

UMNGOT HYDRO ELECTRIC PROJECT (3 X 70 MW)

KA BYNTA BA- I

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

1.0 JINGLAMPHRANG.

Namar ka jingkiew stet ha ka jingbun paid u khun bynriew ha satlak ka pyrthei, la donkam ban pynstet ia shibun ki kam pynroi lyngba ki jingshna ia ki kharkhana bad kiwei pat ki kam pynroi sor la ha ki ri kiba la shai bad kumjuh ruh kiba dang ia beh shata, khnang ba yn lah ban pynbiang ia ki jindonkam jong u khun bynriew. Kane ka jingkiew stet ka roi ka par ka la wanrah ka jingeh ba khraw ban pynneh pynsah ia ka mariang kaba khuid ba suba. Na Ki jingwad jingtip la lap ba ki jingroi ki sor bad ki kharkhana kham tam ha ki ri kiba dang sdang san ha ka roi ka par ka wanrah shibun bha ka jingpynjulor ka mariang khamtam naka rukom pynmih mar poh khyndew. Kane ka wanrah ia ka jingduna bad jing troin ia ka jing pynneh pynsah ia ka spah bah ka mei mariang kum ki dieng ki siej bad ki mrad khlaw. Dei na kane ka daw ba ka jingpyrshang ban pynneh pynsah ia ka mei mariang ka long kaba kongsan eh da kaba tei ia ki projek pynmih bording ba khuid lyngba ka bor jong ka um (Green and clean Energy). Kumta la donkam ban shna ia ka Umngot H.E.P (3X70) MW, ha kaba marwei kalah ban iarap ban pynbiang ia ka bording kumba 210MW haki por ba donkam tam khamtam ia ka state Meghalaya ka jong ngi bad kane ka projek kan pynmih ia antad ka annual design energy 708.98 GWh (in 90% dependable year).

2.0 Kumno ban poi sha projek Umngot

Na Shillong sha ka project lada leit na ka liang ka diang jong ka wah Umngot hap ia id lyngba ka NH-44E kaba don ha West Jaintia Hills District kaba poi haduh Tamabil hajan Dawki, ka jaka khaii kaba don marjan bad ka ri Bangladesh. Na ka liang kamon jong ka wah Umngot, ngi lah ban poi lyngba ka NH-44 da kaba ia id lyngba ki surok District na Lad Smit bad surok kyndong lyngba ka Mawkynrew Block, East Khasi Hills District, ka ban poi shaduh ki jaka ban tei ia ka projek.

3.0. Shaphang ka Projek.

Ka jingthmu ban tei ia ka Umngot projek, ka kynthup khamtam ia kine ki jingtrei harum:

- Ka dam dewbilat (high concrete dam) ha ka wah Umngot ha kaba ka lynter ka long 362 m bad ka kynjang ka long 111 m ban pynlang um kumba 71.31 Mcum.
- Ka tunnel/lynti um napoh khyndew kaba jrong kumba 5.646 km bad ka jingheh ka long 3.40 m diameter.
- Ka surge shaft/thliew pyllait lyer bad pyllait ia ka pressure jong ka um ha ka por ba khang ia ka power house kaba don 12 m u diameter bad ka jingkyngjang kaba 68.10 m ka don hapdeng ka Head Race Tunnel bad u Pressure shaft.
- U Pressure shaft/u thliew pynpei um ba pyllon hapoh khyndew ban pyniaid ia ka um uba iar 2.5 m u diameter bad ba jrong 2.209 km.
- Ka Power House lane ka iing pynmih bording kaba heh 107.50 m ka lynter bad 22.00m ka pynkiang kaban pynmih ia ka bording lyngba ki mashin haduh 210 MW.

- Lai tylli ki tail race tunnel/lynti napoh khyndew ban pyniaid ia ka um sha ki lai tylli ki mashin pynmih bording ha power house ha kaba ka jingjrong ka long 41.00 m bad ka jingiar kalong 3.78 m diameter marwei marwei.
- Tail race channel/ lynti pyllait ia ka um kaba mih na power house bad ban pynpoi biang sha ka wah ha kaba ka jingheh bad jylliew ka long 6.60 m la 2.80 m.

4. Environmental Impact Assessment/Ka Jingwad jingtip halor ka jingktah ia ka sawdong sawkun ka mariang

Ka M/s EQMS India Pvt. Ltd., Karkardooma, Delhi, ka la dep wad jingtip halor ka jingktah ia ki sawdong sawkun ka mariang, kat kum ka ToR (ki kyndon ba la bthah da ka Ministry of Environment, Forest and Climate Change (MoEF&CC) kat kum ka shithi no. J-12011/1/2016-IA-I dated 12.04.2016.

5. Ka Jinglong Jingman ki jaka kiba don baroh sawdong jong ka projek.

5.1 Ka Jinglong Jingman ka khyndew ka shyiap bad ki dieng ki siej.

La Shem ba 33.95 % ha ka jaka wad bniah ki dei ki khlaw kiba rben bad 24.29 % ki dei ki khlaw kiba stang ki jaka lawbniap ki long 22.24 %, ki jaka ba rep shirti ki long 4.64 %, ki jaka sah briew ki long 5.28%, ki jaka syllen bym long ban rep ki long 1.88% bad ka jaka ba don um ka long 0.30% .

5.2 Jingdonkam jaka ban shna ia ka Projek

Ka jingdonkam jaka ban shna ia ka projek baroh ka long 390.50 Ha, ha kaba 93.53 Ha ka dei ki jaka khlaw bad kaba sah 296.70 Ha, ki dei ki jaka bym long khlaw.

5.3 Ki jingtei nam barim/ktem shipai/ jaka ba hap iada kyrpang

Ym shym la lap ba don ki jingtei nam jong kiba rim ba jah, ki ktem shipai lane ki jaka ba don jing ma ba hap iada kyrpang hapoh ka jing iar kaba 10 km na ka dam bad power house.

