

**MICROPLAN FOR PANGBALKAWN VFDC
(GIM)L3
UNDER KOLASIB-BAIRABI L2 LANDSCAPE
(GREEN INDIA MISSION)**

PLAN PERIOD: 2016-17 TO 2022-23

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Chapter 1

Introduction, Scope and Objectives

1.1 About the State (Landscape - L1)

1.1.1 Introduction

Mizoram was earlier a part of the British India since 1895. In 1898, the district called “Lushai Hills” was created with Aizawl as its headquarter. After independence in 1947, the district was renamed as “Mizo District” and also the autonomous Mizo District Council was established on 25th April, 1952. Subsequently, Mizoram was made a Union Territory in 1972 and finally, it became the 23rd State of India on 20th February, 1987.

1.1.2 Location, Extent and Topography

Mizoram, which is one of the Seven Sister States in the North-Eastern India, is located between 21°56` and 24°35` N Latitude and 92°16` and 93°26` E Longitude. It shares the boundary with Assam and Manipur on the North, Myanmar on the East and the South, and Tripura and Bangladesh on the West. The long international boundary (about 630 miles) of Mizoram with Myanmar and Bangladesh makes it strategically located.

The geographical area of the State is 21,087 sq. km. with mostly hilly terrains. Most of the hills have moderate to steep slopes and are separated by rivers flowing either to the North or South direction. These rivers have created deep gorges between several hill ranges. In fact, Mizoram is “a land of rolling hills, valleys, rivers, and lakes” (Environment & Forest Department, 2010, p.5). The plains occupy comparatively a very small portion of the total geographical area and are mostly located at places such as Champhai, North Vanlaiphai etc. on the eastern part of the State.

1.1.3 Climate

The whole of Mizoram enjoys a pleasant climate with cool summer and moderate winter. The temperature varies from 11°C to 21°C during winter and 18°C to 29°C in summer. The State gets rainfall from both the North-East and the South-West Monsoon. It receives heavy rains from May to September. The average annual rainfall is about 254 cm. As such, the climate in Mizoram is conducive to conservation and sustainable development of forests.

1.1.4 Soil

The soil in Mizoram, in general, is fertile and rich in organic contents. However, the soil depth is found less at few places, particularly at very steep slopes, due to the effect of heavy run-off in degraded forests. The contents of potash and phosphorus in the soil are low, whereas the content of nitrogen is normally

high because of the accumulation of organic matters over the years. The fertile soil is generally found at low to moderate slopes, on river banks and in the valleys. The soil at such places is responsive to the vigorous and healthy growth of the forests and thus supports rich biodiversity.

1.1.5 Demography

The population of the State was 10,91,014 as per 2011 census, of which 5,52,339 (51 percent) are male and 5,38,765 (49 percent) are female. The population density has increased from 33 to 52 persons per sq. km. during the decade, 1999 - 2011. Most of the people in the State belong to several culturally-linked ethnic tribes which are collectively called “Mizos” (Mi: People, Zo: Hill). These people are highly educated. Mizoram has a literacy rate of 91.58 %, which ranks it second among States in India. “Mizo” and “English” are the main languages spoken by the majority of the people.

1.1.6 Socio-economic life of the people

Since signing the “Peace Accord” on 30th June 2006, the State has effectively implemented several developmental schemes. Peace and development have resulted into comparatively better Human Development Index (HDI). The HDI in Mizoram was found 0.67, the highest among the north-eastern States and more than the national average (Government of Tripura, 2007, p.28).

Agriculture is the dominant source of income and employment for the people in Mizoram. As per 2001 census, 61 percent of the working population in the State was dependent on agriculture. In rural areas, most of the people are engaged in “Jhumming” (shifting cultivation). 89,454 households, 57.85 percent of total 1,54,643 households, were cultivators and further, 78,195 households, 87 percent of all cultivator households, were practicing shifting cultivation (Government of Mizoram, 2004, p.17). The “Jhumming” practice has adversely affected the rich forest cover of the State. Planned efforts are now being made to control and transform the practice of shifting cultivation into settled agriculture. Technical and financial assistance is being given to the rural people enabling them to leave the practice of shifting cultivation and get engaged in other sustainable livelihood activities such as horticulture, piggyery, settled cultivation etc.

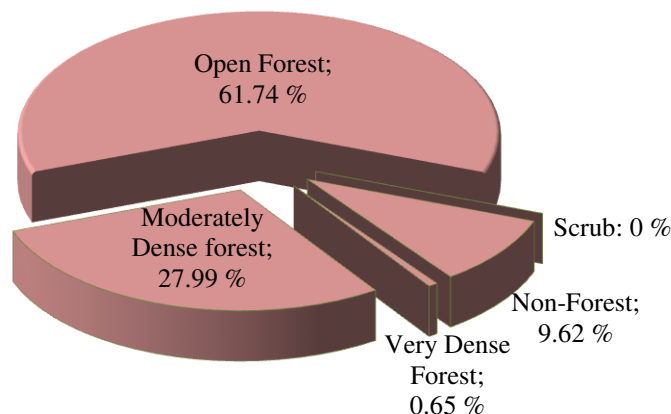
1.2 The forests in Mizoram

1.2.1 Forest cover

A large area - 19,277 sq. kms. (91.44 percent of the State’s total geographical area) - is covered under forests i.e. Forest and Tree cover (Forest Survey of India, 2013). However, the forests have suffered serious depletion and degradation due to the traditional practice of shifting cultivation, uncontrolled fire, unregulated felling etc. As per the “India State of Forest Report 2013” published by the Forest Survey of India, the State has 13,016 sq. kms. open forests which is 67.70 % of the total forest cover and 61.74 % of

the total geographical area. The density-class of forests found in the State has been shown below graphically in Figure 1.

Figure - 1



Source: Forest Survey of India, 2013

1.2.2 Forest types

The forests in Mizoram are very rich in biodiversity. As many as 6 important forest types have been reported to occur in the state (Forest Survey of India, 2011). These are:-

- **Cachar Tropical Semi-Evergreen Forest (2B/C2):** Mostly found in all districts of the State. The important species are *Dipterocarpusturbinatus*, *D. tuberculatus*, *Terminaliachebula*, *Emblicaspp*, *Careyaarborea* etc.
- **Secondary Moist Bamboo Brakes (2/2S1):** Dominant species of bamboo like *Melocannabambusoides*, *Dendrocalamushamiltonii* etc. are present.
- **Pioneer Euphorbiaceous Scrub (2B/2S1):** It is generally found in degraded forests and exposed lands present on higher slopes and on top of the hills. It has quick growing species like *Macaranga* spp., *Mallotus* spp. etc. This type is found in all districts except Kolasib.
- **East Himalayan Moist Mixed Deciduous Forest (3C/C3b) :** *Schimawallichii*, *Syzigiumcuminii*, *Albizziaprocera*, *Dilleniapentagyna*, *Artocarpuslakoocha*, *Terminaliaballerica*, *T. chebula*, *Lagerstroemia parviflora*, *Anthocephalouskadamba* etc. are the characteristic species of this type. It is found in all districts of Mizoram.
- **East Himalayan Subtropical Wet Hill Forest (8B/C1):** Major characteristic species are *Quercusvercus*, *Q. serrata*, *Castanopsisspp*, *Litsea* spp. *Machilusspp* etc. This forest type is found in Kolasib district.

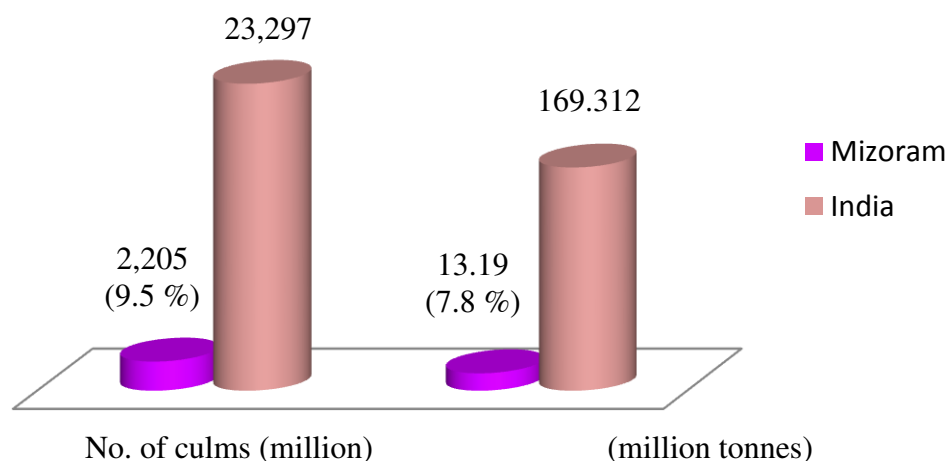
- **Assam Subtropical Pine Forest (9/C2):** It is mostly dominated by the species *Pinus kesiya* with other associates like *Quercus* spp, *Schima wallichii*, *Rhododendron* spp etc. This forest type is found mainly in Champhai district of the State.

1.2.3 Bamboo Resources

Nature has endowed Mizoram with valuable Bamboo Forests. Bamboos - Green Gold for the State - are one of the most important natural resources which provide immense economic and environmental benefits for the local people. Bamboos are used for multiple purposes as the culms are straight and strong but light. These are used extensively in house construction particularly in the rural areas, as food, and for making various household items such as stools, benches, kitchen utensils, agricultural implements, and fishing devices. Further, bamboo acts as an effective soil binder protecting the slopes from erosion through its deep and extensive root system.

Bamboos are found abundantly in the State mainly along river banks and on abandoned jhumland. Both the clump forming and the non-clump forming species occur naturally in most parts of the State except on the higher altitudes of its eastern region. A large area of about 9,245 sq. kms., which is 44 percent of the State's geographical area, is covered under "Bamboo Forests" (Forest Survey of India, 2011, p.61). In spite of being small in size, Mizoram contributes significantly to the country's growing stock of bamboos.

Bamboo resources of the country have been assessed by the Forest Survey of India (FSI), Dehradun. As per the India State of Forest Report 2011 (Chapter 6) published by the FSI, total number of culms in recorded forests of Mizoram has been estimated to be 2,205 million as against 23,297 million estimated at the national level. Similarly, the total estimated green weight of bamboo culms has been estimated to be 13,187,000 tonnes for the recorded forests of Mizoram as against 1,69,312,000 tonnes for the whole country. The growing stock of bamboos in recorded forests of Mizoram as against the same for the whole country has been shown below graphically.



Area under “pure bamboo brakes” in Mizoram was found the highest among all the States/Union Territories of the country (226 sq.kms.). The dense bamboo forests also cover a large area in the State of Mizoram. The dense bamboo across all the States was found maximum in Arunachal Pradesh (8,681 sq. kms.) followed by Mizoram (6,116 sq.kms.).

The bamboo forests in Mizoram are also rich in bio-diversity. 35 species of bamboos under 9 genera have been reported to grow in the State (E & F Department, 2010). *Melocanna baccifera* (locally called “Mautak”), a non-clump forming species, is the prominent species found in the State. Other dominant species are *Dendrocalamus hamiltonii* (Phulrua), *D. longispathus* (Rawnal), *Bambusa tulda* (Rawthing), *B. longispiculata* (Rawthing chi), and *Arundinaria callosa* (Phar). These species do not occur in large proportions like Mautak but are commercially valuable.

1.2.4 Areas under Notified Forests in the State

The notified forests include (1) Riverine Reserve Forests (1832.50 sq.kms), (2) Innerline Reserved Forests (570 sq. kms.), (3) Roadside Reserve Forests (97.20 sq.kms.), (4) Other Reserve Forests (1963.63 sq. kms.) and (5) Protected Areas (1240.75 sq.kms) under the ownership of the State Government as well as 2562 sq. kms. under the ownership of District Councils. Thus, about 39 percent of the total geographical area (8266.08 sq.kms.) is covered under “notified forests” in the State of Mizoram.

1.2.5 Protected Areas

The Environment and Forest Department, Govt. of Mizoram has taken praiseworthy initiatives for preservation of wildlife by constituting one Tiger Reserve, two National Parks and seven Wildlife Sanctuaries. These are (1) Dampa Tiger Reserve, (2) Murlen National Park, (3) Phawngpui National Park, (4) Ngengpui Wildlife Sanctuary, (5) Lengteng Wildlife Sanctuary, (6) Khawnglung Wildlife Sanctuary,

(7) Tawi Wildlife Sanctuary, (8) Thorangtlang Wildlife Sanctuary, (9) Pualreng Wildlife Sanctuary, and (10) Tokalo Wildlife Sanctuary. The area set aside for long-term wildlife conservation is 1728.75 sq. km. which is more than 8 % of the State's geographical area.

The network of protected areas provides healthy habitats for many wild animals, birds, and reptiles. Some important species of mammals found in the State are Tiger, Elephant, Malayan Sun Bear, Wild dog, Brush Tailed Porcupine, Gaur, Leopard Cat, Marbled Cat, Golden Cat, Clouded Leopard, Serow etc. The forests of Mizoram also provide habitats for primates such as Assamese Macaque, phyare Leaf Monkey, Slow Loris, Pig Tailed Macaque, Stump Tailed Macaque, Rhasus Macaque, and Capped Langur and also for Hoolock Gibbon, the only ape found in India.

Important bird species found in the State are Black Stork, Oriental Darter, Serpent Eagle, Black Eagle, Humes Bartailed Pheasant, Blyth's Tragopan, Green Burmese Peafowl, Grey Peacock, Fufous Partridge, Brushed Partridge, Yellow-legged Button quill etc. The Hornbill species include Great Indian Hornbill, Wreathed Hornbill, Oriental Pied Hornbill, Brown Hornbill, and Rufous-necked Hornbill.

1.3 Bio-geographical importance

The forests in Mizoram are ecologically significant as the region represents an important part of the Indo Myanmar bio-diversity hotspot which is one of the 25 global biodiversity hotspots recognized across the globe. Several hot-spots in the State carrying diverse flora and fauna have been identified for protection. Further, the region is part of biologically distinctive eco-system (Mizoram-Manipur-Kachin Rainforests Eco-region). As such, conservation of the forests in the State is a necessity for arresting the progress of climate change and mitigating the impact of changing climate on the people.

1.4 Expectations of people from the forests

1.4.1 People's Participation in Conservation of the Forests

The State of Mizoram moved from State regulation to people's participation for managing its rich forest wealth by adopting the "Joint Forest Management" (JFM) through a notification issued in 1998. The introduction of JFM established a new mutually-beneficial relationship between the forests, the people and the State. The basic objective for adopting the mechanism of JFM in the State was to encourage active involvement of the local people in enrichment, protection and sustainable management of the forests.

It was envisaged to impart sense of ownership over the forest areas covered under JFM to the villagers. Guidelines for managing the forests with people's participation were framed. As per these guidelines, the local people participating in managing the forests and the State would share the forest

produce, which may be extracted from the areas covered under JFM by applying scientific principles of sustainable management.

The organizational structure for managing the forests with constructive participation of the local people, at present, consisted of three levels in the State i.e. (1) State Forest Development Agency (SFDA) at the State level, (2) Forest Development Agencies (FDAs) at the divisional level, and (3) Village Forest Development Committees (VFDCs) at the village level. Eco-Development Committees (EDCs) have been constituted for the villages located near the protected areas. The existing guidelines for JFM included (1) the procedures for constituting SFDA, FDAs and VFDCs/EDCs, (2) their duties and responsibilities, (3) methodology of preparing micro-plans, their effective implementation, and timely monitoring, (4) fund flow mechanism, and (5) disposal of forest produce and sharing of benefits.

For involving the local people in planning, implementation, and monitoring of schemes for forest management, one SFDA, 21 FDAs and 598 VFDCs/EDCs have been constituted in Mizoram. These committees i.e. VFDCs/EDCs have 2, 75,435 members belonging to 80,728 families. Memorandum of Understandings (MoUs) has been signed between SFDA and FDAs and also between various FDAs and VFDCs/EDCs.

Works under centrally sponsored scheme - “National Afforestation Programme” (NAP) - are mainly taken up by VFDCs/EDCs through FDAs. Revised operational guidelines for implementing NAP through JFM were issued in the year 2009 by the Ministry of Environment and Forests, Government of India. These guidelines were aimed at (1) strengthening institutional arrangements for project implementation (capacity building), (2) treatment of highly degraded lands (problem lands), (3) application of latest nursery and plantation techniques, (4) generation of additional sustainable income for members of VFDCs/EDCs through value addition to forest produce and linkage to better markets for forest-based products. The Government of Mizoram has adopted these revised guidelines by issuing notification in March, 2010.

