

Executive Summary of EIA Report (Mizo version)

For

Development of Landfill Site for Aizawl City

[F. No.10-73/2010-IA-III]



For [SIPMIU (NERCCDIP) Aizawl]

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Proponent

1. He IEE report buatsaih hi, Aizawl khawpui chhunga Bawlhhlawh, nitin ton 125 insiam thin thenfai leh sawngbawlna hna (Solid Waste Management) tihpuitlinna atana siam a ni. Initial Environmental Examination (IEE) hi Aizawl Solid Waste Management Subproject atana siam niin, a tum langsar ber te chu (i) mumal leh awmze nei taka bawlhhlawh khawn khawm leh kimchang taka a phurh dan ruahman; (ii) garage leh bawlhhlawh phur, motor te leh lian chi inbanletna hmun sak; (iii) bawlhhlawh zawng zawng sawngbawlna hmun (landfill) siam; leh (iv) bawlhhlawh leh a kaihnawih chungchang a zirtirna pek.
2. Environmental Management Plan (EMP) chu he report atan hian rawt a ni a, chu chuan a ken tel te chu (i) hnathawh kalpui chhunga environment khawihbuai thei laka invenlawkna leh chumi laka invenna tur ruahman; (ii) environment chhuizuina program, leh chumi in a ken tel laka invenlawkdan te, a enpui hna te leh report zel te; leh (iii) mipuite thurawn lak, hnathawhna kaihnawih apiang hriattir, harsatna leh thubuai thlenna (grievance redress mechanism) buatsaih.
3. Executing Agency atan Urban Development & Poverty Alleviation Department (UD&PA) Mizoram sorkar chu ruat a ni a; Implementing Agency atan Investment Program Coordination cell siam a ni. NERCCDIP aiawh a project inrelbawlna leh hnathawh enkawl leh tihpuitlin hna chu State-level Investment Program Management and Implementation Units (SIPMIU) in a kalpui a ni.

Background

4. India ram Sorkar laipui chuan hmarchhak bial ram ten ei leh bar lama hmasawna leh intodelhna nei turin hma a rawn la a. Sorkar chuan Asian Development Bank (ADB) chu pui turin a sawm ta a. Hemi bawhzui hian ADB chuan advisory technical assistance (ADTA) rawn tir in India ram hmarchhak bial te chu a rawn zir (sector study) chiang a, kum 2003 December thla khan zawhfel a ni ta a. Sector Study chuan hmarchhak ram bial pariat te vantlang khawsak phung leh ei leh bar dinhmun te zirchiangin infrastructure development programs kalpui dan tur te a duang ta a, inzirtir lam uar te, environmental leh khawtlang dinhmun chawikan te a tum ta a ni. Tichuan ADB chuan Project Preparatory Technical Assistance (PPTA) a ruahman ta a, he ruahmanna hnuaiah hian a taka kalpui tu tur investment program North Eastern Region Capital Cities Development Investment Program (tuna NERCCDIP / Investment Program tih tak) chu a lo piang ta a. chu chuan heng hmarchhak bial ram panga Agartala (Tripura), Aizawl (Mizoram), Shillong (Meghalaya), Kohima (Nagaland), leh Gangtok (Sikkim) te hmasawna turin infrastructure leh services leh management ah te hma a la ta a ni.

North Eastern Region Capital Cities Development Investment Program (NERCCDIP) chuan hmasawna chen fakawm tak heng khawpui Agartala, Aizawl, Kohima, Shillong leh Gangtok te hian an neih theih nan urban infrastructure sectors lamah investments a ruahmanna kalpui a ni. NERCCDIP chuan kum 2010 atanga tan in kum ruk chhunga zawhfel turin bul a tan ta a, Asian Development Bank (ADB) hnuaia Multitranch Financing Facility (MFF) in loan hmangin sum a tumsak ang.

5. Detailed design hi kum 2010 kumtawp ah tan niin kum 2011 march thla ah zawh fel a ni. Hna hi kum 2011 tawp lamah tan tum a ni a, thla 12 chhungah zawh hman tur a ni. Kum 2012 tawp ah chuan hna hi thawh zawh hman vek tura ngaih a ni.

