



Strategies for Addressing the Drivers of Deforestation and Forest Degradation in the State of Mizoram



ICIMOD

giz

Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

On behalf of:



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

of the Federal Republic of Germany



NORWEGIAN MINISTRY
OF FOREIGN AFFAIRS

Strategies for Addressing the Drivers of Deforestation and Forest Degradation in the State of Mizoram



Indian Council of Forestry Research and Education

P.O. New Forest, Dehradun-248006 (INDIA)

2018



©ICFRE, 2018

Published by:

Biodiversity and Climate Change Division
Directorate of Research
Indian Council of Forestry Research and Education
P.O. New Forest, Dehradun – 248 006 (INDIA)

ISBN: 978-81-936157-2-0

Contributors:

Dr. R.S. Rawat, V.R.S. Rawat, Dr. Nemit Verma and Dr. Jaiyati Rawat

Citation:

Rawat, R.S., Rawat, V.R.S., Verma, N. and Rawat, J. (2018). Strategies for Addressing the Drivers of Deforestation and Forest Degradation in the State of Mizoram. Indian Council of Forestry Research and Education, P.O. New Forest, Dehradun – 248 006 (INDIA).



डॉ. सुरेश गैरोला, भा.व.से.

Dr. Suresh Gairola, IFS



महानिदेशक

भारतीय वानिकी अनुसंधान एवं शिक्षा परिषद्

डाकघर न्यू फॉरेस्ट, देहरादून-248006

(आई-एस.ओ. 9001:2008 प्रमाणित संस्था)

Director General

Indian Council of Forestry Research and Education

P. O. New Forest, Dehradun – 248006

(An ISO 9001:2008 Certified Organisation)

FOREWORD

Globally, forests are considered to provide climate change mitigation opportunity at relatively lower costs along with significant co-benefits. The agenda of REDD was introduced in UNFCCC negotiations at the 11th Conference of Parties (COP) held in Montreal in 2005. At COP 13 in Bali, few more elements, i.e., role of conservation, sustainable management of forests, and enhancement of forest carbon stocks were included at Indian initiative, and since then REDD is known as REDD+. Cancun Agreements in 2010 finalised the scope of REDD+ activities. Warsaw Framework for REDD+ finally completed the methodological guidance on REDD+ implementation. Very recently Government of India has released its National REDD+ Strategy and it lays emphasis on addressing the drivers of deforestation and forest degradation.

With more than 1,73,000 villages classified as forest fringe villages in India, there is obviously large dependence of communities on forest resources. There is ample scope and opportunity for integrating the REDD+ initiatives with the community controlled/managed forest and Joint Forest Management programme of activities. For this purpose, methodologies and modalities for a procedural framework will need to be worked out to ensure people's participation and sharing of the benefits accruing from REDD+ incentives.

Indian Council of Forestry Research and Education (ICFRE) in collaboration with International Centre for Integrated Mountain Development (ICIMOD) is implementing a project "REDD+ Himalayas: Developing and using experience in implementing REDD+ in the Himalayas" in the state of Mizoram. A study report on "Drivers of Deforestation and Forest Degradation in Mizoram" prepared by ICFRE in 2017 has highlighted various direct and indirect drivers responsible for forest degradation in the state of Mizoram. Developing strategy for addressing the drivers of deforestation and forest degradation is one of the activities under this project. This will be helpful in sustainable management of forests, conservation of forests and enhancement of forest carbon stocks as well as socio-economic development of the local community of the Mizoram state.

Financial support provided by ICIMOD, GIZ and BMUB (Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety) for implementing this collaborative project in trans-boundary landscape is acknowledged. I also compliment Biodiversity and Climate Change Division, Directorate of Research for bringing out this study report which is expected to support the efforts of Government of Mizoram in addressing deforestation and forest degradation in the state.

(Dr. Suresh Gairola)

Date: 23/10/2018

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार की एक स्वायत्त परिषद्

An Autonomous Body of Ministry of Environment, Forest & Climate Change, Government of India

दूरभाष/ Phone : 135 – 2759382 (O)

EPABX : 0135 – 2224855, 2224333 (O)

ई-मेल/ e-mail : dg@icfre.org

फैक्स/ Fax : 0091-135-2755353



The background of the page is a photograph of a steep, green hillside. The hill is covered in dense vegetation, including various types of trees and shrubs. At the base of the hill, there is a small, simple wooden hut with a corrugated metal roof. The sky above the hill is overcast with grey clouds.