5.4 Jinglong jingman ka khyndew

Hadien ki jingwad bniah ia ki jait khyndew jong ka jaka kaba iar 10 km na ka dam bad power house, la lap ba don ar jait ki jait khyndew, ka khyndew khleh shyiap bad dewbyrtha kiba don ka pH hagdeng 6.51 bad 7.45, kaba pyni ba ka khyndew ka long jew malu mala (acidic) bad alkaline bad kaba duna ha ka jingdon ka mluh. Ka organic carbon ka don hagdeng 0.51 haduh 0.82, kaba pyni ba ka khyndew ka biang ka jingdon jong ka organic carbon. Ka nitrogen ka don hagdeng 271.8 bad 302.6 kg/Ha. Ka Phosphorus ka don hagdeng 6.2 haduh 12.6 kg/Ha bad ka Potassium ka don hagdeng 144.2 haduh 172.5 kg/Ha.

5.5 Jinglong ka lyer bad ka jingsawa ha ka projek area.

Ki 'er jaboh ha ka lyer haw haw ki duna bha ha kine ki thain ha kaba ki Particulate matters (PM) kum ka PM10 , PM25, NOx bad ka SO2 ki don 52.0µg/m3, 25 µg/m3, 9.8 µg/m3 bad 6.3 µg/m3. Ha kine ki thain, ym pat don ki kharkhana bad ka iaid ka ieng ka leit ka wan ki kali ka dang duna bha. La shem ba ka jingsawa ka kham kiew ha ka dam bad ka power house na ka daw ka jingtuid ka um ha ka wah. Ka jing sawa ha kiwei ki bynta jong ka projek ka biang.

5.6 Jinglong ka um ha ka projek area.

Lah lap ba ka pH value jong ka um ha kine ki thain ka long hapteng 7.56 haduh 7.66 kaba pyni ba ka um ka long kaba bit ban pyndonkam ha iing ha sem. Ka hardness (Ka jingdon u Calcium bad Magnesium) jong ka um ka long hapteng 8 haduh 20 mg/l, ka oxygen jong ka um ka long hapteng 7 haduh 8 mg/l, ka chloride ka long hapteng 4-7 mg/l, ka sulphate ka long hapteng 0.2 haduh 1.2 mg/l bad baroh kine ka pyni ba ka um ka bit ban bam ban dih bad pyndonkam ha baroh ki kam iing. Katkum ki kyndon jong ka Central Pollution Control Board, la lap ba ka Bio-chemical Oxygen Demand ka long hapteng 1.0 haduh 1.6 mg/l bad kumjuh ruh ka coliform ka duna ia ka 50 MPN/100ml, kaba pyni ba ka um ka dei ka 'Class A'. Ka long kaba bit ban bam ban dih hadien ba lah pynkhuid da kaba shet ba tiew. Ki um poh khyndew baroh la lap ba ki long kibym don jingma katkum ka IS10500:2012 (Second revision).

5.7 Jinglong jong ki khlaw ki btap bad ki kynja ba im ha ka projek area.

Ki Jingthung ba im ha ki jaka jong ka Projek

- La lap ba don 203 jait ki jait jingthung, kaba kynthup ia ki 74 jait ki dieng heh, 70 jait ki dieng rit, 40 jait ki phlang ki kynbat bad 19 jait ki jingthung ba pur.
- La lap ia 16 jait ki jingthung kiba don dor ha ka jaka bala wad bniah.
- La lap ia 57 jait ki kynja kynbat/dawai.
- La lap/ia thuh ba don 8 jait ki jingthung kiba lah jan duh jait naka jaka wad bniah kiba hap ha ka thup IUCN Red list.

Ki mrad ki mreng ha ki jaka jong ka Projek

- 28 jait ki jait mrad la lap ne ia thuh, ha ka por ba wad bniah, ha kaba kaba shi jait ki hap ha ka thup Schedule-1 jong ka WPA, 1972.
- 97 jait ki jait sim la lap/ ia thuh ha kapor wad bniah.
- 16 jait ki jait jingim ba par la lap/ ia thuh ha kaba saw jait ki hap ha ka thup Schedule-1 jong ka WPA, 1972.
- 28 jait ki thapbalieh la lap/ ia thuh ha ka por wad bniah.
- 16 jait ki dohkha la lap/ ia thuh ha ka por wad bniah.

5.8 Ka jinglong jingman jong ki briew ba shong basah ha jan jong ka Projek.

Ka jing wad bniah/jing tip ia ki shnong ba shah ktah ha ka Projek

Katkum ka Census jong ka ri India,2011, ka jingbun briew ha ki shnong ban shah ktah daka jing wan ka Projek ka long kumba 1338 ki longing kaba kynthup ia ki 4076 ngut ki shynrang bad 3870 ngut ki kynthei. Haba shim jingkhein kyllum, ki kynthei ki long 950 ngut ha man ka 1000 ngut ki shynrang. Ka literacy rate/ka jingdon jong kiba lah nang ban thoh ban tar ka long 62.62% kaba kynthup ia 1655 ngut ki shynrang bad 2122 ngut ki kynthei. Ki briew kiba trei ba ktah man ka sngi (main workers) ki don 2846 ngut (35.82%) bad 676 ngut (8.50%) ki dei ki nong bylla shi por (marginal workers). Ki shnong lem bad ki longiing bad ki jaka kiban shah ktah na ka jingtei ia ka Projek ki long kumne harum:

Table 1: Ki shnong ki thaw bad ki jaka ban shah ktah

S. No.	Kyrteng shnong	Ki longing ban shah ktah	Jaka rep (ha)	Jaka bym rep (ha)	Total jong ki jaka (ha)
1	Moosakhia	37	16.51	13.34	29.85
2	Samanong	27	10.85	34.79	45.64
3	Sohmynting	20	14.85	3.25	18.1
4	Ksanrngi	32	8.62	4.69	13.31
5	Mawdulop	40	4.94	3.28	8.22
6	Mawjatap	8	4.98	1.97	6.95
7	Mawlang	22	5.59	4.56	10.15
8	Mawsir	38	13.51	21.3	34.81
9	Syntung	38	25.2	16.5	41.7
10	Jatah Nonglyer	23	3.84	1.74	5.58
11	Pashang	28	9.23	4.5	13.73
12	Siangkhnai	35	23.45	29.04	52.49
13	Umsawwar	30	10.86	5.58	16.44
Total		378	152.43	144.54	296.97

6.0 Ka jingpynshisha, jingiathuh lypa bad jinglum jingkhein ia ki jingiatyngkhuh

6.1 Ka jingtah ia ka jinnglong ka suinbneng

Ha ka por ba tei ia ka projek, kan don ka jingtah ba malu mala bad ba tang shipor ia ka jingshit jingkhriat jong ka suinbneng. Ynda lah dep tei ia ka projek, kan nym don kano kano ka jingtah ia ka jinglong ka suinbneng jong ka jaka. Na ka daw jong ka jingden / tap um ha ki bynta ha neng jong ka dam, ka jaka kan kham pyngngad bad ka jingkylla jinhaw jong ka um bad kiwei kiwei kan kham kiew.