The scheme - NAP - is being implemented effectively in Mizoram through the mechanism of JFM. Suitable tree species have been planted over an area of 57540 ha. under NAP during the period 2003-04 to 2013-14. These plantations are being protected through joint efforts of the local people and the Government agencies. It is expected that enrichment, protection, and sustainable management of the forests through JFM will provide substantial benefits to the local people while contributing significantly to ecological equilibrium and environmental stability.

1.4.2 Stakeholder's expectations

The local people particularly those living nearby forest areas expect sustainable livelihood support from the forests through extraction of permissible yield, value addition to forest produce and marketing of value-added products. They also expect to meet their needs for constructional timber at economical cost from the forests. However, they are also concerned for ecological stability in the region. Expectations of various stakeholders from the Environment and Forests department are given as under:-

Table 1		
Sln.	Name of Stakeholder	Expectations from the Department
1	The Indian citizens living in Mizoram including the indigenous people.	<ul style="list-style-type: none">a. Ecological balance and environmental stability.b. Bonafide forest-based needs - constructional timber, fuel wood, and fodder – as per the Mizoram Forest Act, 1955.c. Constructive participation in afforestation, enrichment, and protection of forests.d. Easy access to information on uses and economic benefits of the forest products including Non-Timber Forest Products (NTFPs) and Medicinal Plants.e. Availability of technical know-how as well as other facilities for raising private plantations.
2	The State Government	<ul style="list-style-type: none">a. Effective implementation of the planned schemes achieving the desired outcomes.b. Satisfaction of the local people.
3	The Government of India	<ul style="list-style-type: none">a. Conservation of environment and forestry resources as envisaged in the National Forest Policy, 1988.b. Balance between conservation and development by implementing the provisions of the Forest (conservation) Act, 1980 as well as other National and State acts and rules related to management of the forests and the wildlife.
4	The forest officials working in the State	<ul style="list-style-type: none">a. Healthy working conditions.b. Adequate facilities at par with our counterparts in other departments/services.c. Awards and recognition for good works.

5	Non-Government Organizations (NGOs)	<ul style="list-style-type: none"> a. Increase in forest cover. b. Enrichment and protection of the existing forests. c. Preservation of wildlife by creating and maintaining healthy habitats for them. d. Generating awareness towards the importance of forests and wildlife. e. Eliciting active participation of public in conservation and protection efforts.
6.	Private tree/bamboo growers	<ul style="list-style-type: none"> a. Technical knowhow. b. Logistic and financial support for raising and managing the plantations. c. Mechanism to facilitate harvesting and transportation of timber and bamboos.

Accordingly, the Department of Environment & Forests, Government of Mizoram is committed to provide a variety of services, both tangible as well as intangible, to the citizens by scientifically managing the rich forest cover existing in the State. The tangible services include (1) arranging forest products of economic importance such as constructional timber, fodder, fuel-wood, sand, gravels etc. at reasonable costs, (2) offering gainful employment while implementing various schemes for enrichment and protection of the forests, (3) creating opportunities for additional income through the mechanism of “Joint Forest Management”, (4) disseminating information on importance and economic benefits of the forests including Non-Timber Forest Products and medicinal plants, (5) building and maintaining eco-friendly recreation sites and trails, (6) making technical know-how available for raising and managing private forests/plantations, and (7) assisting private tree-growers in silvicultural harvesting and transporting of timber inside as well as outside the State. The intangible services include (1) stabilizing the climate, (2) enriching the soil fertility, (3) recharging ground water, (4) regulating the water flow, and (5) offsetting the air pollution.

1.5 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, Thirteen 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 CO₂ Sequestration.

1.6 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. 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 Criteria for selection of L1 Landscape

Criteria, which were adopted for identification of L1 landscape, are given below:-

Table 2			
Details of Criteria			
Item	Criteria	Details	Details of the source of data, maps etc. appended
1. Forest cover and degradation	1a) Forest cover	19,277 sq. kms. (91.44% of the State's geographical area).	India State of Forest Report 2013, Forest Survey of India, Dehradun.
	1b) Bio-diversity	The State is rich in Bio-diversity, having six major forest types, namely i) Cachar Tropical Semi-Evergreen Forest, ii) Secondary Moist Bamboo Brakes, iii) Pioneer Euphorbiaceous Scrub, iv) East Himalayan Moist Mixed Deciduous Forest, v) East Himalayan Subtropical Wet Hill Forest, vi) Assam Subtropical Pine Forest.	India Forest Atlas prepared by Forest Survey of India, Dehradun
	1c) Wastelands	6021.14 sq km (28.56% of the State's total geographical area) is wasteland including jhumland.	Wastelands Atlas of India, 2010.
2. Projected Forest vulnerability to climate	2a) Vulnerability maps and attribute data	Although the State is having a large area under forest cover, the forests are not good in quality. The State has 13,016 sq km open forest which is 67.70% of the total forest cover and 61.74% of the total geographical	As indicated above in column 1.

change		area. It is expected that a large extent of open forests, particularly in the hilly terrain, may adversely affect not only the forest eco-system but adjoining areas as well. The situation is likely to be further aggravated in Mizoram by the prevalence of shifting cultivation and other biotic interferences.	
		Effect of climate change in the State is (1) irregular behavior of rainfall, (2) rise in mean maximum and mean minimum temperatures, (3) gradual and progressive increase in humidity, and (4) increased frequency of extreme climate events (heavy rainfall, flash floods, etc.). Forests are highly vulnerable to these changes in climatic conditions. Impact of climate change on the forests coupled with biotic interferences is characterized by (1) degradation (a large extent of open forests), (2) loss of biodiversity, (3) increased incidence of invasive species, and (4) loss of forest environmental functions (water conservation, soil conservation, flood control etc.).	(1) Programme Design Document for North East Climate Change Adaptation Programme presented to KfW Germany, DoNER, and State Govts. (2) Field observations by Forest Officers.
3.Vulnerab le Population / Communiti es	3a) ST/SC Total population, ratio	The majority of the population in the State - over 95% - belongs to STs.	2011 Census data, Govt. of India.
	3b) Scheduled areas		

2.2 Importance of L1 Landscape

Based upon the criteria given in para 2.2, 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. The bio-geographical importance of the L1 landscape has been given in para 1.3.

2.3 Criteria for selecting 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. The criteria for selection of L2 Landscapes are given below in detail:

Table 3			
	Criteria	Details	Details of the Source of data – Maps etc appended
Extent of open forests	Extent of degraded forests i.e. forests having very less canopy density	Aizawl, Champhai, Lawngtlai, Lunglei, and Mamit districts have larger area under open forests.	FSI, Dehradun
Forest Dependence	Forest areas (sq. kms.) per 1000 population	Aizawl, Champhai, Kolasib, and Serchhip districts have less forest areas per 1000 population. Therefore, it is expected that these districts may witness more biotic pressure on the forests.	Data for forest areas: FSI data and for population: census data.
Drainage Pattern	Catchment areas of major and important rivers	After identifying the divisions on the basis of first two criteria, the operational units have been identified within these divisions on the basis of these two criteria.	Maps obtained from MIRSAC (Mizoram Remote Sensing Application Centre)
Prevalence of shifting cultivation	Areas including Abandoned Jhumland and Current Jhumland		Maps obtained from MIRSAC (Mizoram Remote Sensing Application Centre)
Formation of Compact Block	All identified L2 landscapes to form a compact block for better outcomes.	Aizawl, Champhai, Darlawn, Kolasib and Thenzawl divisions form a compact block in the State.	Map of the State.

2.4 Reasons for selecting this L2 landscape among other possible L2 landscapes within L1:

A meeting (brainstorming session) of senior forest officers was held in March, 2012 to discuss various issues and formulate suitable strategies for the preparation of Bridge Plan/Perspective Plan under GIM. The views presented by the senior officers in the meeting are summarized below:

- The operational units should be from the districts which satisfy either of the two criteria i.e. extent of open forests or biotic pressure on the forests. Further, this unit should be strategically important for i) treatment and management of catchment areas and ii) engagement of the local people in settled agriculture or other sustainable livelihood options i.e weaning them away from jhum cultivation.
- The operational units, so selected, should form a compact block.
- The forest divisions, where activities similar to those proposed under GIM (KfW sponsored North East Climate Change Adaptation Programme) are being carried out, may not be taken up as operational units.
- Aizawl city, which carries maximum concentration of population (26% of the State's population), has the significant impact on the climate and the eco-system in the State. Therefore, forest-based interventions inside and outside the city of Aizawl may be taken up under GIM.

Considering the above views, it was decided in the meeting that 8 nos. of operational units in 5 forest divisions namely Darlawn, Champhai, Thenzawl, Kolasib, and Aizawl (for Aizawl division limited to inside and outside Aizawl city) may be taken in the initial five years of GIM. Other areas/divisions may be taken up subsequently under GIM.

The proposed landscape, Kolasib - Bairabi lies across the inter-range boundary of Kolasib and Bairabi Forest Ranges in Kolasib forest division. The landscape consists of open and degraded forests, both Government and privately owned. There are many current and abandoned jhumlands as well. Further, it forms the catchment area of Tuichhuahen river which is the only source of water for Kolasib, one of the largest towns in the State. The treatments under Green India Mission would ensure continuous and uninterrupted supply of water for Kolasib town. As such, Dumkhel Ram was selected as Kolasib-bairabi L2 landscape for treatment under GIM.

2.5 Importance of L2 Landscape (Kolasib Bairabi)

The identified landscape lies in the catchment area of Tuichhuahen river, the source of water supply to Kolasib town. Treatment of this landscape under GIM would ensure regular water supply to 46,600 inhabitants (2011 census) living in Kolasib town. Well-stocked good-quality forests in "Kolasib-Bairabi"

landscape will also stabilize water flow in another major river of the region i.e. Dumkhel river flowing in north-west direction.

2.6 Criteria for selection of L3 landscape

All villages namely, Pangbal Kawn, Thingdawl, New Diakkawn, Tumpui, Bualpui, Dilzau and Meidum having interests in “Kolasib-Bairabi” landscape and have been taken as “Working Units” i.e. L3 landscape.

2.7 Importance of L3 landscape (Pangbalkawn)

The area under Village Council of Pangbalkawn is one of the seven L3 landscapes (working units) identified for coverage in L2 landscape Kolasib-Bairabi”. The Pangbalkawn village was established around the year 1976. It has the population of 917 with 201 households (96 households under BPL category). The villagers are a little less educated, literacy rate being 66.56% (Male-75.85%, Female -55.87%).

The total geographical area of this L3 landscape is 21.606 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 15%. 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 Tuichhuahen lui, Bulung lui and Chhimluang lui. These water-bodies are natural sources of water for Kolasib, Meidum Dilzau and other nearby villages. The productivity of agricultural crops also depends upon water flow in these streams/rivers.

2.8 Extent of L1 landscape

Name of the L1 landscape: The entire State of Mizoram (map enclosed as annexure ‘I’)

Location of the landscape: State: Mizoram

District: All Districts

Forest Division: All Forest Divisions

Extent (area, boundaries, geo-references):

- Geographical area of the State is 21,087 sq. kms.
- The State shares its boundary with Assam and Manipur on the North, Myanmar on the East and the South, Tripura and Bangladesh on the West.
- It is located between 21°56’ and 24°31’ N latitude and 92°16’ and 93°26’ E longitude.

2.9 Extent of L2 landscape

Name of L2 landscape: Dumkhel Ram (map enclosed as annexure ‘IB’)

Location of the L2 Landscape: State: Mizoram, District: Kolasib, Division: Kolasib

Geo references of the L2 Landscape: 24°11’46’’ N & 92°40’46’’ E and

24°09’20’’ N & 92°38’16’’ E

Area of the landscape:	Open forests	:	30.85 sq. km.
	Moderately dense	:	14.32 sq. km.
	Dense forests	:	0.00 sq. km.
	Scrub lands	:	0.00 sq. km.
	WRC	:	5.94 sq km
	Horticulture	:	14.75 sqkm
	Other areas	:	102.22 sq. km.
	Total area	:	168.08 sq. km.

2.10 Extent and other features of L3 landscape (Pangbalkawn)

Table 4

Location	The L3 Landscape (Pangbalkawn) is located along Kolasib- Bairabi highway. It is 20kms. away from Kolasib town, district headquarter of Kolasib district, and about 101 kms. from Aizawl, the State capital.
GPS coordinates:	N 24°14.1’ 02’’ & E 92°38’52’’ , N 24°14.20’14’’ & E 92°36.56’10’’ N 24°12’14’’ & E 92°35.55’2’’, N 24°12.48’34’’ & E 92°38’2’’
Area	21.606 sq. kms.
Forest cover	Moderately dense forests – nil sq. kms. Open forests – 13.48 sq. kms. Non-forests - 8.126 sq. kms.
Forest type	Cachar Tropical Semi Evergreen Forest (2B/C2) mixed with bamboo breaks. Important species found in the locality are <i>Dipterocarpus turbinatus</i> , <i>D tuberculatus</i> , <i>Terminalia chebula</i> , <i>Emblica spp</i> s, <i>Careya arorea</i> etc. Dominant

bamboo species are *Melocanna baccifera*, *Dendrocalamus hamiltonii*, *Bambusa tulda*, *D longispathus* 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 5.3. 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 (0.75 %).
- Topography** Some portion of the land is undulating with moderate slope i.e. 10° to 14°, whereas most parts of the land are comparatively flat with an altitude of 450-500 mts. above MSL.

2.11 Profile of L3 Landscape (Pangbal kawn)

2.11.1 Population and Workers Population

The population data of Pangbalkawn village is given below in the following table:

Table 5A				
No of Households	Population		Children below 6yrs	Total
	Adult Male	Adult Female		
201	407	312	198	917

The average family size is 4 to 5 persons per household.

Workers Population is as under:-

Table 5B			
Total Workers	Regular/Main Workers	Irregular/Marginal Workers	Non Workers
681(74.26%)	338(49.63%)	343(50.37%)	236

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Source: Census data 2011

2.11.2 Social structure

The social structure of the population at Pangbalkawn village is as under:-

Table 6				
General	Scheduled Caste	Scheduled Tribe	OBC	Total
Nil	Nil	917	-	917

Source: YMA census 2017

2.11.3 Wealth Ranking

Table 7		
Sl. No.	Classification	No of families
1	Rich (Families having RCC building or motor car whose annual income exceeds Rs 5,00,000.00)	-
2	Middle class (Families whose annual income is less than Rs 5,00,000.00 but above BPL)	105
3	Poor (Families who are listed as BPL by the Govt.)	96

Source : Actual field verification

2.11.4 No of Educational institutions

Table 8						
Anganwadi	Primary school	Middle school	High school	HSS	Colleges	Others
2	2	1	1	nil	nil	Nil

Source: Field verification

2.11.5 Enrolment (as on 1st June 2017)

Table 9					
Anganwadi	Primary school	Middle school	High school	Colleges	Others
126	199	72	26	-	-

Source : Field verification

2.11.6 Literacy percentage

Male – 75.85%, Female – 55.87%, Overall – 66.56%

Soure:Census data 2011

2.11.7 Occupation

Table 10		
Sl. No.	Category of Occupation	No of families
1	Govt. service	5
2	Jhumming (Shifting cultivation)	56
3	Horticulture including WRC	14
4	Business/Petty trade	8
5	Daily labourers	113
6	Others	5

Source : Field verification

2.11.8 Livestock population

Table 11					
Cattle	Goat	Sheep	Pig	Poultry	Other
2	-	-	91	178	-

Source: Field verification

2.11.9 Agriculture practices

Category	Current Jhumming	Abandoned Jhumming	WRC
Area (ha)	85	121	112

Source: Existing Land Use Map

2.11.10 Cropping pattern

Table 13				
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	Arecanut	May-June	March-April	25
5	Maize	March	July	2
6	Ginger	April- June	Oct-March	8
7	Pumpkin	March	June	2
8	Calocasia (Bal)	April	Nov-Dec	2
9	Local pea (Behlawi)	March	Sept-Nov	4
10	Soya bean	June-July	Nov-Dec	2
11	Oil Palm	April-June	Aug-Dec	5

2.11.11 Water Resource

The main sources of water for the people living in Pangbalkawn village is water collection points connected to perennial fountains and rain water harvesting. The gravity supply was connect to different parts of village, Rain water harvesting is being done by few well-to-do families only.