CONTENTS

Executive Summary	1
1. Introduction	1
2. Drivers of deforestation and forest degradation	2
3. Methodology	2
4. Strategies identified for addressing the drivers of deforestation and forest degradation	3
5. Convergence of identified strategies with ongoing programmes and schemes	10
6. Way Forward	10
References	11





Executive Summary

Indian Council of Forestry Research and Education (ICFRE) in collaboration with International Centre for Integrated Mountain Development (ICIMOD) is implementing a transboundary landscape project titled “REDD+ Himalayas: Developing and using experience in implementing REDD+ in the Himalayas” in the state of Mizoram. District Mamit of Mizoram has been selected as a study site for implementation of the project activities. Shifting cultivation, fuel wood collection, over exploitation of non-timber forest products have been identified as direct drivers of deforestation and forest degradation whereas unemployment, lack of industries, lack of knowledge and awareness, and low connectivity of roads were identified as indirect drivers of deforestation and forest degradation in the study area. Views of the local communities were taken for developing necessary strategies for addressing the identified drivers. Accordingly, in consultation with the local community, a strategy document has been prepared which has identified suitable and relevant strategies as well as activities for addressing the direct and indirect drivers responsible for deforestation and forest degradation in the study area. Institutional arrangement for implementation of identified strategies for addressing the drivers of deforestation and forest degradation, and convergence of identified strategies with ongoing programmes/ schemes in the state of Mizoram have also been highlighted in the report for effective implementation of REDD+ actions.



1. Introduction

In Mizo language, Mizoram is known as land of the hill people. It is one of the eight states of North-eastern part of the country. Geographically, it lies between 21°58' to 24°35'N latitudes and 92°15' to 93°29' E longitudes. It shares interstate border with Assam, Manipur and Tripura along with the international borders of Bangladesh and Myanmar. Mizoram is the fifth smallest state of India with total geographical area of 21,081 sq km which constitutes 0.64% of the total geographical area of the country. The state has 8 districts viz. Aizawl, Champhai, Kolasib, Lunglei, Mamit, Lawngtlai, Saiha and Serchhip.

State has moist tropical to moist sub-tropical climate and receives rainfall from both north-east and south-west monsoons. The climate is characterized by short winter, long summer and heavy rainfall. Average temperature ranges from 25° to 30°C during summer season, from 18° to 25°C in autumn season and from 11° to 23°C in winter season. Average rainfall in state ranges from 200 to 300 cm per year.

The total population of Mizoram is 10,97,206 (Census of India, 2011) with a population density of 52 persons per sq km. About 60% of population in Mizoram depends on the agricultural and allied activities as a main source of livelihood (Government of Mizoram, 2016). Traditional type of shifting cultivation or *jhum* cultivation, wet rice cultivation and terraced cultivation are the main agricultural practices followed in the state. Majority of the land comes under the customary rights of the local communities which provide a significant land for shifting cultivation which is the most common practice in the state. About 60% of the rural households in Mizoram are engaged in the practice of shifting cultivation. Main crops grown under shifting cultivation practice are rice, sugarcane, maize, chilli, brinjal, lady's finger, squash, pineapple, cassava, mustard etc. Ginger and turmeric are normally planted in the burnt sites because they can grow well on steep slopes and are of high value cash crops. Orange and banana are the main fruit crops. The total livestock population has been recorded to be 0.38 million with

pigs constituting to be the largest group followed by other livestock (Govt. of Mizoram, 2016).

Forests are one of the important natural resources in the state which is rich in floral and faunal biodiversity and constitutes 18,653 sq km of total forest and tree cover. Total forest and tree cover comprises 88.48% of the total geographical area of the state (FSI, 2017) and Mizoram contributes around 2.33% in the total forest and tree cover of the country. As per India State of Forest Report (2017) the per capita availability of the forest and tree cover in the state is 1.71 hectare. The total forest carbon stock in the state is 95.041 million tonnes (348.484 million tonnes of CO₂ eq.) which is 1.34% of the total forest carbon of the country. However, the forest cover of the state has been decreased by 531 sq km since the last national forest inventory assessment which may be due to shifting cultivation and other developmental activities (FSI, 2017).