6.2 Ka jingpynkylla ia ka jinglong jingman ka khyndew ka shyiap bad ki dieng ki siej

- Kumba 253.75 Ha ka jaka kan hap hapoh ka um jong ka dam (water body) bad ka jing pyndonkam kan long shirta.

- Ka jing pyndonkam ia ki jaka khlaw (forest land) na ka bynta ban tei ia ka projek, yn pyndonkam noh ha ban tei jing tei (built-up area).
- Ki jaka khlaw ki ban pyndonkam da ka projek kaba kynthup ruh ia ki lynti ki synkieng, yn pynkylla noh sha ki jaka tei jing tei (built-up area).
- Ki jaka khlaw ki ban pyndonkam da ka projek ban tih maw (Quarry site) yn sa pynkylla biang sha ki jaka khlaw da kaba pyndap khyndew bad thung biang ia ki dieng ki siej hadien ba la dep pyndon kam.
- Ki jaka khlaw ki ba don ha projek kiba don hajrong na ki jing tei hapoh khyndew kin nym don jingpynkylla ha ka rukom pyndonkam ia ka jaka.

6.3 Ka jingwantuid ka khyndew, ki shyiap ba ni bad ki um ktieh

Kan don ka jingtuid bad jinglang jong ka khyndew ha ka por ba tih ia ka khyndew ban shna ia ki dam, power house, road,intake.etc (project components). Ynda lah dep shna ia ka projek, kan don ka jingpynbha biang ia kitei ki jaka, ban iada ia ka jingtuid/jingtwa ka khyndew.

6.4 Ka jingiatyngkhu bad ka dew mariang (Geology)

Ki jingtah ia ka dew mariang ha ka por pyntrei kin long kiba duna bad kiba malu mala. Ynda lah dep shna ia ka projek, la khmih lynti ba kan ym don jingtah eiei ia ka dew mariang.

6.5 Ka jingtah na ka jingtuid ka um, ka rong bad jingbun jong ka um ha ki katto katne ki bynta jong ka wah (Hydrology)

Ia ka um na dam, yn pyntuid ia ka sha ka Power House lyngba ki thliw um napoh khyndew (tunnel) ban pynshad ia ki turbine ban pynmih bording. Hadien kane, yn pyllait biang ia kajuh ka um sha ka wah. Kumta, kan nym don ka jingkylla kaba jur ia ka 'hydrological cycle' jong ka um.

6.6 Ka jingtah ia ki jaka sawdong sawkun na ka jingwan ki nongtrei bylla nabar jylla.

Ha ka por ba tei ia ka projek, kan don ka jingwan jong ki nongbylla ba na shabar kiba ju mlien ban trei ia kum kine ki projek. Hynrei, ynda lah dep tei ia ka projek kine baroh kin hap leit biang phai sha la ki jong ki shnong. Kumta, ka jingdon jong kine ki nongtrei bylla kiba na shabar kan long tang shipor, hadien kan nym don jingtah eiei shuh.

6.7 Ka jingtah ia ka lyer sawdong ka projek.

Ha ka por ba tei ia ka projek, kan don ka jingtah ia ka lyer ba shipor naka daw ka tдем ka ban mih na ki kali bad ruh de ki pum pum kiban mih na ki jingpynbthei lane ki jingtih ia ki maw. Ha ka jaka ban sa tei ia ka dam ki pum pum bad ka tдем ban mih, kata ki PM10, PM2.5, NOx bad SO2 kin ym tam ia ka 17.85 $\mu\text{g}/\text{m}^3$, 1.55 $\mu\text{g}/\text{m}^3$, 9.52 $\mu\text{g}/\text{m}^3$ bad 1.19 $\mu\text{g}/\text{m}^3$. Ha ka por ba tei projek, ki kali kit tiar ruh kin pynkiew ia ka PM10 sha 11.6 $\mu\text{g}/\text{m}^3$ ha ka kynjang ba 25m, bad kan nang iai duna sha ka 7.3 $\mu\text{g}/\text{m}^3$ ha ka kynjang ba 50m, 3.2 $\mu\text{g}/\text{m}^3$ ha ka kynjang ba 150m bad 1.3 $\mu\text{g}/\text{m}^3$ ha ka kynjang ba 500m. Kumta, ka jingtah jong ka PM10 na ka daw ki kali kit tiar kan duna. Ha kaba ia dei bad ka jingkiew ka NOx, kan dei kumba 0.13 ha ka kynjang ba 25m, 0.11 $\mu\text{g}/\text{m}^3$ ha ka kynjang ba 50m bad 0.10 $\mu\text{g}/\text{m}^3$ ha ka kynjang kaba 1km, kaba pyni ba ka duna bha.

6.8 Ka jingtah na ka jingsawa ha ka por ba pyntrei ka projek.

Kan don ka jingkiew ha ka jingsawa ha ka por ba tei ia ka projek ka ban dei tang shipor katba nang pyn iaid ki jingtrei. Ka jingsawa kan ym kiew palat ia ka 71 dB(A) bad kan nang iai duna sha ka 45 dB(A) ha ka kynjang ba 300m, 39 dB(A) ha ka jingkyngjang ba 600m bad 33 dB(A) ha ka jingkyngjang ba 1200m na ka dam.

