

**MICRO-PLAN**

**FOR**

**L3 LANDSCAPE : THENZAWL 'W'**

**UNDER**

**GREEN INDIA MISSION**

*Prepared by & Submitted by:*

Micro-Plan Working Group  
L3 Landscape: Thenzawl 'W'  
&  
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## CONTENTS

Chapter	Particulars	Page No
<b>1.</b>	<b>Objectives and Scope</b>	
	1.1 Objectives for GIM implementation	1
	1.2 Scope of implementing planned interventions under GIM	2
<b>2.</b>	<b>Details of Identified Landscape</b>	
	2.1 L1 Landscape	2
	2.2 L2 Landscape	2
	2.3 L2 Landscape within Thenzawl Forest Range	3
	2.4 Importance of L2 Landscape : Thenzawl 'W'	3
	2.5 L3 Landscape	3
	2.6 L3 Landscape (Thenzawl 'W')	3
	2.7 Extent and other features of L3 Landscape(Thenzawl 'W')	3-4
	2.8 Profile of L3 Landscape (Thenzawl 'W')	5
	2.8.1 Population and Workers Population	5
	2.8.2 Social Structures	5
	2.8.3 Wealth Ranking	6
	2.8.4 Number of Educational institutions	6
	2.8.5 Enrolment (as on 8.6.2017)	6
	2.8.6 Literacy percentage	6
	2.8.7 Occupation	7
	2.8.8 Livestock population	7
	2.8.9 Agriculture practises	7
	2.8.10 Cropping pattern	7
	2.9 Water Resources	8
	2.10 Energy Consumption Pattern	8
	2.11 Demand for fuel-wood	8
	2.12 Existing infrastructures	9
	2.13 Problems and Priority	9
	2.14 Demographic statistics of L3 Landscape	9
	2.15 Present interventions for addressing livelihood needs	10,11,12
	2.16 Gaps/strategies identified under GIM	13
	2.17 Drivers of degradation and deterioration in forest ecosystem	13

<b>3.</b>	<b>Process under taken for preparation of Micro-Plan</b>	
	3.1 Constitution of Micro-Plan Working Group	14
	3.2 Participatory Rural Appraisal(PRA)	15
	3.3 Households Survey	15
	3.4 Transect Walk	15
	3.5 Details of awareness programmes, meetings etc.	16
	3.6 Details of who prepared the Micro-Plan	17
<b>4.</b>	<b>Activities Proposed to be under taken in the L3 Landscape</b>	
	4.1 Current land use pattern	17
	4.2 Proposed land use pattern	18
	4.3 Treatment Proposed	19
	4.4 Objectives of Micro-Plan	20
	4.5 Sub-Missions Proposed for treatment(Action Plan)	21
<b>5.</b>	<b>Activities Proposed under Convergence</b>	
	5.1 Activities proposed under convergence	22
	5.2 Activities proposed for over all improvement of the landscape	22
<b>6.</b>	<b>Institutional Set-up for implementation in the landscape</b>	
	6.1 GIM Committee	23
	6.2 Institutional Set-up for implementation in the landscape	23-24
<b>7.</b>	<b>Livelihood Issues</b>	
	7.1 Brief note on the forest dependency and livelihood issue	25
	7.1.1 Availability and requirement of fuel wood	25
	7.1.2 Availability and requirement of fodder	25
	7.1.3 Availability and requirement of Timber	25
	7.1.4 Availability and requirement of NTFPs	26
	7.2 Details of activities to be carried out to address livelihood Issues through Green India Mission	26
	7.3 Convergence of schemes of other departments	27

<b>8.</b>	<b>Baseline Survey</b>	
	8.1 Baseline Survey Data of L3 Landscape	28-31
<b>9.</b>	<b>Status of reforms proposed</b>	
	9.1 Role of Gram Sabha (Village Council)	32
	9.2 Revamping of VFDCs	
	9.3 FRAs compliance in areas covered under L3	
	9.4 Easing out regulatory framework in felling and transportation of forest produce	
	9.5 Strengthening frontline formation of E & F Department	
<b>10.</b>	<b>Mission Cost</b>	
	10.1 Cost of the Missions	32
	10.2 Missions sustainability	32
	Abstract	33,34

## **ANNEXURES**

- I. Geographical Map of L3 Landscape
- II. Vegetation Map of L3 Landscape
- III. Drainage Map of L3 Landscape
- IV. Contour Map of L3 Landscape
- V. Land Use Map of L3 Landscape
- VI. Proposed Land Use Map of L3 Landscape
- VII. Guide lines for implementation of GIM in Mizoram
- VIII. Revamped VFDC Managing Committee
- IX. Village Level GIM Committee
- X. Approval of Village Council
- XI. Total Carbon Stock in L3 landscape
- XII. Shannon Diversity Index
- XIII. Annual Plan of Operation 2017-18 of L3 Landscape
- XIV. Abstract of Perspective Plan of L3 Landscape
- XV. Map of L2 Landscape showing Proposed L3 Land Use Activities

## **Chapter 1**

### **Objectives and Scope**

#### **1.1 Objectives for GIM implementation**

Although the identified landscape (L-1) - the entire state of Mizoram - has a large area under forest cover, the forests are not rich in quality. About 67.70 % of the forest cover is open, having very less canopy density. A large extent of open forest, particularly in the hilly terrain, can have devastating impacts on the normal structure and the delicate interdependencies of diverse flora and fauna in the forest ecosystem. The situation is likely to be further aggravated in Mizoram by the prevalence of shifting cultivation and other biotic interferences.

Efforts to enrich and protect the forests are being taken up by effectively implementing various schemes such as National Afforestation Programme, Integrated Forest Management, Thirteenth Finance Commission Grants-in-Aid, National Bamboo Mission, New Land Use Policy etc. The local people are being encouraged to shift from shifting cultivation to settled agriculture by providing them technical and financial assistance.

The treatments being done to the landscape coupled with the proposed interventions under Green India Mission (GIM) will save the valuable hilly ecosystem of the State from deterioration. It is expected that implementation of proposed strategies will enhance the quality of existing forests, ecologically re-stock wastelands, improve eco-system services, increase forest-based livelihood income and augment annual CO<sub>2</sub> Sequestration.

#### **1.2 Scope of implementing planned interventions under GIM**

The GIM, which aims at providing sustainable livelihood support to the people in a stable ecosystem would be implemented initially in 51 villages of eight identified L2 landscapes within the State. These villages form compact blocks for treatment in five Forest divisions/4 districts of the State. It is further planned to extend the mission in other parts of the State. It is to mention here that, the entire State has been identified as vulnerable i.e L1 landscape

## **Chapter 2**

### **Details of Identified Landscapes**

#### **2.1 L1 Landscape**

The entire State of Mizoram (Area: 21,081 sq. km.) has been taken as L1 Landscape. Proper treatment of the landscape in the State would bring ecological security in the region and would also contribute significantly to stabilize the changing climate.

#### **2.2 L2 Landscape**

Operational units (L2 level) have been identified based mainly on five indicators which are (1) extent of open forest, (2) dependency of the local population on the forests i.e. biotic pressure, (3) drainage pattern, (4) prevalence of shifting cultivation and (5) compact block for treatment under GIM.

Considering the above views, 2 no. of operational units ie L2 Landscapes have been taken up subsequently under GIM in Thenzawl Forest Division

#### **2.3 L2 landscape within Thenzawl Forest Range:**

Of the two L2 Landscapes in Thenzawl Forest Division the L2 Landscape: Thenzawl based on Lungrang tlang lies to the north of Thenzawl town within Thenzawl Forest Range. The landscape is a Community Reserve and consists of open and degraded forests. Further, it forms the catchment area of Lau river which is the only source of water for Thenzawl town. The treatments under Green India Mission would ensure continuous and uninterrupted supply of water for Thenzawl town. As such, Lungrang tlang was selected as L2 landscape for treatment under GIM.

#### **2.4 Importance of L2 Landscape: Thenzawl (Lungrang tlang)**

The identified landscape lies in the catchment area of Lau river, the source of water supply to Thenzawl town. Treatment of this landscape under GIM would ensure regular water supply to 8698 inhabitants (2011 census) living in Thenzawl town. Well-stocked good-quality forests in "Lungrang tlang" landscape will also stabilize

water flow in the major river of the region i.e. Lau river flowing in north-west direction.

## 2.5 L3 landscape:

All the 3 villages within the L2 Landscape: Thenzawl (Lungrangtlang) having interests in Green India Missions have been taken as “Working Units” i.e. L3 landscape.

## 2.6 L3 landscape (Thenzawl ‘W’)

The area under Village Council of Thenzawl ‘W’ is one of the three L3 landscapes (working units) identified for coverage in L2 landscape: Thenzawl (Lungrang tlang). The Thenzawl ‘W’ village was established around the year 1961. It has a population of 4857 with 803 households (222 households under BPL category). The villagers are quite educated, literacy rate being 97.5%.

The total geographical area of this L3 landscape is 40.24 sq. km. In the past, most of the land was covered with well-stocked good-quality forests. However, the forests have suffered serious depletion and degradation due to traditional practice of shifting cultivation and uncontrolled felling of trees. As a result, presently, most of the areas are either wastelands or forests having very less canopy density i.e. less than 10%. It is expected that execution of well-planned strategies under GIM may result into ecological stability in the region.

Further, this L3 landscape controls water flow in several streams/rivers such as Lau lui and Mat lui. These water-bodies are natural sources of water for Thenzawl ‘W’ Village and other nearby villages. The productivity of agricultural crops also depends upon water flow in these streams/rivers.

## 2.7 Extent and other features of L3 landscape - Thenzawl ‘W’

Table 1	
Location	The L3 Landscape -Thenzawl ‘E’ is located along Aizawl-Lunglei highway (World Bank Road). It is about 20 kms. away from Serchhip town, district headquarter of Serchhip district, and about 90 kms. from Aizawl, the State capital.
GPS coordinates:	23 <sup>0</sup> 19’35.79”N & 92 <sup>0</sup> 42’52.66”E, 23 <sup>0</sup> 17’18.79”N & 92 <sup>0</sup> 46’14.16”E 23 <sup>0</sup> 14’37.64”N & 92 <sup>0</sup> 44’36.43”E, 23 <sup>0</sup> 17’47.86”N & 92 <sup>0</sup> 41’9.72”E

Area	40.24 sq. kms.
Forest cover	Moderately dense forests – 9.36 sq. kms. Open forests – 23.56 sq. kms. Non-forests - 7.32 sq. kms.
Forest type	Cachar Tropical Semi Evergreen Forest (2B/C2) mixed with bamboo breaks. Important species found in the locality are <i>Toona ciliata</i> , <i>Amoora wallichii</i> , <i>Terminalia chebula</i> , <i>Embllica spp</i> , <i>Artocarpus chaplusa</i> etc. Dominant bamboo species are <i>Melocanna baccifera</i> , <i>Dendrocalamus hamiltonii</i> , <i>Bambusa tulda</i> , <i>D longispathus</i> etc
Soil quality	Three soil orders i.e. ultisols, inceptisols and entisols are found in the project area. The surface soil textures are loam to clay loam with clay content increasing with depth in the hills whereas in the valleys it is mostly sandy loam to sandy clay loams. The soils are acidic in nature with pH values ranging from 4.5 to 6.3. The soils in the hills are strongly acidic in reaction, whereas, the soils in alluvial deposits are less acidic in nature. The percentage of organic carbon content is medium (0.70 %).
Topography	Most parts of the land is undulating with moderate slope i.e. 15° to 40 ° with an altitude of 800-900 mts. above MSL, whereas some parts of the land are comparatively flat.



## 2.8 Profile of L3 Landscape (Thenzawl 'W')

### 2.8.1 Population and Workers Population

The population data of Thenzawl 'W' village is given below in the following table:

No of Households	Population		Children below 6yrs	Total
	Adult Male	Adult Female		
803	1667(34.4%)	1768(36.4%)	1422(29.3%)	4857

The average family size is 6 persons per household.