District Mamit of Mizoram is the pilot area selected for implementation of project activities under REDD+ Himalayas Project and it includes 12 villages (Ailawng, Chungtlang, Hruiduk, Khawrihnim, Lengte, Nghalchawm, North Kanghmun, Rawpuichhip, Reiek, Rulpuihlum, Tuahzawl and West Lungdar) with 1,583 households having the total population of 8,174. The study conducted under the project reported that 72% of the individuals are dependent on agriculture for their main livelihoods (Rawat et al., 2017).



2. Drivers of deforestation and forest degradation

A study was conducted for identification of drivers of deforestation and forest degradation in the project area during the year 2017 (Rawat *et al.*, 2017). The study identified shifting cultivation, fuel wood collection, over exploitation of non-timber forest products as direct drivers of deforestation and forest degradation whereas unemployment, lack of industries, lack of knowledge and awareness, and connectivity of roads as indirect drivers of deforestation and forest degradation in the Mamit District of Mizoram.

Addressing drivers of deforestation and forest degradation has been discussed under UNFCCC negotiation at a greater length. Decision 2/COP 13 in Bali suggested exploring a range of actions, identifying options and undertaking efforts, including demonstration activities, to address the drivers of deforestation and forest degradation. Cancun Agreements (Decision 1/COP 16) reiterated to take actions to address drivers of deforestation and forest degradation when developing and implementing their national strategies and action plans. Warsaw Framework for REDD+ vide Decision 15/CP 19 encourages Parties, Organizations and Private Sectors to take action for reducing drivers of deforestation and forest degradation. It also encourages to continue work to address drivers and to share information.



3. Methodology

In order to identify the suitable strategies for addressing the drivers of deforestation and forest degradation in the project area, views of the villagers of Ailawng, Chungtlang, Lengte, Khawrihnim, Reiek and West Lungdar villages were taken (Annex I). Consultations with the officials of the State Forest Department and village council members of the REDD+ project area in Mamit District (Mizoram) were also made for identifying the suitable strategies for addressing the drivers. All the relevant published Government records and documents were also collected for identifying the suitable strategies and activities for addressing the drivers.



4. Strategies identified for addressing the drivers of deforestation and forest degradation

Strategies identified for addressing aforesaid drivers of deforestation and forest degradation as well as activities promoting enhancement of forest carbon stocks in the state of Mizoram can be broadly divided into two categories viz. on-ground interventions and creating an enabling environment as described in the following heads:

4.1 Shifting Cultivation: Shifting cultivation is one of the major direct drivers of deforestation and forest degradation and following strategies have been identified to address the issue of shifting cultivation:

Strategies for addressing shifting cultivation	Activities identified for implementation of strategies	Institutional arrangement for implementation of identified activities
1. Promoting terrace farming/ settled farming	<ul style="list-style-type: none"> • Permanent allocation of land to the local communities for permanent terrace farming/ settled farming • Identification and up-scaling of best practices for terrace farming/ settled farming • Development of soil and water conservation measures • Development of pilot demonstration plots of terrace farming/ settled farming for showcasing to the local communities • Wet rice cultivation up to the potential available area • Encourage local community participation, involvement and consultations on forestry and land use planning and implementation • Improve capacities, knowledge and awareness of the relevant stakeholders to implement suitable measures to reduce deforestation and forest degradation • Capacity building of the local community on terrace/ settled farming 	<ul style="list-style-type: none"> a. State Agriculture Department b. State Rural Development Department c. State Soil & Water Conservation Department d. State Institute of Rural Development e. State Department of Environment, Forest and Climate Change f. Forest Research Centre on Bamboo and Rattan g. Krishi Vigyan Kendra h. Mizoram University i. Village Councils