1. Subprojects tuam tur te chu (i) mumal leh awmze nei taka bawlhhlawh khawnkhawm leh kimchang taka a phurh dan ruahman; (ii) garage leh bawlhhlawh phur, motor te leh lian chi inbanletna hmun sak; (iii) bawlhhlawh zawng zawng sawngbawlna hmun (landfill) siam; leh (iv) bawlhhlawh leh a kaihhnawih chungchang a zirtirna pek.

2. **Mumal leh awmze nei taka bawlhhlawh khawnkhawm.** Awmze nei tak a Bawlhhlawh bawm leh wheelbarrows te ngaihtuah sak ani ang a chumi piah lamah chuan uluk leh kimchang takin mipuite zirtirna leh hrilh hriatna nei chung zelin thurawn pawh engtiklai pawha dawnsawn reng tur a ni. Chung chuan a tum chu:

- (i) In tina lut kualin bawlhhlawh khawnkhawm hna hi hmalak tum a ni a, bul tan nan chuan in 2,000 vel Aizawl Municipal Council (AMC) huamchhunga mi thlan phawt a ni ang;
- (ii) Bawlhhlawh bawm 1,000, litre 30 dawng thei hi mipui punkhawmna lai deuha dah tum a ni;
- (iii) Nawrlirh (wheelbarrow) 250 vel hi hmun laili deuha sweeper te hman atan ruahman a ni bawk; leh
- (iv) Bawlhhlawh bawm lian 35, 4.5 cubic meter (m³) dawng thei te hi bawlhhlawh khawna in tina luh kual theih lohna hmun atan ruahman a ni ang.

3. **Kimchang leh felfai taka a phurh dan ruahman.** Kimchang leh felfai taka bawlhhlawh te phurh a nih thei ruahmannan tha tak siam a ni a, chungte chu khawl awmsa tihchangtlun leh awmze nei zawka motor tlan dan ruahman te a ni ang. Chung ruahmanna te chu:

- (i) Motor te chi (207 emaw a tlukpui) pasarih hi khawpui chhunga motor lian luh theihlohna hmunah nitin bell tiri chungin a tlan thin ang.
- (ii) Tipper motor mahni a inbun thei chi cubic meter 5 vel tal phur thei sawmhnih leh pasarih chu in tinah kal kualin bawlhhlawh an khawn khawm anga, chumi zawhah motor lian nena inbanletna hmun (transfer station) an pan khawm thin ang.
- (iii) Motor inbanletna hmun (transfer station) atang hian Tipper motor lian chi cubic meter sawm atanga sawm leh panga tal phur thei motor pasarih in bawlhhlawh sawngbawlna hmun (landfill site) a phur thleng thin ang.

Garage leh bawlhhlawh phur, motor te leh lian chi inbanletna hmun sak: - Motor inbanletna hmun hi Bethlehem Vengthlang ah siam ani ang a, he inbanletna hmun hian motor te awlsam leh rang zawk leh hlawk zawkin bawlhhlawh a khawn khawm theih phah dawn a ni. Garage pawh hi he mi hmunah vek hian sak a ni ang a. motor leh lirthei chi hrang hrang te riahna hmun leh a chhe siam ngai pawh siam nghal na hmun ani ang. Wheelbarrow leh khawl hmang chi bawm te pawh he mi hmunah hian siam thin tur a ni.

Tawih tura buatsaihna hmanrua:- Tawih tura buatsaihna hmanrua (Compost Plant) nitin tawih thei chi reng reng ton 50 thliarhrang thei khawl chu bawlhhlawh sawngbawlna hmunah hian dah nghal a ni ang a, chu chuan leitha a siam thin ang.

Bawlhhlawh sawngbawlna hmun (Landfill) sak hna:- A hmun hi retaining wall a hungchhuah vek tur a ni a, a awih zual laiah chuan turfing tur a ni. Ruahtui hi Storm drain hmanga luantrin a thlang luikawr ah felfai taka luanchhuahna siam tur a ni. Hei hian leimin leh lei luangral tur lakah a veng ang. Buffer zone 20 m a hlai greenbelt pawh dah nghal tur a ni.