2.11.12 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.

2.11.13 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:-

Average annual demand/household	No of households	Total annual demand of the village
2.1 cum	201	422cum

The supply as per the carrying capacity of existing forest in L3 (Pangbal kawn) is expected as under:-

- A - Total forest area: 1348ha
- B - GS/Ha as per Baseline survey Data: 131.314tonne/ha
- C - Total GS: 177011.27tonnes
- D - Annual Yield: 3540.22tonnes
- E - Fuel wood availability assuming 30% of Annual Yield as fuel wood: 1062tonnes

2.11.14 Existing infrastructure

Anganwadi Centre (2nos.), Primary School (1nos.), Middle School (1no), High School (_1__no.), Community Hall (1no.), Mini-Market (1no.), Mini-Playground (1no), Medical (1 Health Sub-Centre) .
Local Institutions / Organizations: - Village Council, YMA (1Branch), MUP (1unit), MHIP (1Branch) and 1 Games & Sports Association

2.11.15 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.

2.12 Demographic statistics of L2 Landscape

Table 14								
Sl. No.	Village	Population			Poverty (BPL families)	Forest dependency	Drivers of degradation	JFMCs/ other institutions of Gram Sabha
		Total	SC	ST				
1	Pangbal Kawn	917	nil	917		Shifting cultivation, fuel-wood, timber for construction of houses, furniture	Dealt in para 2.15	Village Forest Development Committee (VFDC) is active in all these villages.

						etc.		
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Source: Census data 2011

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

Table 15						
Sr. 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 department s such as-Soil Conservation, Horticulture,Agriculture,Forest ,	Plantation of bamboos, betel nut, Rubber, Broomstick.	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	Pangbalkawn
2	NAP (National Afforestation Programme)	FDA Kolasib/ 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	Pangbalkawn
4	MIDH(DHO Kolasib	Rubber plantation	Terracing,Rain water harvesting structures	Technical &Financial support to promising farmers only.	Pangbalkawn
5	MGNREGS	DRDA,Kolasib Dist	Roadside plantation	Terracing Retaining wall,countour trenching,, Road repairs	Provision of 100 days employment for every willing household	Pangbalkawn

9	IAY (Indira Gandhi Awaas Yojana)	DRDA, Kolasib	Nil	Nil	Construction of houses for the poor	Pangbalkawn
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2.14 Gaps/Strategies identified under GIM

Sl. No.	Village	Forestry activities proposed	Other activities like SMC	Livelihood activities proposed	Any others
6	Pangbal Kawn	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) Roadside/canals 5) Support to community conserved areas	Interventions in catchment areas of hydrological importance	Community livelihood enhancement.	Promoting alternate energy sources

2.15 Drivers of degradation and deterioration in the forest eco-system

Table 17		
Sl. No.	Village	Drivers of degradation
6	Pangbal	Traditional practice of shifting cultivation, Lack of strategic and participatory land-use planning, excessive population pressure on the

	Kawn	forests for fuel-wood, fodder, timber etc., inadequate scientific management of watersheds including rainwater harvesting.
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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 Pangbalkawn village, conservation-oriented NGOs (YMA, MHIP and MUP), forest officers and other prominent citizens of the village on 18.5.2017. As per recommendations made in the meeting, a Micro-Plan Working Group was constituted for facilitating preparation of micro-plan for Pangbalkawn Landscape (L3). The constitution of the group is as under:-

Leader:	PC Lianzuala Forest Range Officer,
Members:	1) Chungzakhupa Secy VFDC(GIM)
	2) Lalhruailiana Chaiman VFDC(GIM)
	3) Lalrammuana YMA
	4) Vanlalnghaka VCM

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 18					
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	Principal Secretary, Environment and Forest Govt of Mizoram	Minutes of the meeting enclosed at Annexure – IV

		No:33	State		
2	District/L2 level	Representatives of VFDCs,VCs, and NGOs such as YMA's,MHIPs & MUP. Total No of participants:-66	More trainings are to be given at all levels.GIM guidelines in local dialect be distributed to locals/trainees.	1)ShriDr SB Singh Joint Director ICAR Research Complex for NEH Region, Mizoram Centre Kolasib Ph-03837-220041 Fax-03837-220560 2)Shri Lalrosanga Khangte Prog Coordinator KVK,Kolasib Tele Fax: 03837-220360	Minutes of the meeting enclosed at Annexure -V
3	Village/L3 level at Bairabi	Representatives of VFDCs,VCs, and NGOs such as YMA's,MHIPs & MUP attended. Total no of participants -90. Attendance at Annexure-	GIM guidelines in local dialect be distributed.Rural outreach activity for data collection be done at the earliest	1)ShriDr SB Singh Joint Director ICAR Research Complex for NEH Region, Mizoram Centre Kolasib Ph-03837-220041 Fax-03837-220560 2)Shri Lalrosanga Khangte Prog Coordinator KVK,Kolasib Tele Fax: 03837-220360	Minutes of the meeting enclosed at Annexure VI
4	Village/L3 level at Kolasib	Representatives of VFDCs,VCs, and NGOs such as YMA's,MHIPs & MUP attended. Total no of participants -90. Attendance at Annexure-	-do-	1)ShriDr SB Singh Joint Director ICAR Research Complex for NEH Region, Mizoram Centre Kolasib Ph-03837-220041 Fax-03837-220560 2)Shri Lalrosanga Khangte Prog Coordinator	Minutes of the meeting enclosed at Annexure -VII

				KVK,Kolasib Tele Fax: 03837-220360	
5	Village/L3 level at Zanlawn	Representatives of VFDCs,VCs, and NGOs such as YMAS,MHIPs & MUP attended. Total no of participants - -	-do-	1)ShriDr SB Singh Joint Director ICAR Research Complex for NEH Region, Mizoram Centre Kolasib Ph-03837-220041 Fax-03837-220560 2)Shri Lalrosanga Khangte Prog Coordinator KVK,Kolasib Tele Fax: 03837-220360	Minutes of the meeting enclosed at Annexure- VIII

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

Table 19					
Sl. No	Village	Institution who prepared Micro- Plan JFMC/Others	Details of participation of all stakeholders/depart ments	Approval of Gram Sabha	Details of facilitators engaged
1	Pangbal Kawn	Kolasib FDA& Microplan Working Group as in para 3.1	Representatives of Govt departments,Cons ervation oriented NGOs,VFDCs,VCs, and local public.	Approved by Village Council, Pangbalkawn Approval letter enclosed at Annexure-IX	1)ShriDr SB Singh Joint Director ICAR Research Complex for NEH Region, Mizoram Centre Kolasib Ph-03837-220041 Fax-03837-220560 2)Shri Lalrosanga Khangte

					Prog Coordinator KVK,Kolasib Fax: 03837-220360
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3.7 Details of involvement of district level committee in preparation of perspective plan especially of convergence mechanism

- District Level Committee in its meeting discussed the convergent items proposed by different implementing agencies and finalized the items of works to be executed under convergence

3.8 Details of the meetings/consultations with other departments in finalizing the convergence issues and perspective plan

- As above

Chapter 4

Activities proposed to be undertaken in the Sub-landscape (L2)

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:-

Pangbalkawn village:

Table19A				
Sl. No.	Land Use category	Area (Sq. kms.)	% of total area	Remarks
1	Community land			
	a) Open Forest	3.56	16.48	

	b) Current Jhum area	0.85	3.93	
	c) Abandoned Jhum area	1.21	5.60	
2	Private land			
	a) Open Forest	6.21	28.74	
	b) Agriculture	2.13	9.86	
	c) Horticulture	3.176	14.70	
	d) WRC	1.12	5.18	
3	Community Reserve	0.45	2.08	
4	Reserved Forest	1.2	5.55	
5	Fishery	0.3	1.39	
6	Human settlement	1.4	6.479	
	TOTAL	21.606		

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:

Pangbalkawn village:

Table 19B				
Sl. No.	Proposed land-use	Area (sq. km.)	% of total area	Proposed Sub-missions
1	Community land	3.56	16.48	Sub mission 1: Enhancing Forest cover and improving

				ecosystem Type A Ecorestoration of degraded open forest: Type A & C
	Abandoned Jhum land	2.06	9.53	Sub-mission 2: Rehabilitation of shifting cultivation areas
2	Private land	6.21	28.74	Submission 4-a) Farmers land including current fallows
	WRC	2.13	9.86	
	Agriculture	3.176	14.70	
	Horticulture	1.12	5.18	
3	Community reserve	0.45	2.08	1. Sub-mission 3: Enhancing forest cover in Urban & Peri- Urban areas (including institutional land) 2. Sub-mission 4: Highway/Rural roads
4	Reserved Forest	1.2	5.55	
5	Fishery	0.3	1.39	
6	Human settlement	1.4	6.48	
	Total working Areas	21.606		

Source:GIS cell,E&F dept,Mizoram

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:-

Submissions:

Table19C					
Sl. No.	Village	Submission/category			
		Enhance quality of forest cover	Ecosystem restoration & increase in forest cover	Agro forestry	Social forestry
6	Pangbal Kawn	Stock enrichment planting to increase the quality of existing forests	Plantation of indigenous spp to improve ecosystem and provisional services	Raising of plantation alongwith agri-crops for generating additional income sources	Afforestation activities with active people's participation of locals along the roads, in school premises etc

Cross-cutting interventions:

Table19D

Sl. No.	Village	Cross-cutting interventions			
		Alternate energy sources	Livelihood enhancement Community	Community conserved areas and sacred groves	Watershed management
1	Pangbal Kawn	Provision of Solar devices, LPG, Improve stove etc to BPL families	Infrastructural development of village and 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

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 Village-wise details of submissions proposed for treatment (Action plan)

Table 18					
Village	Sub-Missions	Categories	Proposed area	Proposed cost (Rs in lacs)	Livelihood activities proposed based on Micro-Plan
Pangbalkawn	1:Enhancing quality of existing forest cover & improving ecosystem service	a)Moderately dense forest cover, but showing degradation.	35 Ha.	14.175 @Rs40,500/Ha	Support to Cottage industries i.e 17% of Total Cost norms for submissions = Rs.59.376 lakhs
		b)Eco-restoration of degraded open forest Type A	60Ha.	25.92 @Rs.43,200/Ha	
		b)Eco-restoration of degraded open forest Type C	70ha.	94.5 @Rs.1,35,000/Ha	
	2:Ecosystem restoration and increase in forest cover	a)Rehabilitation of shifting cultivation areas	130Ha	105.3 @Rs.81,000/Ha	
	3: Enhancing Forest covers in Urban & Peri Urban areas	a) Plantation in Urban & Peri Urban areas	15ha	40.5 @ Rs 270000/ha	
	4:Agro forest & Social Forestry (increasing biomass & creating carbon sink)	a)Farmer's land including current fallows	85Ha	45.90 @Rs.54,000/Ha	
		c)Highways/ Rural roads/ Canals/ Tank/Bunds	12 Ha	22.68 @Rs.1,89,000/Ha	
	5:Promoting alternative fuel energy	Biogas,solar device,LPG,Bio mass based systems, improved stoves	160 family	5.28 @Rs.3300/fly.	

Total cost norms for sub-missions without interventions				349.275 lakhs	59.376

4.6 Treatment area under the landscape unit

Table 21A						
Sl. No.	Sub-mission	Category	Proposed area	Proposed cost(Rs in lakhs)	Livelihood activities	Proposed cost(Rs in lakhs)
1	2	3	4	5	6	7
1	Enhancing quality of existing forest cover & improving ecosystem service	a)Moderately dense forest cover, but showing degradation.	35Ha.	14.175 @Rs40,500/Ha	Infrastuctural development of Village and Financial support to forest based cottage industries	@17%of submission cost
		b)Eco-restoration of degraded open forest (Type A)	60Ha.	25.92 @Rs.43,200/Ha		
		b)Eco-restoration of degraded open forest (Type C)	70ha.	94.5 @Rs.1,35,000/Ha		
Sub total			165ha	134.595		

2	2:Ecosystem restoration and increase in forest cover	a)Rehabilitation of shifting cultivation areas	130Ha	105.30 @Rs.81,000/ Ha		
Sub total			130ha	105.30		
3	3: Enhancing Forest covers in Urban & Peri Urban areas	a) Plantation in Urban & Peri Urban areas	15ha	40.5 @ Rs 270000/ha		
Sub total			15ha	40.5		
4	4:Agro forest & Social Forestry (increasing biomass & creating carbon sink)	a)Farmer’s land including current fallows	85 Ha	45.9 @Rs.54,000/ Ha		
		c)Highways/ Rural roads/ Canals/ Tank/Bunds	12ha	22.68 @Rs.1,89,000 /Ha		
Sub total			142ha	68.58		
TOTAL			407ha	349.275		59.376

4.7 Whether Map showing details of the area proposed village-wise and submission-wise enclosed

-Attached as Annexure-

4.8 Whether the geo-references of the treatment locations enclosed in the prescribed format

Attached as Annexure-

4.9 Details of support activities proposed in the landscape including proposed cost and village-wise details wherever applicable

Under GIM,the livelihood support given to locals will be Technical and financial support to 10units of forest based cottage industries. The proposed cost for this activity will be Rs 56.55

4.10 Details of each cross-cutting intervention proposed under the mission with area details, geo-references, activities etc.

Table 21B					
Sl/no	Cross cutting	Activities	Unit	Total	Geo-references

	interventions proposed			Cost(Rs in lakhs)	
1	Alternate energy sources	Biogas,solar device,LPG,Biomass based systems, improved stoves	160	5.280	
2	Community livelihood enhancement	Infrastructural development of village and Financial support to micro cottage industries		64.94	
4	Watershed management	Constructions of Reservoir with extension of supply lines	3nos @ 4.00	12.00	N24 12'41.7" E092 36'35.8" N24 12'18.5" E092 36'21.3" N24 12'48.9" E092 36'28.2"
		Urinal shed and water tanky at Schools	2nos @ Rs 250000	5	N24 12'36.1" E092 36'26.5",, N24 12'25.0" E092 36'35.4"
5	Village development	PCC flooring of Internal road with side drain	500mtrs	8	N24 12'39.1" E092 36'25.2"

Chapter 5

Activities proposed under convergence

5.1 Activities proposed under convergence

Table 23

Sl. No.	Village	Scheme	Implementation Agency	Area (Natural Resource Development Activities)		Other Activities (Social Sectors)	
				Works	Proposed funding (in lakhs)	Activities proposed	Proposed funding (Social sectors)Rs in lakhs
1	Pangbal kawn	MGNRES	BDO, Bilkhawthlir	Engagement of villagers for 100 days for village development	72.89	1.Construction of terrace 2.construction & repairing of Roads And others works made by VEC	10.75 20.87
2		NAP	FDA Kolasib/ concerned VFDC	Afforestation (AR)	20.17 (30Ha)	Entry point Activity	1.2
3		Oil palm development	Agriculture Dept.	Oil Palm Plantation.	7.8	Const.of Agriculture Link road,	3.5
4		NLUP (New Land Use Policy)	Different line department s such as-Soil Conservation Horticulture,A griculture,Fore st,Sericulture,	Plantation of bamboos, Gauva, Broomstick, Rubber, Oil palm etc by Line dept.	65	Terracing , Materials for maintenance of plantation, Tanky etc.	10.5

5.2 Activities proposed for overall improvement of the landscape to be taken up through convergence Attached at

Annexure-

5.3 Approval of district level committee for proposed convergence

-Attached at Annexure-

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 11016/16/2011-FST Dt 11.11.2014 for effective implementation of GIM in the State of Mizoram. A copy of notification is attached at Annexure-II

The names of these committees are as under:-

- 1) State Forest Development Agency for “Green India Mission”/State Mission Directorate
- 2) State Level Steering Committee for Green India Mission

- 3) GIM Cell under Environment & Forest Department/Nodal Agency
- 4) Revamped FDA for Green India Mission
- 5) District Level Steering Committee
- 6) Village Level GIM Committee

6.2 Institutional Set-up for implementation in the landscape

Table 24							
Sl. No.	Village	Institutions proposed for implementation	Submission of area			Details of other activities	Remarks
			Submission	Category	Area		
1	Pangbal kawn	Revamped VFDC	1:Enhancing quality of existing forest cover & improving ecosystem service	a)Moderately dense forest cover, but showing degradation.	30 Ha.	Provision of support to small scale cottage industries and infrastructural development of the village	Financial support for Livelihood will be given from the First year
				b)Eco-restoration of degraded open forest (Type A)	60ha.		
				b)Eco-restoration of degraded open forest () Type C	70ha.		
			2:Ecosystem restoration and increase in forest cover	a)Rehabilitation of shifting cultivation areas	130Ha		
			3: Enhancing Forest covers in Urban & Peri Urban areas	a) Plantation in Urban & Peri Urban areas	15ha		
			4:Agro forest & Social Forestry (increasing biomass & creating carbon sink)	a)Farmer's land including current fallows	85Ha		
				c)Highways/ Rural roads/	12 Ha		
			5:Promoting alternative fuel energy	Biogas,solar device,LPG, improved stoves	160 fam.		