Source : Field verification

Workers Population is as under:-

Total Workers	Regular/Main Workers	Irregular/Marginal Workers	Non Workers
Workers: 1986 ( 47.43%) Male: 1025 (51.61%) Female: 961(48.38%)	Regular Workers: 402 (30%) Male : 312 ( 7.8%) Female: 90(2.25%)	Irregular Workers: 1587(39.6%) Male: 713(17.8%) Female: 871(21.79%)	NonWorkers: 2011(52.57%) Male: 544(13.61%) Female: 1467(36.70%)

Source : Field verification

### 2.8.2 Social structure

The social structure of the population at Thenzawl 'W' village is as under:-

General	Scheduled Caste	Scheduled Tribe	OBC	Total
Nil	Nil	4857(100%)	Nil	4857

Source : Field verification

### 2.8.3 Wealth Ranking

Table 4		
Sl. No.	Classification	No of families
1	Rich (Families having RCC building or motor car whose annual income exceeds Rs 5,00,000.00)	5(approx)
2	Middle class (Families whose annual income is less than Rs 5,00,000.00 but above BPL)	576(approx)
3	Poor (Families who are listed as BPL by the Govt.)	222(approx)

Source : Field verification

### 2.8.4 No of Educational institutions

Table 5A						
Anganwadi	Primary school	Middle school	High school	HSS	Colleges	Others
9	2	3	2	-	-	-

Source : Field verification

### 2.8.5 Enrolment (as on 8.6. 2017)

Table 5B						
Anganwadi	Primary school	Middle school	High school	HSS	Colleges	Others
270	120	154	220	-	-	-

Source : Field verification

### 2.8.6 Literacy percentage

Male – 98%, Female – 97%, Overall – 97.5%

Source: Census data 2011

### 2.8.7 Occupation

Sl. No.	Category of Occupation	No of families
1	Govt. service	146
2	Jhumming (Shifting cultivation)	94
3	Horticulture including WRC	10
4	Business/Petty trade	52
5	Daily labourers	501
6	Others	-

Source : Field verification

### 2.8.8 Livestock population

Cattle	Goat	Sheep	Pig	Poultry	Other
32	Nil	Nil	520	1650	-

Source: Field verification

### 2.8.9 Agriculture practices

Table 8

Category	Current Jhumming	Abandoned Jhumming	WRC
Area (sq.km)	0.89 sq.km	0.20 sq.km	-

Source: Existing Land Use Map

### 2.8.10 Cropping pattern

Sl No	Crop	Time of sowing	Time of harvest	% of agri. area covered
1	Rice	April-May	Sept- Nov	20
2	Orange	May-June	Oct-Dec	15
3	Banana	April-March	Jan-Dec	15

4	Rubber	May-June	March-April	2
5	Maize	March	July	4
6	Ginger	April- June	Oct-March	5
7	Pumpkin	March	June	1
8	Calocasia (Bal)	April	Nov-Dec	3
9	Local pea (Behlawi)	March	Sept-Nov	5
10	Soya bean	June-July	Nov-Dec	10
11	Oil Palm	April-June	Aug-Dec	20

## 2.9 Water Resource

There are three main sources of water for the people living in Thenzawl 'W' village i.e. water connection from Public Health Engineering (PHE) department, water collection points connected to perennial fountains and rain water harvesting. Water connection from PHE department has many outlets for all villagers and house-to-house connection has been provided. Rain water harvesting is being done by limited well-to-do families only.

## 2.10 Energy Consumption Pattern

The village has already been electrified by Power & Electricity department of the State. In addition, energy requirement is met from LPG connections, kerosene oil and fuel-wood collected from the Village Supply Reserves, the Jhumlands and the surrounding forests.

## 2.11 Demand for fuel-wood

The demand for fuel-wood has been worked out based upon inputs received from NGOs, VC members and other villagers. The annual demand is as under:-

Table 10

Average annual demand/household	No of households	Total annual demand of the village
1.8 cum	803	1445.4 cum

## 2.12 Existing infrastructure

Anganwadi Centre -9 nos., Primary School - 2nos., Middle School - 3nos., High School – 2no., Community Hall – 1no., Mini-Market -1no., Mini-Playground-1 no., Primary Health Centre -1no., Govt. Offices – PHE, Forest, SDO(Civil), SDEO.

## 2.13 Problems and Priority

Through PRA exercise, problems being faced by the villagers could be ascertained. These are lack of proper medical facility, absence of link road to agricultural fields, incomplete net-work of approach roads within the village, in-sufficient supply of LPG cylinders and scarcity of water-supply.

## 2.14 Demographic statistics of L3 Landscape

Sl. No.	Village	Population			Poverty (BPL families)	Forest dependency	Drivers of degradation	JFMCs/ other institutions of Gram Sabha
		Total	SC	ST				
1	Thenzawl 'W'	4857	-	4857	222	Shifting cultivation, fuel-wood, timber for construction of houses, furniture etc.	Dealt in para 2.17	Village Forest Development Committee (VFDC) is active in the village.

Source: Field verification

**2.15 Present interventions for addressing livelihood needs (forestry as well as non-forestry sector) and promoting sustainable forest development**

Table 12						
Sl. No.	Name of Scheme	Implementing Agency	Forestry and Wildlife activities	Other components like SMC	Details of livelihood component	Villages covered
1	NLUP (New Land Use Policy)	Different line departments such as-Soil Conservation, Horticulture, Agriculture, Forest, Sericulture, Fisheries, Industries, AH&Vety etc	Plantation of bamboos and other indigenous species	Construction of terracing, trenching, Rain water harvesting structures	Provision of technical and sustainable livelihood support so as to wean them away from the traditional practice of jhumming	Thenzawl 'W'
2	NAP (National Afforestation Programme)	FDA Thenzawl/ concerned VFDC	Sustainable management of forests with people's participation. Plantation is carried out on degraded lands	Construction of contour trenching, Checkdams, inspection path etc.	Livelihood generation through direct employment, sustainable extraction of forest produce, value addition and marketing	Thenzawl 'W'

3	NBM (National Bamboo Mission)	FDA Thenzawl / concerned VFDC	Plantation of bamboo spp, Training to farmers to increase crop productivity		Livelihood support is expected from extraction of bamboo &marketing of value added products	Thenzawl 'W'
4	MIDH(Mis sion for Integrated Develop ment of Horticulture	DHO Serchhip	Rubber plantation	Terracing, Rain water harvesting structures	Technical &Financial support to promising farmers only.	Thenzawl 'W'
5	MGNREGS	DRDA, Serchhip Dist	Roadside plantation	Terracing Checkdam, Retaining wall, contour trenching, Public water point, Rain water harvesting structures	Provision of 100 days employment for every willing household	Thenzawl 'W'
6	IWMP(Inte grated Watershed Manage ment Programme)	DRDA Serchhip,	Rubber plantation	Terracing Checkdam, contour & staggered trenching,	Support to SHGs	Thenzawl 'W'

				Public water point, Rain water harvesting structures, Farm ponds, Fish ponds		
7	RKVY(Rastria Krishi Vikaas Yojona)	DHO(Horti), DAO(Agri), DFDO(Fishery, DO(Sericulture) Serchhip district	Planting of Mulberry cuttings under sericulture, Oil palm plantation under Agriculture (OPAE)	Terracing(W RC-II),Rain water harvesting unit, Fish/Farm ponds	Provision of financial and material support to selected promising farmers.	Individuals /cluster selected from village
8	RADP (Rainfed Area Development Programme)	DAO Serchhip	Shift from shifting cultivation to settled cultivation (WRC-II)	Terracing, water harvesting structure	Technical and financial support to vulnerable families	Selected cluster &Individuals
9	IAY(Indira Gandhi Awaas Yojona)	DRDA, Serchhip	Nil	Nil	Construction of houses for the poor	Thenzawl 'W'



## 2.16 Gaps/Strategies identified under GIM

Table 13					
Sl. No.	Village	Forestry activities proposed	Other activities like SMC	Livelihood activities proposed	Any others
1	Thenzawl 'W'	1) Enhancement of quality in existing forests (with limited root stock and open blanks) 2) Ecosystem restoration (Rehabilitation of Shifting cultivation) 3) Agro forestry 4) Social forestry 5) Support to community conserved areas	Interventions in catchment areas of hydrological importance	Community livelihood enhancement.	Promoting alternate energy sources

## 2.17 Drivers of degradation and deterioration in the forest eco-system

Table 14		
Sl. No.	Village	Drivers of degradation
1	Thenzawl 'W'	Traditional practice of shifting cultivation, Lack of strategic and participatory land-use planning, excessive population pressure on the forests for fuel-wood, fodder, timber etc., inadequate scientific management of watersheds including rainwater harvesting.

## Chapter 3

Process undertaken for preparation of Micro-Plan/Sub-Landscape Plan

### 3.1 Constitution of Micro-Plan Working Group

A meeting was held with members/representatives of Village Council for Thenzawl 'W' village, conservation-oriented NGOs (YMA, MHIP and MUP), forest officers and other prominent citizens.. As per recommendations made in the meeting, a Micro-Plan Working Group was constituted for facilitating preparation of micro-plan for Thenzawl 'W' Landscape (L3). The constitution of the group is as under:-

Leader :	C.Lalkhawthanga	Range Officer, Thenzawl Range
Members :	1) Vanlalzawna	VCP
	2) R.Lalramnghaka	VC Member
	3) R.Lalnunsanga	..
	4) TC Lalrinthanga	YMA representative
	5) Lalchhanliana	YMA representative
	6) R.Lalhmangaihzuala	MUP representative
	7) RL Malsawma	MUP representative
	8) Zahnuni	MHIP representative
	9)Sangthangi	MHIP representative
	10) Lalengkima	VFDC representative
	11) V.Lalrokima	VFDC representative
	12) R.Mankima Fr.	Dept. representative

A questionnaire was designed by the committee for collection of data on (1) demographic status, (2) socio-economic conditions of the villagers, (3) resources available in the village etc. The questionnaire was designed to facilitate (1) assessment of current land use pattern and formulation of proposed land use pattern, (2) participatory resource-based land-use planning, (3) identification of livelihood needs, (4) planning of activities for sustainable livelihood support to the people and ecological stability in the region. The members of the Working Group also visited the area covered under L3 landscape.

### **3.2 Participatory Rural Appraisal (PRA)**

PRA exercise including group discussion, experience sharing, one to one discussion with the villagers etc. was conducted to promote people's participation in project planning, implementation and monitoring. Information on various issues concerning GIM implementation was explained to the villagers through interpretation of maps and other documents. Resource mapping, Preparation of existing land use map, seasonal Calendar (Cropping season) and wealth ranking exercise were completed during PRA activities. The principle of participatory land use planning was adopted with available technical inputs and in consultation with all the stakeholders including the local public, proposed land used map was prepared. The proposed land used map reflects the area where interventions are to be planned and implemented.

### **3.3 Households survey**

House-hold survey was carried out in the village covering almost all the families. A structured questionnaire was prepared for collecting information on dependency of every family on the forests as well as other required data.

### **3.4 Transect Walk**

Transect walk was done by the Micro-plan Working Group along-with some local people and VFDC members. During transect walk, inputs were obtained from the field for deciding upon the suitability of the proposed land-use. GPS reading of the prominent sites/spots visited by the Working group were also recorded.

### 3.5 Details of awareness programmes, meetings and work-shops along-with the resolutions and other outcomes

Table 15					
Sl. No.	Work-shop / meetings State Level / Landscape / Villages covered	Category (stakeholders and no. of participants)	Major outcomes	Details of facilitators engaged	Whether resolutions / photographs enclosed
1	State/L1 level(State Mission Directorate)	Representative of all line departments ,reputed academic and technical institutions	Suggestions were mainly given for strengthening institutions responsible for GIM implementation in the State		
2	Village/L3 level at Thenzawl 'W'	Representatives of VFDCs,VCs, and NGOs such as YMAS,MHIPs & MUP attended.	GIM guidelines in local dialect be distributed. Rural outreach activity for data collection be done at the earliest		

### 3.6 Details of facilitators engaged in the process, institutions who prepared the micro-plans and approval of the Gram-Sabha

Sl. No.	Village	Institution who prepared Micro-Plan JFMC/Others	Details of participation of all stakeholders /departments	Approval of Gram Sabha	Details of facilitators engaged
1	Thenzawl 'W'	Thenzawl FDA & Microplan Working Group as mentioned in para 3.1	Representatives of Govt departments, Conservation oriented NGOs, VFDCs, VCs, and local public.	Approved by Village Council, Thenzawl 'W'. Approval letter enclosed at annexure -	

## Chapter 4

### Activities proposed to be undertaken in the L3 landscape

#### 4.1 Current Land Use pattern

Current land use pattern has been mapped with interpretation of satellite imageries and field verification of interpreted data. The details are as under:-

#### Thenzawl 'W' village

Sl. No.	Land Use category	Area(Sq.kms)	% of total area	Remarks
1	Working Area	40.24		
2	Current jhum land	0.89	2.21	
3	Abandoned jhumland	0.20	0.49	
4	Horticulture land	0.62	1.55	
5	Private land	5.44	13.52	
6	RRF	2.79	6.93	
7	Community land/VC land	29.02	72.12	
8	Settlement	1.28	3.18	

Source: GIS cell ,E&F dept, Mizoram

## 4.2 Proposed Land Use Pattern

After careful scrutiny of current land use pattern, needs assessment and consultation with stakeholders, the following land use model is designed/proposed:

### Thenzawl 'W' village:

Table17B				
Sl. No.	Proposed land-use	Area (sq. km.)	% of total area	Remarks
1	Working Area	40.24		
2	Rehabilitation of shifting Cultivation areas	2.00	4.97	
3	Horticulture land	0.27	0.67	
4	Agro Forestry & Social Forestry - Farmers land including current fallows	1.50	3.73	
	- Highways, rural roads etc.	0.50	1.24	
5	Safety Supply Reserve - Moderately dense forest cover, but showing degradation	1.40	3.48	
6	Private land	4.89	12.15	
7	Community land: - Eco-restoration of degraded open forest	4.20	10.44	
	-Community land	24.20	60.14	
8	Settlement Area	1.28	3.18	

### 4.3 Treatments proposed

The following prescriptions (sub-missions/categories) are proposed to achieve the objectives under GIM through sustainable use of available natural resources:-

