

## EXECUTIVE SUMMARY

### Champhai – Zokhawthar Road

#### 1.0 Mizoram State Road Project II (MSTP II)

India ram sawrkar chuan Mizoram chung kawng thenkhat, state highway-te, district road-te a awmsa tihzau leh changtlung zawka siam that nante tanpuina a dil a, chung kawngte chu *Mizoram State Roads Project II* (MSRP II) tih a nia, fig.1.1 atar lan ang hian ani. MSRP-II hi group 2 a then leh a niin, he group I leh II hi a hnuai a fig. 1 leh table 1 a mi ang hi ani. Group-I project hi buaipiu mek niin tunah hian mithiambik Project Preparatory Consultants<sup>1</sup> (PPC) ruaiin heng mite hian Mizoram PWD-te an thawhpui mek ani. MSRP-II hi category ‘A’ ah dah a ni.

<b>Table 1.1 – Proposed Project Roads under MSRP II</b>			
<b>Group -1</b>	<b>District(s)</b>	<b>Length</b>	
i.	Champhai – Zokhawthar	Champhai	27.5 km, (E-W road to Myanmar border)
ii.	Chhumkhum-Chawngte	Lunglei	41.53 km, (part of original N-S road alignment)
	Package-I of Lunglei-Tlabung-Kawrpuchhuah road	Lunglei	0-30Km of L-T-K road
<b>Group – 2</b>			
i.	Junction NH44A (Origination) – Chungtlang – Darlung – Buarpui	Mamit&Lunglei	83 km
ii.	Buarpui – Thenlum – Zawlpui	Lunglei	95 km
iii.	Chawngte including bridge to BungtlangSouth up to Multimodal Road junction	Lawngtlai	76 km
iv.	Zawlpui – Phairuankai	Lunglei	30 km
	Package –II and package -III of Lunglei - Tlabung –Kawrpuchhuah road	Lunglei	Package –II = 30Km to 60Km Package –III = 60 Km to 87.35 Km

**1.1 Champhai – Zokhaethar road** Mizoram Public Works Department te chuan *Champhai – Zokhawthar* road awmsa, km 28.5 a thui single road atanga 2-Lane National Highway Standard a /laihzauh/siam tum ani. He kawng hian thingtlang khaw thenkhat Zotlang, Mualkwai, Melbuk Zokhawthar and part of Champhai town etc. te a paltlang ani. He kawng hi Mizoram Khawchhak lam michengte tan chuan kawng pawimawhtak niin Myanmar pawhtu kawng a ni, A kawng hian tlangram lo neihna hmunte, Forest Plantation te leh mihring chenna khuate a pal tlang a ni.(figure-2 en rawh)

**1.2 Environmental Impact Assessment (EIA) thiltum leh a tulna leh pawimawhnate.** World Bank chuan category “A” projects ang atan hian Environment Management Plan duan rualin EA report kimchang duan tel nghal a duh a. Environmental Clearances chungchanga Government of India (GOI), Ministry of Environment and Forest (MoEF) EIA Notification on (September,14, 2006)—ah hian Category A leh B projects<sup>1</sup> Environment Clearance dilna atan hriattur tul atih te a chuanga hengte hmang hian World Bank Policies leh the EIA notification GOI, MoEF te duhdanin EIA report kimchang hi buatsaih ani.CZ road a aenkawltu bulber chu Public Works Department (PWD), Government of Mizoram niin STUP Consultants Pvt. Ltd te hi EIA Report buatsaih kawng ah MPWD puitute anni.