Bawlhhlawh sawngbawlna hmun atan hian Tuirial ram chu thlan a ni a, Aizawl khawpui atanga 20 km vela hla National highway 54 (NH-54) in a pawh a ni.

Bawlhhlawh leh a kaihnawih chungchang a zirtirna pek:- Hei hian a tum chu (i) Ram leh khawtlang himna khawichhe thei laka invenna chhuizui (safeguard compliance studies); (ii) Khawtlang mipuite zirtirna pek leh hrilh hriat (community awareness programs); and (iii) Mimal leh Pawlho anga tel ve na tur ngaihtuah (private sector participation opportunities study).

REQUIREMENTS FOR ENVIRONMENTAL CLEARANCE MAMAWH CHHAN

- a. ADB's Environment Policy :- He sub project ruahman hi Category B project a dah a ni a, chumi awmzia chu Environment nasa taka khawih buai thei thil anih vang ani, mahse Category A ai chuan a nep zawk a ni. Initial Environmental Examination (IEE) buatsaih atangin EIA hi a tul leh tullo enchinna neih hmasak phawt thin a ni a. EIA hi a tullo anih chuan IEE chu a tawk mai a ngaih a ni.
- b. GOI Environmental Policy :- EIA Notification tahrik ni 14th Sept.2006 a mitahrik ni 1-12-2009 a siamthat chuan EIA Notification kum 1994 a mi chu a luahlan a, chumi in a phut chu environmental clearance hi eng project leh hna lian reng reng chuan a nei hmasa phawt tur a ni. He Sub-project bik hi category B ah dah niin Environmental clearance SEIAA atanga nei tura phut a ni. Amaherawhchu Mizoram ah chuan SEIAA hi a la awmlh avangin Category A a dah a ni a, Environmental Clearance hi MoEF , New Delhi atangin neih a ngai.

PROJECT KENTEL BUNGRUA LEH HMANRUA CHI HRANG HRANG TE

4. Bungrua leh hmanrua mamawh te chu.

- (i) Approach road leh internal roads
- (ii) Compound wall leh boundary fencing
- (iii) Main entrance gate
- (iv) Bawlhhlawh bukna hmanrua (Weigh bridge)
- (v) Administrative office building/weighbridge operator's room
- (vi) Common toilets leh septic
- (vii) Security guard's room
- (viii) Bore well steel a tuam
- (ix) Hemi bakah hian hmun ruak 1,200 m² a zau bawlhhlawh thliarhranna hmun leh bawlhhlawh la hman leh tlak lak khawmna hmun. Lirthei silfaina hmun leh a park na hmun tur.
- (x) Electrical hna, street light leh building chung leh pawnlam atan.

PROJECT Mamawhte

End Products/By products

Bawlhhlawh sawngbawlina hmun leh hmanrua te hian nitin metric tones 125 khawpui bawlhhlawh a lut thin tura ngaih a ni a. Za a sawmthum vel chu a tawihralna hmunah dah ani ang a, za a sawm atanga sawmpanga vel chu a thliarhranna hmun leh la hman leh tlak dahna hmunah ani ang a. Heta bang zawng za a sawmnga/sawmruk vel chu Bawlhhlawh sawngbawlina hmunah chhilh tura paih ani ang.

Tui

Tui mamawh hi nitin litre 10000 vel bawlhhlawh sawngbawlina hmun atan te leh hnathawktu te hman atan a tawk tura ngaih a ni a, hei hi a bul hnai vai atanga hmuh mai theih tura ngaih a ni.

Power

Power mamawh hi a sang tehchiam lo a. Eng chit nan chuan electric dawn pangai hi a tawk mai a, leacheate treatment pump nan 2 HP motor a mamawh a. Heng power mamawh te hi Power & Electricity Department, Mizoram sorkar hnen atanga ngaihtuah tur a ni.