Table17C						
Sl. No.	Village	Submission/category				
		Enhance quality of forest cover	Ecosystem restoration & increase in forest cover	Agro forestry	Social forestry	Support to Community Reserves
1	Thenzawl 'W'	Stock enrichment planting to increase the quality of existing forests (ANR)	Plantation of indigenous spp to improve ecosystem and provisional services (AR)	Raising of plantation along with agri-crops for generating additional income sources	Afforestation activities with active people's participation of locals along the roads, in school premises etc	Support to community for conservation /improvement of their forests

### Cross-cutting interventions:

Table17D					
Sl. No.	Village	Cross-cutting interventions			
		Alternate energy sources	Livelihood enhancement Community	Community conserved areas and sacred groves	Watershed management

1	Thenzawl 'W'	Provision of Solar devices, LPG connection to BPL families	Support to forest based cottage industries for value addition of forest produce and marketing of value added products and Support to eco-tourism activities	Technical and financial assistance to village community as well as conservation oriented NGOs for sustainable management of forests	Rainwater harvesting, construction of check dams/ retaining wall, soil and water conservation measures
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#### 4.4 Objectives

##### Short term objectives

- Identification and arrest of drivers responsible for eco-system degradation
- Water-shed management - ridge to valley approach
- Increase in fuel-wood and fodder availability
- Employment generation
- Awareness for sustainable management of natural resources

##### Long term objectives

- Sustainable livelihood support to the people
- Ecological stability in the region



#### 4.5 Submissions proposed for treatment (Action plan): Thenzawl 'W'

Table 18					
Village	Sub-Missions	Categories	Proposed area	Proposed cost (Rs in lacs)	Livelihood activities proposed based on Micro-Plan
Thenzawl 'W'	1:Enhancing quality of existing forest cover & improving ecosystem service	a)Moderately dense forest cover, but showing degradation.	<b>140 Ha.</b>	56.70 @Rs40,500/ Ha	Support to Cottage industries i.e 17% of Total Cost norms for submissions and interventions = Rs.142.902 lakhs
		b)Eco-restoration of degraded open forest	(200 plants/ha Type A ) <b>140Ha.</b>	60.48 @Rs.43,200/ Ha	
			(2500 plants/ha Type C ) <b>280Ha.</b>	378.00 @Rs.1,35,000 /Ha	
	2:Ecosystem restoration and increase in forest cover	a)Rehabilitation of shifting cultivation areas	(1100 plants/ha) <b>200Ha</b>	162.00 @Rs.81,000/ Ha	
	3:Agro forest & Social Forestry (increasing biomass & creating carbon sink)	a)Farmer's land including current fallows	(1100 plants/ha) <b>150 Ha</b>	81.00 @Rs.54,000/ Ha	
		c)Highways/ Rural roads/ Canals/ Tank/Bunds	(1100 plants/ha) <b>50 Ha</b>	94.50 @Rs.1,89,000 /Ha	
	4:Promoting alternative fuel energy	Biogas,solar device,LPG,Bio mass based systems, improved stoves	<b>240 fly.</b>	7.92 @Rs.3300/fly	
	<b>Total cost norms for sub-missions and interventions</b>				

## Chapter 5

### Activities proposed under convergence

#### 5.1 Activities proposed under convergence

					Table 19
Sl. No	Village	Scheme	Implementation Agency	Activities proposed	Proposed funding Rs in lakhs
1	Thenzawl 'W'	MGNREGS	BDO, Serchhip	Provision of 100 days employment for every willing household.	
		NAP	FDA Thenzawl	Sustainable management of forests with peoples' participation. Plantation is raised on degraded lands.	
		NBM	FDA Thenzawl	Raising plantation of bamboo spp. Training farmers to increase bamboo products.	
		NLUP	Different line departments like Forest, Horti., AH & Vety, Fisheries, Agri. etc.	Provision of technical and sustainable livelihood support so as to wean them away from the traditional practice of jhumming.	

#### 5.2 Activities proposed for overall improvement of the landscape to be taken up through convergence – Not yet decided

## Chapter 6

### Institutional Set-up for implementation in the landscape

#### 6.1 GIM Committee:

Various committees have been constituted by the State government vide No.B.13011/3/2016-PCCF(PLG)/ Dated Aizawl the 25<sup>th</sup> August 2016 for effective implementation of GIM in the State of Mizoram. A copy of notification is attached at Annexure-----

The names of these committees are as under:-

- 1) Revamped Thenzawl 'W' VFDC for Green India Mission
- 2) Thenzawl 'W' Village Level GIM Committee

#### 6.2 Institutional Set-up for implementation in the landscape

Table 20							
Sl. No	Village	Institutions proposed for implementation	Submission of area			Details of other activities	Remarks
			Submission	Category	Area		
1	Thenzawl 'W'	Revamped VFDC	Enhancing quality of existing forest cover (ANR)	With limited root stocks and open blanks	140Ha	Provision of support to small scale cottage industries	Financial support for Livelihood will be given in the exit year
			Ecosystem restoration and increase in forest cover	Rehabilitation of shifting cultivation	200Ha		
			Social	Plantation	10,000		

			Forestry	in Govt. offices compounds	seedling		
			Agro-forestry	Plantation along with agri-crops	10,000 seedling		
			Alternate energy source	LPG connection to poor families	160 Families		
				Solar devices	80 Families		

## Chapter 7

### Livelihood Issues

#### 7.1 Brief note on the forest dependency and livelihood issues

##### 7.1.1 Availability and Requirement of Fuel wood.

Most of the households use fuel-wood as supply of LPG cylinders is much limited in the rural areas. The requirement and availability of fuel-wood is indicated below:-

Sl. No.	Village	No. of households	Average fuel wood requirement per household (cum)	Annual Fuel wood requirement (cum)	Fuel wood availability (Annual Yield) (cum)	Remarks
1	Thenzawl 'W'	803	1.9	1843	1431	

##### 7.1.2 Availability and Requirement of Fodder

Very few households practice cattle rearing for livelihood support. Therefore, demand for fodder is comparatively low.

##### 7.1.3 Availability and requirement of Timber

Demand for timber used in house construction and furniture has been worked out and is indicated below:-

Sl. No.	Village	No. of households	Average timber requirement per household (cum)	Annual timber requirement (cum)	Timber availability (cum)	Remarks
1	Thenzawl 'W'	803	1.5	1204.5	937	

#### 7.1.4 Availability and Requirement of NTFP(s).

Bamboo, cane, thatch, honey etc. are some of the important NTFP (s) which are extracted by the villagers from the forests. The demand as well as the availability for various NTFPS has been indicated below:-

##### Thenzawl 'W' Village:

Bamboo (nos.)		Fuelwood(cum)		Broom(Qtls)		Thatching grass (Bundles)	
Demand	Supply availability	Demand	Supply Availability	Demand	Supply availability	Demand	Supply Availability
10,000	1,00,000	1445.4	931.8	300	1346	628	1326

#### 7.2 Details of activities to be carried out to address livelihood issues through Green India Mission including details of activities, beneficiaries, cost, village-wise plan etc.

Sl. No	Village	Proposed livelihood activities	Role of facilitators, if any engaged	Beneficiaries	Proposed cost(Rs in lakhs)	Remarks
				No. of Family		
1	Thenzawl 'W'	Technical & Financial support to cottage industries	Provision of technical knowledge to improve quality and quantity of production as well as assistance in marketing	222	142.902	Handloom industry is popular within L3 Landscape- Thenzawl 'W'. Hence on receipt of fund priority will be given for uplifting Handloom industry.

**7.3 Convergence of schemes of other departments/missions viz. NRLM to enhance the livelihood especially with the aim of addressing the drivers of degradation and the activities proposed along-with the beneficiaries, cost, and village-wise plan**

Table 25							
Sl. No.	Village	Scheme	Implementing Agency/ department	Proposed livelihood activities	Beneficiaries	Proposed cost	Remarks
					No. of Family		
1	Thenzawl 'W'	NRLM	BDO, Serchhip	NIL	-	-	

## Chapter 8

### Baseline Survey

#### 8.1 Baseline survey:

The baseline data for various parameters required for maintaining the outcomes of activities undertaken under GIM are given below:-

#### Thenzawl 'W' village:

Table 26		
Parameters	Indicator	Baseline Status (As on 8.6.2017)
1. Forest/tree cover on forest/ non-forest lands in the Mission Target Area (MTA)	a) % of area with forest cover	81.81% (Total forest cover 32.92 sq. km. out of 40.24 sq. km.)
	b) % area in various forest density classes	1) Very Dense = 0.0% 2) Moderately Dense= 23.26% (9.36 sq. kms.) 3) Open Forest = 58.55% (23.56 sq. km.) 4) Non Forest = 18.19% (7.32sq. km) Source: GIS cell E&F Dept. Govt. of Mizoram
2. Ecosystem services from targeted areas / landscapes	a) Shannon-Weiner Index	2.76 (annexure .....
	b) Biomass	Above Ground Biomass = 9.61 tonnes/ha Source: Field Survey data
3. Soil	a) Depth of top soil	The depth of top soil is very deep in valley flatlands whereas in the hills it is deep to very deep.



	b) Soil quality	Three soil orders such as ultisols, inceptisols and entisols are found in the project area. The surface soil textures are loam to clay loam with clay content increasing with depth in the hills whereas in the valleys it is mostly sandy loam to sandy clay loams. The soils are acidic in nature with pH values ranging from 6.8 to 7.0. The soils in the hills are strongly acidic in reaction, whereas, the soils in alluvial deposits are less acidic in nature. The percentage of organic carbon content is medium (0.70%). The available nitrogen is medium (0.6 kg/ha) while available phosphorus is found low (12 kg/ha). The available potash is found to be high (285 kg/ha).	
4. Hydrology	a) Wetland area b) Stream beds/water discharge c) Ground water, Table- water level in wells/springs	a) No wetlands in the Area b) No data on stream water discharge c) The area is hilly with variable elevation. Therefore, the ground water level varies. In the village settlement area, the depth of water in well is about 40 ft.	
5. Annual sequestration of Co <sub>2</sub>	Carbon sequestered in the target area.	Baseline Carbon Stock = 2,42,821.212 tonnes	
6. Forest / non-forest based livelihoods income	No. of targeted households (HH) reporting at least 25% increase in real income	Income(Rs. Annual)	No of Households
		More than 5Lakh	5
		5 lakh > -- <50,000	576
		Less than 50,000	222
7. Quality of	a) % of forest area	81.21%	

forest cover & ecosystem services of forest / non-forests	naturally regenerating.	Source: GIS Cell, E&F Dept, Mizoram
a) Moderately dense forests	b) Biomass	8994.96 tonnes (AGB)
b) Open forests		22,641.16 tonnes (AGB)
c) Degraded grasslands		-
d) Wetlands		-
2. Ecosystems are restored and forest cover is increased in Scrub, shifting cultivation areas etc.	a) % of area that is adequately stocked /productivity	
3. Forest and Tree cover in urban/ peri-urban land	a) % of forest and tree cover in the targeted urban/peri-urban areas	Plantation in urban/peri-urban not allotted to Thenzawl 'W'
4. Forest and tree cover on marginal agricultural lands / fallows and other non- forest land under agro forestry/ social forestry	a) % of tree cover on non-forest land.	18.19 % (7.32 sq. kms. out of 40.24 sq. kms.) Source: GIS Cell, E&F Dept Mizoram
5. Public forest/	a) % of area under	72.12 % (29.02 Sq Km out of 40.24 Sq Km)

non-forests areas (taken up under the Mission) are managed by the community institutions.	management of community institutions	Legally under the Village Council Source: GIS Cell E&F Dept, Mizoram	
6. Improved fuel wood-use efficiency and alternative energy devices adopted by households in the MTA.	a) % of HH reporting use of alternative energy devices.	Total Households = 803 LPG users = 246 Fuel-wood users = 545 Fuel-wood only users = 12 Solar Devices users = nil	
7. Forest/non forest based livelihoods of the people living in and around the forests are diversified.	a) % of HH reporting diversification of income sources.	Source of income	No of Households
		Govt. Service	146
		Jhumming	94
		Horticulture including WRC	10
		Business/Petty Trade	52
		Daily Labourers	501
		Others	-

## **Chapter 9**

### **Status of reforms proposed**

- 9.1** Role of Gram Sabha (Village Council) in project planning, implementation and monitoring
- 9.2** Revamping of VFDCs
- 9.3** FRAs compliance in areas covered under L3
- 9.4** Easing out regulatory framework in felling and transportation of forest produce
- 9.5** Strengthening frontline formation of E&F department

## **Chapter – 10**

### **Mission Cost**

#### **10.1 Cost of the Mission**

Cost of the Mission for various work items has been given in the Annexure - XIV

#### **10.2 Mission sustainability**

The mission will be executed with active participation of the local people. On completion of the project, crop productivity of the existing forest will increase substantially. Sustainable extraction of forest produce, value addition to forest produce as well as marketing of value added products will provide livelihood support to the people while maintaining ecological stability in the region. Thus the mission is economically viable and socially adoptable.