6.9 Ka jingtah na ka jingkhynniuh ka khyndew bad lyer ha ka por ba pynbthei maw haba pyntrei ia ka projek.

Haba tei ia ka projek, kin don ki jingkhynniuh na ki jing pynbthei (blasting), bad Ki ppv (peak particle velocity) kan long 0.67 mm/sec ha Siangkhnai bad 0.53 mm/sec ha Moosakhia, kiba long hapoh ka kyndon ba lah buh kaba long 5.0 mm/sec ia ka 'excitation frequency' ba duna ia ka 8 Hz ia ki jingtei ba shipor. La antad ba ka jingsawa na ki jing pyn bthei ha Siangkhnai bad Moosakhia kin kot sha 105.2 dB(A) bad 103.3 dB(A).

6.10 Ka jingtah ia ki um ki wah ha ka projek

Ha ka por ba tei ia ka projek, kan sa don ka jingtuid jong ka khyndew (sediment) sha ka wah Umngot. Ia kane ka khyndew ba tuid yn pynkhuid shwa ha ki tank ba la shna kyrpang, ha kaba yn weng noh ia ka khyndew da kaba ai lad ba kan hiar sha trai bad pyllait pat ia ka um ba kham sngur sha ka wah. Ka jingmih ka um jakhlia na ki mashin khleh dew bilat, ki kor tylliat maw, kan pynjur ruh ia ka jingtuid khyndew naka daw ka jingsait ia ki mashin bad ka jingsait ia ki mawria.

Ynda la dep den ia ka dam bad pyniaid ia ka jingpynmih bording, kan don ka jingpyllait khyndiat ia ka um (environmental flow) sharum ki bynta ka dam kumba 20 km ka lynti iaid ka um ban iada ia ki jingim na ka jingtyrkhong noh jong ka wah kaban long kumba 0.37 cumec ha ki bnai bym wan u slap (January-April), 3.43 cumec ha ki bnai ba duna slap (non-monsoon) bad 10.33 cumec ha ki bnai slap (monsoon).

6.11 Ka jingtah ia ki jingthung ki syntiew ki skud ha ka projek.

Hadien ki jingwad bniah, la lap ba ym don ki dieng ki siej ne ki phlang kiba la jan duh jait ha katei ka jaka ban tap ka um ne hajan ki jaka jong ka projek. Ki jingthung ki ban sa shah tap ha ka um bad ha ka jaka projek ki dei kiba roi bha shawei shawei bad kumta, kan ym don ka jingduh ba khraw ia ka mariang. Wat la katta, ia ki jingthung ban duh noh ha ka por ba tei projek yn sa pynmih bujli noh sha kiwei pat ki jaka sha kiar bad kliar jong ka dam ynda la dep ki jingtei ia ka projek. Ki jingthung kin nang roi bun shah hadien ba lah dep tei ia ka projek lyngba ki prokram thung dieng hapoh ka 'Catchment Area Treatment Plan', 'Reservoir Rim Treatment Plan', 'Green Belt Development Plan' bad ki prokram 'restoration and landscaping' ban pynitynnad biang ia ka jaka.

6.12 Ka jingtah ia ki mrad ki mreng ha ka projek.

Namar ba ka jaka ban tap um kan dei kaba rit, ka jingtah kan dei kaba malu mala kaba nym pynkylla ia ki jaka shong jaka iaid ki mrad. Kan ym don ka jingthut ia ki jaka shong ki mrad kiba lah jan duh jait. Hajan ka jaka projek ym shym don ki 'Wildlife Sanctuary', 'National Park' ne 'Biosphere Reserve'. Ka jaka kaban sa shah tap ha ka um kan dei khyndiat sharud arliang jong ka wah bad kan ym ktah ia ki thapbalieh kiba don hangto. Ka jingtah ia ki mrad ki mreng kan long tang shipor ha ka por ba tei ia ka projek namar ka jingwantuid ki nongbylla bad ka jingsawa kiba mih na ki jingtrei, ka jingpynthut ia ki mrad ka lah ban kiew naka jingdon ki briew bad ka jingsiat mrad kan kiew. Ka jingden ka um kan pynbun ia ki sim ieid um, ki jing thaw ba im ha um, ki dohkha bad ki jingim ba par bad kan long ruh ka jaka ba roi bad pahuh ha ka jingbam na ka bynta kine ki jait mrad. Ki thapbalieh kiba don hajan ka dam kin nang roi bad ki diengrit ruh kin roi naka jingsngem/jinglhong jong ka jaka hajan ka dam. Ka jingdon jong ka dam kan ktah ia ka lynti iaid jong ki dohkha na shapoh ban poi shajrong jong ka dam.

6.13 Ka jingiathuh lyngkot na ka jingmyntoi bad duh jingmyntoi na ka jingwan ka projek.

Ki jingioh jingmyntoi:

- Ka jingmih bording ka ban kot sha ka 708.98 MU ha ka 90% dependable year
- Kin don bun ki lad ha ki kam thung ka thung jam hapoh ka projek ia ki nongshong shnong
- Ka leit ka wan, ki surok ki lynti ki syngkien, kin kham bha shuh shuh na ka jingwan ka projek lyngba ki scheme bap her bap her bad kane kan kyntiew ia ka ioh ka kot jong ki bried kiba shong ha kito ki jaka.
- Ka jingplie lad plie lynti ban kamai kajih lyngba ka jing wan jong ki nongjngoh pyrthei (tourism).
- Jingroi jong ka mariang lyngba ki prokram thung dieng hapoh ka 'Catchment Area Treatment Plan', 'Reservoir Rim Treatment Plan', 'Green Belt Development Plan' bad ki prokram 'restoration and landscaping' bad kiwei kiwei ban pynitynnad shuh shuh ia ki jaka sawdong jong ka projek.
- Bad kiwei kiwei ki jingmyntoi.