Kawng leh Side Drain

Project huam chhunga kawng siamtur reng reng chu uluk taka duan black top meter 4 a zau leh meter khat a zau a sir tawn tawnah a khuaptu a awm ang. Tui tha taka a inthlitfim theih nan camber 1 in 60 awiha siamin water bound macadam erawh chu 1in 40 a awiha siam tur a ni. Kawng chunglang drain te hi ruahsur tamlai ber milin siam tur a ni. Insak zawng zawng pawh ruahtui laka venna dithli farfem siamin side drain a tuihawk lut thei vek tura duan a ni. Side drain te cu kawng kama kawrpui ah felfai taka zawm vek tur a ni. Bawlhhlawh sawngbawlina hmun bik atan hian drain hmanga luankhawmna siamin chumi tlingkhawm chu leachate storage tank a pump luh leh tur a ni ang.

ENVIRONMENTAL SETTING OF THE STUDY AREA

Baseline environmental dinhmun chuichianna hi thawhkhatna leh thawh nhinna uluk taka on site-field zirchianna neih hnu ah leh hetiang lama mithiam agencies IMD te , Geological Survey of India, State Ground Water Department te, Central Ground Water Board te , State Pollution Control Board te, Census of India leh Mizoram Forest Department e observation atanga duan a ni. Heng a hnuai mite hi thlur binga zirchhian a ni:

- Air Environment (Meteorology, Ambient Air Quality, Noise Levels, Traffic Pattern, leh a dangte)
- Water Environment (Quality and Quantity of Surface and Groundwater sources)
- Land Environment (Geology, Hydrogeology, Landuse, Solid Waste generation and characteristics)
- Ecological Environment (Terrestrial leh Aquatic Flora & Fauna)
- Socio-Economic Environment (Demographic profile, Occupational structure, Educational status, Literacy status, etc.)
- Baseline environmental dinhmun chuichianna thawhkhatna leh thawh nhinna uluk taka on site-field zirchianna neihte chu a hnuai Table 1 ah hian ziahlan a ni.

Table-1 BASELINE ENVIRONMENTAL STATUS

SL. NO	ATTRIBUTE	BASE LINE STATUS
1.	Khawpui awmna hmun	Aizawl, Mizoram khawpui hi 92°30'- 92°60' E - longitude leh 21°58'- 24°85' N latitude inkar ah a awm a. Aizawl khawpui hi hmar – chhim zawngin a in khawh thla a, Mean Sea Level atanga teh in 700 m leh 1288 m velah a awm a. Lei lam ah kawngpui National Highway 54 (NH 54) in India ram dang te a pawh vek a. boruak atanga hnai ber chu Lengpui niin khawpui atanga 32 Km a hla a ni.
2	Hnathawhna tur rawtna hmun	Bawlhhlawh sawngbawlna hmun (Landfill) tuirial hi 23°44'28.08"N leh 92° 47'41.01"E ah awmin 1143 ft a sang a ni.
3	Lirnhing dinhmun	Aizawl khawpui hi Seismic Zone -V ah awm in, lirnhing thlen nasat theih ber leh thlen theih mai hlauhawmna ber hmun a ni.
4	Ram hmun hma sawifiahna	Mizoram hi tlang chhengchhe tak tak inbawh thua zut mai a ni a, heng tlang leh mual inkarah hian kawrte leh luidung in a vet chhuak vek a ni. A leilung tlangpui chu tlak ban leh lei thil/lung thil a ni a, ram leilung hi a upa lutuk lova ngaih a ni. Mizoram pumpui deuh thaw hi tlang a nih angin a sang pawh a sang hle a, Myanmar ramri hnaih lamah te phei chuan 6560 ft laia sang te a ni.
5		
6	Geology	Mizoram leilung hi a tlangpuiin lei leh lung nawi tla khawm / tlingkhawm (Sedimentary) Assam Shelf leh Assam-Arakan an tih ang hi a ni. Assam-Arakan sedimentary tlingkhawm chu shelf-slope-basinal system an ti a. He shelf hi Brahmaputra phairuam ah a in pharh thla duai a ni.
7	Geomorphology	Mizoram Geomorphology tlangpui chu, mual hrang hrang te a inthuah phei chhuak vek a ni. Mizorama tlangte hi a sanglai berah 1800m a ni a, a tlangpuiin 900 -1200m inkar a ni. Tichuan, Myanmar ram a hnaih telh telh a tlang pawh a sang telh telh a ni.
8	Mineral Resources	Mizorama mineral awm tamber chu lung chang a chhawng thumna hunlaia insiama ngaih a ni. Heng lung hmanna tlanglawn ber chu insakna leh kawngpui siamnan a ni. Amaherawhchu Report tam taka (Geological Survey of India leh State Geology and Mining Wing of Industries Department) a landan ah chuan thil hlu eng emaw zah hmun hrang hrangah awma hriat a ni.
9	Lei	Lei hi a inanglo nuaih a, a then balu anga thil hek hek chi anih laiin a then erawh chu tlak lei ban ang chi te a ni tlangpui ve thung. Leilung hi a nghet thawkhat a ngaih nimahse awih lutuk hmun leh ruahsur nasa ah erawh a nghet lutuk lemlo. Lei te hian tui an pai theilo tlangpui a tui a put tlang duh hle. Potash, phosphorous, nitrogen leh humus ang chi te hi a pai tlem hle mai a, hei hi lo atana lo hal kan chin thin avanga ngaih a ni. PH pawh acidic atanga neutral reaction niin hei hi lei hang tha a luangral nasat vanga ngaih a ni (Environment & Forest Department Report 2003). Mizorama lo hal chin thin anih avangin leilung te a khawih buai a thlai tharchhuah tur ang a thar theihloh phah a, lei a lo al phah a, lei tui pai leh hnawna a tlahniam a chumi piah lamah chuan lei hang tha ruahsur in a len bo zo thin a ni.