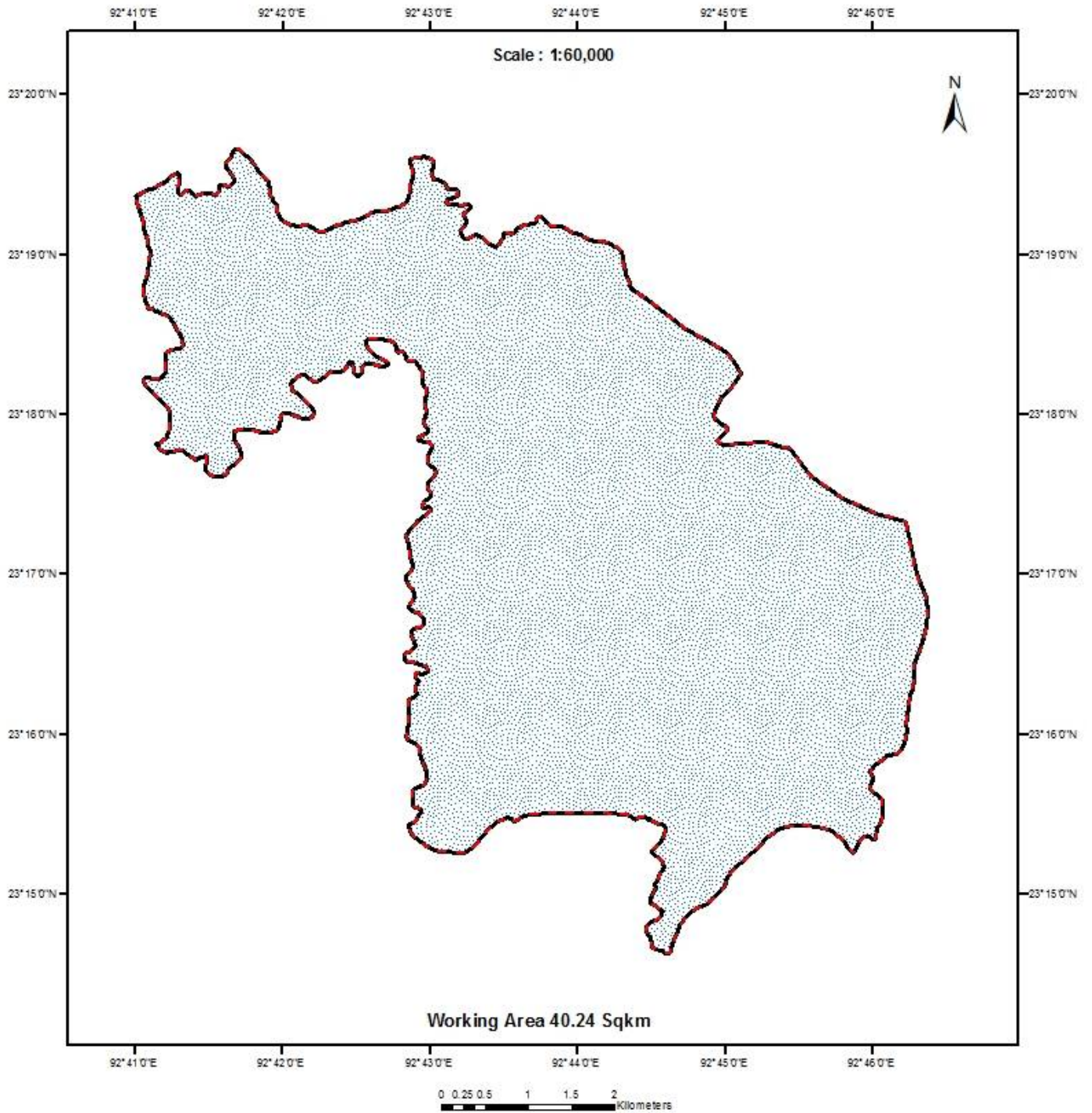
## Abstract

Table 27

1. Name of L1 landscape		The State of Mizoram		
2. Name of L2 landscape		Thenzawl		
3. Name of L3 landscape		Thenzawl 'W'		
4. Forest and non-forest area in L3		Forest area – 32.92 sq km Non-forest area – 7.32 sq km		
4. Drivers of degradation in the landscape		Traditional practice of shifting cultivation, Lack of strategic and participatory land-use planning, excessive population pressure on the forests for fuel-wood, fodder, timber etc., inadequate scientific management of watersheds including rainwater harvesting.		
5. Results of problem analysis				
6. Existing scheme implemented in the landscape		NAP,NBM,MNGREGS,RKVY,IAY etc.		
7. Implementing agencies under GIM		Revamped VFDC Thenzawl 'W'		
8. GIM Activities				
<b>A- Cost norms for Sub-Missions and Interventions</b>				
Sub-Missions	Categories	Proposed Area	Proposed Cost (in lakhs)	Funding Received (CSS plus SMS)(in lakhs)
1: Enhancing quality of existing forest cover & improving ecosystem service	a) Moderately dense forest cover, but showing degradation	140 Ha.	@40,500/Ha.= 56.70	3.78+0 =3.78
	b) Eco-restoration of degraded open forest.	140 Ha.	@43,200/Ha.= 60.48	4.536+0 =4.536
	i) 200 plants per Ha.(Type A) ii) 2500 plants per Ha.(Type C)	280 Ha.	@1,35,000/Ha=378.00	6.75+0.54 =7.29
2: Eco-system restoration and increase in forest cover	a) Rehabilitation of shifting cultivation areas	200 Ha.	@81,000/Ha. = 162.00	4.59+0.54 =5.13

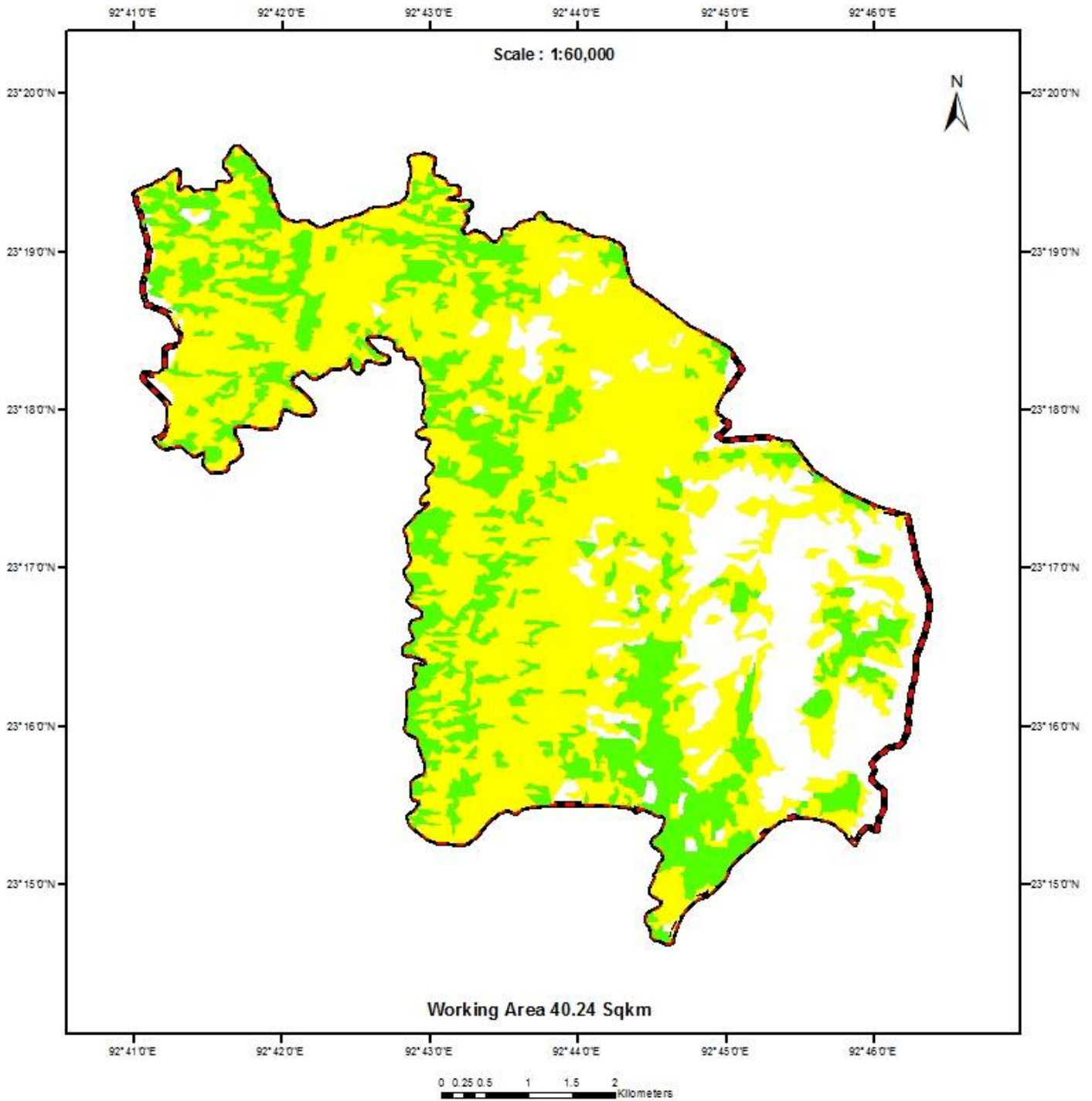
3: Agro-Forest & Social Forestry (increasing biomass & creating carbon sink)	a)Farmers' land including current fallows	150 Ha.	@54,000/Ha. = 81.00	5.67+0.6375 =6.3075
	b)Highways /Canals/Rural roads/Canals/Tanks/Bunds	50 Ha.	@1,89,000/Ha. = 94.50	6.21+0.146 =6.356
4: Promoting alternative fuel energy	Biogas, solar device, LPG, Biomass based systems, improved stoves	240 fly.	@3300/fly. = 7.92	nil
<b>Total of A</b>			<b>840.60</b>	<b>33.3995</b>
<b>B-For Support Activities</b>				
Activities Cost				
1	Research (2% of A)		16.8120	-
2	Publicity/Media/Outreach activities (1% of A)		8.4060	-
3	Monitoring & Evaluation (1% of A)		8.4060	-
4	Livelihood Improvement activities (17% of A)		142.902	-
5	Strengthening local – level Institutions (5% of A)		42.0300	0.05143
6	Strengthening FDs (5% of A)		42.0300	-
7	Mission Organisation, operation and maintenance, contingencies and overheads (4% of A)		33.6240	-
<b>Total of B</b>			<b>294.2100</b>	<b>0.05143</b>
<b>Grand Total (A + B)</b>			<b>1134.81</b>	<b>33.45093</b>

### GEOGRAPHICAL MAP OF L3 LANDSCAPE THENZAWL WEST



Prepared By:  
GIS CELL E&F Deptt, Mizoram

### VEGETATION MAP OF L3 LANDSCAPE THENZAWL WEST



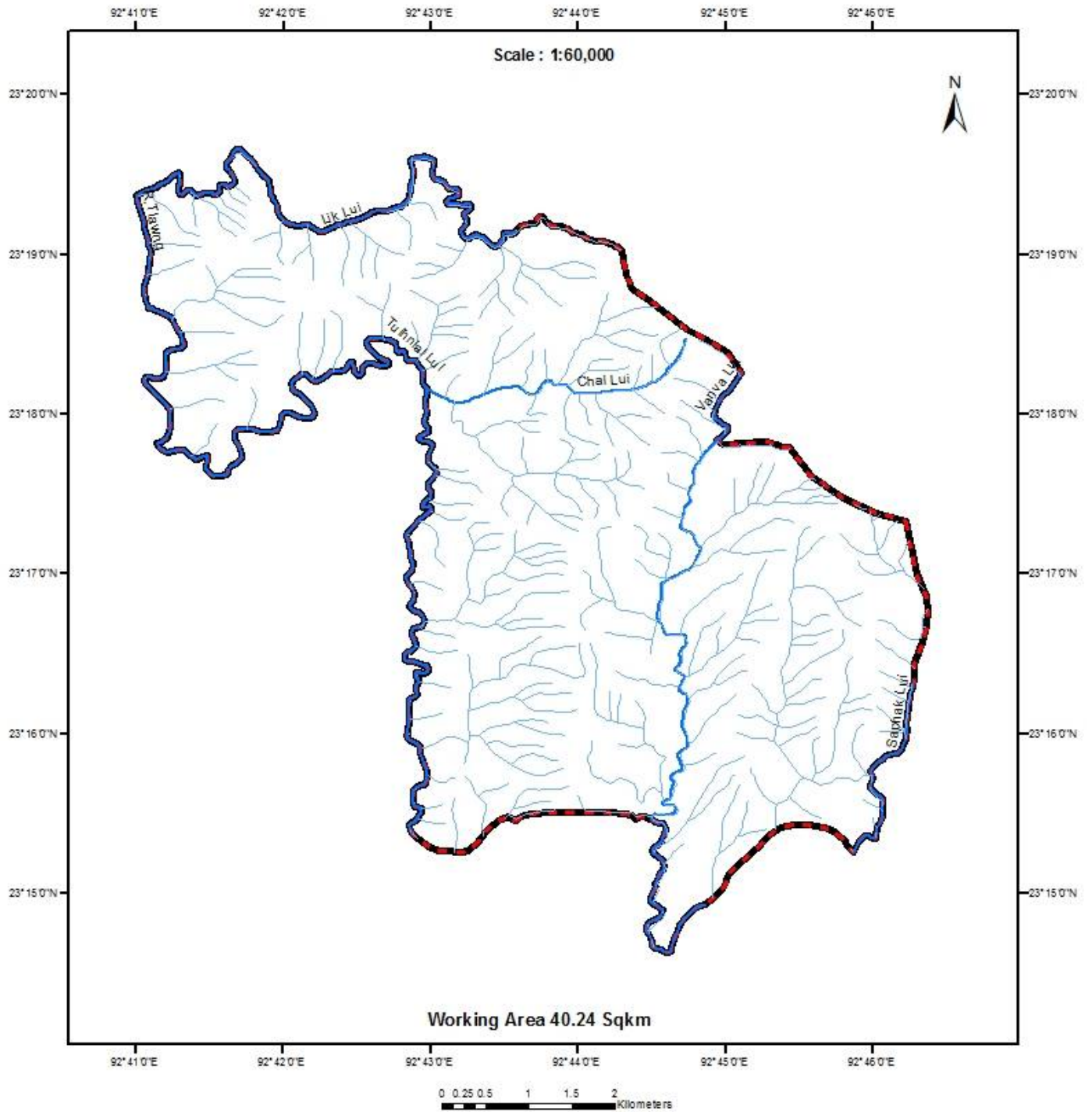
Moderately Dense Forest : 9.36 Sqkm  
Open Forest : 23.56 Sqkm