	<ul style="list-style-type: none"> • Capacity building and providing technical knowhow to farmers in latest intensive rice cultivation techniques • Exposure visit of farmers to the terrace farming/ settled farming sites in the adjoining states 	
2. Promotion of agroforestry/ farm forestry	<ul style="list-style-type: none"> • Establishment of demonstration plots of suitable agroforestry/ farm forestry models • Establishment of shaded coffee and tea plantations • Transfer of agronomic techniques to the local communities for adoption of agroforestry/ farm forestry • Capacity building and exposure visits of the local communities • Availability of the improved planting stocks of multi-purpose indigenous tree species for agroforestry/ farm forestry 	<ul style="list-style-type: none"> a. State Agriculture Department b. State Department of Environment, Forest and Climate Change c. State Bamboo Development Agency d. State Soil & Water Conservation Department e. Rain Forest Research Institute, Jorhat (Assam) f. Forest Research Centre on Bamboo and Rattan g. Krishi Vigyan Kendra h. Coffee Board/ Tea Board i. Mizoram University j. Village Councils
3. Promotion of horticulture crops in homestead	<ul style="list-style-type: none"> • Introduction of horticultural crops such as orange, banana, passion fruits, grapes etc. and setting up of nursery for making the availability of quality planting stocks • Capacity building and exposure visits of the local communities 	<ul style="list-style-type: none"> a. State Horticulture Department b. State Rural Development Department c. Krishi Vigyan Kendra d. Mizoram University e. Village Councils
4. Eco-restoration of shifting areas	<ul style="list-style-type: none"> • Identification of suitable indigenous REDD+ species for eco-restoration of abandoned shifting areas • Preparation of manual on multi-purpose indigenous REDD+ species • Development of nurseries for supply of improved planting stocks for eco-restoration of abandoned shifting areas 	<ul style="list-style-type: none"> a. State Department of Environment, Forest and Climate Change b. Indian Council of Forestry Research and Education c. Rain Forest Research Institute, Jorhat (Assam) d. State Bamboo Development Agency e. Forest Research Centre on Bamboo and Rattan f. Village Councils

	<ul style="list-style-type: none"> • Piloting of REDD+ activities especially addressing the problem of shifting cultivation • Capacity building of the local community and frontline staff of State Forest Department on eco-restoration of abandoned shifting areas 	
5. Sustainable management of forest and conservation of biodiversity	<ul style="list-style-type: none"> • Development of working plans for sustainable management of forests with incorporation of component on REDD+ and associated safeguards • Development of conservation areas for biodiversity protection • Establishment of biodiversity management committees and development of people biodiversity registers at village level • Documentation and enrichment of biodiversity database • Improvement of forest quality and density in degraded forests and abandoned <i>jhum</i> lands • Prevention and control mechanism for forest invasive species 	<ol style="list-style-type: none"> a. State Bamboo Development Agency b. State Department of Environment, Forest and Climate Change c. State Biodiversity Board d. Rain Forest Research Institute, Jorhat (Assam) e. Forest Research Centre on Bamboo and Rattan f. Mizoram University g. Village Councils

4.2 Fuel wood Collection: Fuel wood collection from the forests is one of the major direct drivers of deforestation and forest degradation and following strategies have been identified to address the issue of fuel wood collection:

Strategies for addressing fuel wood collection	Activities identified for implementation of strategies	Institutional arrangement for implementation of identified activities
1. Promotion of fuel efficient improved cook stoves	<ul style="list-style-type: none"> • Distribution and easy availability of fuel efficient improved cook stoves • Organisation of hands on trainings on use of fuel efficient improved cook stoves 	<ol style="list-style-type: none"> a. Zoram Energy Development Agency b. Forest Research Centre on Bamboo and Rattan c. Village Councils
2. Promotion of alternative renewable energy sources	<ul style="list-style-type: none"> • Demonstration on use of alternative renewable energy sources such as solar energy and solar cooker etc. 	<ol style="list-style-type: none"> a. Zoram Energy Development Agency b. Village Councils

3. Promotion of homestead forestry	<ul style="list-style-type: none"> • Plantation of fast growing multi-purpose trees in farm forestry/ homestead forestry • Raising of high density energy plantations 	<ul style="list-style-type: none"> a. State Department of Environment, Forest and Climate Change b. State Rural Development Department c. State Soil & Water Conservation Department d. Rain Forest Research Institute, Jorhat (Assam) e. Forest Research Centre on Bamboo and Rattan f. Mizoram University g. Village Councils
4. Distribution and regular supply of LPG	<ul style="list-style-type: none"> • Distribution of LPG connections to the local communities of low income groups • Regular supply of LPG cylinders • Focus of Pradhan Mantri Ujjwala Yojana for forest dwelling communities 	State Food and Civil Supply Department

4.3 Over exploitation of non-timber forest products: Over exploitation of forest for non-timber forest products is one of the major direct drivers of deforestation and forest degradation and following strategies have been identified to address the issue of over exploitation of non-wood forest products:

Strategies for addressing over exploitation of non-timber forest products	Activities identified for implementation of strategies	Institutional arrangement for implementation of identified activities
1. Conservation and sustainable utilization of non-timber forest products	<ul style="list-style-type: none"> • Promotion of the <i>in situ</i> conservation of non-timber forest products yielding species • Cultivation of medicinal plant species of high demand • Sustainable harvesting practices of non-timber forest products • Capacity building and awareness of the local communities on cultivation, scientific collection, storage and sustainable utilization of non-timber forest products 	<ul style="list-style-type: none"> a. State Department of Environment, Forest and Climate Change b. State Bamboo Development Agency c. State Medicinal Plants Board d. State Biodiversity Board e. Rain Forest Research Institute, Jorhat (Assam) f. Forest Research Centre on Bamboo and Rattan g. Mizoram University h. Village Councils

	<ul style="list-style-type: none"> • Development of a fair and equitable benefit sharing mechanism for distributing the benefits of conservation and sustainable utilization of non-timber forest products • Coordination with State Forest Department and village councils for maintaining the records on harvesting and sale of non-timber forest produce from their respective forest areas • Opportunities of value addition of non-wood forest products • Livelihood improvement activities for forest dependent communities 	
2. Promotion of bamboo plantations	<ul style="list-style-type: none"> • Incentives for raising of bamboo plantation in the private farm lands • Establishment of demonstration plots for plantation of different bamboo species and supply of quality planting stocks • Support from National Bamboo Mission 	<ul style="list-style-type: none"> a. State Agriculture Department b. State Bamboo Development Agency c. State Department of Environment, Forest and Climate Change d. State Rural Development Department e. State Soil & Water Conservation Department f. Forest Research Centre on Bamboo and Rattan g. Village Councils

4.4 Unemployment: Unemployment is considered as one of the indirect drivers of deforestation and forest degradation in the study area and following strategies have been identified to address the issue of unemployment:

Strategies for addressing unemployment	Activities identified for implementation of strategies	Institutional arrangement for implementation of identified activities
1. Promotion of animal husbandry	<ul style="list-style-type: none"> • Introduction of locally available improved cattle breed • Capacity building of the local communities on livestock rearing 	<ul style="list-style-type: none"> a. State Animal Husbandry & Veterinary Department b. State Agriculture Department c. Krishi Vigyan Kendra d. Village Councils

	<ul style="list-style-type: none"> • Development of pasture and common property resources • Dairy development 	
2. Promotion of fisheries and poultry	<ul style="list-style-type: none"> • Development of farm ponds for fisheries • Development of fish seed farms • Distribution of fish fingerlings to the local community • Capacity building of the local community on fishery 	<ul style="list-style-type: none"> a. State Fisheries Department b. Krishi Vigyan Kendra c. Village Councils
3. Promotion of organic farming of high value crops on permanent farms	<ul style="list-style-type: none"> • Arrangement of planting stocks of high value crops such as turmeric, ginger, spices, pineapple, oil palm, rubber, sugar cane, vegetables etc. for the farmers • Popularization of bio-fertilizers including composting etc. • Capacity building on cultivation of high value crops and bio-fertilizers • Development of processing facilities for agriculture produce • Development of certified organic production in a value chain mode • Development of local market/ agriculture produce <i>mandies</i> for sale of agriculture produce by the local communities 	<ul style="list-style-type: none"> a. State Agriculture Department b. State Horticulture Department c. State Rural Development Department d. State Soil & Water Conservation Department e. Village Councils
4. Promotion of alternate income generation activities for local community	<ul style="list-style-type: none"> • Broom grass cultivation and broom making • Enhancement of forest based alternative livelihoods • Sericulture: Development of mulberry seed farms, muga seed farms, eri seed farms and oak tasar seed farms • Development of apiculture • Capacity building of the local communities on broom grass cultivation, sericulture, apiculture and eco-tourism 	<ul style="list-style-type: none"> a. State Agriculture Department b. State Bamboo Development Agency c. State Horticulture Department d. State Rural Development Department e. Sericulture Department f. State Soil & Water Conservation Department g. State Medicinal Plants Board

	<ul style="list-style-type: none"> • Involvement of local communities in eco-tourism activities for sustainable livelihoods 	h. State Institute of Rural Development i. State Tourism Department j. Village Councils
--	--	---