10	Sik leh Sa	Mizoram boruak hi a lum lutuk lo a, a vawt lutuk bawk lemlo. Kumtluanin a boruak hi a inthlak nasa lutuk ngai lemlo a ni. A ramchhung pumpui hi Chhim-thlang fur in a huam angin ruahtui hi a tam thei hle. A sik leh sa hi humid-tropical an tih ang hi a ni a, chuvangin thlasik a reilo a, Nipui leh fur a rei thung a ni.
11	Relative Humidity	Relative humidity chu khaw ro laiin 60 –70 % a ni a, fur lai erawh chuan 90% a ni. Chhim-thlang thli fur lai, February atanga April inkar hi khaw ro lai ber a ni a humidity chu 60 - 70 % a ni thin.
12	Temperature	Mizoram hi sik leh sa nuam tak niin, nipui ah a lum lutuk lova, thlasikah a vawt lutuk lo bawk. Thlasik hi October thla tawp lam atanga in tannin February thla tawp lamah a tawp a, a vawh lai berin 8° C atanga 24° C vel a ni. Nipui hi May thla laihawl vel a intanin a lum lai berin 18° C to 32° C vel a ni thung. Ruah sur mumal takna a nih vang hian boruak a nuam hle a ni.
13	Air Quality	<p>PM 10, :- Tuna kan dumping site Tuirial a kan neih NH-54 kal tlang hi maximum concentration (120 µg/m³) vel a ni a, hei hi permissible limit (100 µg/m³) aini a sang a, NH-54 traffic leh Municipal bawhlawh paih khawm te vang a ni. He proposed Landfill Site a lowest concentration chu (42 µg/m³) a ni. .</p> <p>PM 2.5 :- Tuna kan dumping site Tuirial a kan neih NH-54 kal tlang hi maximum concentration (67 µg/m³) vel a ni a, hei hi permissible limit (60 µg/m³) aini a sang hret a, NH-54 traffic leh Municipal bawhlawh paih khawm te vang a ni.</p> <p>SO_x:- Nitin a SO₂ concentration a average a endikna hmun hrang hrang atanga record ah chuan 5 -7 µg/m³ range-ah a awm a ni. Endikna hmun pakhat Vaitlangsam Ram Dr.Lalruanga huanah hi concentration sang ber 7 µg/m³ awmna niin, a concentration level hniamna ber chu tuna Proposed Landfill Site Tuiria. Proposed site a concentration level a hniam chhan chu ram ruak, traffic awm lohna, mihring chen lohna a nih vang a ni. A data pawh hi NAAQS standards limits for residential areas (80 microgram / cum)-ah a awm a ni..</p> <p>NO_x:- Data hian Vaitlangsam Ram Dr. Lalruanga huan Tuirial ah hian average NO₂ concentration sang ber (40 µg/m³), leh proposed landfill site leh Bamboo Link Road Tuirial a concentration (33 µg/m³) hi a hniam ber tih a tarlang a ni. Results hi NAAQS standards limit for residential areas (80 microgram / cum)-ah a awm a ni.</p> <p>CO₂ :- Monitoring result a kan hmuh Municipal bawhlawh paihna NH-54 Tuirial a concentrarion (250 PPM) hi a sang ber a, hei hi bawhlawh hai chingten a an bawhlawh hal thin vang a ni. Bamboo Link Road, Landfill site, Tuirial a concentration (155 PPM) hi a hniam ber a ni.</p> <p>CH₄ :- Maximum concentration(0.4 % LEL) hi Airfield, Paper Mills bul, Tuirial leh Landfill site, NH-54, Tuirial bulah hmuh a ni a, lowest concentration (0.2 % LEL) hi Bamboo Link Road, Landfill site, Tuirial leh Lianthanga's residence, Tuirial Airfield bulah hmuh a ni bawk. Monitoring location zawng zawng a an result hmuh te hi permissible limit (Not to exceed 25 per cent of the lower explosive limit (equivalent to 650 mg/m³) ah a awm vek a ni.</p>
14	Surface Water	Greater Aizawl huam chung a Chite Lui leh Lawibual lui a tui te an zirchianna a result hian heng lui tui quality parameters te hi standard values-ah a awm tih a tilang a ni. Turbidity leh Total Dissolved Solids a hniam hle a, Oil & Grease hmuh tur a awm lo a, Dissolved Oxygen a thahnem hle a hei hian tui quality hi a tha hle tih a tichiang em em a ni. Coliform concentration sang tawk tak erawh a awm tel thung.