Prepared By:  
GIS CELL E&F Deptt, Mizoram



### DRAINAGE MAP OF L3 LANDSCAPE THENZAWL WEST

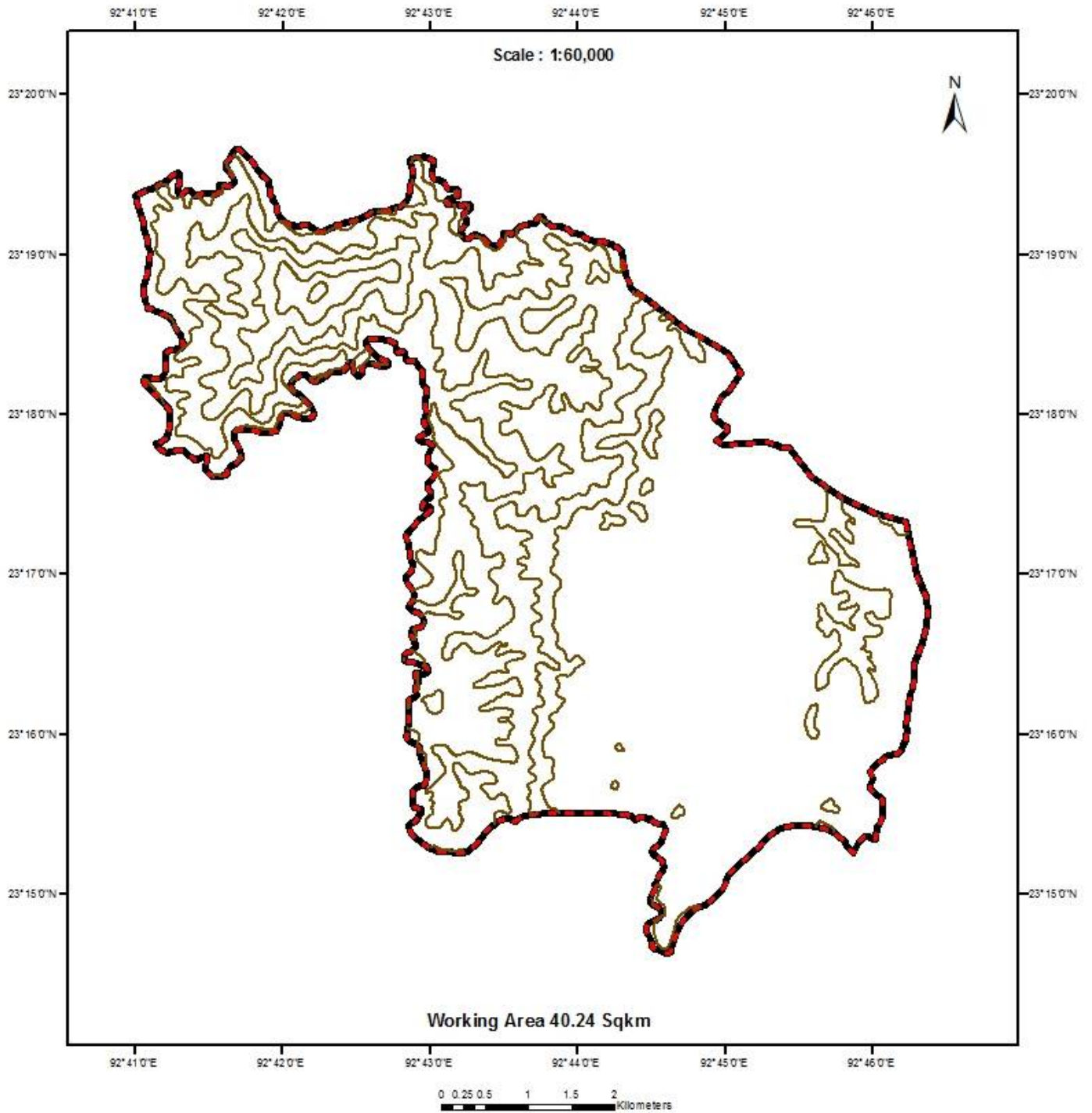


**Legend**


- Working Area a
- Rivers
- Drainage

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### CONTOUR MAP OF L3 LANDSCAPE THENZAWL WEST

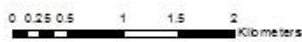
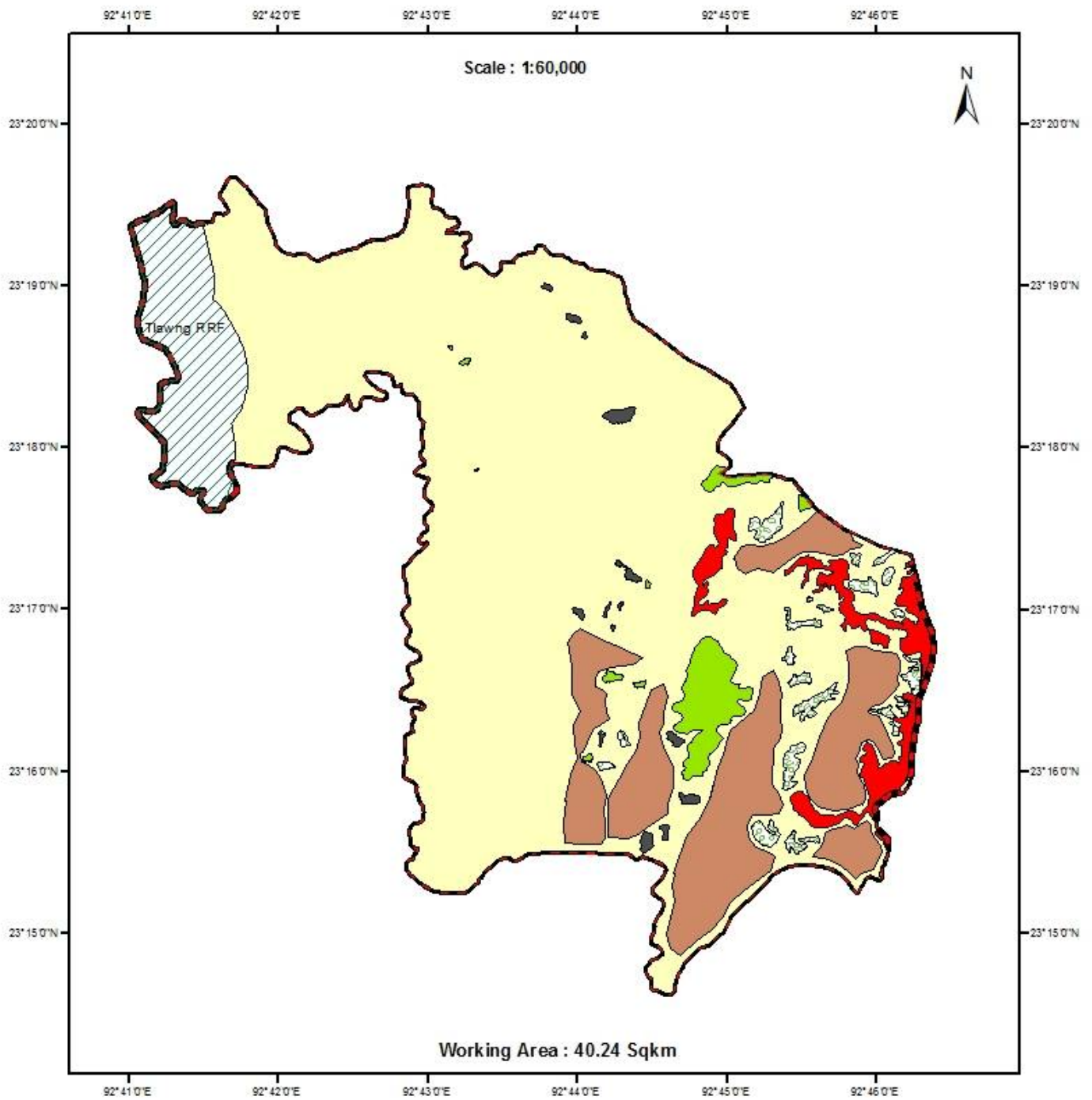


**Legend**

-  Working Area
-  Contour

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### LANDUSE MAP OF L3 LANDSCAPE THENZAWL WEST

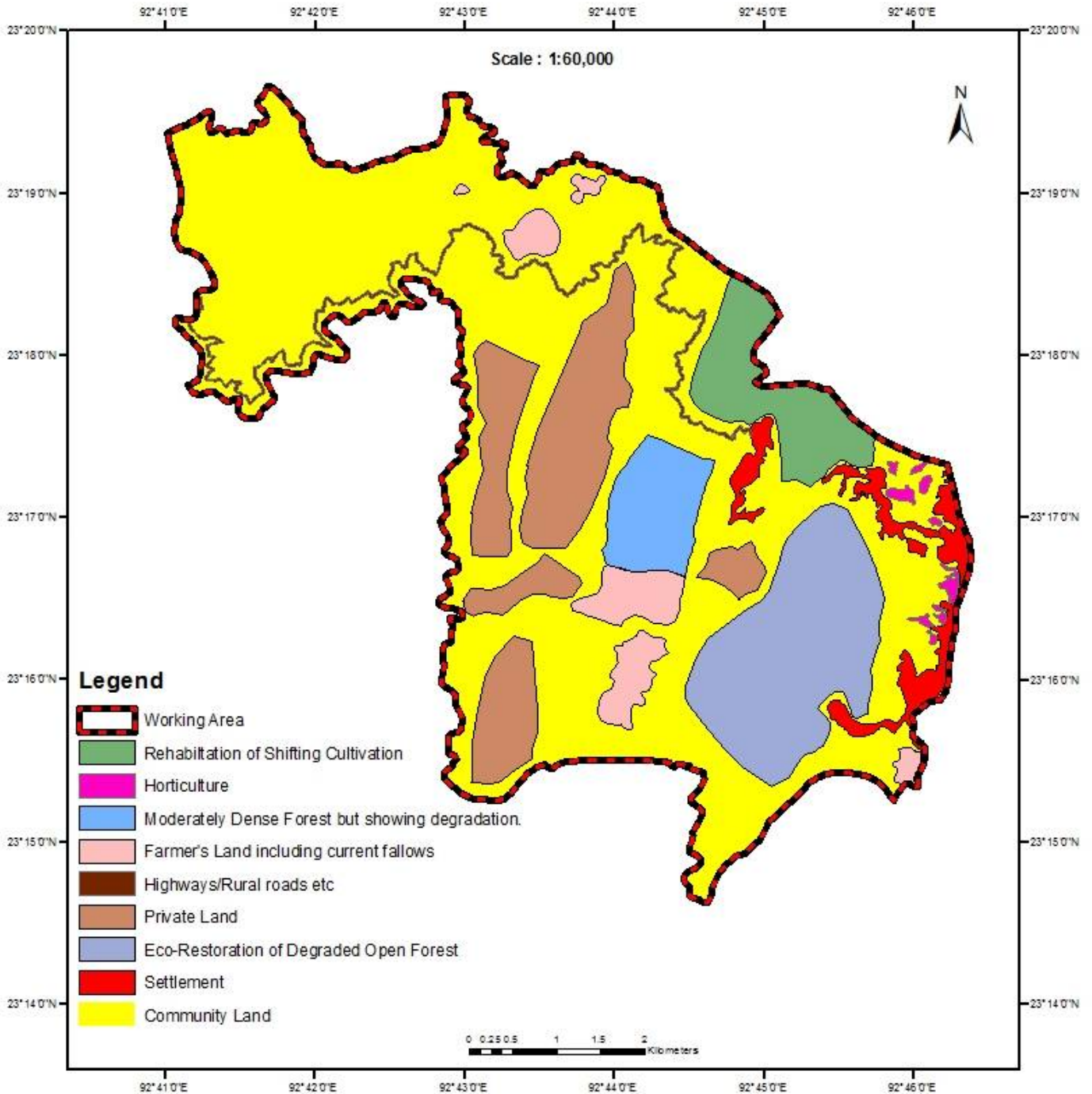


1. Working Area	: 40.24 Sqkm
2. Current Jhum Land	: 0.89 Sqkm
3. Abandoned Jhum Land	: 0.20 Sqkm
4. Horticulture Land	: 0.62 Sqkm
5. Private Land	: 5.44 Sqkm
6. RRF	: 2.79 Sqkm
7. Community Land	: 29.02 Sqkm
8. settlement	: 1.28 Sqkm