## **2.0 Kawng zauhzawng, chhuk/choh dan leh kawng kaldan:**

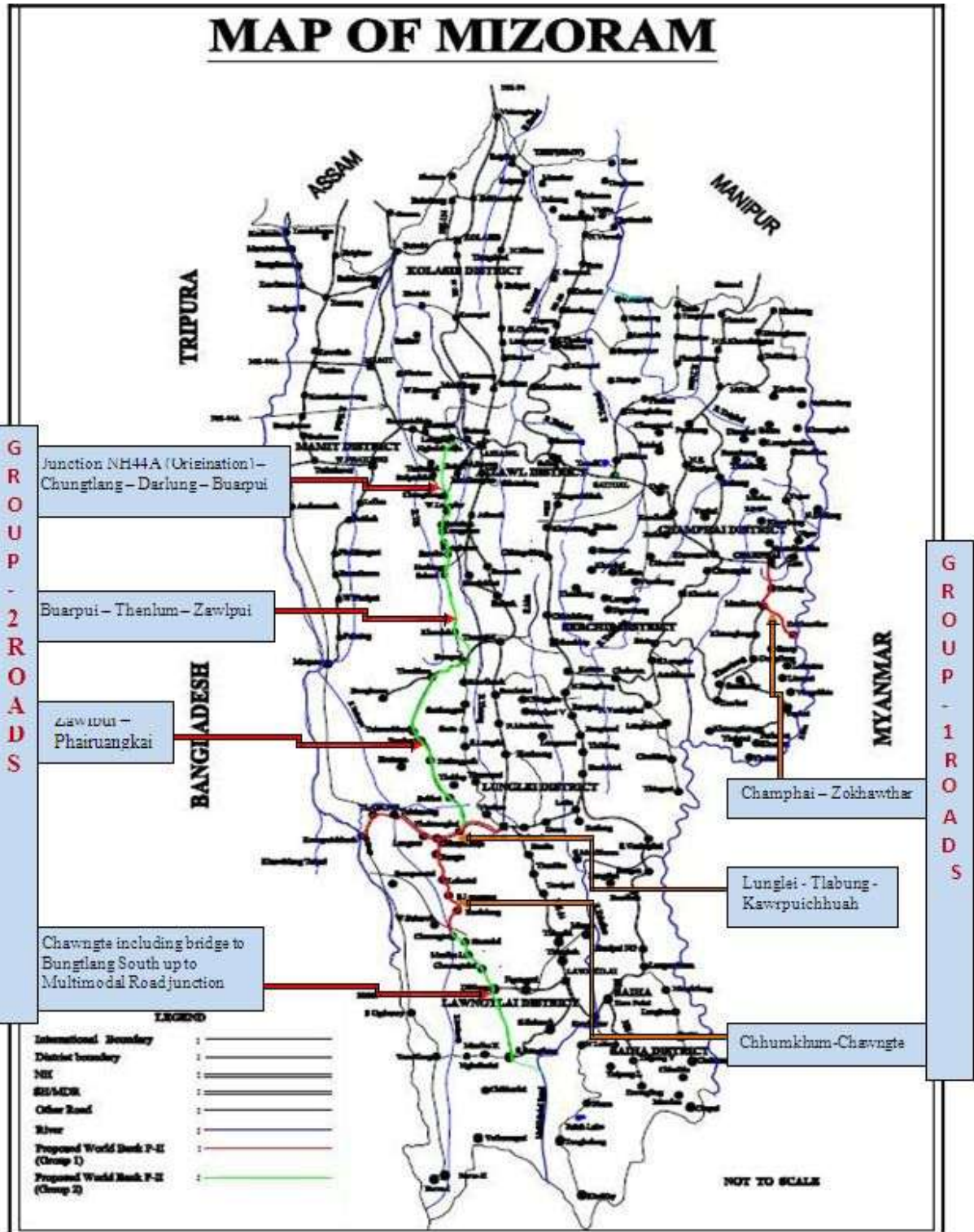
Kawng tetakte, thingtlang kawng awmsa, meter 5 lek a zau (MPWD chuan heng kawng hi State Highway tiin an vuah) chu Kawng liantak two-lane national highway standard ( a zauhzawng meter 12) a tih changtlun tum a ni.

He kawng awmsa siamthat tumdanah chuan a kawng chhuk/chhoh dan hi 5% ai a chhuk/chholo a siam a ni tlangpui anga, lohtheihloh lai tlemte hi 7.2% ai a tamlo a siam tum aniHeng bakah hian kawng awmsa laihzauhte, culvert te, kawng kual siamthatte ani. Hmun thenkhat akawng ngai zawhloa kawngnran rehngai zeuh zeuh tih lohah chuan a tlangpui thuin kawng centre line hi tuna ROW chhungah tho hian kaltir a ni ang. A tul ang ang siamthat hnua kawng seizawng tur hi km 26.00 a sei aniang.

Henghmunah te hian kawng pangngaia kalloin kawngthar zawn a ni:

- Champhai-Zokhawthar road hi a khawtawntirh KM 0.00 atangin km 3.00na inkar thleng kawngthar zawn a ni. Seling-Champhai road atang atuna apenna Km 150 hi Km 146 ah sawn tur a ni (chu chu Champhai khawpoawnah a ni)
- Mualkawi khawhelna Km 7+640 atanga Km 9+200 inkar
- Km 17+050 atanga Km 24+300 inkar. Heihi Melbuk khua leh Zokhawthar helna a ni.
- (map -2 en rawh)

<sup>1</sup>*Category A project is cleared by the Expert Appraisal Committee or EAC constituted by MOEF and Category B by State Environmental Impact Assessment Authority (SEIAA) constituted by MOEF at State level.*



Map-1: Map showing the proposed road under MSRP II



**Map 2: Map showing the alignment of Champhai –Zokhawthar road and realignments**

He kawng laizauh leh siamtha tur hian leilaihte leh a slope siam te a awma. Slope cut thui zawng hi atlangpuiin meter 3 atanga meter 15 a ni tlangpui. Heihian 1.02 million cum atam leivung a chhuah dawna, heng leivung atang hian 0.3 cum atam chu leivung paihna tura hmunruatlawkah paih ani anga,adang chu kawngsiamnan hmannghaltur a niang. He kawngsiamnan hian ram 48ha mamawhbelh ania heng zingah hian 0.28 chu forest land ani.

Project siamnan hian civil work leh a dang neuh neuhah Rs.183.40 crores ani.

### 3.0 Environmental Dan leh dun

He project siam nan hian heng a hnuai ami national leh state chhung dan leh dunte hi hman ani.