		Landfill site bulah hian seasonal drain te tak te pahnih surface runoff luanluhna tur siam a ni (mahse kan catchment area hi a te hle thung a ni). Seasonal drain zawng zawng te hi khu tah Tuirial ah an in fin khawm leh vek a ni. Chhaklam atanga an rawn luan na atanga tibaltu an awm loh avangin tui te hi an thianghlim em em bawk a ni.
15	Groundwater	<p>Tlang ram terrain slope tak mai 20% ai fe a slope a nih vang hian ruahtui te hi lei chhungah lut loin lei chungah an luang deuh vek a . Heng vang hian ground water storage scope hi a tlem em em a ni. Tui lei chungah a luang lut chin ho kha spring ang te in a rawn chhuak leh a, hei hi rural area a cheng ho ten tui hmuh nan an lo hmang ve leh bawk a ni. Central Ground Water Board (CGWB) ten tui laihchhuah hna an thawhna a an report hian lei meter 200 a thukah tui litre 120 atanga litre 330 minute khat dan zelah draw down 13 to 20 meter ni bawkin kan hmu thei tih a tilang a ni. Hydro - Chemical thlirna atanga kan lei hnuai tui te hi in tlak a nih lain, hydro – geological condition vang hian ground water storage hi a rem lo a ni.</p> <p>Project huam chungah area a mi te hian lei hnuai tui hi in ber ah an nei a, urban area huam chungah a chengte thung chuan dam reservoirs atanga tui treat tawhte chu rinrawl ah an nei thung. Groundwater sample hi hmun 4 atanga la in analyse leh vek a ni a.. Groundwater quality hi drinking water standard (IS:10500) ah a awm bawk a ni.</p>
16	Noise Levels	Project site km 4 bial chungah hi mihring chenna a nih loh avangin noise level pawh hi permissible limit ah a awm ngei tur a ngaih a ni. Bengchheng hian mihring leh ran sa te nunphungah nasa takin harsatna a thlen thei a . Heng vang hian nakin hun a kan project site-a noise level-te awlsam zawk a hriat a nih theih nan tuna kan noise level zirchian hi tih makmawh a ni. Noise monitoring hi hmun hnihah neih a ni a, Envirotech Sound Level Meter SLM 100 hmangin bengchheng hi teh a ni . Monitoring hi chhun leh zan a kal pui niin, data hmuh atang hian peak values te pawh hmuh leh vek a ni bawk. Monitoring result hi Table 5.13 ah tihlan a ni. Monitored levels hi Ambient Noise Standards prescribed under Gazette Notification 643 of Ministry of Environment and Forests, Government of India nen khaikhin leh a ni.
	Ecological Resources	<p>Aizawl chungah ah hian ramngaw zau tawh tak thing leh mau te, thlai leh hnim ten a bawm khah nawk na hmun tam tak a awm a, amaherawhchu he kan sub - project tihna hmun tur hi humhalhna a ni lo a ni.</p> <p>Aizawl forest hi Tropical semi-evergreen forest kan tih ang chi a ni a. Greater Aizawl Planning Area (GAPA) chungah project location thenkhatah Shannon-Wiener Diversity Index hmangin phyto diversity survey neih a ni a , Evenness index hmang a a rualrem dan en a ni bawk. Indices hmang hian plant community zirchianna neih a ni a. Indices hian GAPA chungah priority engmah a awm lo tih a lantir bawk. Dampa Sanctuary (Protected Area) hi Bangladesh ramri bulah a awm a, GAPA atang hian a hle hle a ni.</p>
	Economic Development	<p>Aizawl development planning area hian ram areaf 128.98 sq km a zau a huam a, heng a 21.58% area hi developed area a ni a, a bak 78.42% area hi leilung nghet lo leh slope tak mai a nih avangin developed theih a ni lo a ni. A ram pum atanga 1.98% area hi cantonment / defense area hnuai dah a ni.</p> <p>AMC in CPHEEO Manual leh MSWMH Rule 2000 nen a a in zulzui theihnan nasa takin hma an la a ni. Manual hian landfill boundary a zone metre 500 vel hi “No-Development Buffer Zone” turin a recommend a ni.</p>

ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT PLAN

Project hna thawh leh kalpui chhung a environment a nghawng theih dante model hrang hrang hmangin uluk takin zir chian a ni a,ISCST3 hi air dispersion calculate nan hman a ni a, DHAWANI thung hi chu noise impact ennen hman a ni thung. Environment impact hi engineering judgement leh management practices thirna atanga the a ni baw. Environmental nghawng chhe lo tur leh development tha tak a awm theih nan a project pumpui plan na ah te,thawh leh kalpui a nih laiin environmental management measures mumal taka neih a ni baw. Project kalpui laia a impact hi chu temporary tak a nih avangin a paw lo. He thu tlangkawmna hian pollution sources leh mitigation measures chhawpchuhahte a hrilhfiah tha hle baw a ni.

AIR ENVIRONMENT

Project thawh lai hian kan khawl hman leh motor te ho hi pollution siam tu ber tur an ni a. Control plan mumal tak siam leh khawl leh motor hman te uluk taka enkawl tura ruahmanna siam a ni baw.

Project kalpui lai a pollution siam ber tur chu bawlhhlawh phur khawl leh motor che vel in a boruak a ti bawlhhlawh leh ti rim chhia tur hi a ni a, mitigation measure mumal tak neih ngei tur a ni. Bawlhhlawh dahkhawmna atanga boruak tha lo awm tur ven nan hian tha taka a khuhna siam a, ventilation tha tak siam a negative pressure awm ngei ngei tur a duan a ni. MSW tawih chhe tur vennan hian herbicides uluk taka kah a ni baw. Bawlhhlawh thliar hranna leh tih tawihna te hi control system tha tak neia duan a ni a, bal thlifim turin filter bag hman a ni baw. CO formation ti tlem tur hian gas recirculation system hman a ni. Dioxins and Furans control nan hian plastic leh chlorinated compounds ho uluk taka thliar hran a ni a, hei hian PM emission a control baw a ni.