Chapter 7

Livelihood Issues

7.1 Brief note on the forest dependency and livelihood issues village-wise

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:-

Table 25						
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
6	Pangbal Kawn	201	2.1	422	440.67	Source:Kolasib WP data&Field verification

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:-

Table 26						
Sl . No.	Village	No. of house- holds	Average timber requirement per household (cum.)	Annual timber requirement (cum.)	Timber availability (cum.)	Remarks
6	Pangbal Kawn	201	0.8	160	2145.95	Source: Kolasib WP data

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:-

Pangbalkawn Village:

Table 27			
Bamboo (nos.)	Fuelwood(cum)	Broom(Qtls)	Thatching grass (Bundles)

Demand	Supply availability	Demand	Supply Availability	Demand	Supply availability	Demand	Supply Availability
65,000	9,00,000	589.47	1310.68	65.00	120.00	760.00	28,000

Source: Field verification

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.

Table 28							
Sl. No.	Village	Proposed livelihood activities	Role of facilitators, if any engaged	Beneficiaries		Proposed cost(Rs in lakhs)	Remarks
				Family	No.		
6	Pangbal Kawn	Infrastructural development of village and Technical & Financial support to cottage industries	Provision of technical knowledge to improve quality and quantity of production as well as assistance in marketing	Whole village		56.607	Good internal Roads and water reservoir are must for the villageCottage industries are producing different handicraft-items like gasket,pot,local carriers,Zampher (Mat)etc made from bamboo &cane

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 29								
Sl. No.	Village	Scheme	Implementing Agency/ department	Proposed livelihood activities	Beneficiaries		Proposed cost	Remarks
					Family	No.		
1	Pangbal Kawn	NRLM	BDO, Thingdawl	NIL	-	-	-	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:-

Table 30		
Parameters	Indicator	Baseline Status
1. Forest/tree cover on forest/ non-forest lands in the Mission Target Area (MTA)	a) % of area with forest cover	69.39 % (Total forest cover 13.48 sq. km. out of 21.606 sq. km.) (As on 2-6-2017)
	b) % area in various forest density classes	1) Very Dense = 0.0% 2) Moderately Dense = 0.00 % (nil sq. kms.) 3) Open Forest = 69.39 % (13.48 sq. km.) Source: GIS cell E&F dept. Govt of Mizoram
2. Ecosystem services from targeted areas / landscapes	a) Shannon-Weiner Index	1.31
	b) Biomass	Above Ground Biomass = 79033.24 tonnes Source: Baseline 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 6.6-6.9. 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 27 ft.	
5. Annual sequestration of CO ₂	Carbon sequestered in the target area.	Baseline Carbon Stock = 184419 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 lakh> -- <50,000	67
		Less than 50,000	134
7. Quality of forest cover & ecosystem services of forest / non-forests	a) % of forest area naturally regenerating.	70% Source:GIS Cell,E&F Dept,Mozoram	
a) Moderately dense forests	b) Biomass	-	
b) Open forests		184419 tonnes (AGB)	

c) Degraded grasslands		No Degraded Grasslands
d) Wetlands		No wetland area
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	2.34% (out of 15ha)
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.	13.78 % (1.12. kms. out of 8.126 sq. kms.) Source: GIS Cell,E&F Dept Mizorams
5. Public forest/ non-forests areas (taken up under the Mission) are managed by the community institutions.	a) % of area under management of community institutions	28.09 % (6.07 Sq Km out of 21.606 Sq Km) Legally under the Village Council Source: GIS Cell E&F Dept,Mizoram
6. Improved fuel wood-use efficiency	a) % of HH reporting use of alternative	Total Households = 201

and alternative energy devices adopted by households in the MTA.	energy devices.	LPG users = 112 Fuel-wood users = 201 Fuel-wood only users = 89 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	5
		Jhumming	56
		Horticulture including WRC	14
		Business/Petty Trade	8
		Daily Labourers	113
		Others	5

Chapter 9

Status of reforms proposed

9.1 Role of Gram Sabha (Village Council) in project planning, implementation and monitoring

Village level GIM committee has been constituted by the State Government vide notification No.B 11016/16/2011-FST Dt 11.11.2014 (*annexure-II*) for the following activities:-

1. To render support in the preparation of Perspective Plan,
2. To ensure implementation of planned and approved schemes (approved by the State Level Steering Committee and MoEFCC) with expected level of quality,
3. To promote active people's participation in the implementation of "Green Indian Mission" and

4. To provide feedbacks timely to concerned authorities for further improvement in programme implementation.

Further, VFDC would play key role in project planning, monitoring and implementation under GIM. Both the VFDC and the Village Level GIM Committee would work closely in coordination with Gram Sabha (Village Council).

9.2 Revamping of FDAs and SFDAs

SFDAs and FDAs (General Body as well as Executive Committee) have been revamped for formulating suitable plans and executing well-planned projects with people's participation under GIM in Mizoram. The SFDA (General Body) will provide overall guidance for effective implementation of "Green Indian Mission" in the State. It will also oversee implementation of the broad policy framework in achieving Mission goals and objectives. The Executive Committee of revamped SFDA has been entrusted with the following functions:

1. Approval of Perspective Plan as well as Annual Plan of Operations;
2. Preparation of annual reports on GIM implementation in the States;
3. Programmatic convergence at the landscape level

The revamped FDA (General Body) will deal with policy issues pertaining to cohesion and convergence of different programmes at the Panchayat/Village Council level for better outcomes from the mission. The Executive Committee of revamped FDA will arrange for preparation of perspective plan/annual plan and convergence of various programmes.

9.3 FRAs compliance in areas covered under L2 and L3s

Claims for rights in the forests would be settled strictly as per the relevant acts applicable in the State of Mizoram.

9.4 Easing out regulatory framework in felling and transportation of forest produce

There is need to simplify the procedure for issuing documents enabling felling and transportation of forest produce. The MoEFCC has recently taken initiative for simplifying rules and procedures for issue of permits and transit passes in respect of trees grown on non-forest private lands. The State of Mizoram

would work in this direction in a proper way to motivate tree planters on non-forest private lands and also protect the valuable forest wealth existing in the State.

9.5 Strengthening frontline formation of E&F department

Under Necessary actions would be taken for “Capacity Building” of frontline forest staff engaged in implementation of GIM in the State. Suitable training as well as required facilities would be provided to them for executing the planned works efficiently. It is expected that well-trained forest staff with people’s participation would be able to deliver the desired output/outcomes GIM.

Chapter – 10

Mission Cost

10.1 Cost of the Mission

Year-wise cost of the mission for various work items has been given in the table place din Annexure –IX

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

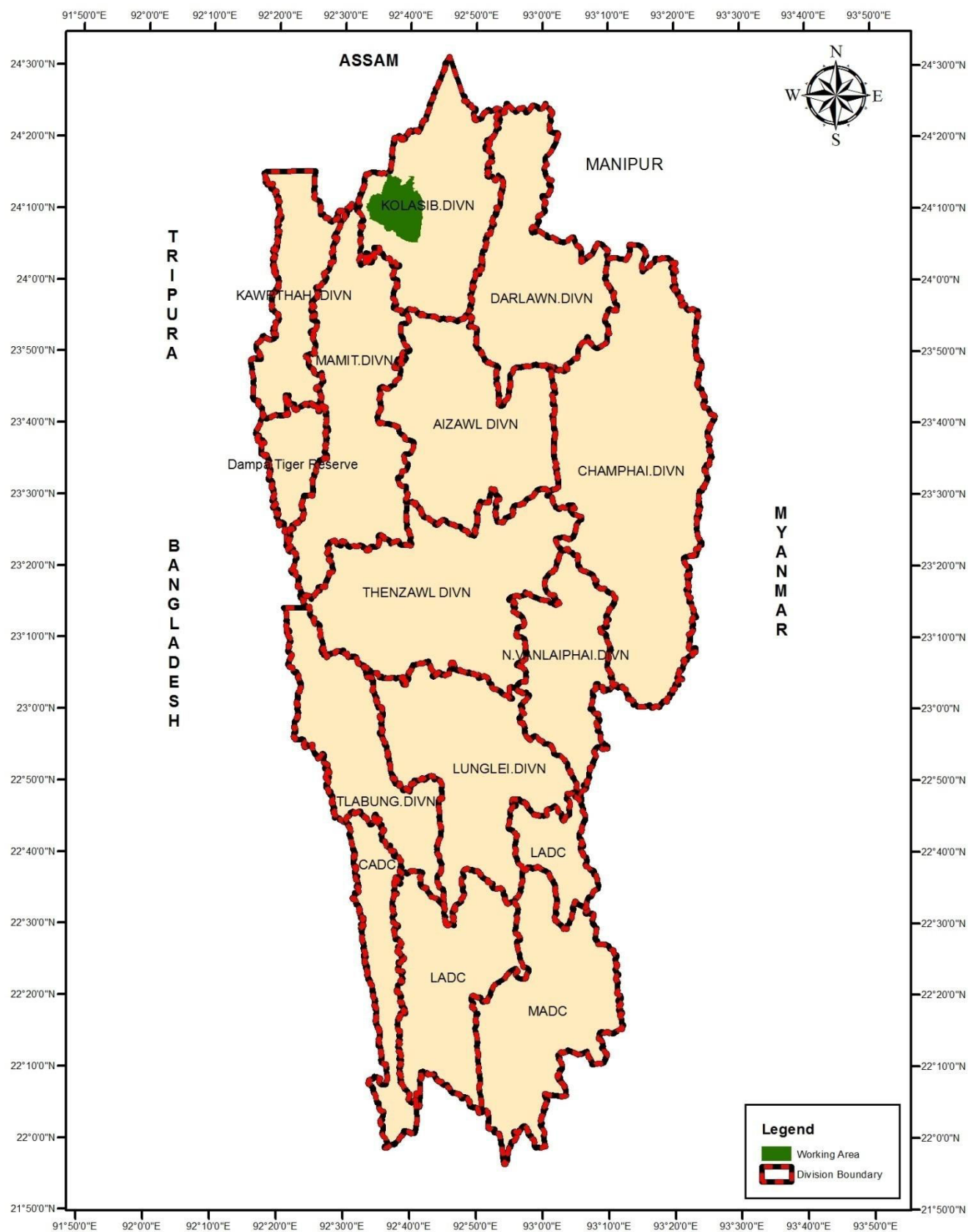
Table				
1. Name of L1 landscape			The State of Mizoram	
2. Name of L2 landscape			Kolasib- Bairabi	
3. Forest and non-forest area in L2			Forest Area 12.49sq km. Non Forest-155.59	
4. Drivers of degradation in the landscape			Traditional practice of shifting cultivation, Lack of strategic and participatory 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			The analysis of survey data shows that the area is in need of proper scientific treatment to reduce or reverse the ongoing ecosystem degradation	
6. Existing scheme implemented in the landscape			NAP,NBM,MGREGS,RKVY,IAY	
7. Implementing agencies under GIM			Revamped FDA,Kolasib	
			Proposed funding (Rs in lakhs)	Funding for first year
8. GIM activities				
(a) Submission/Category				
1. Enhancing quality of existing forest cover			13.257	4.847
2.Ecosystem restoration and increase in forest cover			114.143	34,5

3 Rehabilitation of shifting cultivation	101.642	19.548
4.Plantation inUrban & Peri Urban areas	38.205	10.665
5.Agro forestry and Social Forestry	65.735	14.556
6 Alternate energy source	5.280	1.353
(b) Other support activities		
1 Research(2%)	6.660	2.331
2 Publicity/Media/Outreach Activity(1%)	3.330	1.165
3 Monitoring and Evaluation (1%)	3.330	1.165
4 Improvement of Livelihood activities	56.607	19.812
Strengthening local level institutions(5%)	16.607	5.827
Strengthening FDs(5%)	16.607	5.827
Mission Organisation,operation maintenance,overheads(4%)	13.319	4.662
9 Convergence activities		
Activities	Scheme	Proposed amt(Rs in lacs)
Engagement of villagers for 100 days for village development	MGNRES	72.89
Afforestation (AR)	NAP	20.17 (30Ha)
Oil Palm Plantation.	Oil palm developme	7.8
Plantation of bamboos, Gauva, Broomstick, Rubber, Oil palm etc by Line dept.	NLUP (New Land Use Policy)	65

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MAP OF L1 LANDSCAPE MIZORAM



No.B. 11016/16/2011 - FST
Government of Mizoram
Environment and Forests Department

NOTIFICATION

Dated the 11th Nov' 2014

In the interest of public service, the Governor of Mizoram is pleased to constitute State Forest Development Agency for "Green India Mission", State Level Steering Committee, GIM Cell, Revamped FDA, District Level Steering Committee and Village Level Green India Mission Committee for the State of Mizoram under Environment and Forests Department, Government of Mizoram with immediate effect and until further order:-

A. State Forest Development Agency for "Green India Mission"/State Mission Directorate

General Body:

- | | | |
|---|---|------------------|
| 1. Hon'ble Minister, Environment and Forests, Mizoram | - | Chairperson |
| 2. Principal Chief Conservator of Forests | - | Member Secretary |
| 3. Chief Wildlife Warden | - | Member |
| 4. Addl. Principal Chief Conservator of Forests | - | Member |
| 5. Chief Conservator of Forests (Admn.) | - | Member |
| 6. ✓ Chairman, Executive Committee, all FDAs | | |
| 7. Member-Secretary, Executive Committee, all FDAs | - | Member |
| 8. Nodal Officer, State CAMPA | - | Member |
| 9. Nodal Officer, Forest Conservation | - | Member |
| 10. President, CYMA | - | Member |
| 11. President, MUP Hqrs | - | Member |
| 12. President, MHIP Hqrs | - | Member |
| 13. Chief Conservator of Forests (P&D) & Nodal Officer, Green India Mission | - | Member |

OFFICE OF THE CF (NC) MIZORAM
R. No. 1702

Date 13-11-14

File No.

5/13/11
Rony

Terms of reference:-

The State Mission Directorate (General Body) will meet at least once in a year. The Directorate will provide overall guidance for effective implementation of "Green India Mission" in the State. It will also oversee implementation of the broad policy framework in achieving Mission goals and objectives.

Executive Committee

- | | | |
|--|---|------------------|
| 1. Principal Chief Conservator of Forests | - | Chairperson |
| 2. Addl. Principal Chief Conservator of Forests | - | Member |
| 3. Chief Wildlife Warden | - | Member |
| 4. Chief Conservator of Forests (Administration) | - | Member |
| 5. Nodal Officer, Forest Conservation | - | Member |
| 6. Chairman, Executive Committee of 3 FDAs | - | Member |
| 7. Member Secretary, Executive Committee of 3 FDAs | - | Member |
| 8. Nodal Officer, State CAMPA | - | Member |
| 9. ✓ Conservator of Forests (R&D) | - | Member |
| 10. Head, Forestry Department, Mizoram University | - | Member |
| 11. Representative, Central Agriculture University, Selesih | - | Member |
| 12. President, CYMA | - | Member |
| 13. President, MUP Hqrs | - | Member |
| 14. Representative each from Finance, Planning,
Rural Development, Science & Technology,
Agriculture, Social Welfare and Local Administration
Department of the State | - | Member |
| 15. Chief Conservator of Forests (P&D) | - | Member Secretary |

Terms of reference:-

The Executive Committee will meet at least twice in a year. The committee is entrusted with the following functions:

1. Approval of Perspective Plan as well as Annual Plan of Operations;
2. Preparation of annual reports on GIM implementation in the State;
3. Programmatic convergence at the landscape level.