<b>Table -2 Project siamnan a Environmental dan leh dun rawnte:Summary of Environmental Legislation Applicable to the Proposed Project</b>
<ul style="list-style-type: none"><li>• Environment (Protection) Act. 1986</li><li>• Notification on Environment Impact Assessment of Development projects (and amendments) 2006 ,2009,2010,2013</li><li>• Wildlife Protection Act 1972</li><li>• Water (Prevention and Control of Pollution) Act (and subsequent amendments)1974</li><li>• Air (Prevention and Control of Pollution) Act (and subsequent amendments)1981</li><li>• Forest (Conservation) Act,1980</li><li>• Central Motor Vehicle Act 1988and</li><li>• Central Motor Vehicle Rules1989</li><li>• Ancient Monuments and Archaeological Sites and Remains Act 1958</li><li>• The Land Acquisition Act 1894 &amp; 1989</li><li>• Noise Pollution (Regulation and Control) rules 2000/2001</li><li>• Ramsar Convention on Wetlands of International Importance1971</li><li>• Assam Forest Regulation of 1891.</li><li>• The Mizoram (Forest) Act, 1955 (as passed by Mizo District Council).</li><li>• The Pawi Autonomous District Council (Forests) Act, 1979.</li><li>• The Lakher Autonomous District Council (Forests) Act, 1981.</li><li>• The Chakma Autonomous District Council (Forests) Act, 1992.</li><li>• Mizoram Wildlife (Protection) Rules, 1990.</li></ul>

### Construction stage

- Air (Prevention and Control of Pollution) Act, 1981 and Noise Pollution (Regulation and Control) Rules, 2000
- Hazardous Waste (Management and Handling) Rules, 1989 and Manufacturing, Storage and Import of Hazardous Chemicals Rules, 1989
- Environment Protection Act, 1986 and Manufacturing, Storage and Import of Hazardous Chemicals Rules, 1989
- Environment Protection Act, 1986
- Water (Prevention and Control of Pollution) Act, 1974
- Environment Protection Act, 1986
- Environment Protection Act, 1986
- Hazardous Waste (Management and Handling) Rules, 1989

#### Labour related Laws -

- Workmen's Compensation Act 1923
- Contract Labour (Regulation and Abolition) Act, 1970
- Minimum Wages Act, 1948
- Payment of Wages Act, 1936
- Equal Remuneration Act, 1979
- Child Labour (Prohibition and Regulation) Act, 1986
- Inter-State Migrant Workmen's (Regulation of Employment and Conditions of Service) Act, 1947
- The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and the Cess Act of 1996
- The Factories Act, 1948
- Hazardous Wastes (Management and Handling) Rules, 1989  
Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996



**World Bank Policies:** Champhai-Zokhawthar Road atan hian a hnuaia World Bank's environmental safeguard policies te hi hman ani: Environmental Assessment (OP 4.01), Natural Habitats (OP 4.04), Forestry (OP 4.36), Physical Cultural Resources (OP 4.11), and World Bank Group Environmental, Health, and Safety (EHS) Guidelines. Social safeguard policies lama dan leh dun hmantheihthe pawh R&IPDP ah telh ani.

#### **4.0 Methodology**

Champhai - Zokhawthar Road siamthat tumnaah hian kawngchhak leh thlang km 5 huamchhung hi 'Broad influence area' tih a nia.. Meter 300 vel huamchhung hi 'Core Influence Zone (CIZ)'. a puan ani. He CIZ hi ahmun a zir leh thilthleng a zir a danglamthei a ni.

He kawngsiam thatnan hian hmanrua, hnatawhna tur hmun a hriattur tulte, mipuite thurawnte, leh thilawmdan chiktak a zirchianna te hman a ni. Heng thil Chiangtaka zir a nih avanghian kawng siam avanga thilthalo awmlo theite pawh tamtakchu pumpelh leh thil thalo pawh tha zawkin alo kalpui theih dawn ani. Environment Management Plan (EMP) hian thil chetur ven leh thawmthatte akengtel a ,heta tan hian sumpawh senral ani dawn

#### **5.0 Baseline environmental scenario**

*Physical Setting.* Project thawhna hmun tur hian climate a nei a. Nipuih chuan alumin a uap hle a, thlasikah erawh chuan khua a vawtin a ro hle thung ani. Hunpui pathumah han then ta ila: Thlasik(November- February), Nipui(March – May) leh Fur (June-October). Project hmun hi a climate a nuam hle a,. Temperature 8°C atanga 28°. Kum 2013 chhuang a kumkhata ruahtui tlazat chu 2590 mm vel a ni.(heihi furlai a tla deuh vek ani.)

Project awmna tur ram hi tlangram a nia. Project bul tanna hi meter 1350 MSL (Tuifinriat atanga asanzawng) an ni, a tawplam Tiau luikamah chuan 700MSL ani. Kawngdung Km 5 area chhungah chuan Champhai hi a sangber laiber (meter 1665 asang) niin 0.00Km a awm ani. Kawngdung Km5 huamchhung a leilung te hi Barail group of rock kan tiang hi a ni a, chung chu siltstone pan te te a inthuahthip, rawng uk lampang fine grain sandstone kan tih ang hi ani. A lung awmte hi aching vakloa, a ram hle bawk. Core influence area,



kawng atang a meter 300 huamchhung a leilung te hi kawng laih hnuah kawngko slope dantur hi 32% vel a awn hi minlo tawk tura chhut a ni a, hei aia dinghi chu a himlo ani.