Legend	
	Working Area
	VC Land
	Mizoram RRF
	Abandoned Jhum Land
	Current Jhum Land
	Department Plantation
	Horticulture
	Private Land
	VFDC Plantation
	Settlement

Prepared By:  
GIS CELL E&F Deptt, Mizoram

**PROPOSED LANDUSE MAP OF L3 LANDSCAPE THENZAWL WEST**



<b>1. Working Area</b>	<b>: 40.24 Sq.Km</b>
<b>2. Shifting Cultivation Rehabilitation Areas</b>	<b>: 2.00 Sqkm</b>
<b>3. Horticulture Land</b>	<b>: 0.27 Sqkm</b>
<b>4. Supply &amp; Safety Reserve :</b>	
<b>I) Moderately Dense Forest Cover But Showing Degradation</b>	<b>: 1.40 Sqkm</b>
<b>5. Agro &amp; Social Forestry :</b>	
<b>I) Farmer's Land</b>	<b>: 1.50 Sq.km</b>
<b>II) Highways / Rural Roads</b>	<b>: 0.50 SqKm</b>
<b>7. Private Land</b>	<b>: 4.89 Sqkm</b>
<b>8. Community Land :</b>	
<b>I) Eco -Restoration of Degraded Open Forest</b>	<b>: 4.20 Sqkm</b>
<b>II) Community Land</b>	<b>: 24.20 Sqkm</b>
<b>9. Settlement</b>	<b>: 1.28</b>

Prepared By:  
GIS CELL E&F Deptt, Mizoram

(15)

## GUIDELINES FOR IMPLEMENTATION OF GREEN INDIA MISSION IN MIZORAM

For successful implementation of Green India Mission (GIM) in the State of Mizoram in a transparent and participatory manner, the following simplified and step by step guidelines (extract of important conditions laid down in the GIM Implementation Guidelines of MoEF&CC and Sanction Order) are issued for compliance by the implementing FDAs, VFDCs (JFMCs), other Committees and officials concerned.

### I. Village Level

1. **Revamped VFDC** – Since the Mission activities at the village level are to be implemented by the revamped VFDCs mandated by the Village Council, the existing VFDCs shall be revamped or re-constituted as per JFM Guidelines in consultation with or mandated by the Village Council concerned (Formation of VFDC to be approved by the Village Council).
2. **Exclusive and separate bank account of VFDC** will be opened in a Nationalized Bank/ Cooperative Bank or Post Office to be jointly operated by the President and Member Secretary of the VFDC.
3. **Village Level GIM Committee (VLGC)** will be formed by the DFO (CEO) in consultation with the heads of departments concerned in the district, specifying the names/designation of the members as per the following composition under intimation to the Chairman of the FDA and DLSC:-
  - a) Chair person : Range Forest Officer concerned
  - b) Member Secretary : Beat Officer (Forester or Forest Guard) concerned
  - c) Members : Field officers/staff in charge of the area from Agriculture, Horticulture, Soil & Water Conservation, Sericulture, AH & Vetty, Fisheries, Rural Development, Social Welfare Departments, two (2) members of VFDC, two representatives of Village Council and two representatives of prominent NGOs concerned.
4. As soon as approval of the project or release of the fund is intimated to the VLGC, the Member Secretary will convene a **meeting of VLGC** to discuss or review the micro-plan/ perspective plan to see the possibility of convergence with other programmes and also discuss how the GIM is to be implemented as per the prescription in the approved micro-plan with active participation of the local people. Minutes of the meeting should be properly recorded in the Minute Book and a copy of the meeting minutes should be given to the FDA and DLSC who may give advice as deemed necessary, particularly with regard to convergence.
5. **Revision of micro-plans** of L3 landscapes and corresponding APO already prepared will be re-visited and revised in conformity with the State Level Perspective Plan and APO approved by MoEF&CC, and in the revised micro-plans of L3 level landscapes,

All the activities/interventions to be implemented with the funds available from various sources/complementary schemes are duly taken into account to ensure requisite investment through convergence. The financial micro-planning shall include detailed breakup of the funds from various sources e.g. GIM, CAMPA, MNREGS, NAP etc.

A baseline data on forest cover, biodiversity, carbon sequestration, potential status of wildlife corridors, annual income of forest dependent communities, socio-economic profile of the villages, and status of wetlands shall be recorded.

The timeframe within which each L3 landscape shall be saturated with GIM interventions should also be clearly stated.

Geo-coordinates of each landscape/area where the activities under GIM or convergence activities are proposed with any other complementary scheme shall be recorded.

In addition, it shall be indicated in the micro-plans, the species and number of seedlings to be raised in the nurseries in consultation with the stakeholders in the L3 landscapes.

6. **Micro-plan approval** – The L3 level micro-plans and APO so revised as per the approved State level Perspective Plan and APO have to be approved by the Village Council and then submitted to the Member Secretary of the FDA for compilation as L2 Perspective Plan.
7. **The funds received by VFDC from the FDA shall be deposited in the joint bank account for utilization to carry out the approved GIM activities in L3 landscapes.**
8. **Implementation of GIM activities** - As soon as approval of the project or release of the fund is intimated to the VFDC, the Member Secretary will convene a meeting of VFDC to discuss how and where the approved activities will be taken up with the fund received/to be received by them and in conformity with the prescription in the approved micro-plan. Minutes of the meeting should be properly recorded in the Minute Book and a copy of which shall be given to the FDA, DLSC, VLGC and the VC who will monitor the implementation of the Mission and who may give guidance and advice as deemed necessary.
9. **Before taking up any work/activity, photographs (with date) of the site/area where work is to be taken up shall be taken from a particular point(s) which shall be marked by fixing permanent pillar(s), and photographs of the same site/area will be taken from the same point(s) after the works are completed. In this way, photographs will be taken of the same site/area every year from the same point(s) just before and after taking up the works. The hard and soft copies of those photographs (with date) shall be kept under safe custody of the VFDC Secretary for record and also for submission to higher authorities.**

## II. District/Division Level

1. On receipt of approval of the project/release of fund from SFDA, meeting of District Level Steering Committee (DLSC) and of the FDA will be convened to appraise the members of the approval/sanction of the project and also to facilitate convergence with any other schemes in the selected L2 landscapes and also to render advice to the FDA and VFDC for successful implementation of the project as deemed necessary.
2. Since the General Body and Executive Body of the FDA constituted by the Government vide No.B.11016/16/2011-FST dt. 11.11.2014 does not specify the names/designation of some of the members, the DFO/Member Secretary of the FDA concerned will make nomination/obtain nomination from the concerned authority as the case may be, and send the same to the Conservator of Forests/Chairman of the FDA for issue of final notification/order to this effect.
3. L2 level Perspective Plan and the corresponding APO will be prepared/ revised by compiling the revised and/or approved L3 level micro-plans received from VFDCs and the same has to be approved by the FDA and also by the DLSC after which it will be sent to SFDA for approval.
4. Exclusive and separate bank account of FDA will be opened in a Nationalized Bank to be jointly operated by the Chairperson and Member Secretary of the FDA, and funds for implementation of GIM activities shall be received through Electronic Clearance System (ECS) and deposited in such joint bank account.
5. The funds received by the FDA will be released to the concerned VFDC within fifteen days of receipt of the fund from the SFDA preferably by ECS with proper intimation and instruction in writing as to how the fund should be utilized indicating the items of works/ activities to be taken up with the fund so released. Copy of such communication (release of funds) should be given to the Chairperson of VFDC, Village Level GIM Committee, Village Council and DLSC.
6. The FDA shall be responsible for guidance, coordination, supervision, periodical reporting and monitoring the implementation of the project by their constituent JFMCs/ VFDCs.
7. The FDA shall ensure that there is no diversion of earmarked funds from one L3 landscape to another one except in case of unavoidable circumstances and only with the prior approval of Mission Directorate.
8. Except for supervening impossibilities, the Chairperson and Member Secretary of the FDA shall be solely responsible and accountable for successful implementation of the project.
9. The FDA shall follow strict corruption mitigation strategies while utilizing the funds.

10. FDA shall take necessary steps to ensure raising of quality seedlings and maximum survival of plants under the GIM Scheme. The survival percentage of plantation shall be reflected in the subsequent QPR submitted to the Ministry along with the details on the progress of activities carried out under the Mission.


11. FDA shall also submit a certificate to the effect that all conditions laid down in the Implementation Guidelines and the Sanction Order are being followed each time a request for release of grant is made.

### III. Monitoring and audit

1. The project shall be monitored periodically by the local community, implementing organization and the State Forest Department, by an external agency/third party of randomly selected sites, by the Forest Survey of India (FSI) using remote sensing based forest cover monitoring. Besides, pilot areas will be intensively monitored to assess the impact and efficacy of different old and new practices by the implementing agency, the Forest Department and a support organization. In addition, the Gram Sabha/Village Council will carry out social audit of the Mission activities at the village level. The MoEF&CC shall also supervise the project, as and when deemed required.

2. Any agency/ officer (s) authorized by GIM shall have the right of access to the books and accounts of the FDA/JFMCs and VFDCs for funds received under the project.

3. The Mission accounts will be subject to audit by Principal Accountant General, Mizoram and also by reputed Chartered Accountant who is in the panel of C&AG or any person/agency authorized by C&AG on his behalf.

  
Principal Chief Conservator of Forests  
Mizoram : Aizawl



GOVERNMENT OF MIZORAM  
OFFICE OF THE RANGE FOREST OFFICER  
THENZAWL FOREST RANGE  
THENZAWL, MIZORAM.

NO.TFR/25/GIM/2015 – RO(Tzl)/ 702

Dated, Thenzawl the 26<sup>th</sup> Sept. 2016.

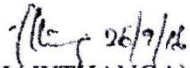
To  
The Divisional Forest Officer  
Thenzawl Forest Division  
Thenzawl, Mizoram.

Subj. – 2016-17 Thenzawl 'W' Revamped VFDC(GIM) Managing Committee members.

Ka pu,  
2016-17 Thenzawl 'W' Revamped VFDC(GIM) Managing Committee members tur inthlanna dt.21.9.2016 khan Thenzawl 'W' VC House ah tluang taka neih a ni a. A hnuai hming tarlante hi Managing Committee member te chu anni –

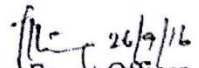
1. Chairman : Pu Vanlalzawna
2. Secretary : Pu C.Lalkhawthanga F/R
3. Veng aiawh :  
Thenzawl Kanan Veng – Pi Zahnuni  
Thenzawl Bazar Veng – Pu H.Lalremruata  
Thenzawl Br.I. Veng – Pu V.Lalrokima
4. MHIP aiawh – Pi R.Lalbiakzami
5. YMA aiawh – Pu RK.Biakdawla
6. VC aiawh :NI Lalpianthangi VC Member  
Tv R.Lalramnghaka VC Member

I rintlak

  
(C.LALKHAWTHANGA)  
Range Forest Officer  
Thenzawl, Forest Range  
Thenzawl, Mizoram.

Memo NO.TFR/25/GIM/2015 – RO(Tzl)/ 702  
Copy to – All committee members for kind information.

Dated, Thenzawl the 26<sup>th</sup> Sept. 2016.

  
Range Forest Officer  
Thenzawl, Forest Range  
Thenzawl, Mizoram.

GOVERNMENT OF MIZORAM  
OFFICE OF THE RANGE FOREST OFFICER  
THENZAWL FOREST RANGE  
THENZAWL, MIZORAM.

No.TFR-25/GIM/2015-RO(TZI)/ 705

Dated, Thenzawl the 27<sup>th</sup> Sept.2016

To,  
The Divisional Forest Officer  
Thenzawl Forest Division  
Thenzawl, Mizoram.

