ki jingma bad ban thaw ia ki lad ban iada (Risk Assessment & Disaster Management Plan): Ka jingtih jingkhlong jong ki mar yn pyndonkam daki buit kum ki semi mechanized opencast mining, bad ki tiar pyndonkam ban tih ban khlong ia ki mar kin pyndonkam da ki hydraulic excavator, truck (dumpers) bad kiwei kiwei de bad ki jing don jong ki jingtih (drilling) bad ki jingpynbthei (blasting) hapoh ka jingpeit bniah jong ki briew kiba shemphang khnang ban pynduna ia ka jingma.

Ka jingpynbha bad jingpynshna biang (Rehabilitation and Resettlement): Yn ym don kano kano ka jingpynbha bad jingpynshna biang ha kaba iadei bad ka jingtih (mining). Ym don ba shong basah ha ka jaka ba don kane ka project bad ka jaka ka dei da ka khlaw.

Ka jingioh jingmyntoi na kane ka project (Project Benefit): ka jingpyntreikam jong ka mining project ka don ka bynta kaba bha ha ka ba iadei bad ka ioh ka kot bad ka

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imlang sahlang (Socio-economic Environment) bad kan iarap ban pynneh ia ka kiew jong ka shnong.

Ka jingpyntreikam jong ka project kan iarap ia ka ioh ka kot da kaba ai kam kumba 70 ngut bad shibun ia ki trai shnong.

Ka PP kan pynbiang ia ki camps na kabynta ban ai vocational training khnang ban pynmih ia ki lad kamai.

Ka jingpynkhreh lypa ban don ka jingiada ia ka mariang (Environmental Management Plan): Ka jingpynkhreh na ka bynta ka Environmental Management Plan ka donkam na ka bynta ban iarap haka ban pyntreikam bad peit bniah na ka bynta ban da ia ka mariang ha kapor lane hadien ba la ai bor ia katei ka jingtyrwa ban don ka mining project. Ka jing lut jingsep jong ka project ka long Rs. 29.87Lakh bad ka bai EMP ka long Rs. 4.80 Lakh (Ka jinglut kaba man ka snem/annual recurring cost).

Budgetary Provision for Environmental Measures:

Sl.no.	Particulars	Annual Recurring Cost
1.	Air pollution (dust suppression along road water sprinklers.	250000.00
2.	Plantation and maintainance	10000.00
3.	Provision of fencing around mine pit	15000.00
4.	Personal Protective Equipment (Helmets,Safety Shoes,Dust Masks,Ear Plugs) etc.	70000.00
5.	Construction and maintainance of settling tank,Garland Drains,etc.	110000.00
6.	Environmental Monitoring	15000.00
7.	CSR activity in nearby villages	122500.00
8.	CER activity as prescribed by SEAC	49000.00
	Total	641500.00

Corporate Social Responsibility:

Kum u nongbat kam ka company ka don ia ka jingkitkhlieh ban tyrwa sha ka roi ka par jong ka shnong ba u bat kam. Ka company kan pynbeit shibun ki awareness program na ka bynta ki nongtrei bad kumjuh ruh ki paidbah nong shongshnong ban pyn thikna ia ka jingbha bad rukom im naka bynta ki ba duk basuk ha ka shnong.

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Budgetary Provision for CSR Activity

ACTIVITIES	COST (In Rs)
Jingtei jong ki skulk um ki shuki ki ben, ki kot, computer, tiar ialeh kai sport sha Ichamati RMSA Secondary School	50,000.00
Ki sopti skul sha 30 ngut ki khynnah skul jog ka Ichamati RMSA Secondary School	25,000.00
Ban pynbha bad jingtei jong ki surok shnong	25,000.00
Ban pynlong iaki Medical camp bad ban ai ei ia ki dawai dashin sha ki baduk	10,000.00
Ban peit ia ka jingioh um bad jingkhuid naka bynta ka shnong	12,500.00
Total	1,22,500.00

Ka jingkoit jingkhiah kaba lah ban mih naka kam ba trei bad ki lad jingiada (Occupational Health and safety) :

ka jingpyntreikam ki ba kham biang bad kham bha bad ki lad naka bynta ban control ia ka jaboh (pollution) yn pyn tikna ia ka jingbha bad jingkoit jingkhiah jong ki nong trei.

Green belt development: La sdang da ka nongpyniaid ba 0.919ha yn thung jingthung haka por ba plan. Hynrei katkum ka jingmut ba plan baroh kajaka ba aiwai yn thung jingthung. Yn thung ki jingthung ba mih ha shnong bad ka jing ai jingmut bad ka Forest Department.

Kumjuh ruh kiwei ki lad iada naka bynta ka sawdon sawkun ki don harum:

- Jingsynreit jong ka um naka bynta ban pynshong ia ki pumpum ha ki surok par maw.
- Ka jing pynskhem bad kyntiew ia ka surok shna bad ki surok treikam ban pynkhuid ia ki jinglang jong ki tiar ba lait sharud
- Ban kiar na ki jingkit khia jong ki truck (dumpers) bad ka jing liat jaboh ha surok.
- Ban pynbha ia ki kali bad ki mashin.
- Yn ai ia ki tiar synreit um kiba biang ha jan surok jong ki jaka par maw na ki par maw (mine face) shaki tiar jingtylliat (crush hopper) ban iada na ka jingmih ki pumpum.

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