Mihringin nitin mahmawh, chakkhaiah thing leh mau leh leilungte antihchereu nasat avangte, a leilung nghehloh avangte hian furlaiin leilungte hi akal ral nasa hle dawna, heihian kan kawngsiam tur dinhmunhi a tiderthawng hle dawn ani. Tlangramloneih avangte thingleh mau leilung suasam avangin leilung hi aluang ral nasa em em a. leite hi an muk tawkloin ruahtui an paitha theiloa, potasiumte, phosphoruste leh nitrogente antlacham hle bawk a, Zirchianna a alandanin C-Z Road dungah hian organic matter hi za zelah 1.8 atangin 4.12 thleng a awm ani. Hei hian helai leitungte hi mineralah an hausa hle tih a entir.

Water Resources. CZ Road ah hian lui chen fakawm tak tak, kumtluana kanglo eg Tuipui Hnar, Verhpui Lui, Saisih stream, Vawmkaw Lui, Dil Lui, and Thei ba Lui leh luite thallai a tui awmlote sihtui te leh siamchawp tuikawngte hian henglai awmdan hi a hril hlea, kawngbula dilte tuizem te chu kawng a kalvel te leh a khaw mipuite chuan inbualnante tuiinahte leh thlaitui peknante an hmang thin ani. Thingleh mau tihchereu nasat avangte leh aleilung thawl avangte hian henglai ram hian tui a pai tlem em em a vangin ferlai tihloh, thal(November–mid April)ah chuan tuihi a harsa hle a, chuang chuan sawrkar pawhin furtui khawlte leh leihnuai tui hmantangkai te atum hle ani. Luipui tui pump chhoha filter te pawh tum ani.

Air and Noise. C- Z Kawngah hian boruak tibawlhhlawhtu alatamloh avanfgin boruak pawh ala thianghlim hlea, motor tlan velin a siam hi borual tibawlhhlawhtu ber chu ala ni mai a, Motor tlan alatamloh avangin kawngbul hnaihah pawh boruak alathinghlim hle ani. A tehna a landanin Zotlang leh Zokhawthar pawh boruak chhia/bawlhhlawhhi ngaidamthaeih chhungah ala awm a NAQQS Standard hnuailamah ala awm ani. Chutiang bawkin bengchheng pawh ala hniam hle a, Central Pollution Control Board, Government of India in bengchhen theih sangber ai in asang ani.

Forest, vegetation and wildlife. Helai ram hi Broad Influence Zone kan tih chhunga 68% hi

Thing leh mau leh Huan tlai china hmun a la nia, hei hian village council forest ram te, forest plantation leh loneihna ramte a huam ani. Tlangram loneih danavang hian kumtelin thing leh mau hi a tlem telh telh ani.

Engpawhnise he kawngdung hnaih, meter 300 huamchhung Core Influence Area kan tih chhungah hi chuan kawngtluanin khawilaihahmah notified/demarcated forest area emaw village council forest area emaw hi a awmlo ani. The C-Z Road passing through forest plantation area and about 0.28 ha of forest land (forest plantations at 230m of the alignment (Km 9+300 to 9+530)). He kawng CZ Road hian 0.28ha a zau forest plantation a paltlang, (i.e. (forest plantations at 230m of the alignment (Km 9+300 to 9+530)). ROW chhungah hian thing 693a awm ani. Core Area Influence huam chhungah hian tree species 27, shrub species 14, herb species 12 leh pangpar lamchi 107 enchian tawh ani. Tin tree species 148 pawh Broad Influence Area chhungah ziahluh ani. Tin ramhnim damdawi chi atam hle bawk a, hengte hi ama ramhnim an nia rampum huap pawin a ni. He kawngdung tluanah hian wildlife protection area leh reserve area harsa bik a awmlo a ni. Sava leh Ramsate kawng tum hmuhtur a awmlo. Helai ram Core Zone ah emaw abul hnaih emaw hian high bio-diversity zone a awm lo bawk.

*Thlaichhinna*. Atlangpuiin luikam leithatna hmun leh tlangram zawl deuhna hmunah thlai chinna hi a awm a. Hengte ti te reuhte te an ni hlawm. Champhai ruam leh Tiau luikamte thlai chinna hmun berte an ni. Heng thlai chinna hmunte hian CZ Road za zelah 0.91 chauh a luah ani. Ram thangzel leh mipui tam chho zelah heng thlaichinna te pawh hi zauh belh zel a ni.

*Cultural resources*. He kawngin a paltlang tur ramah hian National (Ramchhung) emaw International (Rampawn) hriat tham historical (Thilhlui) emaw cultural (Hnamro) emaw religious (sakhua) hmun a awmlo. Hmun thenkhatah chuan Core Influence Zone chhungah, cultural site te reuhte te chu a awm a, chungte chu: Sopian Maksak (memorial tomb), Mualkawi khuaah and Mangkhaia Lung 'Chhura fa rep' tia hriat bawk hi Zotlang khaw Lalin Zotlang khua a a din te an ni. He lunghi helai michengte chuan an ngaina in an

hlut hle ani.

## **6.0 Mipuite thu leh hla lakna**

August atanga December 2013 chung hian CZ Road ruahmanna leh inpuahchahna atana thil tul mipui rawn ngaite, mipui hriattir ngaite neih a ni.