Subj. – Formation of Village Level GIM Committee(VLGC) under L<sub>3</sub> Landscape – Thenzawl ‘W’

Sir,

I have the honour to state that Village Level GIM Committee(VLGC) under L<sub>3</sub> Landscape – Thenzawl ‘W’ has been formed. Committee Members are as below for your kind information and necessary action –

Sl.No	Designation	Name
1.	Chairperson	– Pu C.Lalkhawthanga R.O Thenzawl
2.	Member Secretary	– Pu R.Mankima Fr.
3.	Members :	1. Pu. T.Lalremruata, Gram Sevak (Agriculture Dept. representative)
		2. Pi Maggie Zosangpuii, Horticulture Demonstrator (Horticulture Dept. representative)
		3. Pu H.Lalremsanga R.O Soil (Soil & Water Conservation Dept. representative)
		4. Pi Rosangzuali, Sericulture Demonstrator (Sericulture Dept. representative)
		5. Pu H.T Lalrimawia, VFA (AH & Vety. Dept. representative)
		6. Pu.C.Lalhminghlua, Fisheries Demonstrator (Fisheries Dept. representative)
		7. Pi RC Lalramthangi, LDC (Rural Development Dept. representative)
		8. Pi Lalnunmawii, (Social Welfare Dept. representative)
		9. Pu Hualthangpuia, VFDC representative
		10. Pu Lalnunsanga, -do-
		11. Pu Vanlalzawna, Village Council representative
		12. Pi ZD Lalrinchani, -do-
		13. Pu TC Lalrinthanga, YMA representative
		14. Pi Laithangpuii, MHIP representative

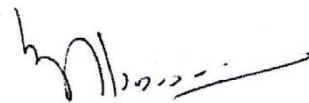
Yours faithfully

*[Signature]* 27/9/16  
(C.LALKHAWTHANGA)  
Range Forest Officer  
Thenzawl Forest Range  
Thenzawl, Mizoram.

**OFFICE OF THE VILLAGE COUNCIL/COURT : THENZAWL WEST  
THENZAWL : MIZORAM**

**APPROVAL**

Thenzawl West Village Council ram chungang Green India Mission hmalakna hi, Village Council chuan kan pawmin kan remti (approve) e.



**(VANLALZAWNA)**

President  
Village Council/Court  
Thenzawl West & Serchhip District

## SAMPLE PLOT ENUMERATION

L2 Landscape : Thenzawl - Thenzawl L3 Landscape : Thenzawl 'W' Forest Area : 3292 Ha.			
Sl No	Sample Plot No.	Growing stock / Ha.	Remarks
1	SP - 20	31.7807	-
2	SP - 28	19.3784	-
3	SP - 30	4.321	-
4	SP - 31	12.5263	-
5	SP - 32	15.4033	-
6	SP - 33	7.8622	-
7	SP - 36	7.7437	-
8	SP - 44	6.5151	-
9	SP - 45	8.4575	-
10	SP - 46	4.7783	-
11	SP - 47	9.5256	-
12	SP - 48	8.4723	-
13	SP - 50	6.9818	-
14	SP - 61	6.0727	-
15	SP - 62	9.7426	-
16	SP - 64	7.8446	-
17	SP - 65	6.4476	-
18	SP - 66	5.7499	-
19	SP - 67	5.1924	-
20	SP - 68	7.3619	-
21	SP - 69	5.9673	-
22	SP - 78	10.8205	-
23	SP - 79	6.79102	-
24	SP - 80	10.11834	-
25	SP - 81	4.4073	-
26	SP - 82	7.5252	-
27	SP - 83	4.7572	-
28	SP - 84	4.8211	-
29	SP - 85	19.6361	-
30	SP - 86	6.5225	-
31	SP - 206	11.0939	-
32	SP - 207	15.9094	-

33	SP - 208	8.374	-
34	SP - 209	9.6698	-
35	SP - 210	8.2218	-
36	SP - 211	9.7946	-
37	SP - 212	6.205	-
38	SP - 213	7.6308	-
39	SP - 214	6.7583	-
40	SP - 215	6.7334	-
41	SP - 216	7.3228	-
42	SP - 217	7.6634	-
43	SP - 218	8.63715	-
44	SP - 219	8.4145	-
45	SP - 220	6.4222	-
<b>TOTAL</b>		<b>402.37551 m<sup>3</sup> / Ha.</b>	

$$402.37551 \times 2.41 = 969.72 \text{ tonnes / ha}$$

$$969.72 \text{ tonnes / ha.} \div 45 = 21.54 \text{ tonnes / ha.}$$

**Therefore, GS = 21.54 tonnes / ha.**

**TOTAL CARBON STOCK IN L3 LANDSCAPE- THENZAWL 'W'  
UNDER L2 LANDSCAPE – THENZAWL**

**Carbon in Above Ground Biomass ( $C_{ABG}$ )**

$$C_{ABG} = GS_{ABG} \times BCEF \times CF$$

$$= 21.54 \times 0.95 \times 0.47$$

$$= 9.61 \text{ tonnes/ha}$$

**Carbon in Below Ground Biomass ( $C_{BGB}$ )**

$$GS_{BGB} = 0.24 \times GS_{ABG}$$

$$= 0.24 \times 21.54$$

$$= 5.16 \text{ tonnes/ha}$$

$$C_{BGB} = GS_{BGB} \times CF$$

$$= 5.16 \times 0.47$$

$$= 2.42 \text{ tonnes/ha}$$

**Carbon in Dead Wood Biomass ( $C_{DWB}$ )**

$$C_{DWB} = 0.11(C_{ABG} + C_{BGB})$$

$$= 0.11(9.61 + 2.42)$$

$$= 0.11 \times 12.03$$

$$= 1.32 \text{ tonnes/ha}$$

**Carbon in Leaf Litter Biomass ( $C_L$ )**

$$= 3.271 \text{ tonnes/ha (Constant)}$$

**Carbon in Soil ( $C_S$ )**

$$= 57.14 \text{ (Constant) for Tropical Moist Deciduous Forests}$$

$$\begin{aligned} \text{Total Carbon Stock in 1 Ha.} &= C_{ABG} + C_{BGB} + C_{DWB} + C_L + C_S \\ &= 9.61 + 2.42 + 1.32 + 3.271 + 57.14 \\ &= 73.761 \text{ tonnes/ha} \end{aligned}$$

**Therefore, Total Carbon Stock (C) in 3292 Ha.(Forest Area in L3 landscapeThenzawl 'W')**

$$= 3292 \times 73.761$$

$$= 2,42,821.212 \text{ tonnes}$$

**SHANNON DIVERSITY INDEX**  
**L3 Landscape - Thenzawl 'W'**

Species	Ni	Pi	LnPi	- ( Pi x LnPi )
<i>I</i>	2	3	4	5
Schima wallichii (Khiang)	49	0.142	- 1.952	0.277
Castanopsis tribuloites (Thingsia)	27	0.078	- 2.551	0.199
Macaranga indica (Hnahkhar)	30	0.087	- 2.441	0.212
Rhus semialata (Khawmhma)	2	0.005	- 5.298	0.026
Alseoclaphue petiolaris (Bûl)	4	0.011	- 4.510	0.05
Syzygium cumini (Lenhmui)	4	0.011	- 4.510	0.05
Callicarpa arborea (Hnahkiah)	23	0.067	- 2.703	0.181
Gmelina arborea (Thlanvawng)	4	0.011	- 4.510	0.05
Lithocarpus xylocarpus (Then)	2	0.005	- 5.298	0.026
Artocarpus chaplasi (Tatkawng)	1	0.002	- 6.215	0.012
Ficus semicordata (Theipui)	9	0.026	- 3.649	0.095
Aporosa octandra (Chhâwntual)	20	0.058	- 2.847	0.165
Derris robusta (Thingkha)	9	0.026	- 3.649	0.095
Pinus kesiya (Far)	1	0.002	- 6.215	0.012
Michelia champaca (Ngiau)	1	0.002	- 6.215	0.012
Castanopsis lanceifolia (Vawmbuh)	9	0.026	- 3.649	0.095
Albizia chinensis (Vang)	11	0.032	- 3.442	0.11
Sapium baccatum (Thingvawkpui)	6	0.017	- 4.075	0.069
Wendlandia grandis (Batling)	7	0.02	- 3.912	0.078
Duabanga grandiflora (Zuang)	7	0.02	- 3.912	0.078
Ficus prostrata (Theitit)	2	0.005	- 5.298	0.026
Eugelhardtea spicata (Hnûm)	2	0.005	- 5.298	0.026
Lipsea monopetala (Nauthak)	2	0.005	- 5.298	0.026
Anthocephalus chinensis (Banphar)	5	0.014	- 4.269	0.06
Lanea grandis (Tawitaw suak)	2	0.005	- 5.298	0.026
Vitex peduncularis (Thingkhawihlu)	1	0.002	- 6.215	0.012
Bischofia javanica (Khuangthli)	5	0.014	- 4.269	0.06
Spondias pinnata (Tawitaw)	9	0.026	- 3.649	0.095

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
<i>Prenna racemosa</i> (Thingsaum)	1	0.002	- 6.215	0.012
<i>Neonauclea purpurea</i> (Lungkhup)	12	0.034	- 3.381	0.115
<i>Elaeocarpus floribundus</i> (Thinglung)	1	0.002	- 6.215	0.012
<i>Albizzia odoratissima</i> (Thingri)	1	0.002	- 6.215	0.012
<i>Bauhinia variegata</i> (Vaube)	4	0.011	- 4.510	0.05
<i>Anogeissus acuminata</i> (Zairum)	5	0.014	- 4.269	0.06
<i>Trema orientalis</i> (Belphuar)	5	0.014	- 4.269	0.06
<i>Palaquium polyanthum</i> (Hnaibung)	1	0.002	- 6.215	0.012
<i>Acer laevigatum</i> (Thingkhim)	1	0.002	- 6.215	0.012
<i>Aphananthe cuspidata</i> (Theischrêt)	1	0.002	- 6.215	0.012
<i>Alstonia scholaris</i> (Thuumriat)	3	0.008	- 4.828	0.039
<i>Stereulia villosa</i> (Khaupui)	6	0.017	- 4.075	0.069
<i>Emblica officinalis</i> (Sunhlu)	1	0.002	- 6.215	0.012
<i>Castanopsis indica</i> (Schawr)	3	0.008	- 4.828	0.039
<i>Eurya cerassifolia</i> (Sihneh)	5	0.014	- 4.269	0.06
<i>Amoora wallichii</i> (Sahaṭah)	1	0.002	- 6.215	0.012
<i>Ficus racemosa</i> (Theichek)	1	0.002	- 6.215	0.012
<i>Artocarpus integrifolia</i> (Lamkhuang)	1	0.002	- 6.215	0.012
<i>Lithocarpus elegans</i> (Thingpui thing)	3	0.008	- 4.828	0.039
<i>Albizzia procera</i> (Kângtek)	2	0.005	- 5.298	0.026
<i>Terminalia bellirica</i> (Thingvandawt)	1	0.002	- 6.215	0.012
<i>Elaeocarpus lanceifolius</i> (Kharuan)	2	0.005	- 5.298	0.026
<i>Colona floribunda</i> (Hnahtap)	3	0.008	- 4.828	0.039
<i>Hibiscus macrophyllus</i> (Vaiza)	1	0.002	- 6.215	0.012
<i>Carallia brachiata</i> (Theiria)	1	0.002	- 6.215	0.012
<i>Erythrina variegata</i> (Fartuah)	2	0.005	- 5.298	0.026
<i>Toona ciliata</i> (Teipui)	4	0.011	- 4.510	0.05
<i>Cinnamomum verum</i> (Thakthing)	1	0.002	- 6.215	0.012
<i>Holigarna longifolia</i> (Vawmbal)	2	0.005	- 5.298	0.026
<i>Saurauia punduana</i> (Tiar)	2	0.005	- 5.298	0.026
<i>Litsea cubeba</i> (Sernam)	1	0.002	- 6.215	0.012



<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Ligustrum robustum (Chawmzil)	1	0.002	- 6.215	0.012
Olea salicifolia (Thingthiang)	1	0.002	- 6.215	0.012
Tetramelus nudiflora (Thingdawl)	1	0.002	- 6.215	0.012
Glochidion khasicum (Thingpawnehhia)	1	0.002	- 6.215	0.012
Dysoxylum hamiltonii (Thingsaphu)	1	0.002	- 6.215	0.012
Chukrasia tabularis (Zâwngtei)	1	0.002	- 6.215	0.012
Rhus succedanea (Chhimhruk)	1	0.002	- 6.215	0.012
Artocarpus chaplasi (Theitat)	1	0.002	- 6.215	0.012
Betula alnoides (Hriang)	1	0.002	- 6.215	0.012
Stereospermum colais (Zihngal)	1	0.002	- 6.215	0.012
Parkia roxburghii (Zawngtah)	1	0.002	- 6.215	0.012
<b>Total</b>	<b>343</b>			<b>H = 2.76</b>

## ANNUAL PLAN OF OPERATION FOR THE YEAR 2017 – 18 UNDER GIM

State : Mizoram Name of L2 Landscape : Thenzawl

Name of Division : Thenzawl Forest Division Name of L3 : Thenzawl 'W'