NOISE ENVIRONMENT

Project thawh hun chhung hian mitigation measures tha tak - controlled time of construction, job rotation etc. te hi neih a ni . Tin, project kalpui laia bengchheng siam ber tur chu shredders leh generator thawm te, lirthei vei vak thawm te hi a ni dawn a. Remchang apiang ah noise enclosure dah a ni a nga, hnathawktu te pawh beng hnawhna hmanrua pek vek an ni ang.

WATER ENVIRONMENT

Project thawh hun chhung hian labor chengte domestic waste water treat-na tur atan hian septic tank siam a ni ang. He project site hi Aizawl khawpui atanga km 20 a hla a awm a nih avangin Municipal water supply in a chawm pha lo a, chuvangin tubewell tui te hi in atan leh rinrawl ber atana an neih a ni. Project kalpui naah pawh tubewell hi tuihnar bera an neih a ni baw.

LAND ENVIRONMENT

Project kalpui hunah chuan waste segregation system atanga bawlhhlawh paih chhuahte hi landfill hnawhkhah nan hman a ni a nga, organic waste te erawh hi chu tih tawih a ni ang. Bawlhhlawh thliar hran hnu a recycle theih tur chi chu vendor approved ngeite hnenah hralh a ni ang. Ram boruak tha tak siam a nih theih nan ramri hungna zulzuiin thlai tam tawk tak phun a ni bawk ang.

ECOLOGICAL ENVIRONMENT

Project site km 10 bial chhungah hian hmun sensitive lutuk a awm lo a. Wildlife sanctuary te, national park te leh eco-sensitive area te hemi project site hnaihah hian a awm lo bawk. Hmun hring nuam taka siam a ni ang.

SOCIO ECONOMIC ENVIRONMENT

Project site km 4 bial ah hian mihring cheng an awm lo a. He project hian ei leh bar zawinna tha tak a awm tir dawn a, socio economic environment tha tak a siam dawn a ni. Local mite duhsak bik an ni a nga, mitigation measures tha tak rimchhia leh natna hri leng thei laka him theihna tur a awm bawk tur a ni.

ENVIRONMENTAL MANAGEMENT SYSTEM

EMP hi effective taka kalpui a nih theih nan, Environmental Management System (EMS) hi project site ah hian neih tur a ni. EMS hian heng a hnuai mi angte hi a huam ang:

- a. An Environmental Management cell
- b. Environmental Monitoring Program
- c. Personnel Training
- d. Regular Environmental Audits and Corrective Action
- e. Documentation – Standard operating procedures Environmental Management Plans and other records.

RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

Municipal Waste Management project hi him tak leh tha taka kalpui a nih theih nan safety hazards kaihnawih leh chhiatna thlen thei thil zirchianna neih a tul hle a ni. EIA report ah hian risk assessment leh disaster management plan te hi tarlan a ni. Risk assessment & disaster management plan te chu :

- a. Hnam culture venhim te, training leh awareness tha tak pek a, contractor staff leh mipui te inpawhtawinna tha nei tur a training tha tak neih pui bawk tur a ni.
- b. Chhiatna awm thei hnathawktu tihsual vang emaw khawl thatlohna vanga thleng thei zawng zawng laka venhimna uluk tak a awm tur a ni.
- c. Disaster management plan hi him taka project a kal theih nan zawm that hle tur a ni.

CONCLUSION

Environment a him lohna thlen thei tur ang zawng zawng uluk tak a zirchian a nih hnuah control measures tha tak dan in a a phal ang ngei a duan thlap a ni. Heng vang hian project hna hian environment a nghawng chhe dawn lo bawk a ni.

Heng bakah hian solid waste 30% vel hi a tawih ral a nga, 10 to 15% te hi recyclable thei chi a ni a, a dang ho zawng 50 to 60% te hi landfill hnawhkhah nan hman chauh tur a ni. Hei hian kan landfill area mamawh a ti tlem sawt a nga, nakin hun a hman leh atan ram awl pawh kan zuah thei dawn bawk a ni.

***** a tawp ta*****