Mipui tlangpui leh abik takin PAPs te hnen a ngaihdan lakin he kawng siam tur hi an tan a hlawkthlak hle dawn a ni an ti. Mipuite chuan he kawng lokal tur hi tha an tiin an nghakhlel tawh hle a, an theih ang ang a puih ve te pawh an inhuam a ni. Engpawhnise he kawng siamin a rawn ken tel tur thil thalo lam Leiminte, tuichawina harsat dan turte, tuihna in a tuar dan turte, leivung paihna turte, khaw tlawhlo zawng a kawng kaltir te leh a nghawng turte, an rubber china chhe turte, mipui himnate, labour camp hmun turte, vaivut khu leh bengchheng lo awm turte leh an khawchung nundan a khawih dan turte chenin, anlo vei vein an ngaihtuah thleng pha ve hle a ni.

## **7.0 Kawngdang khaikhinna.**

Atlangpuiin he kawngah hian, kawng pangngai ringlo a kawngthar rehna tihlohah chuan a center line hi POW chungah tho kalin kawng pangngaihi a zawh deuh vek dawn a ni.

Kawngthar reh tumna hmun pathum te chu:

- Champhai-Zokhawthar road hi a khawtawntirh KM 0.00 atangin km 3.00na inkar thleng kawngthar zawn a ni. Seling-Champhai road atang atuna apenna Km 150 hi Km 146 ah sawn tur a ni (chu chu Champhai khawpoawnah a ni)
- Mualkawi khawhelna Km 7+640 atanga Km 9+200 inkar
- Km 17+050 atanga Km 24+300 inkar. Heihi Melbuk khua leh Zokhawthar helna a ni.

Heng hmun thumah te hian a kawng pangngai kal leh kawngthar reh chungchangah hian technical leh social leh environmentte nguntaka ngaihtuaha khaikhinin kawngthar reh hi

atha zawka ngaih ani.

Khaikhinna dang lehah chuan project hi awmlo tase(no project) tih leh awmta se tih a ni a, heath pawh hian project awm hi athazawke a ngaih ani. He project hian hamthatna tamtak a thlen dawn a zin hunching tawi leh zinman pawisa chawi lo tlem sawt turte, thilsiam chhuah leh thlathar hralhna awlsam zawkte, khawmipuite tan hna thawhna tamtak lo piang turte, he project ngei pawh hian mitamtak hnathawhna a siam sak turte, awlsam zawka damdawiin pan theihte khawchhung mipui mimir khawsak losang sawt turte. Project avang a thil thalolam lo thleng tur hi chu a ngaih zamtheih a ni.

## **8.0 A nghawngtur zirchhianna**

C-Z Road siamin environment lama nghawnga neih turte a hnuai ami ang hian zirchhuah a ni.

Leimindhna hmunte (Destabilization of slopes and erosion). Heng project hmun a lei te hi atlangpuiin shale leh rock bound clay kan tih ang hi ania, heng leite hi anghetloin leilaih chuan a min duh bike m em ani, Kawnglaihzauhlai a kan khawihur kawngko laihte leivung te leh tuilankawr tihbuai a nihtur te hian leimin a titam zual duh dawn hle ani. Leimin duhna hmun bik nia ngaihte chu Km. 8+700, Km. 8+900, Km. 9+400, Km. 14+900, Km15+300, Km 15+500, Km 15+900, Km16+300, Km. 18+600, Km 19+200, Km 22+800.

Leivung ilo paihna . Kawngtluan hian kopang chhaklam bal a hawngghi laihzauh a ni deuhveka, Leivung hi cum million 1.05 awm tura ngaih ani. Leivung thenkhat(zazela 10 atanga 15 hi chu kawngsiamnan vek hian hman tangkai nghal tur a ruahman a ni a, abak zawng hi chu achhunna tur hmun ruatlawkah paih tur a ni. Heng leivung chuang chhunna hmun hi khua atang a hla duehtak leh vaivut khuten mihring a tihbuai phakloh hmun a paih turin apaihna hmun hi thlan ani

Thlaichhinna hmun atihbuai theih dan . He kawng laihzauhnian hian ram48ha mamawh a ni , hengzingah hian 0.28ha hichu forest plantation ram a ni.a dangzawng hi chu tlangram lo neihna hmun leh agriculture lo neihna hmun ani. Hengah hian 35.80ha hiTlangram lo

ania, 1.5ha hi Champhai leilet a niin 10.7ha hi luipuikam lo a ni.

Tui luankawr a nghawng dan. Ke kawngsiam that turah hian kawrte 112 lai a tan tlang dawn a. heng tuiluankawrte tih buai avaang hian harsatna tamtak leimin/leitawlh ilo a thlentheih dawn, heng harsatna thlengtheih dan nan hian tuiluankawr thar siamte a ngai dawn a. heng hi EMP ah tarlan niin contractorten hemi ang hian tuiluanna tibuilothai angberin leh irrigation channel a tui luanna tibuai lotheiu angber in hna an thawk dawn a ni.