4.5. Lack of industries and connectivity of roads: Lack of industries and low connectivity of roads are identified as indirect drivers of deforestation and forest degradation in the study area and following strategies have been identified to address this issue:

Strategies for addressing lack of industries and connectivity of roads	Activities identified for implementation of strategies	Institutional arrangement for implementation of identified activities
1. Promotion of forest based industries such as bamboo handicraft industry	<ul style="list-style-type: none"> • Capacity building of local communities for developing bamboo handicraft • Awareness programmes on bamboo utilization, bamboo agarbatti sticks preparation, bamboo furniture making and setting up of bamboo clusters • Setting up of bamboo based handicraft industry • Setting up of centralized processing units at convenient place • Exposure visits of identified entrepreneurs to the identified hot spots 	a. State Department of Environment, Forest and Climate Change b. State Bamboo Development Agency/ National Bamboo Mission c. Mizoram Institute of Entrepreneurs Development and Research d. State Rural Development Department e. Rain Forest Research Institute, Jorhat (Assam) f. Forest Research Centre on Bamboo and Rattan g. Mizoram University h. Village Councils
2. Promotion of handloom industry and setting up of micro enterprises	<ul style="list-style-type: none"> • Setting up of handloom industry for silk and setting up of other micro enterprises 	a. Industry Department b. Mizoram Institute of Entrepreneurs Development and Research c. State Rural Development Department d. Sericulture Department e. Village Councils
3. Development of road connectivity in the remote areas	<ul style="list-style-type: none"> • Construction of road networks in the remote areas 	a. State Public Works Department b. State Transport and Communication Department

4.6 Lack of knowledge and awareness: Lack of knowledge and awareness is also identified as indirect drivers of deforestation and forest degradation and following strategies have been identified to address this issue:

Strategies for addressing lack of knowledge and awareness	Activities identified for implementation of strategies	Institutional arrangement for implementation of identified activities
Promotion of knowledge and awareness programmes on different aspects of forests, natural resource management, climate change mitigation and adaptation including REDD+	<ul style="list-style-type: none"> • Development of knowledge of products in local Mizo language on natural resource management and REDD+ for knowledge dissemination • Organisation of awareness campaigns and exposure visits of local communities • Capacity building and knowledge sharing on implementation of activities related to REDD+ • Improve capacities, knowledge and awareness of the relevant stakeholders to implement policy and measures to reduce causes of deforestation and forest degradation • Strengthen the role of academic institutions/ research institutes in capacity building, knowledge sharing and technology development associated with forestry and other land use 	<ol style="list-style-type: none"> a. State Department of Environment, Forests and Climate Change b. Indian Council of Forestry Research and Education c. Rain Forest Research Institute, Jorhat (Assam) d. Forest Research Centre on Bamboo and Rattan e. Mizoram University f. Village Councils



5. Convergence of identified strategies with ongoing programmes and schemes

Various programmes/ schemes sponsored by the Government of India and the State Government of Mizoram such as Fire Prevention Programme, Green India Mission, Integrated Wasteland Development Programme, Integrated Watershed Management Programme, Mission Organic Value Chain Development for North Eastern Region, National Agroforestry and Bamboo Mission, National Food Security Mission, National Mission for Sustainable Agriculture, National Mission on Agriculture and Technology, National Mission on Medicinal Plants, National Mission on Oil Seed and Oil Palm, National Rural Livelihoods Mission, New Land Use Policy, Mission for Integrated Development of Horticulture, Mahatma Gandhi National Rural Employment Guarantee Scheme, Paramparagat Krishi Vikas Yojana, Pradhan Mantri Krishi Sinchayee Yojana, Pradhan Mantri Gramin Sarak Yojana, Pradhan Mantri Ujjwala Yojana, Rashtriya Krishi Vikas Yojana etc. are ongoing in the state of Mizoram. The main objectives of these ongoing programmes and schemes are sustainable land management, natural resource management and social development. Identified strategies for addressing the drivers of deforestation and forest degradation are directly or indirectly related to the objectives of ongoing programmes in the country. Therefore, REDD+ component should be incorporated in all the ongoing programmes/ schemes in the state of Mizoram for implementing the identified strategies. Most of these activities can be dovetailed with strategies targeted towards addressing the drivers of deforestation and forest degradation.

Inter-Departmental Coordination Committee in the state of Mizoram needs to be developed for planning and effective implementation of identified strategies for addressing the drivers of deforestation and forest degradation.