B. State Level Steering Committee for "Green India Mission"

	-	Chairperson
1. Chief Secretary	-	Member Secretary
2. Principal Chief Conservator of Forests	-	Member
3. Principal Secretary, Finance	-	Member
4. Principal Secretary, Planning	-	Member
5. Principal Secretary, Environment & Forests	-	Member
6. Principal Secretary, Rural Development	-	Member
7. Principal Secretary, Agriculture	-	Member
8. Secretary, Soil & Water Conservation	-	Member
9. Secretary, Social Welfare	-	Member
10. Secretary, Local Administration Department	-	Member
11. A representative of the Ministry of Environment, Forests and Climate Change	-	Member
12. Addl. Principal Chief Conservator of Forests	-	Member
13. Chief Conservator of Forests (Admn.)	-	Member
14. Chief Conservator of Forests (P&D)	-	Member
15. Chief Wildlife Warden	-	Member
16. All Conservators of Forests	-	Member
17. Director, Agriculture Department	-	Member
18. Director, Horticulture Department	-	Member
19. Director, Soil & Water Conservation	-	Member
20. Director, Sericulture Department	-	Member
21. Director, AH & Vety. Department	-	Member
22. Director, Fisheries Department	-	Member
23. Project Director, MIRSAC	-	Member
24. Representative, Sc. & Technology Wing (Planning Board)	-	Member
25. Head, Forestry Department, Mizoram University	-	Member
26. Representative, Central Agriculture University, Selesih	-	Member
27. President, CYMA	-	Member
28. President, MUP Hqrs	-	Member

Terms of reference:-

1. To provide for overall guidance and synergy with other programmes so as to ensure inter-department coordination and convergence;
2. To approve Annual Report for "Green India Mission";
3. To monitor progress of fund utilization under "Green India Mission";
4. To work as empowered Committee for approval of perspective plan as well as annual work programme under "Green India Mission"

The State Level Steering Committee will meet at least once in six months.

C. GIM Cell under Environment & Forests Department/Nodal Agency:

- | | | |
|--|---|------------------|
| 1. Principal Chief Conservator of Forests | - | Chairman |
| 2. Addl. Principal Chief Conservator of Forests | - | Member Secretary |
| 3. Chief Wildlife Warden | - | Member |
| 4. Chief Conservator of Forests (A) | - | Member |
| 5. Chief Conservator of Forests (P&D) | - | Member |
| 6. All Conservators of Forests | - | Member |
| 7. Divisional Forests Officer, Aizawl Forest Division | - | Member |
| 8. Divisional Forests Officer, Champhai Forest Division | - | Member |
| 9. Divisional Forests Officer, Kolasib Forest Division | - | Member |
| 10. Divisional Forests Officer, Darlawn Forest Division | - | Member |
| 11. Divisional Forests Officer, Thenzawl Forest Division | - | Member |

Terms of reference:-

- i) To facilitate/finalize preparation of "Perspective Plan" and Annual Plan of Operations for approval of SFDA (Executive Committee) and State Level Steering Committee.
- ii) To review the progress of project planning and implementation under "Green India Mission" as per guidelines/advisories issued by the MoEFCC.
- iii) To arrange for proper monitoring of works executed under GIM internally as well as through independent agencies.
- iv) To prepare/finalize annual reports as well as other necessary documents under the mission.

Terms of Reference:-

The Executive Committee (FDA) will meet at least once in a year. The committee will deal with preparation of perspective plan/annual plan and convergence of various programmes.

E. District Level Steering Committee

1. Deputy Commissioner concerned	-	Chairperson
2. District level officers dealing with expenditure in the district to be nominated by the Deputy Commissioner	-	Member
3. District Agriculture Officer	-	Member
4. District Horticulture Officer	-	Member
5. District Officer, Soil & Water Conservation	-	Member
6. District Sericulture Officer	-	Member
7. District AH & Vety. Officer	-	Member
8. District Fisheries Development Officer	-	Member
9. Project Director, DRDA	-	Member
10. District Social Welfare Officer/Officer i/c of the District from Social Welfare Department	-	Member
11. EE, Minor Irrigation/Officer i/c of the District from Minor Irrigation	-	Member
12. Representatives of Village Council	-	Member
13. President, YMA Sub-Hqrs	-	Member
14. President, MHIP Sub Hqrs	-	Member
15. The concerned Range Forest Officer	-	Member
16. Divisional Forest Officer (Territorial)	-	Member-Secretary

Terms of reference:-

To provide for proper coordination among various departments and facilitate convergence of various programmes so as to achieve the outcomes of "Green India Mission" efficiently.

D. Revamped FDA for "Green India Mission"

General Body

- | | | |
|--|---|------------------|
| 1. Conservator of Forests concerned | - | Chairperson |
| 2. Divisional Forest Officer, Resources Survey Division | - | Member |
| 3. Range Forest Officers, ACFs/SDFOs | - | Member |
| 4. Presidents of JFMC General Bodies, not more than 50 at any time, to be nominated by Chairperson on rotational basis for a period of one year, of which 20 would be women representatives. In the event adequate number of women chairpersons is not available, the women representatives will be drawn from the members of the General Bodies of JFMCs. | | |
| | - | Members |
| 5. President, Village Council concerned | - | Member |
| 6. Three non-official representatives to be nominated | - | Members |
| by the apex institutional framework of Village Council i.e. LAD | | |
| 7. Territorial Divisional Forest Officer | - | Member Secretary |

Terms of reference:-

The FDA (General Body) will meet at least once in a year. Its basic functions will be to deal with policy issues pertaining to cohesion and convergence of different programmes at the village level for better outcomes from the mission.

Executive Committee

- | | | |
|--|--------|-------------------|
| 1. Conservator of Forests concerned | - | Chairperson; |
| 2. Divisional Forest Officer, Resources Survey Division | - | Member |
| 3. District level officers of Agriculture, Rural Development, Animal husbandry, Soil & Water Conservation, Social Welfare, Local Administration Department, Industries, Public Health Engineering, Horticulture, Minor Irrigation, Small Scale Industries/KVIC, Education Departments and the Lead Bank Officer (to be nominated by concerned DC). | | |
| | - | Members |
| 4. Three non-official representatives to be nominated by the apex institutional framework of village council i.e. LAD. | | |
| | - | Members |
| 5. Fifteen nominees from the JFMCs, to include minimum of 7 women- | Member | |
| 6. Chief Executive Officer, FDA. | - | Member Secretary. |

Terms of Reference:-

The Executive Committee (FDA) will meet at least once in a year. The committee will deal with preparation of perspective plan/annual plan and convergence of various programmes.

E. District Level Steering Committee

- | | | |
|--|---|------------------|
| 1. Deputy Commissioner concerned | - | Chairperson |
| 2. District level officers dealing with expenditure in the district to be nominated by the Deputy Commissioner | - | Member |
| 3. District Agriculture Officer | - | Member |
| 4. District Horticulture Officer | - | Member |
| 5. District Officer, Soil & Water Conservation | - | Member |
| 6. District Sericulture Officer | - | Member |
| 7. District AH & Vety. Officer | - | Member |
| 8. District Fisheries Development Officer | - | Member |
| 9. Project Director, DRDA | - | Member |
| 10. District Social Welfare Officer/Officer i/c of the District from Social Welfare Department | - | Member |
| 11. EE, Minor Irrigation/Officer i/c of the District from Minor Irrigation | - | Member |
| 12. Representatives of Village Council | - | Member |
| 13. President, YMA Sub-Hqrs | - | Member |
| 14. President, MHIP Sub Hqrs | - | Member |
| 15. The concerned Range Forest Officer | - | Member |
| 16. Divisional Forest Officer (Territorial) | - | Member-Secretary |

Terms of reference:-

To provide for proper coordination among various departments and facilitate convergence of various programmes so as to achieve the outcomes of "Green India Mission" efficiently.

F. Village Level GIM Committee

- | | | |
|--|---|------------------|
| 1. Range Officer concerned | - | Chairperson |
| 2. Beat Officer/Forester concerned | - | Member-Secretary |
| 3. Field officer/staff in-charge of the area from
Agriculture, Horticulture, Soil & Water Conservation,
Sericulture, AH&Vety., Fisheries Department,
Rural Development Department, Social Welfare Department. | - | Members |
| 4. Two representatives/members of concerned JFMC | - | Members |
| 5. Two representatives of Gram Sabha/Village Council | - | Member |
| 6. Two representatives of prominent NGOs | - | Member |

Terms of reference:-

1. To render support in the preparation of Perspective Plan.
2. To ensure implementation of planned and approved schemes (approved by the State Level Steering Committee and MoEFCC) with expected level of quality.
3. To promote active people's participation in the implementation of "Green India Mission".
4. To provide feedbacks timely to concerned authorities for further improvement in programme implementation.

This supercedes earlier Notification issued vide no. B:11016/16/2011-FST dated 22.03.2012.

Sd/- LALRAM THANGA

Principal Secretary to the Govt. of Mizoram
Environment & Forests Department

Memo No.B. 11016/16/2011-FST

Dated the 11th Nov' 2014

Copy to :-

1. Secretary to Governor, Mizoram.
2. Principal Secretary to Chief Minister, Mizoram.
3. P.S to Speaker/Ministers/Minister of State/Deputy Speaker, Mizoram.
4. P.S to all Parliamentary Secretaries, Government of Mizoram.
5. PPS to Chief Secretary, Government of Mizoram.
6. All Principal Secretaries/ Commissioners/Secretaries, Govt. of Mizoram.
7. All Head of Department, Mizoram.
8. All Deputy Commissioners, Mizoram.
9. Principal Chief Conservator of Forests, Mizoram.
10. Additional Principal Chief Conservator of Forests, Mizoram.
11. All Chief Conservator of Forests, Environment & Forests Department, Government of Mizoram.
12. All Conservator of Forests, Environment & Forests Department, Government of Mizoram.
13. Chief Wildlife Warden, Mizoram.
14. All Divisional Forests Officer, Mizoram.
15. All Members concerned.
16. Guard File.


11/11/14

Under Secretary to the Govt. of Mizoram,

Environment & Forests Department

(55) (49)

Minutes of the meeting (State Mission Directorate - GIM)

As per advisories/guidelines issued by the Ministry of Environment & Forests (MoEF), the State Government has constituted "State Mission Directorate" to suggest suitable strategies and provide necessary directions for implementing Green India Mission (GIM) effectively in Mizoram. The first meeting of the State Mission Directorate was held on 11.07.2014 in the Secretariat's Conference Hall. The meeting was chaired by Pu Lalrinmawia Ralte, Hon'ble Minister, Environment & Forest, Government of Mizoram and Chairman of the State Mission Directorate. The list of officers, who attended the meeting, is at the annexure.

Hon'ble Minister, Environment & Forests welcomed all members of the Mission Directorate and distinguished invitees for the meeting. He expressed that need-based planning under GIM and proper execution of well-planned projects will provide adequate livelihood support to the people while maintaining ecological stability in the State. He further stated that efforts to achieve environmental security will also contribute significantly to the process of arresting climate change and addressing its impact on the people.

Emphasizing upon the importance of GIM, Hon'ble Minister, Environment & Forests advised all concerned departments to work together and apply convergence principles so as to achieve mission outcomes/targets efficiently. He expressed that direct/up-front consultation with all stakeholders including village-based organizations, conservation-oriented NGOs and academic/technical experts would be required for designing scientifically-sound site-specific interventions aimed at getting sustainable delivery of maximum eco-system services from the forests. He further advised concerned officers of line departments to go through GIM guidelines and related documents carefully and suggest suitable results-oriented measures in larger public interests as per the mission guidelines for implementing GIM effectively in the State.

PCCF and Principal Secretary (E&F) emphasized upon the following issues of relevance concerned with planned implementation of GIM in his opening remarks:-

- The State of Mizoram is also witnessing impacts of global climate change i.e. changing trends in temperature and precipitation over the years. The "Green India Mission", which is one of the eight missions under India's National Action Plan on Climate Change, is aimed at addressing regional concerns of climate change thereby providing sustainable livelihood support and creating healthy environment for the people.

- Execution of projects under GIM will contribute substantially to achieve the goal of having two-third of the State's geographical area under forest or tree cover as enshrined in the National Forest Policy 1988. This is required to prevent erosion and land degradation in the hills and mountainous regions.
- There is a need to design a model to work through convergence of various ongoing schemes and achieve the twin objectives i.e. provide sustainable livelihood support to the people and ensure ecological security in the State. Suitably-designed such model may be implemented initially in landscapes (51 villages) identified presently for treatment under GIM.
- Maximum possible co-operation of the concerned line departments would be required for achieving the GIM objectives efficiently.
- The field forest officers engaged in GIM implementation should endeavour to work closely with the local communities as building up mutually-beneficial trust-worthy relationship between the forests, the people, and the State would be extremely useful in achieving the mission targets with desired level of quality.

CCF (P&D) gave a power-point presentation explaining background of the mission, its objectives, mission strategies, structure of various organizations involved in implementing the mission strategies, implementation schedule (time-frame), sub-missions and cross-cutting interventions envisaged for the mission, landscape details etc. In the presentation, he highlighted the following:-

- The entire State has been identified as "Landscape of Interest/Importance" i.e. L1 for possible coverage under the mission. In the initial phase, 8 operational units (L2) in five forest divisions and 51 working units (L3) have been identified / prioritized for immediate treatments as per the criteria given by the Ministry of Environment and Forests (MoEF) for landscape identifications.
- Bridge Plan for Rs. 223.65 lakhs has been sanctioned by the MoEF for taking up out-reach activities, micro-planning, landscape survey, entry-point activities etc.
- Situation/problem analysis for all L2/L3 is required to be carried out in consultation with all stakeholders so as to identify drivers of degradation. Stakeholder's participation (participatory planning) is a necessity as GIM is a multi-stakeholder, multi-sectoral, and multi-departmental mission.

- Micro-plan/perspective plan would be a tool to facilitate transition from vicious cycle (consisting of environmental degradation, decreased crops productivity, and poverty) to virtuous cycle leading to sustainable socio-economic prosperity in eco-friendly surroundings.
- Focus may be on restoration of degraded eco-system, water security, enhancement of crops (agricultural, horticultural and forests) productivity, energy security, value addition, marketing linkages for value-added produce etc.
- Training of educated youth for making them self-employable with sustainable use of available natural resources may be a viable option for livelihood support.

Thereafter, various matters concerned with planned implementation of the GIM in the State were discussed in detail and the following decisions were taken:-

Strategies for implementation of 'Bridge Plan' and preparation of 'Perspective Plan'

- All stakeholders including village communities, concerned/line departments in the district, conservation-oriented NGOs and academic/technical experts may be consulted for implementing "Bridge Plan" and preparing "Perspective Plan" for landscapes prioritized for treatment under GIM.
- As approved by the State Government, "Bridge Plan" may be implemented by following the fund transfer mechanism involving SFDA (State Forest Development Agency), FDAs (Forest Development Agencies) and VFDCs (Village Forest Development Committees). However, all concerned DFOs may obtain suitable inputs from various line departments in the district and other stakeholders for deciding specific work activities as per GIM guidelines/advisories.
- "Bridge Plan" may be executed strictly as per the approved items of works and as per the guidelines/advisories circulated by the MoEF for GIM implementation.
- While preparing perspective plan, needs of the local communities as well as existing site conditions such as agro-climatic zone, altitude, soil type etc. may be considered.
- "State Action Plan on Climate Change" prepared by the Science and Technology Department of the State may also be referred to for preparing "Perspective Plans".
- The concerned line departments may share their data/records with GIM cell for facilitating timely preparation of required perspective plans.
- Digitized maps i.e. geographical map, watershed map, contour map, land-use map, vegetation map etc. are required to be prepared for all L2 and L3. These maps would provide vital technical inputs for preparing micro-plans/perspective plans. For the purpose, MIRSAC

may submit proposal to GIM cell in PCCF's office for sharing existing data and preparing additional data (soft as well as hard copies) etc.

availability of relevant data, cost-benefit frame for providing required

- GIM cell in PCCF's office, in consultation with line departments and other stakeholders, may prepare a model to work through convergence of all on-going schemes in identified landscapes as GIM cannot be a 'stand alone' project.

Modifications in constitution of various GIM committees

- Planning Department, Finance Department, AH & Vety. Department and Fisheries Department may also be included in the State Mission Directorate for GIM.
- All concerned DFOs i.e. DFO (Aizawl, Champhai, Kolasib, Darlawn and Thenzawl) may be included in GIM cell.
- In the Division Level GIM Committee, DC may be the Chairman and DFO Member-Secretary. Further, all line departments involved in GIM implementation at the district level and concerned ROs may be included as members of the division level committee.
- GIM cell in PCCF's office may prepare proposal for modifications in the GIM committees including ToR as per applicable guidelines and submit it to the State Government for approval.