Thinglehmau leh ramhnim a nghawng a neih dan. Kawnglahi zauh avanga kawng kochhak lampang meter 5-10 vel a laihbal anih hian thinglehmau leh ramhnim tamtak chu tihchhiat a ni. A tlemtheih ang a tih anih pawhin thingkung 693 leh mau 300 te kih angai a, 0.28 ha chhung a Thinglehmau chhiattamna lai hi km9+300 leh km9+530 inkarah ani. Hengbakah hian thinglehmau kih avang hian bryophytes & pteridophytes te pawh hian an tuar a, ramsa erawh chuan hmuh an nihloh bakah an tawrh phah lo tur a ngaih ani. Ramhmul damdawi chi ah pawh nghawng a nei ngei dawn a, heng zawng zawngte tlemtheiangber a chheturin EMP ah hian duan ani.

Vantlang thilah nghawng a neihdan. He kawng siamthat avanga vantlang thil chhe tur a ngaihte bus shed- 5, Vantlang bualin- 2, and Vantlang zunin-5, bazaar shed=5 leh hand pump-3 te anni. Heng vantlangthil tihchhiatturte hi mipuite neninrawnin siamthat lehvek tur atih ani.

Hnathawhlaia harsatna thlengtheite. He kawng siamthatna thawhlai tian heng leilaih avengte kawngchhuat phahthat avangtelunglak leh lunghal avangte leh thil dang tamtak a awm a, heng harsatna thlengtheite hi a thawhlai hun atan chauh nimahse tlem thai ang ber a thleng tur in EMP-0ah hian duan tel vek ani.

## 9.0 Harsatna thlengtheite pumpel leh a tihlemdan

Harsatna thlengtheite pumpel leh a tihlemdan heng ahnuai amianghian duan ani

<b>Environmental issues /category</b>	<b>Mitigation Measures</b>
<b>kopang</b>	Kawngko laih balna lai apiangah hnim to tir zel tur. Leimin hlauhawmna hmunah chuan thing phun emaw hmanga a dan dan tur siam. Thingphun leh leimin danna tur daltu siam tangkawp hmanga hmun tam tak leimin hlauhawmna hmunah chuan a hmun a zirzela hma lak.
<b>Leivung paih</b>	Leivung reng reng chu a paihna hmun tur a ruahman lawkna ah chauh paih tur. Hmun awih deuh chu hnim leh thing hmanga khuhzel tur. Thingphun leh leimin danna tur daltu siam tangkawp hmanga hmun tam tak leimin hlauhawmna hmunah chuan a hmun a zir zel a hma lak.
<b>Lunghal</b>	Uluk taka thil dang vengthawng chung a lung hi hal tur a ni.
<b>Environmental issues /category</b>	<b>Mitigation Measures</b>
	Environment lama inkaihhraina zawm chung a lung hi hal thin tur a ni.
<b>Forest ram</b>	Forest dan hmanga heng thing kih turte hi phalna lak phawt tur a ni. Heng thing hlu tak tak lo din tawhna hmunahte hi chuan kawng cheimawina tur ringawta thing phun phal loh tur a ni.
<b>Buhlehbai chinna</b>	Buh leh bal chinna hmun zawnahte chuan huan pal rinawm tak kawng laihin a tihchhiat mai mai loh tur hmanga hung thin tur a ni. Tin, heng hmunah te hian tuihawka luh mai mai loh nan tuihawk luankawr mumal taka siam thin tur a ni.
<b>lunglakna</b>	Contractor reng rengin kawngpui siamnana lung an lak dawnin thuneitute phalna an la hmasa phawt tur a ni. Tin, heng quarry reng rengah hian Lisence an nei vek tur a ni.
<b>Tui</b>	Lui hnaivaiah contractorin hna a thawk a nih chuan a thlang lama tui hmang tute vengthawng takin hna a thawk tur a ni. Lui tui, thal laia kangchat thin awmna bulhnaiah contractorin hna a thawk a nih chuan thal lain hna thawh thin tur a ni..
<b>Hnamro sawngbawl</b>	Hnam ro thil hlu kawng laihin a ti buai dawn a nih chuan khawtlang hruaitute nen inrawnin a sawnna tur hmunah sawn phawt thin tur a ni.

<b>Lungherna Asphalt sawngbawlna leh</b>	Vaivut tam tak vennan tui hmanga lei theh huh thin tur ani. Alkatra chhuanin boruak a tihbawlh a, mipui tan a buaipuiawm viau dawn chuan a hmun sawn mai tur a ni.
<b>Hnathawktu riahbuk te</b>	Hnathawktute riahbuk sakna hmun tur chu a him tawk tur a ni a, hnathawktuten an bulhnai an thli leh oil an hman hmangin an tibawlhhlawh tur a ni lo. Tin, labour camp hi a theih chuan thing phun hmangin cheibawl tur a ni.
<b>Hmanraw hlauhawm bikte</b>	Hnathawhnana hmanraw chi hrang hrangte chu an awmnaah an phui tha tawk tur a ni a. Heng hmanraw ven ngai bikte khawih nan hian
<b>Vaivut Bengchheng leh</b>	Speed breaker hmanga motor tlan chak bengchheng lutuk tur dan Tui a awm remchan chuan khu lutuk tur veng tura a khat tawka tuia kawngpui chu theh huh thin ni se. Speedbreaker hi khawchhungah leh bazaar hmunah siam thin nise hei hian motor tlan chak lutuk tur a veng ve a ni. Kawng sirah thing a tam thei ang ber phun thin nise.