6. Way Forward

To kick start REDD+ in the state of Mizoram, State REDD+ Cell needs to be established within the Mizoram State Department of Environment, Forest and Climate Change for creating an enabling environment for implementation of REDD+ actions and State REDD+ Action Plan, and capacity building of the stakeholders on different aspects of REDD+.

ICFRE in collaboration with ICIMOD has implemented a number of activities under REDD+ Himalayas project. Capacity building of all the stakeholders including local communities are needed for implementation of the identified strategies for addressing drivers of deforestation and forest degradation in the state. Under the project an exercise on developing State REDD+ Action Plan has also been completed. It was a comprehensive multi-stakeholder's exercise involving all the line departments, NGOs, local communities, academic bodies and Mizoram State Department of Environment, Forest and Climate Change. Detailed prescriptions on implementing REDD+ in the state and addressing the issue of deforestation and forest degradation are discussed in detail with intervention packages for REDD+ hot spots. It is suggested that Mizoram State Department of Environment, Forest and Climate Change should take the lead for further continuation of the activities addressing the deforestation and forest degradation.

References

- Census of India (2011). Census of India. Ministry of Home Affairs, Government of India.
- FSI (2017). India State of Forest Report 2017. Forest Survey of India, Dehradun.
- Govt. of Mizoram (2016). Economic Survey 2015-16. Research & Development Branch, Planning & Programme Implementation Department, Government of Mizoram.
- Rawat, V.R.S., Rawat, R.S. and Verma, N. (2017). Drivers of Deforestation and Forest Degradation in Mizoram. Indian Council of Forestry Research and Education, Dehradun.



List of Villagers Consulted

S.No.	Name	S.No.	Name	S.No.	Name
Reiek Village					
1	Mr. Pahlira	15	Mr. Tlanzova	29	Mr. Lalliankapa
2	Ms. Zosiani	16	Mr. Lalnuntluanga	30	Mr. C. Lalduhkima
3	Ms. Zolawnii	17	Mr. Lalchhanchhuaha	31	Ms. Lalchhanchhuaha
4	Mr. Lalsawia	18	Mr. M. Thangsira	32	Ms. Lalparmaurii
5	Mr. Muana	19	Mr. Mangkaia	33	Mr. Rinnunga
6	Ms. C. Hmingthanmawii	20	Mr. Lalrintluanga	34	Mr. Lal Rinnunga
7	Ms. Lalthansangi	21	Mr. Gina Singson	35	Ms. Lalzuiliani
8	Mr. C. Lalsangpui	22	Ms. Zolawmi	36	Mr. Tlangchangliana
9	Ms. Biaknungi	23	Mr. R. Lalmuankima	37	Mr. Zarzokima
10	Mr. Lalrinmauria	24	Mr. R. Lalduhawma	38	Mr. C. Vanlalsawma
11	Ms. Lalsangliani	25	Mr. Lalsawia	39	Ms. Lalmachhuana
12	Mr. Lalrammauria	26	Mr. Lalsawta	40	Ms. Biakmawii
13	Mr. Rochhingpuia	27	Ms. Lalramhmuaki	41	Ms. Lalremliani
14	Ms. Lalmuanpuii	28	Ms. Lalzuiliani	42	Ms. Vanlalhriati
Ailawng Village					
1	Ms. Lalnipuii	12	Mr. Lalrintluanga	23	Ms. Lalmuaki
2	Ms. Lalchhandami	13	Mr. K. Zosanglura	24	Mr. P. Lalsangzela
3	Mr. H. Lallanpuia	14	Mr. Lalmalsawma	25	Mr. Lalthanzuala
4	Mr. K. Zodingliana	15	Mr. Lianvela	26	Mr. Darkunja
5	Mr. R. Laltanpuia	16	Mr. F. Lalliansawia	27	Mr. R. Lalduhawma
6	Mr. VanlallianaRoyte	17	Mr. Lianzauva	28	Mr. P.C. Lalbiakliana
7	Mr. Lal Sangzuala	18	Ms. Zothanmawii	29	Mr. Lalthlamuana
8	Mr. Lalherliana	19	Mr. P.C. Zarzokima	30	Mr. H. Laldawngliana
9	Mr. R. Denghmingthanga	20	Mr. R. Lalsiama	31	Mr. R. Dengthuama
10	Mr. K. Ralkapzauva	21	Ms. Lalthatpuii	32	Mr. Daniala
11	Mr. Lal Rinawma	22	Mr. Lalroneiha		
West Lungdar Village					
1	Ms. Chawngthanthuami	7	Ms. Kungi	13	Mr. Kapzawna
2	Ms. Zaithangpuii	8	Ms. Rohlui	14	Mr. R. Lalduhanna
3	Mr. Lalrodinga	9	Mr. R. Lalhrualtwanga	15	Ms. Thangchuangi
4	Mr. ZohinnThanga	10	Mr. Lalsamlia	16	Ms. Lalnunmawii
5	Mr. Vanlalzama	11	Mr. Pathianga	17	Mr. Lalnunzira
6	Mr. Lalmangaihthanga	12	Ms. Lalkhawchhiari	18	Mr. Lalramthiama
Khawrihnim Village					
1	Mr. Lallianmauria	6	Mr. Lalremruata	11	Ms. Biaklluangi
2	Mr. Lalchhanchhuaha	7	Mr. Lawmsanga	12	Mr. H. Lalmingthanga
3	Mr. Zoramthara	8	Ms. Vanlalthlani	13	Ms. Ngurchhawni
4	Mr. Lalrinawma	9	Mr. R. Vanlalvena	14	Mr. B. Lalramthara
5	Mr. C. Zirliana	10	Ms. Lalkingruui	15	Mr. Lalzawna