State level workshop

The proposed 'State Level Workshop' on GIM may be held during 2nd week of August, 2014.

Other items

- Guideline on GIM in brief may be prepared in Mizo language for facilitating easy understanding by the local people.
- GIM cell in PCCF's office may provide copies of guidelines, advisories, Bridge Plans and other relevant documents to concerned line departments and other stakeholders for their knowledge and submission of suggestions on ways to implement GIM effectively in the state.
- Success/performance indicators as well as methods to measure these indicators may be developed in advance and incorporated in the "Perspective Plans".

In his concluding remarks, Pu Rosiama Vanchhawng, APCCF, emphasized upon the importance of GIM for the people of Mizoram. He expressed that the implementation of GIM in convergence with other on-going schemes would bring substantial benefits to the people in

healthy environment. He requested all stake holders to work together so as to get maximum sustainable benefits from the mission.

Sd/-
(LALRINMAWIA RALTE)
MINISTER, E & F
&
CHAIRMAN
STATE MISSION DIRECTORATE
GREEN INDIA MISSION
MIZORAM

Memo No. B. 13011/1/2011 – PCCF/45

Dated 11th July, 2014

Copy to:

1. P.S. to Hon'ble Minister, Environment & Forests, Mizoram.
2. P.S. to Principal Chief Conservator of Forests.
3. P.S. to Addl. Principal Chief Conservator of Forests.
4. Chief Conservator of Forests (Admn.)
5. Chief Conservator of Forests (P&D)
6. Chief Wildlife Warden.
7. All Conservators of Forests.
8. Director, Agriculture Department.
9. Director, Horticulture Department.
10. Director, Soil & Water Conservation.
11. Director, Sericulture Department.
12. Project Director. MIRSAC.
13. Representative, Sc. & Technology Wing (Planning Board).
14. Head, Env't./Forestry Department, Mizoram University.
15. Representative, Central Agriculture University, Selesih.
16. All DFOs / DCFs

(LALRAM THANGA)
Principal Chief Conservator of Forests
& Principal Secretary (E&F)
Member Secretary

**MINUTES OF THE MEETING OF DISTRICT LEVEL STEERING
COMMITTEE ON GREEN INDIA MISSION, KOLASIB DISTRICT**

Venue : Office chamber of Deputy Commissioner, Kolasib

Time : Dt. 06.02.2015 – 2:00 PM

Members present : List appended.

The meeting was presided over by Pu Jitender Yadav, DC, Kolasib & Chairman of Kolasib District Level Steering Committee on Green India Mission. After welcoming the members, the chairman invited the Member Secretary to give the background information about Green India Mission and the purpose of the meeting.

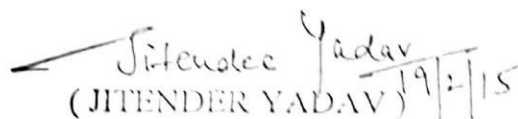
Pu Lalthlamuana Pachuau, the Member Secretary then gave a brief background information about Green India Mission which is one of the eight missions for achieving the National Action Plan on Climate Change and how the mission has been launched and initiated in Mizoram. He informed that the District/Division Level GIM Committee meeting under the chairmanship of the DFO was held at Kolasib New Diakkawn Hall on 22.8.2014 and that Village level meeting on GIM has also been held at Serkhan, Bairabi, Thingdawl, Tumpui and Bualpui on 7.8.2015, 12.8.2015, 5.9.2014, 6.9.2014 and again on 5.9.2015 respectively. The District/Division Level GIM Committee initially constituted with DFO as chairman and ACF, ROs and local NGOs as members by the Government on 22.3.2012 has been modified and reconstituted as District Level Steering Committee on GIM with the DC as chairman and Heads of Offices of appropriate line Departments as members by the Government on 11.11.2014, and the terms of reference of the Committee is to provide for proper coordination among various departments and facilitate convergence of various programmes so as to achieve the outcome of Green India Mission efficiently.

The Committee was also informed that in Mizoram, Green India Mission is being implemented initially in four Districts, namely, Aizawl, Champhai, Serchhip and Kolasib districts and that two landscapes (L2) at Dumkhel ram and Serlui hnar under Kolasib District have been selected for treatment under GIM and villages (L3) involved are Thingdawl, Bualpui, New Diakkawn, Tumpui, Pangbalkawn, Meidum and Dilzau in Dumkhel ram landscape, and Kawnpui I, Zanlawn, Nisapui, N.Chaltlang and Bukpui in Serlui hnar landscape. Micro-plans for all these 12 villages have been prepared in consultation with the villagers/Village Forest Development Committees (VFDC) concerned. The Perspective Plans for the two landscapes have also been prepared by incorporating the micro-plans of all the 12 villages/VFDCs. This was followed by discussion on the following agenda item:-

1. Approval of convergence proposal of the Perspective Plan for L2 Landscapes under Kolasib District:

The Member Secretary informed that the purpose of the meeting is to discuss and approve the convergence proposal incorporated in the Perspective Plan for the selected landscapes (Project sites) in Kolasib District. The activities proposed under convergence by the Forest Department in consultation with the villagers and some of the line departments as given in chapter 5 of the Perspective Plan was circulated among the members and after thorough deliberation and inclusion of fresh proposals from other line Departments, the Committee approved the activities proposed under convergence as modified and entered in chapter 5 of the Perspective Plan for the two landscapes at Dumkhel ram and Serlui hnar under Kolasib District.

The meeting ended with vote of thanks from the chair.

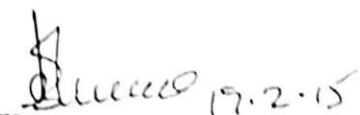

(JITENDER YADAV) 19/2/15

Deputy Commissioner & Chairman,
District Level Fire Prevention Committee
Kolasib District : Kolasib

Memo No. B.13024/1/2012-DFO(K)/ : Dated Kolasib, the ____ Feb, 2015.

Copy to :

1. The Principal Chief Conservator of Forests, Mizoram, Aizawl.
2. Conservator of Forests, Northern Circle, Aizawl.
3. All members of Kolasib District Steering Committee on GIM.


(LALTHLAMUANA PACHUAU)
Divisional Forest Officer & Member Secretary
District Level Fire Prevention Committee
Kolasib District : Kolasib


**MINUTES OF THE MEETING OF VILLAGE LEVEL COMMITTEE OF GREEN
INDIA MISSION(GIM)**

Venue : Forest Rest House Bairabi Rang Complex
Time : 12th August, 2014
Members present : Enclosed

Meeting Chairman, Range Officer Bairabi in tawi fel takin Green India Mission(GIM) awm zia leh a thil tum te a sawi fiah a Hemi hnu hian Kolasib ACF Pu Lalbiakchama Chawngthu chu GIM chungchang Power Point Presentation nei turin a sawm leh a. Meeting a tel member ten zawh na hrang hrangte an zawt bawk a. Heng zawh na te hi Forest Department lam hotuten an chhang zel bawk a. Green India Mission(GIM) hi Mission tha leh awmze nei tak tur ni in member ten ka hria a ni. Power point presentation te zawh a nih hnu hian a hnuai a mi ang hian hmalak zel dan tur te rel ani.

- 1) Power Point Presentation ACF Kolasib in apek hi a bengvar thlak hle a. Chuvangin member tam zawk leh midang vawiin a tel ve thei lo te lo hriat ve atan Mizo tawng ngei in hard copy sem theih ni se kan ti.
- 2) Sub-Mission leh Cross cutting intervention a hmalak na tul te hi khawtinten mahni khua theih ah lo rel fel a. Bial tu Rang Officer te emaw, forest field staffs remchang hnenah pek mai ni se kan ti bawk.
- 3) Vawiin a Village level meeting a tel zawng zawng khuate hian GIM hi kan khua a implement turin kan rem ti.
- 4) Awareness hi tun aiaa tam hi neih ni se kan ti

ZABIKA
(ZABIKA)
President
Dilzau VC


President
Pangbalkawn VC
President
Court


(H. VANLALT LANG)
President
Mekong Govt/Council
Meiktila

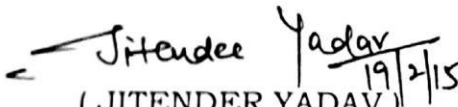

Range Officer
Bairabi Forest Range


(P.C. LIANZUALA)
Range Forest Officer
Bairabi Forest Range
Bairabi : Mizoram

Annexure - VIII B

**APPROVAL OF DISTRICT LEVEL STEERING COMMITTEE ON 'GREEN
INDIA MISSION' FOR THE CONVERGENCE PROPOSAL OF THE
PERSPECTIVE PLAN FOR KOLASIB DISTRICT**

This is to certify that the District Level Steering Committee for Green India Mission, Kolasib District in its meeting held in the office chamber of the Deputy Commissioner, Kolasib District on 6.2.2015 approved the activities proposed under convergence incorporated at chapter 5 of the Perspective Plan for the selected two landscapes at Dumkhel ram and Serlui hnar in Kolasib District under Green India Mission.


(JITENDER YADAV)
Deputy Commissioner & Chairman
District Level Steering Committee for Green India Mission
Kolasib District : Mizoram


(LALTHLAMUANA PACHUAU)
DFO & Member Secretary

DISTRICT LEVEL STEERING COMMITTEE ON GREEN INDIA MISSION

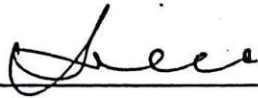
ATTENDANCE SHEET

Sl. No.	NAME	DESIGNATION	Phone No.	Signature
1	K.H. THAKURAN MUSA.	SER. SOI.	9436152463	
2	Dr. Lalbiakzuala Sailo	Vet. Officer	9436148207	
3	Lalebhanama	EE (MID)	9436154530	
4	H. Lalchhan damo	J.T. V/L	9862325430	
5	Lalhmingthia	R.O. (Forest)	9436763916	
6	Lalmunthia	P.D, DRDA.	9436143053	
7	K. Vanlalruati	SOO(S)	9436147688	
8	Zohmingmanii	A.E.O	8415848584	
9	Lalchhanma	SPO	9862771339	
10	Lalthlamuana Bachuan	DFD	9436141357	
11				
12				
13				
14				
15				
16				

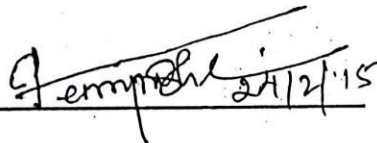
APPROVAL OF MICROPLAN

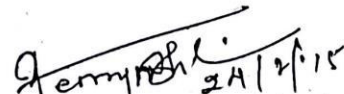
Forest Development Agency(FDA),Kolasib in Green India Mission(GIM)
hnuiaia kan khua PANGBALKAWN a kum 2014-15 atanga 2022-23 chhunga
a hmalakna tur a tan a a siam Microplan hi kan hriatpui in, tha kan ti a, kan
pawmpui e

Signature



Signature


24/2/15


(HENRY M.S. TUANGA HAUZEL)

Secretary
Village Council
Pangbalkawn


(VANLALAWIA)

President
Village Council
Pangbalkawn
Village Council/Court
vn

WORK DETAILS UNDER DIFFERENT SUBMISSIONS OF GIM FOR L3 LANDSCAPE ‘PANGBALKAWN’

Name of L2 Landscape: Kolasib & Bairabi

S. N.	Submission/Intervention	Category	Type	Cost Norm (Rs./ha)															
					1st (2017-18)		2nd (2018-19)		3th (2019-20)		4th (2020-21)		5th (2021-22)		6th (2022-23)		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	a) Moderately dense forest cover, but showing degradation	ANR (Without Plantation)																
			a) Advance work	9,450	20	1.890										20	1.890		
			b) Bal. of adv.work (2016-17)	4,050	15	0.608										15	0.608		
			c) Creation	15,660	15	2.349	20	3.132		-		-				35	5.481		
			d) Mnt.1st year	9,720		-	15	1.458	20	1.944		-				35	3.402		
			e) Mnt.2 year	3,510		-		-	15	0.527	20	0.702				35	1.229		
			f) Mnt.3st year	2,160		-		-		-	15	0.324	15	0.324		30	0.648		
			Total	40,500	35	4.847	35	4.590	35	2.471	35	1.026	15	0.324	-	-		13.257	
		b) Eco-restoration of degraded open forests	200 plants/Ha (Type A)																
			a) Advance work	8,100	30	2.430		-	-	-	-	-					30	2.430	
			b) Bal. of adv.work (2016-17)	1,350	30	0.405											30	0.405	
			c) Creation	15,390	30	4.617	30	4.617		-		-					60	9.234	
			d) Mnt.1st year	8,100		-	30	2.430	30	2.430		-					60	4.860	
			e) Mnt.2 year	6,480		-		-	30	1.944	30	1.944		-			60	3.888	
			f) Mnt.3st year	5,130		-		-		-	30	1.539	30	1.539		-	60	3.078	
			Total	43,200	60	7.452	60	7.047	60	4.374	60	3.483	30	1.539	-	-		23.895	
			1100 plants/Ha (Type B)																
			a) Advance work	18,360														-	
			b) Bal. of adv.work (2016-17)	7,290														-	
			c) Creation	36,450														-	
			d) Mnt.1st year	11,340														-	
			e) Mnt.2 year	8,100														-	
			f) Mnt.3st year	6,750												-	-	-	
			Total	88,290	-	-	-	-	-	-	-	-	-	-	-	-	-		-
			2500 plants/Ha (Type C)																
			a) Advance work	25,650	45	11.543		-	-	-	-	-						45	11.543
			b) Bal. of adv.work	8,640	25	2.160												25	2.160
			c) Creation	53,460	25	13.365	45	24.057		-		-						70	37.422
			d) Mnt.1st year	20,250		-	25	5.063	45	9.113		-						70	14.175
			e) Mnt.2 year	18,090		-		-	25	4.523	45	8.141		-				70	12.663
			f) Mnt.3st year	17,550		-		-		-	25	4.388	45	7.898		-		70	12.285
			Total	1,35,000	70	27.068	70	29.120	70	13.635	70	12.528	45	7.898	-	-		350	90.248

2	Sub Mission 2: Ecosystem restoration and increase in forest cover	a) Rehabilitation of Shifting Cultivation Areas	1100 plants/Ha															
			a) Advance work	18,360	35	6.426	65	11.934	-	-	-	-					100	18.360
			b) Bal. of adv.work	7,290	30	2.187											30	2.187
			c) Creation	36,450	30	10.935	35	12.758	65	23.693		-					130	47.385
			d) Mnt.1st year	11,340		-	30	3.402	35	3.969	65	7.371					130	14.742
			e) Mnt.2 year	8,100		-		-	30	2.430	35	2.835	65	5.265			130	10.530
			f) Mnt.3st year	6,750		-		-		-	30	2.025	30	2.025	65	4.388	125	8.438
Total		81,000	65	19.548	130	28.094	130	30.092	130	12.231	95	7.290	65	4.388	645	101.642		
3	Sub Mission 3: Enhancing tree cover in Urban & Peri-urban areas (including institutional lands)	a) Plantation in Urban & Peri-urban areas	2500 plants/Ha															
			a) Advance work	59,400	10	5.940	-	-	-	-	-	-					10	5.940
			b) Bal. of adv.work	13,500	5	0.675											5	0.675
			c) Creation	81,000	5	4.050	10	8.100		-		-					15	12.150
			d) Mnt.1st year	59,400		-	5	2.970	10	5.940		-					15	8.910
			e) Mnt.2 year	35,100		-		-	5	1.755	10	3.510					15	5.265
			f) Mnt.3st year	35,100		-		-		-	5	1.755	10	3.510		-	15	5.265
Total		2,70,000	15	10.665	15	11.070	15	7.695	15	5.265	10	3.510	-	-	75	38.205		
4	Sub Mission 4: Agro-Forestry and Social Forestry (increasing biomass & creating carbon sink)	a) Farmer's land including current fallows	Farmer's land		-	-	-	-	-	-	-	-						
			a) Advance work	13,500	24	3.240	42	5.670	-	-	-	-					66	8.910
			b) Bal. of adv.work	5,130	19	0.975											19	0.975
			c) Creation	20,250	19	3.848	24	4.860	42	8.505		-					85	17.213
			d) Mnt.1st year	7,020		-	19	1.334	24	1.685	42	2.948					85	5.967
			e) Mnt.2 year	6,750		-		-	19	1.283	24	1.620	42	2.835			85	5.738
			f) Mnt.3st year	6,480		-		-		-	19	1.231	24	1.555	42	2.722	85	5.508
		Total		54,000	43	8.062	85	11.864	85	11.472	85	5.800	66	4.390	42	2.722	425	44.310
		c) Highways/Rural roads/Canals/ Tank Bunds	Roads/Canal/Tak Bunds		-	-	-	-	-	-	-	-						
			a) Advance work	29,700	7	2.079		-	-	-	-	-					7	2.079
			b) Bal. of adv.work	4,590	5	0.230											5	0.230
			c) Creation	83,700	5	4.185	7	5.859		-		-					12	10.044
			d) Mnt.1st year	32,400		-	5	1.620	7	2.268		-					12	3.888
			e) Mnt.2 year	21,600		-		-	5	1.080	7	1.512					12	2.592
f) Mnt.3st year	21,600			-		-		-	5	1.080	7	1.512		-	12	2.592		
Total		1,89,000	12	6.494	12	7.479	12	3.348	12	2.592	7	1.512	-	-	60	21.425		
TOTAL OF A					84.135		99.263		73.086		42.925		26.463		7.109		332.980	
B.	Promoting alternative fuel energy	Biogas, solar devices, LPG, etc	Per Household	3,300	41	1.353	39	1.287	41	1.353	39	1.287				160	5.280	
			Total	3,300	41	1.353	39	1.287	41	1.353	39	1.287	-	-	-	-	160	5.280
TOTAL OF B			3,300	41	1.353	39	1.287	41	1.353	39	1.287	-	-	-	-	160	5.280	