Jing duh jing myntoi:

- Ka jingpynkylla noh ia ka wah sha ka pung ha ki katto katne ki bynta jong ka wah ban tei dam.
- Ka jingktah ia ka jaka ki bried kiba dei na ki 13 tylli ki shnong ha kaba thied duh ban tei ia ki jingtei ba donkam ha kane ka projek.
- 378 tylli ki longing kin shah ktah lyngba ka jingthied duh noh ia ki jaka jong ki ban tei ia ka projek.
- Ka jingduhnoh jong ki jaka rep (152.43 Ha) bad ki jingthung ba rep.
- Jingduhnoh jong shi bynta jong ki khlaw ki ban hap pom ban shna ia ka dam bad kiwei pat ki jingtei ia ka Umngot projek.
- Kan don ka jingpynthut ia ki mrad ki mreng ha ka por ba shna ia ka projek.
- Kan don ka Jingsniew ki lynti synkieng na ki jingiaid ki kali kit tiar ki tar ban pynpoi ha ki jaka ba shna ia ka projek.

7.0 Ki lad ki lynti ban pynduna ia ki jingktah na ka projek

Ban pynduna na ki jingktah kiba mih na ka jingtei ia ka projek bad ban kyntiew ia ka roi ka par kan don ka jing pyn biang pat ia ki jaka ba shah ktah. Halor kane, kan don ka 'Environment Management Plan' ki ba yn pyntreikam ha ka por ba sdang tei bad hadien ba la dep pyntrei ia ka projek. La mang kumba Rs 39399 lakh ban pyntrei lyngba ka 'Environment Management Plan'.

KA BYNTA BA –II.

ENVIRONMENT MANAGEMENT PLAN (Ka plan ban pynbha ia ka jinglong ka mariang).

1. KA CATCHMENT AREA TREATMENT PLAN

(KA JINGPYNKHREH BAD IADA IA KA JAKA HA KABA KA UM SLAP KAN WAN)

Ka Catchment Area Treatment (CAT) Plan, kaba donkam ban pynbha pat ia ka khyndew, kyrpang eh ha ki thain ri lum jong ngi, ban iada na ka jingtuid ka khyndew (soil erosion) bad ia kane ka jingwad bniah la kynthup kum shi bynta jong ka Catchment Area Treatment Plan. Ka jinglut baroh hapoh kane ka plan kan long 2917 lakh tyngka. Ka jingtuid khyndew ha ki jaka lum jong ka catchment ka dei bunsien na ka daw u slap/umslap, bad ki long ki ba jia khari khari, kumba la shem ba ka jingwad bniah. Ka jinghap u slap ha ka shi snem hapoh ka Catchment area (ka jaka ha kaba ka um slap bad ki wah ki tuid sha dam) jong ka Umngot HE Projek ka ia pher hapdeng 2890 – 4904 mm ha ki snem 1991-92 bad 2005 – 2006.

Ka CAT Plan, kumta, kan wanrah ia ka rumkom iada lane pynduna ia ka jinghap khyndew ha kane ka Catchment jong ka Umngot Projek. Ka CAT plan ka kynthup kumno ban sngewthuh ia ka rukom tuid ka khyndew ha ki lum, jaka khlaw, jaka kham madan, bad ban ai jingmut ruh kumno ban iada na kata. Ha ka jingwad bniah ba mynta la pyndonkam da ka SYI “Silt Yield Index”. Lyngba kane ka rukom khein la phiah ia ka jinglong ka lum ka wah (terrain) sha ki Sub-Water sheds (shnat wah) kiba rit barit, bad ia ka rumkom tuid khyndew la ioh jingkhein da ka ba ia nuor lang baroh. Ka SYI ka wanrah ia ka jing ianujor ka rukom wan tuid khyndew ha ka catchment area ha ki jaka ba duna, ba pdeng, ba jur baroh bad kiwei kiwei.

Ki prokram pyntrei kam hapoh ka Catchment Area Treatment Plan ki long kine harum:

1. Prokram thung dieng (afforestation program)
2. Prokram ban nang pynrben ia ki khlaw ki btab(enrichment plantation)
3. Ki lad ban pynneh ia ka khyndew bad ka um (civil engineering measures under soil and water conservation measures)
4. Ki prokram ban iada na ka rep shyrti (control of shifting cultivation)
5. Prokram ban thung mar rep (crop management)
6. Prokram ban thung phlang ban bam ki mrad (silvi-pasture plantation)
7. Prokram ban thung kynbat dawai (medicinal plantation)
8. Training prokram
9. Bad kiwei kiwei

2. KA JINGTHUNG DIENG NA KA BYNTA BAN PYNBIANG IA KITO KI JAKA KHLAW KIBA LA SHA KTAH HA KA PROJECT (COMPENSATORY AFFORESTATION)

Ha ka jaka kaba 93.53 Ha la pynmang na ka bynta ka jingthung bujli ia ki dieng na ka daw jong ka jingshah tap noh ki dieng ki siej hapoh ka pung ha ka por ba pyndap ia ka Dam, kata, ka khlaw rben (12.91 Ha) bad ka khlaw stang (80.62 Ha). Ka jinglut ban thung dieng baroh kan long 2308 lak tyngka. Ka jingthung ia ki dieng kan long ha ki jaka bym don jingrep jingriang. Ki ar tylli ki jingthmu ia ka jingthung dieng ka long ban pynbiang pat ia ka jingduh ki khlaw kiban shah tap noh hapoh ka pung. Nalor kata, ka jingthung ia kine ki dieng kan iarap ban pynneh ia ka khyndew ka shyiap ha ka Catchment Area bad kan iada ia ka pung na ka jingwan kyrthep ki shyiap ba ni, khyndew

pui pui bad ka khyndew ktieh. Ia ka jaka kaba 93.53 Ha, yn aiti sha ka State Forest Department ban thung dieng bad leh ia ba donkam.

3. KA BUIT PYNNEH PYNDAH IA KI JINGTHAW BA IM HA KA MARIANG (WILDLIFE AND BIO-DIVERSITY MANAGEMENT PLAN)

Hadien ka jinglum jingtip ia baroh ki jait jingthung bad jait mrad (REET species), lah rai ban khmih bniah na ka por sha ka por da ki jingthmu (plans) ban pynneh pynsah ia ki mrad bad ban ai jingiada ia ki REET species (ki mrad bal ah jan duh jait). Ka jingmang pisa na ka bynta kane ka long 100 lakh tyngka da ka jingpyntrei kam ia ka Biodiversity wildlife conservation plan.