Environment chungchang chu EMP table 2 ah chipchiartakin sawi ani tawh a.EMP atan a pawisa dah hi Cheng 6.745million a ni.

#### **10. A enkawltute inrelbawl dan:**

Executive engineer (Environment) chu EMP chungchangah a mawhphurtu ber leh a thawktu ber a n anga, ani hi Assistant Engineer (Environment.) in a thachhang a dawlang, hemite hnuaiah hian Junior Engineer leh Supervision consultant atangin Environment Specialist leh contractor te an awm ang.

(Refer Figure 3).



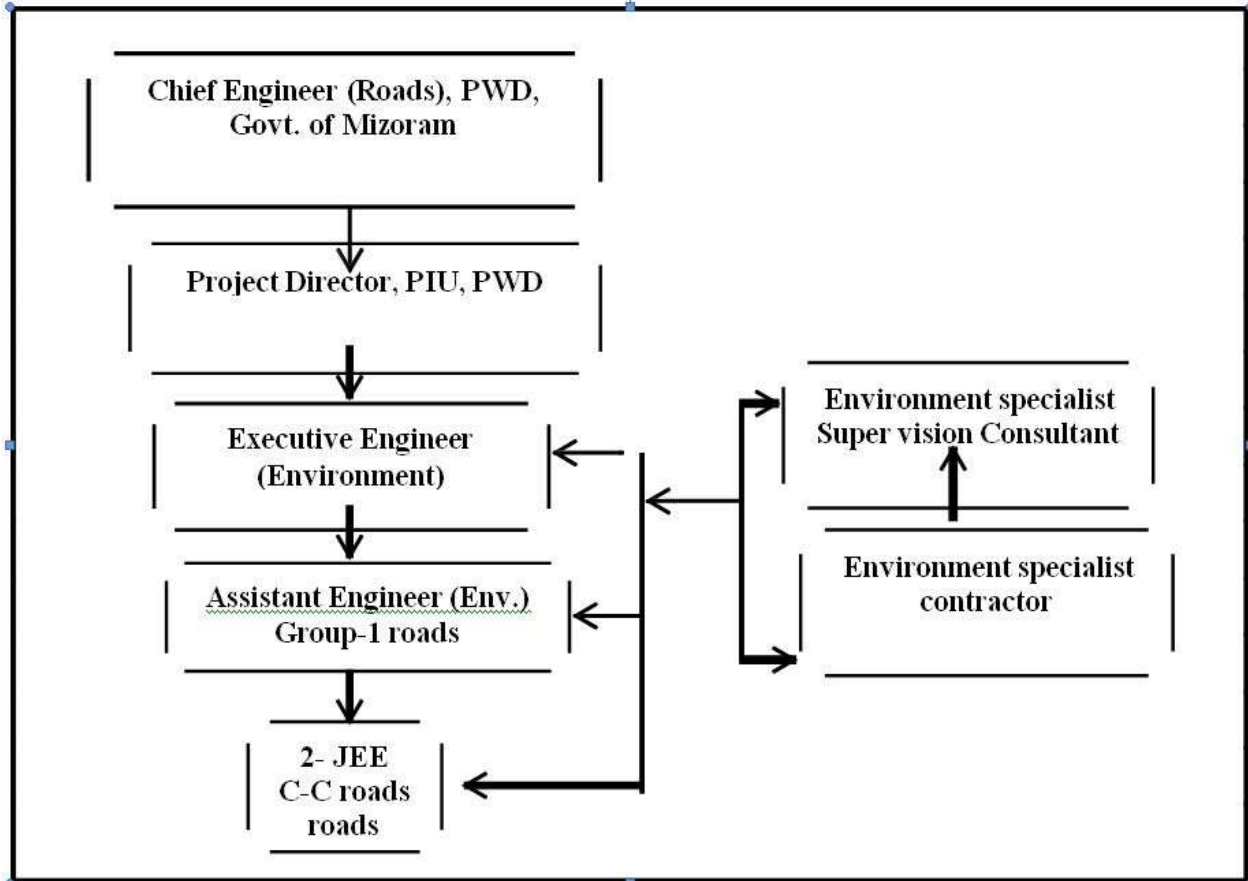


Fig 3: Proposed institutional set up for EMP implementation in C-Z road

Hna bik, entirnan vantlangtan bik a siam chung changah chuan Tlawmngaipawlte nen thawhho tur a ruahman ani.

PIU a hnathawktute hi supervision consultant hnuai environmental specialist ten an thawh pui ang. Hei bakah hian aremchang apiang trainingte pek anni ang. EMF a inkaihhraina dan hman ani ang.