C. For support activities

	Activities Cost															
1	Research (2% of A)		LS	2.331	LS	1.665	LS	1.332	LS	0.67		-		0.67	LS	6.660
2	Publicity/Media/outreach activities (1% of A)		LS	1.165	LS	0.832	LS	0.666	LS	0.33		0.67		0.33	LS	3.330
3	Monitoring and Evaluation (1% of A)		LS	1.165	LS	0.832	LS	0.666	LS	0.33		0.67		0.33	LS	3.330
4	Livelihood improvement activities, (17% of A)		LS	19.812	LS	14.152	LS	11.321	LS	5.66		0.33		5.66	LS	56.607
5	Strengthening local-level institutions (5 % A)		LS	5.827	LS	4.162	LS	3.330	LS	1.66		5.66		1.66	LS	16.649
6	Strengthening FDs (5% A)		LS	5.827	LS	4.162	LS	3.330	LS	1.66		5.66		1.66	LS	16.649
7	Mission Organisation, operation and maintenance, contingencies and overheads (4% A)		LS	4.662	LS	3.330	LS	2.664	LS	1.33		-		1.33	LS	13.319
Total (C)			LS	40.790	LS	29.136	LS	23.309	LS	11.654		12.986		11.654	LS	116.543
Grand Total (A+B+C)				126.278		129.686		97.748		55.866		39.449		18.763		454.803

Shannon diversity index for Pangbalkawn (L3)

	Name of spp	Ni	Pi	Lnpi	-(Pi*Lnpi
Plot 3	<i>Ficus pastratia</i>	2	0.125	-2.07944	0.260
	<i>Ficus hispada</i>	5	0.3125	-1.16315	0.363
	<i>Artocarpus chama</i>	2	0.125	-2.07944	0.260
	<i>Artocarpus lachucha</i>	5	0.176471	-1.7346	0.306
	<i>Albizia procera</i>	1	0.117647	-2.14007	0.252
	<i>Callicarpa arborea</i>	1	0.058824	-2.83321	0.167
		16			1.608
Plot 5	<i>Citus microptera</i>	6	0.428571	-0.8473	0.363
	<i>Tectona grandis</i>	1	0.071429	-2.63906	0.189
	<i>Psidium gauva</i>	2	0.142857	-1.94591	0.278
	<i>Mangiferra indica</i>	3	0.214286	-1.54045	0.330
	<i>Erythrina variegata</i>	2	0.142857	-1.94591	0.278
		14			1.438
Plot 36	<i>Sapium insigne</i>	1	0.058824	-2.83321	0.167
	<i>Lannea coromandelica</i>	9	0.529412	-0.63599	0.337
	<i>Garuga pinnata</i>	1	0.058824	-2.83321	0.167
	<i>Callicarpa arborea</i>	3	0.176471	-1.7346	0.306
	<i>Bombax insigne</i>	2	0.117647	-2.14007	0.252
	<i>Scima wallichii</i>	1	0.058824	-2.83321	0.167
		17			1.395
Plot 37	<i>Tectona grandis</i>	48	0.842105	-0.17185	0.145
	<i>Cardia fragrantissima</i>	1	0.021739	-3.82864	0.083
	<i>Sterospernim colais</i>	1	0.017544	-4.04305	0.071
	<i>Artocarpus chama</i>	4	0.071429	-2.63906	0.189
	<i>Callicarpa arborea</i>	1	0.021739	-3.82864	0.083
	<i>Duabanga grandi flora</i>	1	0.021739	-3.82864	0.083
	<i>Thladiantha cardifolia</i>	1	0.021739	-3.82864	0.083
	Total	57			0.737
H	=	1.608+1.438+1.395+0.737/4			1.294

CARBON STOCK ESTIMATION OF L3 LANDSCAPE (PANGBALKAWN)

Name of Landscape :Kolasib-Bairabi
Name of L3 Landscape Pangbalkawn
Area under L3 Landscape 21.606sq km=2160.6ha
Total Forest area 1348ha

1	Calculation For Growing Stock			
	Sample plot no	Geo-coordinates		Tree volume from Sample Plot
	Plot3	24 13 12.49710N	092 38 07.81246E	4.869cum
	Plot 5	24 11 55.50102N	092 35 33.98777E	1.969cum
	Plot 36	24 13 12.44140N	092 36 59.40398E	2.035cum
	Plot 37	24 11 55.53524N	092 36 08.18627E	12.922cum
			Total Volume	21.795cum
	Conversion into tonnes/ha		21.795 X 2.41 X 10	525.259tonnes/ha
	Total Growing stock/ha		525.259/4	131.314 tonnes/ha

2	Carbon above ground biomass =	Cagb= GS x BCEF xCF	131.314 x 0.95 x 0.47	58.6317	Tonnes/ha
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3	Carbon in below ground biomass	Cbgb= Cagb x 0.37 x CF	33.503 x 0.37 x 0.47	10.196	Tonnes/ha
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4	Carbon in Dead wood biomass	Cdwb=0.11(Cagb + Cbgb)	0.11(33.503+ 5.826)	7.571	Tonnes/ha
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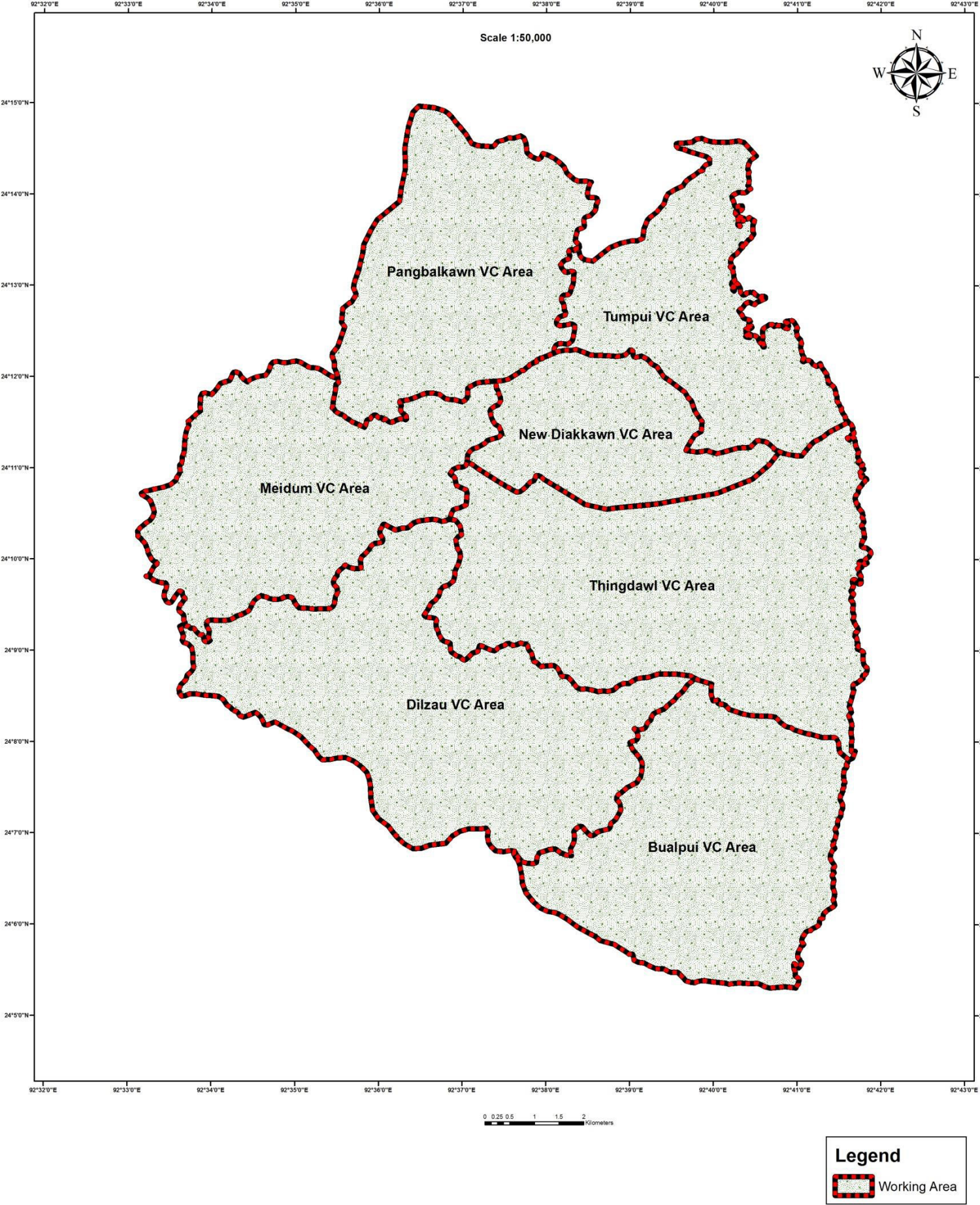
5	Carbon in litter biomass(CI)			3.271	tg/ha
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6	Carbon stock density of soil of soil organic Carbon Cs			57.14	t/ha
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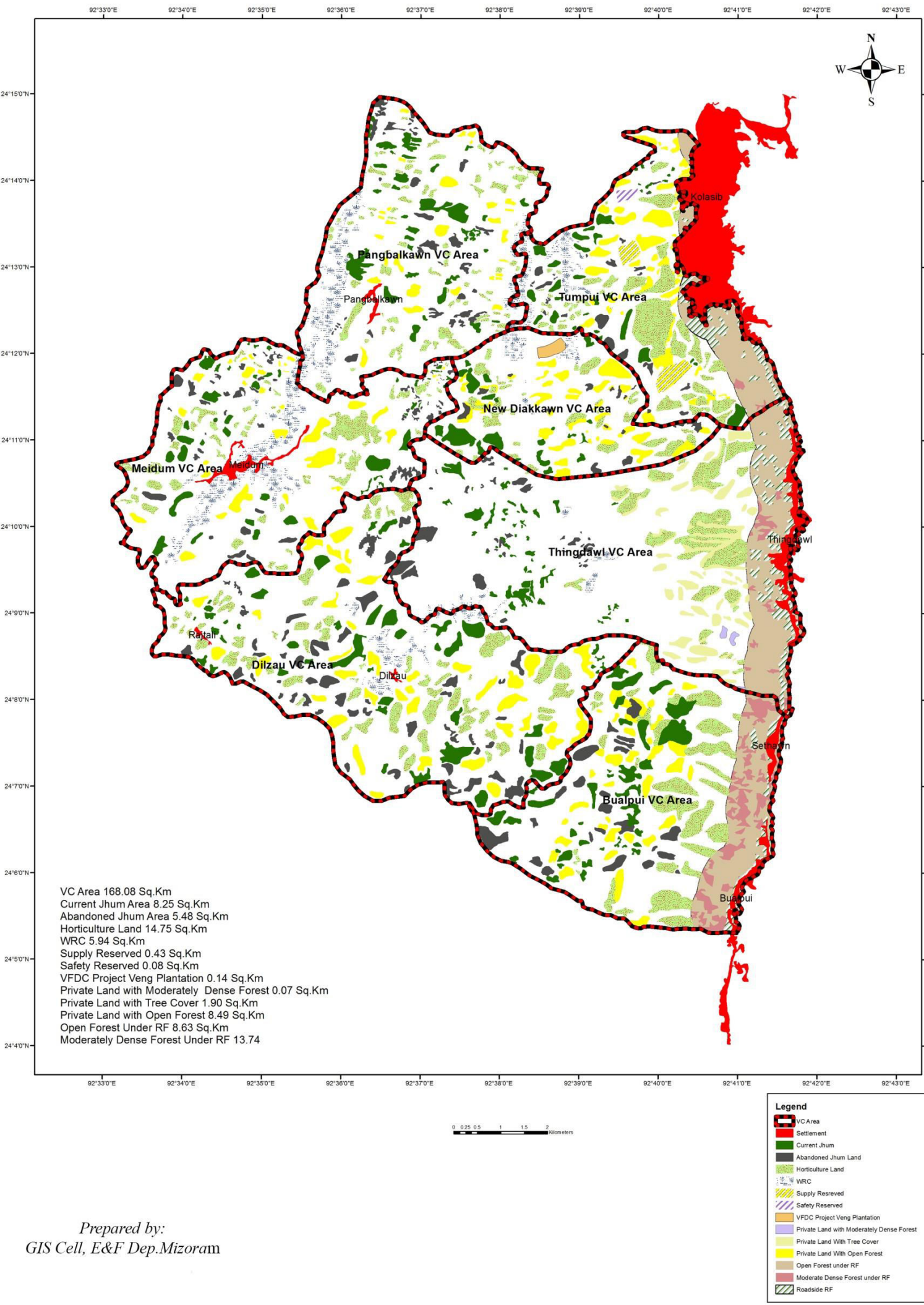
7	Carbon stock	Ct=Cagb+Cbgb+Cdwb+CI+Cs			
		33.503 + 5.826 + 4.326 + 3.271 + 57.14			136.810 Tonnes/ha