4. KI LAD BAN SIEW IA KI JAKA PUTA JONG KI BRIEW BA SHAH KTAH (RESETTLEMENT AND REHABILITATION PLAN)

Ki jaka kiba don kam ban thied ban shna ia ka Umngot HEP ki kynthup ia ki jaka ban shah tap noh ban shna ia ka dam, ban shna ia ka power house, ki iing sah (project colony), kiwei kiwei ki jingtei kum intake, tunnel, surge shaft, surok bad kiwei kiwei. Na ka bynta kine donkam kumba 296.97 Ha ka jaka paidbah. Ia ka dor bai jaka la buh da ki Deputy Commissioner jong ka East Khasi Hills District bad ka West Jaintia Hills District. Ka jinglut baroh na ka bynta ban thied ia ka jaka rep jong ki riew shimet bad ki scheme (R&R entitlement & Tribal Plan) kaban kyntiew ia ka ioh ka kot bad ka koit ka khiah jong ki riwulum kan long Rs 30417 lakh tyngka. Ia ka rukom khein ia ka bai jaka bad ki bai jingthung jingtep la shim na ka "The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act,2013", (RFCTLARRA 2013) kaba la pyntreikam naduh 1.1.2014 ba la pynmih hukum da ka sorkar India. Ia kane ka Act la pynskhem kat kum ka "Meghalaya Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Rules, 2017" bad ia kaba dei ban bud ryntih.

5. KA JINGTHAW BUIT BAN PYNJYRNGAM IA KA MARIANG (GREEN BELT DEVELOPMENT PLAN)

Ka jingpynjyrngam ia ka mariang (green belt) kan iarap ban pynbiang ia ka jingiadei ki jait jingim ka mariang. Ban pynurlong ia ka Green Belt Development Plan, yn pyndonkam da ki jait symbai kiba iahap bad ki jaka ba la thmu ban thung ha ka projek area, ki iingsah briew bad harud ki surok ka projek. Ki jait jingthung lah ban ioh na ka social Forest Department bad ruh na ki jaka sara jingthung jong ki briew. Ki jait jingthung ki dei ban long kiba im ha kito ki jaka. Ka jaka thung jingthung la mang kumba 30 Ha. Ka jinglut na ka bynta ban thung dieng kan long kumba 76 lakh tyngka.

6. KA BUIT BAN IADA PYNBHA IA KI RUD KI KIAR JONG KA PUNG UM. (RESERVIOR RIM TREATMENT PLAN)

Hadien ki jingwad bniah ha shilynter ka wah Umngot ban lap lada don ne em ki jaka kiba ma lane ba twa ha ka lynter baroh sawdong ka dam, la lap ba ym don ki jaka kiba don jingma bad twa. Wat la katta, ngi la shim ki lad jingiada lada don kano kano ka jingtwa hadien habud na ka daw jong ka jingkiew jinghiar ka um ha ka pung. Ka Reservoir Rim Treatment Plan ne ka jingsumar ia ki phud wah, ki rud ki kiar, kan iarap na ka jingtwa khyndew bad pynroi ia ka jingjyrngam ka Mariang. Na kane ka bynta la mang kumba 85.00 lakh tyngka.

7. KA BUIT TREIKAM BAN PYNNEH PYNDAH BAD PYNROI IA KI DOHKHA DOHPNAT (FISHERIES MANAGEMENT PLAN)

Kane ka buit treikam ka kynthup ia ka ban ai ia ki jait training sha ki Seng nongri dohkha, ban pynkha pylleng ia ki dohkha ha ki jaka kha pylleng ban jied ia ki symbai dohkha bad ban ai ia ki tiar tong dohkha kum ki jar, ki lieng tong dohkha bad kiwei kiwei. Ka jinglut baroh ban thaw ia ka jingri jingpar jong ki dohkha (fisheries development) na ka bynta kan poi 192 lakh tyngka. Kane kan iarap ia ka jingroi jong ki dohkha ha ka jaka ba don um shibun shah.

8. KA BUIT TREI KAM BAN BRET BAD THEH IAKA KHYNDEW KABA MIH NA KA JING PYNTREI IA KA PROJEK (MUCK MANAGEMENT PLAN)

Ban tei ia ka Umngot HEP, donkam ban tih bad khlong shabar ia ki maw, ka khyndew na ka jaka ban den ia ka dam, shna ia ka intake, ka surface power house halor ka khyndew, coffer bunds bad ruh ban tih na shapoh ia ki maw bad ka khyndew (underground) ban tei ia ki tunnel, surge shaft, adit bad kiwei kiwei. Ia ki maw bad khyndew ba lah ban pyndonkam biang yn pynlang ha ki jaka ba biang. Ia ka khyndew ka bym lah pyndonkam biang (muck) yn hap bret bad theh ha ki jaka ba la shna bad buh kyrpang ha kata ka rukom ban ym pynsniew ia ka mariang bad ka um.

Hadien ka jingwad bniah, la lap ia saw tylli ki jaka ba lah ban bret ia ka khyndew ba tam bad hadien ia kine ki jaka yn pynwan dur bad pynitynnad biang. Ka jinglut jingsep na ka bynta ka jingtheh ia ka khyndew kaba tam kalong 912 lak tyngka kynthup lang iaka jingshna kynroh mawthup bad kaba pynkit ia ki khyndew ba tam na kine ki jingshna. Kajing pyllut ka kynthup ruh ia ki jingsumar ia ki jingthung jingtep, ki dawai da shin, jingker bad kiwei kiwei.