16	Mr. Lalduhsaka	19	Ms. Lalmangaihi	22	Ms. Zamani
17	Ms. Thanchungnungi	20	Mr. Hrangzuala	23	Mr. Thianchlima
18	Mr. Ralthansanga	21	Mr. Vanlalthana	24	Ms. Lalrammawii
Lengte Village					
1	Lalrinkimi	5	Laltanpuia	9	Vanlalfela
2	Ralramliana	6	Lalchamlia	10	Darrothuami
3	Lalsangliani	7	Lalmeihkima	11	Chanchinmawia
4	Lalmunsiani	8	Dinchhuahmawia		
Chungtlang Village					
1	Ms. Vanlalhruii	11	Mr. Lalrammawia	21	Mr. Lalbiakhiana
2	Mr. Lalremruata	12	Ms. Lalnuntluangi	22	Ms. Laltankimi
3	Mr. Lawnamia	13	Mr. P.C. Vanlaldika	23	Mr. Lalthantluanga
4	Mr. Vanlalmangaiha	14	Mr. Lalramnghaka	24	Mr. Huntharngbaka
5	Mr. Zoramdinsanga	15	Mr. Kapkunga	25	Ms. Vanlalngaki
6	Mr. Lalramthara	16	Mr. P.C. Lalbiaktuanja	26	Mr. Lalzawmlia
7	Ms. Lalthazuali	17	Ms. Zorempuii	27	Mr. Vanlalnunsanga
8	Mr. R. Laltanpuia	18	Mr. H. Lalawnpuia	28	Mr. Lalramliana
9	Mr. Lalchhuanawma	19	Mr. Abrahama	29	Mr. Lalnuntha
10	Mr. Lalramthanga	20	Mr. Lalngurlia	30	Ms. Vanlalruati



Acknowledgements

International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Germany
Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, Germany
Forest Research Centre for Bamboo and Rattan (FRCBR), Aizawl, Mizoram
Department of Environment, Forest and Climate Change, Aizawl, Mizoram

Guidance and Support

Dr. Suresh Gairola, Director General, ICFRE
Dr. David Molden, Director General, ICIMOD
Dr. Eklabya Sharma, Dy. Director General, ICIMOD
Mr. S.D. Sharma, Dy. Director General (Research), ICFRE
Dr. R.S.C. Jayaraj, Director, RFRI
Dr. Bhaskar Singh Karky, Resource Economist, ICIMOD
Mr. Kai Windhorst, Chief Technical Advisor, GIZ
Mr. K. Kire, APCCF, Department of Environment, Forest and Climate Change Mizoram
Mr. Basant Pant, Programme Associate, ICIMOD
Mr. Nabin Bhattarai, Consultant, ICIMOD
Mr. M.Z. Singson, Head, FRCBR

Lay out and Design

Mr. Umang Thapa, ICFRE





Indian Council of Forestry Research and Education
P.O. New Forest, Dehradun-248006 (INDIA)