Wage Rate : Rs.270 /-

Sl. No	Sub-Missions/Interventions	Category	Item of works	Target	Rate per unit (in Rs.)	Total cost per unit (in lakhs)
1	2	3	4	5	6	7
<b>A</b>						
1	1.Enhancing quality of forest cover and improving eco-system service	(a)Moderately dense forest cover, but showing degradation	Advance work	79 Ha.	9450	7.466
			Creation	61 Ha.	15660	9.553
			Advance work(Bal of 2016-17)	61 Ha.	4050	2.471
			<b>Sub-total</b>	<b>140Ha</b>		<b>19.490</b>
		(b)Eco-restoration of degraded open forest	<b>Type A</b>			
			Advance work	80 Ha.	8100	6.480
			Creation	60Ha.	15390	9.234
			Advance work(Bal of 2016-17)	60Ha.	1350	0.810
			<b>Sub-total</b>	<b>140Ha</b>		<b>16.524</b>
			<b>Type C</b>			
			Advance work	65Ha.	25650	16.673
			Creation	35Ha.	53460	18.711
			Advance work(Bal of 2016-17)	35Ha.	8640	3.024
			<b>Sub-total</b>	<b>100Ha</b>		<b>38.408</b>
2	2.Eco-system restoration and increase in forest cover	(a)Rehabilitation of Shifting Cultivation Areas	Advance work	57Ha.	18360	10.465
			Creation	43Ha.	36450	15.674
			Advance work(Bal of 2016-17)	43Ha.	7290	3.135
			<b>Sub-total</b>	<b>100Ha</b>		<b>29.274</b>
3	4.Agro-Forestry and Social Forestry (increasing Biomass & creating carbon sink)	(a)Farmers' land including current fallows	Advance work	86Ha.	13500	11.610
			Creation	64Ha.	20250	12.960
			Advance work(Bal of 2016-17)	64Ha.	5130	3.283
			<b>Sub-total</b>	<b>150Ha</b>		<b>27.853</b>
		(c)Highways/Rural roads/Canals/Tank Bunds	Advance work	32Ha.	29700	9.504
			Creation	18Ha.	83700	15.066
			Advance work(Bal of 2016-17)	18Ha.	4590	0.826
			<b>Sub-total</b>	<b>50Ha.</b>		<b>25.396</b>
			<b>Total of A</b>			<b>156.945</b>
<b>B</b>	Promoting alternative fuel energy	Biogas, Solar device, LPG, Biomass based systems, improved stoves	Per household	120 fly.	3300	3.960

<b>C</b>	<b>For Support Activities</b>	
1	Research (2% of A)	3.139
2	Publicity/Media/Outreach activities (1% of A)	1.569
3	Monitoring & Evaluation (1% of A)	1.569
4	Livelihood improvement activities (17% of A)	26.681
5	Strengthening local level institutions (5% of A)	7.847
6	Strengthening FDs (5% of A)	7.847
7	Mission Organisation, operation and maintenance, contingencies and overheads (4% of A)	6.278
	<b>Total of C</b>	<b>54.930</b>
	<b>Grand Total of (A+B+C)</b>	<b>215.835</b>

## Abstract of Perspective Plan Under Green India Mission

Name of Division : Thenzawl Forest Division

Name of Landscape : Thenzawl

Name of L3 Landscape: Thenzawl 'W'

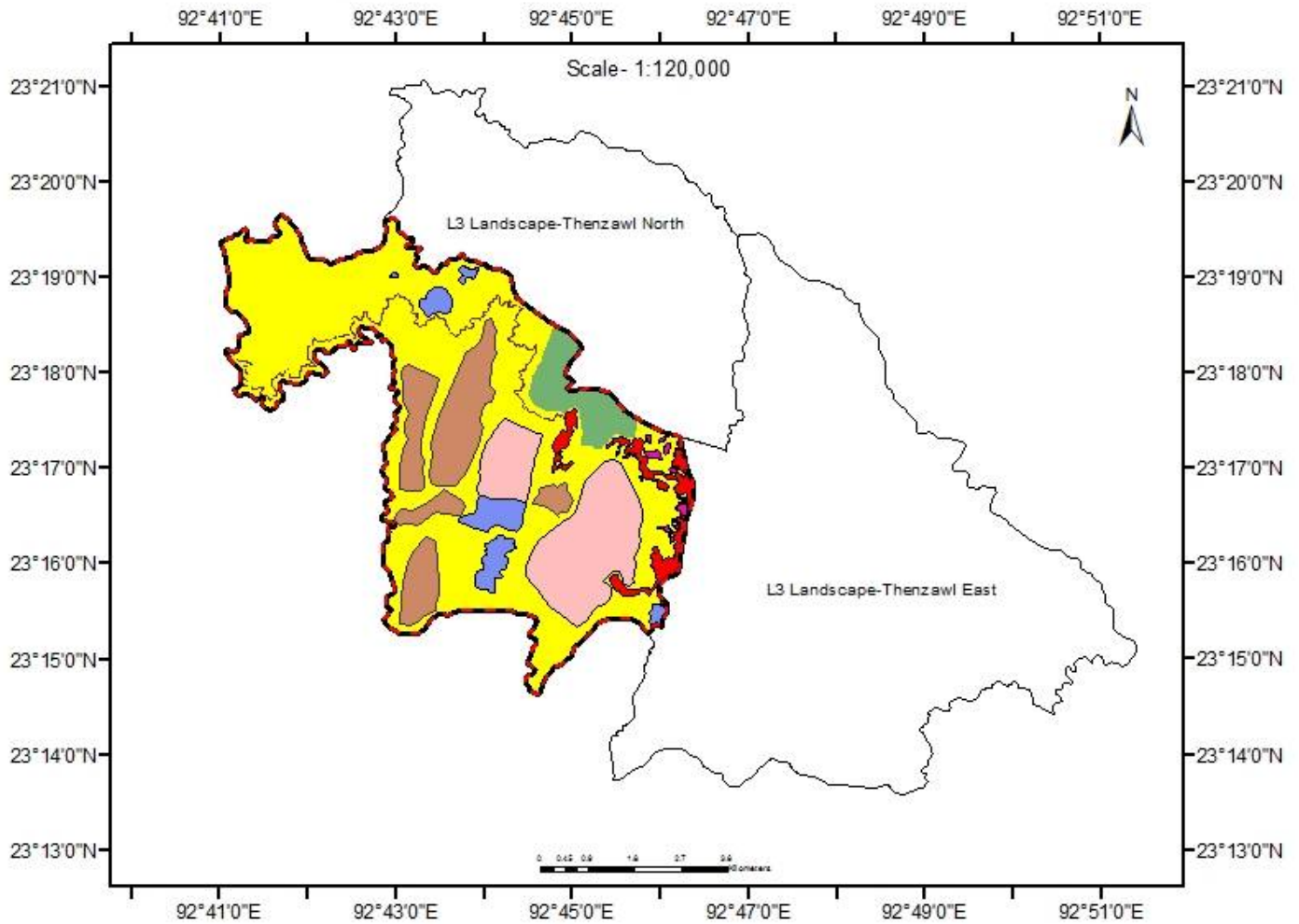
As per Wage Rate Rs 270/-

S. N.	Submission/Intervention	Category	Type	Admissible Cost (Rs./ha)	Yearwise Physical & Financial Target													
					1st		2nd		3rd		4th		5th		6th		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
A. Cost norms for Sub Missions and Intervention																		
1	Sub Mission 1: Enhancing quality of forest cover and improving ecosystem services (4.9 m ha)	a) Moderately dense forest cover, but showing degradation	ANR (Without Plantation)	40500														
			a) Advance Work	9450	140	13.23	0	0.00								140	13.23	
			b) Creation	15660			140	21.92	0	0.00								21.92
			c) Maintenance I Year	9720				0.00	140	13.61	0	0.00						13.61
			II Year	3510				0.00		0.00	140	4.91	0	0.00				4.91
			III Year	2160				0.00		0.00		0.00	140	3.02	0	0.00		3.02
			b) Eco-restoration of degraded open forests	200 Plants/Ha.(Type A)	43200													
			a) Advance Work	8100	140	11.34	0	0.00									140	11.34
			b) Creation	15390			140	21.55	0	0.00								21.55
		c) Maintenance I Year	8100				0.00	140	11.34	0	0.00						11.34	
		II Year	6480				0.00		0.00	140	9.07	0	0.00				9.07	
		III Year	5130				0.00		0.00		0.00	140	7.18	0	0.00		7.18	
		2500 Plants/Ha.(Type C)	135000															
		a) Advance Work	25650	100	25.65	180	46.17									280	71.82	
		b) Creation	53460			100	53.46	180	96.23								149.69	
		c) Maintenance I Year	20250				0.00	100	20.25	180	36.45						56.70	
		II Year	18090				0.00		0.00	100	18.09	180	32.56				50.65	
III Year	17550				0.00		0.00		0.00	100	17.55	180	31.59		49.14			
2	Sub Mission 2: Ecosystem restoration and increase in forest cover (1.8 mha)	a) Rehabilitation of Shifting Cultivation Areas	1100 Plants/Ha.	81000														
			a) Advance Work	18360	100	18.36	100	18.36								200	36.72	
			b) Creation	36450			100	36.45	100	36.45							72.90	
			c) Maintenance I Year	11340				0.00	100	11.34	100	11.34					22.68	
			II Year	8100				0.00		0.00	100	8.10	100	8.10			16.20	
			III Year	6750				0.00		0.00		0.00	100	6.75	100	6.75	13.50	

3	Sub Mission 4: Agro-Forestry and Social Forestry (increasing biomass & creating carbon sink): 3 mha	a) Farmer's land including fallows current	Farmer's land	54000																
			a) Advance Work	13500	150	20.25	0	0.00										150	20.25	
			b) Creation	20250			150	30.38	0	0.00										30.38
			c) Maintenance I Year	7020				0.00	150	10.53	0	0.00								10.53
			II Year	6750				0.00		0.00	150	10.13	0	0.00						10.13
			III Year	6480				0.00		0.00		0.00	150	9.72	0	0.00				9.72
		c) Highways/Rural roads/Canals/ Tank Bunds	roads/Canals/ Tank Bunds	189000																
			a) Advance Work	29700	50	14.85	0	0.00											50	14.85
			b) Creation	83700			50	41.85	0	0.00										41.85
			c) Maintenance I Year	32400				0.00	50	16.20	0	0.00								16.20
II Year	21600					0.00		0.00	50	10.80	0	0.00						10.80		
III Year	21600					0.00		0.00		0.00	50	10.80	0	0.00				10.80		
4	Promoting alternative fuel energy	Biogas, solar devices, LPG, Biomass-based systems, improved stoves	Per House Hold	3300	120	3.96	120	3.96	0	0.00	0	0.00	0	0.00	0	0.00	240	7.92		
Total (A)					680	107.64	960	274.10	960	215.95	960	108.89	960	95.69	280	38.34	960	840.60		
B. For Support Activities																				
	Activities Cost					Fin.		Fin.		Fin.		Fin.		Fin.		Fin.		Fin.		
1	Research (2% of A)					2.15		5.48		4.32		2.18		1.91		0.77		16.81		
2	Publicity/Media/outreach activities (1% of A)					1.08		2.74		2.16		1.09		0.96		0.38		8.41		
3	Monitoring and Evaluation (1% of A)					1.08		2.74		2.16		1.09		0.96		0.38		8.41		
4	Livelihood improvement activities. (17% of A)					18.30		46.60		36.71		18.51		16.27		6.52		142.90		
5	Strengthening local-level institutions (5 % A)					5.38		13.70		10.80		5.44		4.78		1.92		42.03		
6	Strengthening FDs (5% A)					5.38		13.70		10.80		5.44		4.78		1.92		42.03		
7	Mission Organisation, operation and maintenance, contingencies and overheads					4.31		10.96		8.64		4.36		3.83		1.53		33.62		
Total (B)					0	37.67	0	95.93	0	75.58	0	38.11	0	33.49	0	13.42	0	294.21		
Grand Total (A+B)					680	145.31	1080	370.03	960	291.53	960	147.00	960	129.18	280	51.76	960	1134.81		

**MAP OF L2 LANDSCAPE THENZAWL  
SHOWING PROPOSED LANDUSE MAP OF L3 THENZAWL WEST**

Annexure XV



<b>1. Working Area</b>	<b>: 40.24 Sq.Km</b>
<b>2. Shifting Cultivation Rehabilitation Areas</b>	<b>: 2.00 Sqkm</b>
<b>3. Horticulture Land</b>	<b>: 0.27 Sqkm</b>
<b>4. Supply &amp; Safety Reserve :</b>	
<b>I) Moderately Dense Forest Cover But Showing Degradation</b>	<b>: 1.40 Sqkm</b>
<b>5. Agro &amp; Social Forestry :</b>	
<b>I) Farmer's Land</b>	<b>: 1.50 Sq.km</b>
<b>II) Highways / Rural Roads</b>	<b>: 0.50 SqKm</b>
<b>7. Private Land</b>	<b>: 4.89 Sqkm</b>
<b>8. Community Land :</b>	
<b>I) Eco-Restoration of Degraded Open Forest</b>	<b>: 4.20 Sqkm</b>
<b>II) Community Land</b>	<b>: 24.20 Sqkm</b>
<b>9. Settlement</b>	<b>: 1.28</b>

<b>Legend</b>	
	Working_Area
	Settlement
	Rehabilitation_of_Shifting_Cultivation
	Private_Land
	Moderately_Dense_Forest_but_showing_degradation
	Horticulture
	Highways/Rural_Roads
	Farmer's_Land_including_current_fallows
	Eco-Restoration_of_Degraded_Open_Forest
	Community_Land

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