9. KA BUIT TREI KAM BAN PYNBHA BAD PYNITYNNAD IA KI PAR MAW PAR SHYIAP (RESTORATION PLAN FOR QUARRY SITES AND LANDSCAPING)

Katto katne ki mawria ba donkam ban shna ia ka dam, iing pynmih bording (power house) bad kiwei ki jingtei lah ban ioh naka jing tih ia ki maw bad ka khyndew na ka bynta ka nongrim jong ka dam, nongrim jong ka power house, ki thliw um heh (tunnel). U maw uba biang u ba mih nangne lah ban pyndonkam ban khleh lang bad ka dewbilat (surki). Ki par maw la dep jied ki dei hajan bad shaneng jong ka wah Umngot kiba lah ban sa shah tap noh hadien. Ia ki par shyiap la jied ban khlong bad khad na ka wah Umiew ha East Khasi Hills District bad na Kharkhana ha West Jaintia Hills District. Ia kine ki par yn sa pynwandur biang da kaba pyndap khyndew ban ioh thung dieng bad pynieng ki kynroh maw bad ki nala. Na ka bynta kane ka plan la mang 78 lakh tyngka.

10. KA BUIT TREI KAM BAN IADA NA KA JINGPYNJOT IA KA MARIANG (DISASTER MANAGEMENT PLAN)

Ka jingjot bunsien ka dei na ka daw jong ka jing bym shim khia ia ki lad ki lynti ban iada bad kane kan wanrah ia ka jingduh ba khraw la ha ka jingduh ia ki mynsiem brierw ne ki jingdon jingem bad teng teng ka jingjia nemsniew ka wan na ki daw jong ka mariang. Kumta ha kane ka report la pyni ia ki bynta kumno ban pyntrei kam lada ki jingpynjot ia ka mariang ki wan jia da ka buh bad bud ryntih ia ki jing bthah. Kine ki kynthup ia ka flood forecasting, Emergency Action Plan, evacuation plan, fire detection and protection system, portable fire extinguishers, communication facilities, emergency power supply, emergency safety equipment, emergency alarms. Kin don ruh ki training ba kyrpang bad ka jingiashim bynta na kiwei ki department ban pynbit pynbiang. Na ka bynta kane ka plan lah mang 75 lakh tyngka.

11. KA BUIT TREI KAM BAN PEIT BNIAH IA KA UM, KA LYER BAD KA JINGSAWA(WATER, AIR AND NOISE MANAGEMENT PLAN)

Ha ka por ba dang pyntrei ia ka projek, kan don ka jingktah shipor ia ka lyer naka daw ka jingsawa bad ki tдем ki ban mih na ki kali bad ruh de ki pum pum, ki pui pui kiban mih na ki jingpynbthei maw lane ki jingtih ia ki maw bad ka khyndew, kum ha dam, tunnel, power house, etc. Ka jingmih ka um jakhlia na ki jaka tih maw, jaka shoh maw kan pynjur ruh ia ka jingtuid khyndew naka daw ban sait ia ki mawria ki maw ki shyiap ki tiar ki tar bad kiwei kiwei. Kumta, kane ka plan kan peit bniah ia baroh ki bynta ki ban shah ktah ia ka lyer, ka um ne ka jingsawa da kaba buh ia ki kor thew ia ka lyer jaboh, ka um bad ka jingsawa ba kan ym dei ban ktah ia ka koit ka khiah jong ki brierw. Na ka bynta kane ka plan lah mang 62 lakh tyngka.

12. KA BUIT TREI KAM BAN KYNTIEW IA KA KOIT KA KHIAH U PAIDBAH (PUBLIC HEALTH MANAGEMENT PLAN)

Ka koit ka khiah ka long kaba kordor tam ha ka jingim ki briew. Kumta ha ka por shna ia ka project kala don ka scheme ban buh noh ia ki jaka sumar pang kaba biang ha ka jaka ba don ka projek. Kan sa don ka jaka sam dawai ha ka pyntrei ia ka projek, ki lad iarap ba kyrkieh ha ka por ba pyntrei ia ka projek khnang ba ka lah ban ai jingmyntoi ia ki nongtrei kiba wan sha kane ka jaka bad kumjuh ruh ia ki nongshong shnong ba marjan. Donkam ruh ban buh ia ki tin buh dawai ha man ki jaka ba trei khnang ba ia ki nongtrei kiba ngat na kino kino ki jingmysaw lah ban iarap kloï hangto hangto. La mang Pisa 334 lak tangka na ka bynta ka jingpyniaid ia kine ki kam bad jinglut ia ki nongtrei, Ka plan ka kynthup ruh ia ka sam dawai ia ki nongtrei, ia ki trai jaka ba shah ktah bad ki nongshong shnong hapoh 6 snem. Kin don ruh ki camp ban ai jinghikai shaphang ka koit ka khiah bad ban ai injection ban iada na ki jingpang. Kumjuh ruh, ban siat dawai ha ki jaka ba shong ki khniang jingpang.

13. KA BUIT TREI KAM NA KA BYNTA KI NONGBYLLA/NONGTREI (LABOUR MANAGEMENT PLAN)

Ha ka por ba pyntrei ia ka project, kin don bun ki nongtrei/nongbylla kiban wan na jan bad na jngai bad kumjuh ruh na shabar jong ka State. Ia kine ki nongtrei dei ban khmih bniah bha ha kaba iadei bad ka kot ka khiah bad ban iada na ki jingma ki ba lah ban jia (occupational hazards). Ki nongpyniaid ia ka projek kin peit ba ki license jong kine ki nongtrei kin dei kiba bit bad kumjuh ruh ki nongai kam ki dei ban pyniaid bad bud ryntih ia ki kyndon ba la buh ka sorkar. Kumta, kane ka Plan kan iarap ban peit ia baroh ki liang na ka bynta ka bha ka miat jong ki nongtrei. La mang pisa 55 lak tangka na ka bynta ka jingpyniaid ia kine.

14. KA JINGLEKHUID HA KABA BRET JABOH BAD LEITSHABAR (SANITATION AND SOLID WASTE MANAGEMENT PLAN)

Barabor ha ka por ba pyntrei ia ka projek, kan don bun ka jingwan ki nongtrei naduh ki Officer ki Staff bad ki company ban pyntrei ia ka projek. Kan don ka jingmih ki um jakhlia (sewage) badki jaboh batylli na ki ing ba sah ki nongtrei ha ka por ba shna ia ka projek. Kumta la donkam ban shna ia ki jaka pyllait um jaboh bad ki jaka bret jaboh ban ym ktah ia ka koit ka khiah ki briew bad ia ka jaka baroh khnang ban nym pynsaphriang ia ka jaboh. Ia ka um jakhlia ba mih na ki jaka sah ki nongbylla, dei ban pynjar ha ki septic tank. Ia ki septic tank dei ban shna ha ki jaka ban nym pynjakhlia ia ka um bam um dih. Yn sam ruh ia ki dustbin ia baroh ki colony bad thung ia ki nonglum jakhlia kiban peit ia ka jingkhuid jingsuba jong ka jaka. Yn shna ruh ia ki jaka leit shabar paidbah.