8	The total Carbon stock	carbon stock/ha X Total area			
		104.066 X 1348			184419.6195 Tonnes/ha

GEOGRAPHICAL MAP OF L2 LANDSCAPE KOLASIB & BAIRABI : KOLASIB FOREST DIVISION

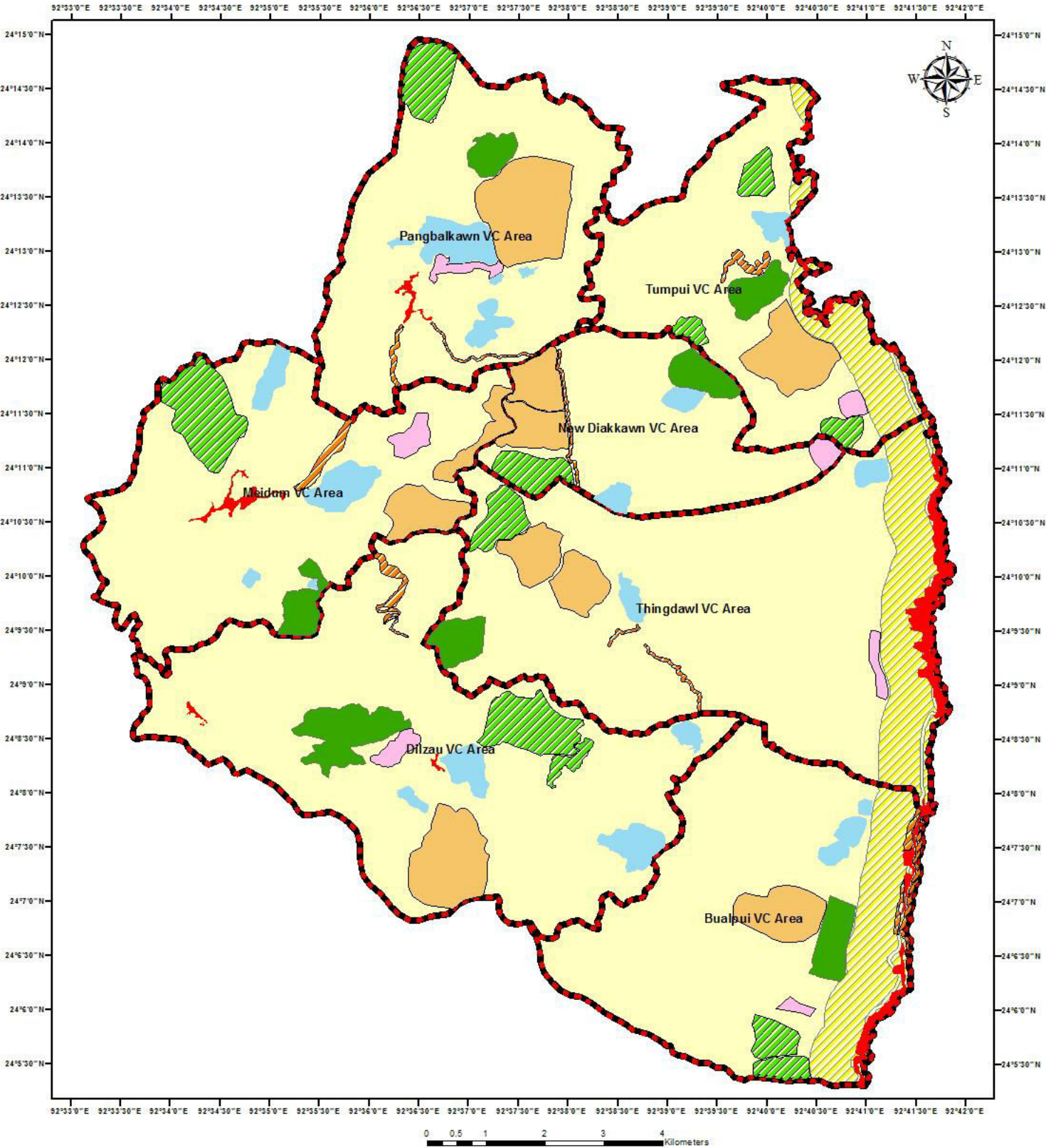


LANDUSE MAP OF L2 LANDSCAPE KOLASIB & BAIRABI : KOLASIB FOREST DIVISION



Prepared by:
GIS Cell, E&F Dep.Mizoram

PROPOSED LANDUSE MAP OF L2 KOLASIB & BAIRABI

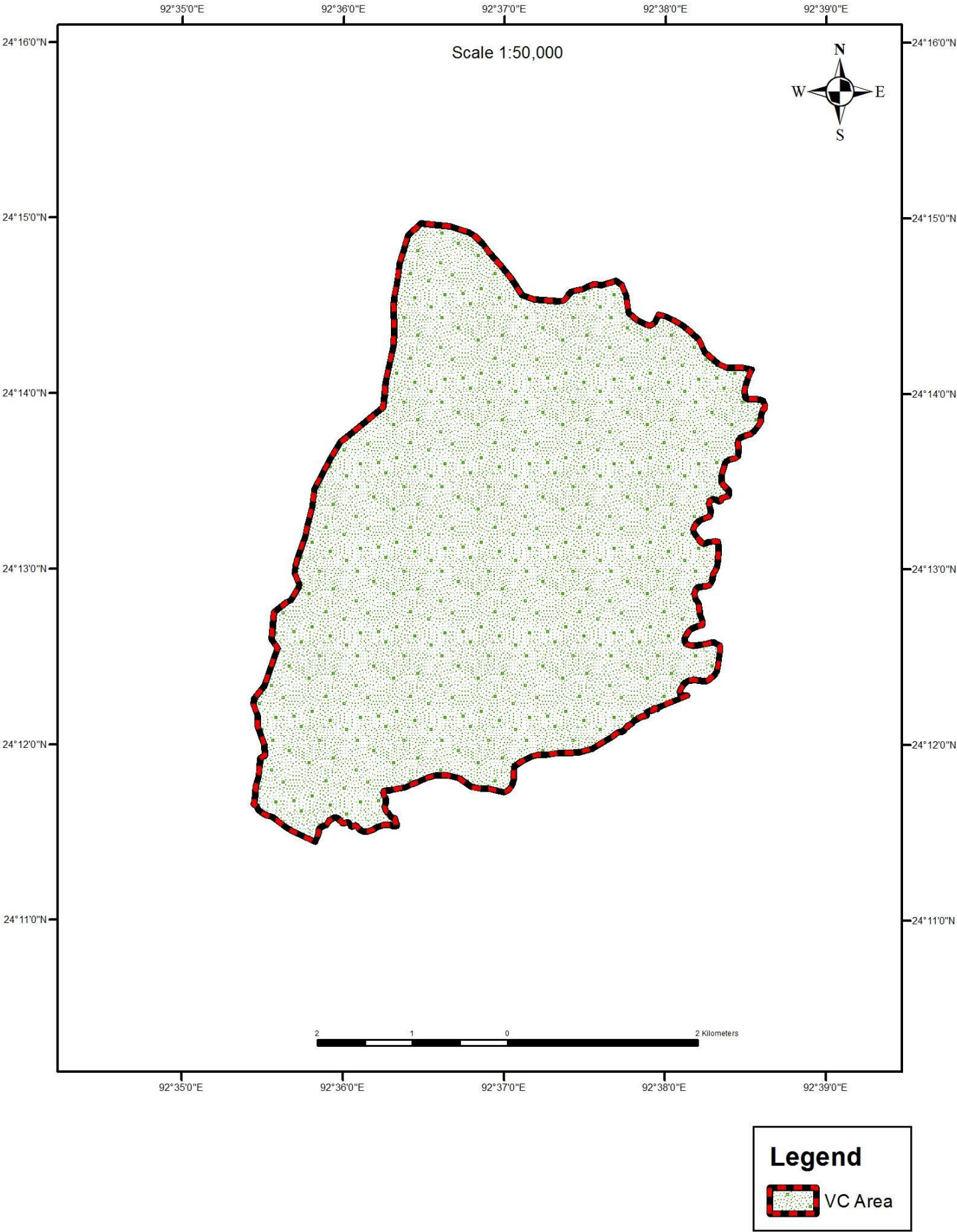


Working Area - 168.08 Sq.km
Rehabilitation of Shifting Cultivation - 6.99 Sq.km
Agro Forestry & Social Forestry:
1. Farmers Land - 5.31 Sq.km
2. Highway / Roadside Plantation - 1.32 Sq.km
Community Land :
1. Moderately Dense Forest cover showing degradation - 4.79 Sq.km
2. Eco-restoration of degraded open forest - 10.96 Sq.km
3. Enhancing Forest Cover in Urban & Peri Urban areas - 2.29 Sq.Km
Private Land & Community Land - 134.10 Sq.Km
Settlement Area - 2.32 Sq.Km

Legend

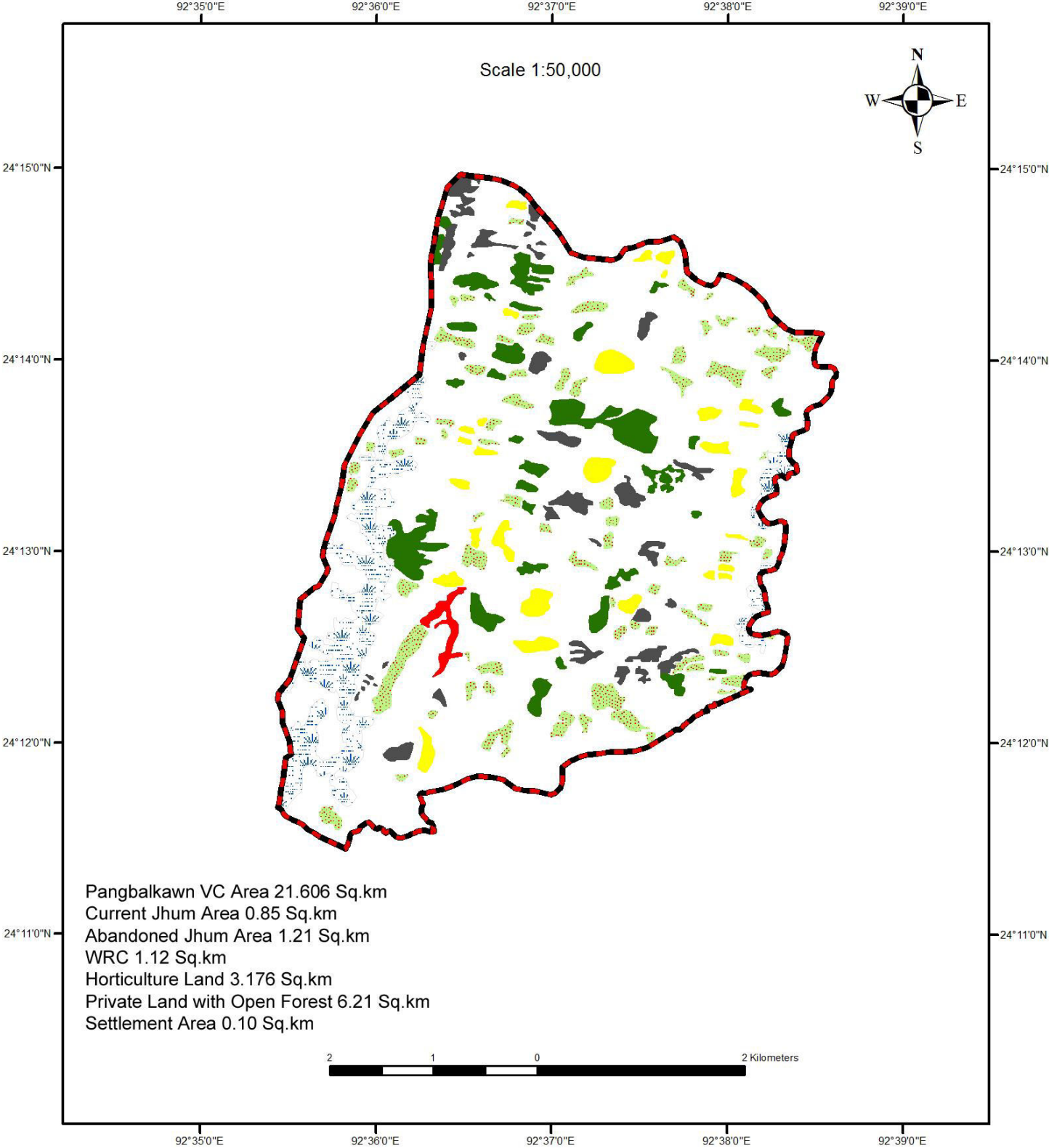
- Working Area
- RF
- Settlement
- Community Land Moderately Dense Forest
- Community Land Degraded Open Forest
- Rehabilitation of Shifting Cultivation
- Enhancing Forest Cover in Urban & Peri-Urban Areas
- Highway/Roadside Reserve
- Farmers Land
- Private Land & Community Land

GEOGRAPHICAL MAP OF L3 LANDSCAPE (PANGBALKAWN VC AREA)



Prepared By :
GIS Cell, E&F Dept. Mizoram

LANDUSE MAP OF L3 LANDSCAPE PANGBALKAWN VC AREA

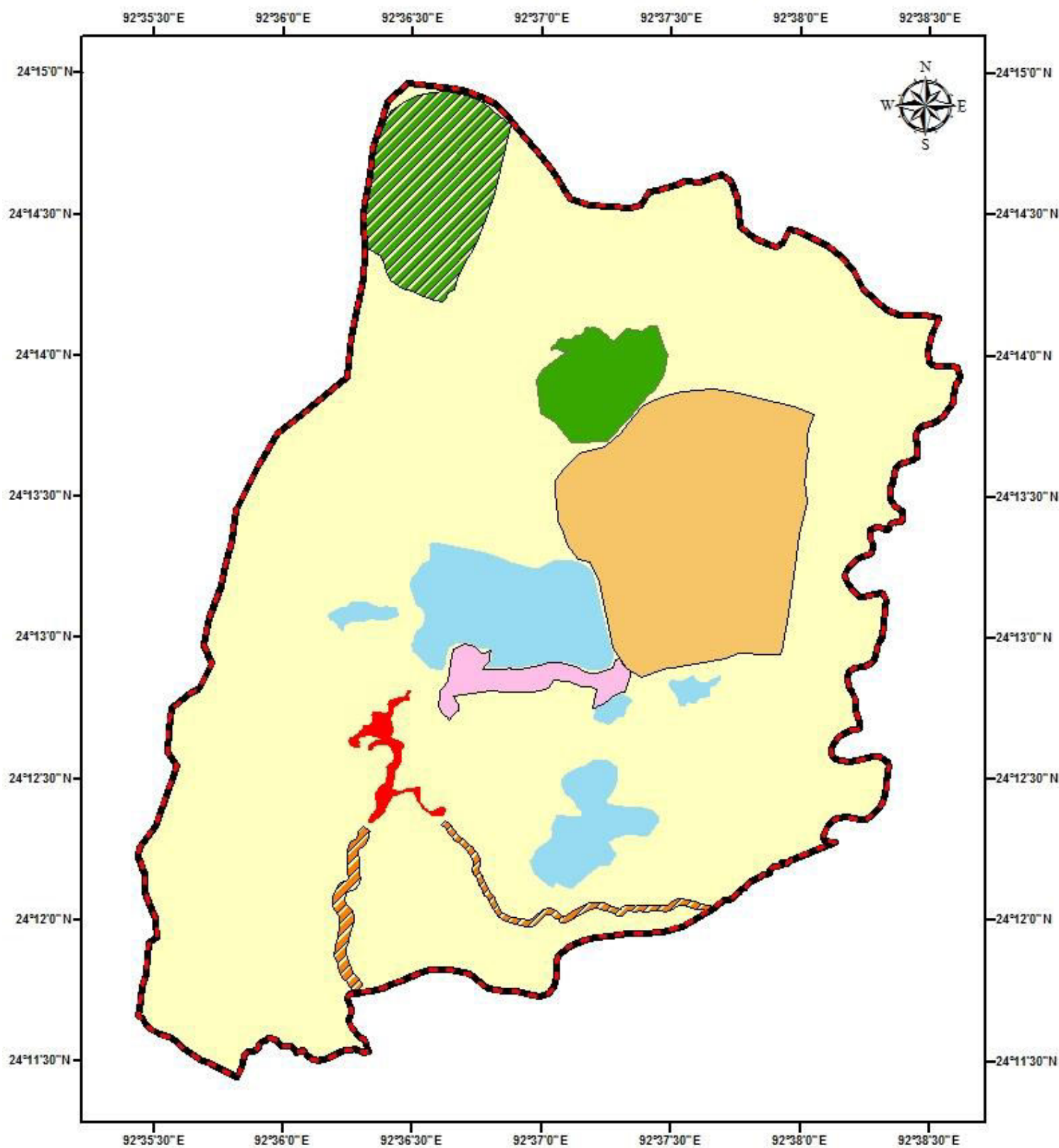


Legend

- VC Area
- Current Jhum Area
- Abandoned Jhum Area
- WRC
- Horticulture Land
- Private Land With Open Forest
- Settlement Area

Prepared By :
GIS Cell, E&F Dept. Mizoram

PROPOSED LANDUSE MAP OF L3 LANDSCAPE PANGBALKAWN



Working Area - 21.60 Sq.km
 Rehabilitation of Shifting Cultivation - 0.92 Sq.km
 Agro Forestry & Social Forestry:
 1. Farmers Land - 1.28 Sq.km
 2. Highway / Roadside Plantation - 0.17 Sq.km
 Community Land :
 1. Moderately Dense Forest cover showing degradation - 0.46 Sq.km
 2. Eco-restoration of degraded open forest - 2.35 Sq.km
 3. Enhancing Forest Cover in Urban & Peri Urban areas - 0.23 Sq.Km
 Private Land & Community Land - 16,07 Sq.Km
 Settlement Area - 0.10 Sq.Km

Legend	
	Working Area
	Settlement
	Community Land Moderately Dense Forest
	Community Land Degraded Open Forest
	Rehabilitation of Shifting Cultivation
	Enhancing Forest Cover in Urban & Peri-Urban Areas
	Highway/Roadside Plantation
	Farmers Land
	Private Land & Community Land