**CHAMPHAI TO ZOKHAWTHAR ROAD**

**Mitigation / Enhancement**

<b>COMPONENT</b>	<b>STAGE</b>	<b>ITEM</b>	<b>Unit</b>	<b>Unit Cost (INR)</b>	<b>QUANTITY</b>	<b>Total Cost (INR)</b>
<b>Vegetated bamboo crib wall</b>	Construction	Construction of vegetated bamboo crib wall width 1.2m & height 1.5m including providing and suppling bamboo, binding wire cutting, plantation of vegetation/grass, making benching and backfilling	Rm	660	5,000	3,300,000
<b>Turfing with Sods</b>	Construction	Furnishing and laying of the live sods of perennial turf forming grass on embankment slope, verges or other location shown on the drawing or as directed by the engineer including preparation of ground, fetching of rods and watering complete as per MoRT &H specification 307	Sgm	50	20,000	1,000,000
<b>AIR</b>	Construction	Sprinkling of water in the settlement and working area as per instruction of SC	Month	20,000	42	840,000
<b>WATER</b>	Pre-construction	Hand pump	No.	90,000	3	270,000
<b>FLORA</b>	Construction	Compensatory afforestation, in accordance with Forest Conservation Act (1980) as per guideline provided in EMP	No	500	1,000	500,000
		Additional tree plantation along valley slopes as per guideline provided in EMP Chapter - 5	No	30	15,000	450,000
		Maintenance Grant to local NGOs for ensuring survival as per guideline provided in EMP	No	30	15,000	450,000
		Provision of bamboo tree guards for the trees 500m on either side of villages as per guideline provided in EMP	m	50	3,000	150,000
<b>CONSERVATION OF BIODIVERSITY</b>	Construction	Provision of barbed wire fencing along realignment guideline provided in EMP	m	150	2,000	300,000
		Mitigation designs for endangered plant species as per guideline provided in EMP	m	200	250	50,000
<b>STABILITY OF SLOPES</b>		Bioengineering measures for protection of slopes As per guideline provided in EMP	sq. m.	60	40,000	2,400,000
<b>ENVIRONMENTAL ENHANCEMENTS</b>	Construction	Enhancement of water harvesting points	No.	75,000	4	300,000
<b>(A) Mitigation / Enhancement</b>						10,010,000
<b>Monitoring</b>						
<b>AIR</b>	Construction	Monitoring near all hot mix plant locations approved by the Engineer as per NAAQS ,2009 CPCB	No. of Samples	5000 for 3-sample set	12	60,000

<b>Mitigation / Enhancement</b>						
<b>COMPONENT</b>	<b>STAGE</b>	<b>ITEM</b>	<b>Unit</b>	<b>Unit Cost (INR)</b>	<b>QUANTITY</b>	<b>Total Cost (INR)</b>
		Monitoring at construction sites in tandem with construction Engineer as per NAAQS ,2009 CPCB	No. of Samples	5000 for 3-sample set	12	60,000
<b>WATER QUALITY</b>	Construction	At locations specified in the monitoring plan as per IS 10,500 & IS 2296	No. of Samples	5,000	10	50,000
	Operation	At four locations specified in the Monitoring Plan as per IS 10,500 & IS 2296	No. of Samples	5,000	10	50,000
<b>NOISE</b>	Construction	At equipment yards as directed by the Engineer as per CPCB guideline 1989	No. of Samples	1,000	40	40,000
	Operation	At locations of compensatory plantation, All along the corridor as per CPCB guideline 1989	No. of Years	30,000	3	90,000
<b>Bio Engineering Measures</b>	Construction	Monitoring survival	No. of Visits of Monitoring team	50,000	3	150,000
	Operation	Monitoring effectiveness	No. of Visits of Monitoring team	50,000	3	150,000
<b>Bio Diversity study</b>	Construction & operation	Monitoring of impact on biodiversity	No. of Visits of Monitoring team	50,000	3	150,000
<b>(B) MONITORING COSTS</b>				<b>800,000.00</b>		

<b>Protection of disposal sites</b>						
<b>Retaining wall 3m height</b>	Construction		m	Will be covered in engineering cost	1,310	Will be covered in engineering cost
<b>Gabion wall 3m height</b>	Construction		m	Will be covered in engineering cost	3,120	Will be covered in engineering cost
<b>Side drain</b>	Construction		m	Will be covered in engineering cost	1,000	Will be covered in engineering cost

**(C) Protection of disposal sites cost** Will be covered in engineering cost

<b>Training &amp; Mobilisation</b>						
<b>Training</b>	Construction and Operation	As per modules 1 to 5 developed for MSRP	No. of modules	<b>Will be covered with other roads</b>		
<b>Advocacy and policy making</b>	Operation	Erection of hoardings indicating the biological diversity, and scenic views along the project route	No.	5,000	20	100,000

**Mitigation / Enhancement**

COMPONENT	STAGE	ITEM	Unit	Unit Cost (INR)	QUANTITY	Total Cost (INR)
		Holding meetings for policy planning and subsequent review meetings with the Revenue Department, local representatives, town-planning authorities, NGOs, etc. regarding development controls especially w.r.t biodiversity preservation and landuse development studies	Year	100,000	2	200,000
<b>Administrative charges including Logistics</b>	Construction	Data processing, administrative support, stationery etc.	Month	30,000	42	12.60,000
<b>Miscellaneous items</b>		Digital Handy Cam for the Environmental Cell	No	40,000	1	40,000
		Portable sound level meter	No	25,000	2	50,000

**(D) Training & Mobilisation Costs** **1,650,000.00**

**TOTAL BUDGETED COSTS** **1,24,60,000 (INR)**