Ka jingmang baroh ba donkam na bynta kine ki jingpynbiang kan long kumba T. 232 lak.

15. KA BUIT TREI KAM BAN KYNTIEW IA KA ROI KA PAR HA KI SHNONG KI THAW (LOCAL AREA DEVELOPMENT PLAN)

Kino kino ki ban pyntrei ia ka ne ka projek (project developer) ki dei ban peit ia ka roi ka par jong ki shnong ki thaw ba shah ktah ha ka projek da kaba tei ruh iaki kam pynroi ha kijaka ba ibiang. Ka jing tei ia ki kam pynroi kam don jingiadei eiei bad ki jing siew ia ka jaka ka puta, ki jingthung jingtep bad kiwei kiwei jong ki trai jaka(affected families). Ia ki jing donkam ba kham bniah ynsa pyntreikam katkum ka jingiakren ne jing ia tai ha ka public hearing bad kat kum ka jing donkam ka dong ne ka thain jong ka jaka.

Katkum ka shithi O.M.F.No.22-65/2017-IA.III, Dated 30 september, 2020, kino kino, ki jing pynsgew ha ka Public Hearing bad ba la kular ban peit bniah da ki nong pyntrei ia ka projek ha dien ka jing ia tai sani bha bad kine ki jing kular kin kylla long ki kyndon ba hap ban pyntrei kam ha ka por ba pan jingkyrpad naka bynta ka Environmental Clearance bad yn pyntrei kam da ki nong pyniaid ka projek ha poh ka skhim Local Area Development Plan. Namar

kata baroh ki jait kam ban pyntrei kin shong nongrim ha ka jing ia pyni pyrthew bad ha ka jing ai jing mut, ha ka por ba pynlong ia ka Public Hearing.

Ka jingmang baroh ba donkam na bynta kine ki jingpynbiang kan long kumba T. 1284 lak.

16. KA PLAN BAN IADA IA KA SAWDONG SAWKUN KA PROJEK (ENVIRONMENTAL SAFEGUARDS DURING CONSTRUCTION ACTIVITIES)

Ha ka por ba tei ia ka projek, ka jingpyntrei ba bun bah ki jait jingtrei bad ia ki surok kan wanrah ia ka jingtuid khyndew bad ka pynmih ia ki pumpum kaba ktah ia ki briew bad ka mariang kumjuh. Ban pynduna ia kane ka jingktah, dei ban shna ki kynroh maw, ki nala um bad ban thung da ki phlang bad ki jingthung harud ki surok. Ban pynduna ia ka jingmih pum pum yn hap synreit da ka um ia ki surok. Ka jingmang pisa baroh ba donkam na bynta kine ki jingpynbiang kan long kumba T. 150 lak.

17. KA BUIT TREI KAM BAN TYNGKAI IA KA JINGPYNDON KAM THUNG DIENG HA KA SHET KA TIEW (ENERGY CONSERVATION MEASURES)

Ki nongtrei hapoh ka projek ki dei ban nym pyndonkam da ki dieng ki siej ha kaba shet jingshet. Ban lait ia kane yn ai jingiarap ia baroh ki nongtrei kiba don ha ka projek da kaba pyndonkam da ka LPG gas, ka umphniang sharak, solar power bad khamtam da ka bording elektrik ha ka shet jingshet. Ia ki bulb light ruh yn sam da ki CFL/LED bulb ban pynduna ka bam bording bad ban ioh ruh ha ki dor kiba bit.

Ka jingmang baroh ba donkam na bynta kine ki jingpynbiang kan long kumba T. 62 lak.

18. KA BUIT TREI KAM NA KA BYNTA KA JINGKHMIIH BNIAH IA KI KAM (ENVIRONMENTAL MONITORING PLAN)

Ka jingkhmih bniah ia ki mat ba ktah ia ka um, ka lyer, ka jingsawa, etc. bad ban pynduna ia kum kita ki jingktah ia ka mariang dei ban pyntreikam ha ka por ba tei ia ka projek bad hadien ba lah dep tei ia ka. Na kata ka daw, yn buh ia ka 'Monitoring Committee' kaba dei ban peit bniah ia ka jingpyntreikam (implementation) ia ki scheme kat kum ka Environment Management Plan.

Na ka bynta ka prokam ban khmih bniah ia ka jinglong ha kine ki thain la mang 60 lakh tyngka.

Ka jingkyllum jong ki jinglut jong ka Environment Management Plan lah pyni harum ha Table 2

Table 2: Jingkyllum jong ki jinglut jong ka Environment Management Plan

S. No.	Plans	Cost (Rs. Lakh)
1.	Catchment Area Treatment Plan	2917.00
2.	Compensatory Afforestation Scheme	2308.00
3.	Wildlife and Bio-diversity Management plan	100.00
4.	Resettlement & Rehabilitation Plan	30417.00
5.	Green Belt Development Plan	76.00
6.	Reservoir Rim Treatment Plan	85.00
7.	Fisheries Management Plan	192.00
8.	Muck Management Plan	912.00
9.	Restoration Plan for Quarry Sites and Landscaping	78.00
10.	Disaster Management Plan	75.00
11.	Water, Air and Noise Management Plan	62.00
12.	Public Health Delivery Plan	334.00
13.	Labour Management Plan	55.00
14.	Sanitation and Solid Waste Management Plan	232.00
15.	Local Area Development Plan	1284.00
16.	Environmental Safeguards During Construction Activities	150.00
17.	Energy Conservation Measures	62.00
18.	Environmental Monitoring Plan	60.00
Grand Total		39399.00