

Azadi Ka Amrit Mahotsav

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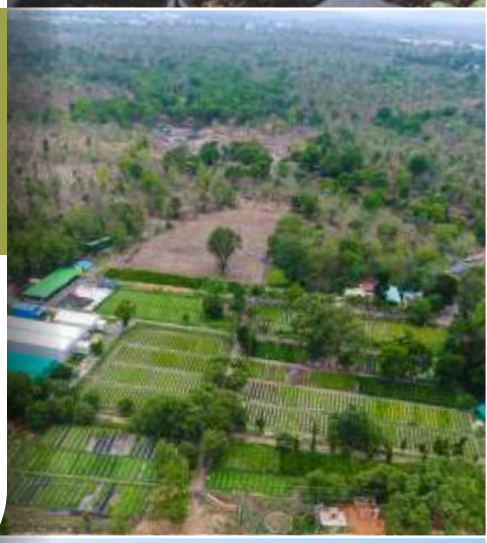
वहाँ है खुशहाली ।।

Forest Landscape Based Planning & Restoration

Green India Mission - Madhya Pradesh


COMPREHENSIVE PROGRESS REPORT (2017 to 2021)

GIM | ESIP | NAP



Published by
MP Forest Department
Wing- Green India Mission

Team Involved in Report Preparation

Direction & Guidance by
Shri. K. Raman, APCCF & Nodal Green India Mission
Shri. Sanjay Pathak, ACF, Green India Mission

Prepared by
Dr. Swati Moghe, Social Development and Community Mobilization Expert, ESIP
Dr. ShivkumarKourav, Forestry/ Ecosystem Services & Knowledge Management Expert, ESIP
Shri. Mahendra Singh Soujanya, M & E Expert, GIM
Shri. Akash Dekate, GIS & Database Expert, ESIP
Dr. Sumedha Sharma, Financial & Procurement Expert, ESIP

Citation
Forest Landscape Based Planning & Restoration Initiatives Under Green India Mission- A Comprehensive Progress Report(Year 2017 to 2021)

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Green India Mission, Ecosystem Service Improvement Project & National Afforestation Program

COMPREHENSIVE PROGRESS REPORT (2017-18 to 2020-21)

ASHOK BARNWAL *IAS*
Principal Secretary

Government of Madhya Pradesh
Department of Forest
Vallabh Bhavan, Phase II, Bhopal

MESSAGE

Climate change has a worldwide impact that spans beyond regions and geographical boundaries. Adaptation of vulnerable communities, on the other hand, is critical in the face of climate change challenges. India, like most other countries, has vulnerable communities and landscapes that require adaptation. Acknowledging the climate change adaptation need of the country, Government of India has announced the eight missions under the National Action Plan on Climate Change (NAPCC). Green India Mission is one of the eight missions of the NAPCC.

In Madhya Pradesh, the Mission has targeted the ecologically important and fragile landscapes for restoration and afforestation activities in the state and has supported the livelihoods of forest dependent communities by making them key stakeholders in mission activities.

This Publication, **"Forest Landscape Based Planning & Restoration Initiatives Under Green India Mission- A Comprehensive Progress Report (2017 to 2021)"** is based on the result framework of the mission and comprises of success stories from these projects. I hope, this becomes a model for forestry operation on landscape basis not only in Madhya Pradesh but in other parts of country as well.

I wish all the success to Green India Mission, Madhya Pradesh Forest Department in their endeavor.

(Ashok Barnwal)

RAMESH KUMAR GUPTA *IFS*
Principal Chief Conservator of Forests &
Head of forest Force, Madhya Pradesh

Madhya Pradesh Forest Department
O/o Principal Chief Conservator of Forests &
Head of Forest Force Madhya Pradesh
First Floor, Satpura Bhawan, Bhopal

FOREWORD

Global climate change is a real threat for people and the environment. Forests are well-known for their role in maintaining ecological balance, environmental stability, and sustainable development, as well as the ecosystem services they provide. Forests are now a crucial part of worldwide climate change mitigation strategies. The Government of India announced its National Action Plan for Climate Change (NAPCC) with eight National Missions in response to a global demand for domestically tailored mitigation initiatives. One of NAPCC's flagship missions is the Green India Mission.

Subsequently, implementation of ecosystem-based transformation and community-based adaptation interventions was initiated in the selected landscapes of Green India Mission with the threefold objectives of restoring ecosystem and enhancing earning capacity of community through livelihood strengthening. For such national level projects to be effective, it is imperative to understand how the implementation initiatives has transformed the landscape in terms of restoring forest, securing water availability and improving livelihood income of the communities.

Hence, Green India Mission, Madhya Pradesh Forest Department has released this publication,"Forest Landscape Based Planning & Restoration Initiatives Under Green India Mission- A Comprehensive Progress Report (2017 to 2021)". This publication details the success stories of landscape transformation and target communities that benefited from one or the other project interventions that were undertaken with in four years, from 2017-18 to 2020-21.

I am confident that the findings of this report will serve as a framework for evaluating project impacts and work as a guiding document for effective project execution in the future.

Date: 05/01/22

(Ramesh Kumar Gupta)

K. RAMAN *IFS*
Addl. Principal Chief Conservator of Forests
(Green India Mission), Madhya Pradesh

Madhya Pradesh Forest Department
O/o Principal Chief Conservator of Forests &
Head of Forest Force Madhya Pradesh
(Wing - Green India Mission)
Upper Basement, B-Wing, Satpura Bhawan, Bhopal

PREFACE

In June 2008, Government of India's (GoI) National Action Plan on Climate Change (NAPCC) was announced. The objective is to adapt and to enhance ecological sustainability of India's development path through long term integrated strategyto ensure growth with sustainable development and reduce vulnerability to impact of climate change.

National Mission for a Green India was envisaged as one of the eight missions under India's NAPCC. Recognizing the fact that, as per scientific studies, 39% of forested grids are vulnerable to the climate change leading to shift in forest types and vulnerability of forest ecosystem to the threats of fires, pests, diseases, invasive species and loss of biodiversity and severely impacting the livelihoods of forest dependent communities. The mission envisages protection, restoration and enhancement of India's forest cover in response to climate change by enhancing carbon sinks in sustainably managed and other ecosystems and enhancing ecosystem services including biodiversity, hydrological services and carbon sequestration and enhancing forest-based and diversified livelihood opportunities of forest dependent communities. It recognizes the importance of forests in amelioration of climate change, food security, water security.

The state of Madhya Pradesh prepared a five-year perspective plan for treatment of 7.35 lakh hectares of forested landscapes, identified as vulnerable to climate change, on the basis Agro-climatic zones and vulnerability profile of forests and the forest dependent communities of the state with a cost of Rs 3156 cr. The plan duly approved by the National Executive council of the MoEFCC his being implemented in the state in 20 forest divisions of 13 forest circles in 17 districts of the state spread over 127mili-watersheds and 745 micro-watersheds.

The landscape approach adopted by the mission ensuring participation of stakeholders especially the forest dependent communities right through the planning, strategizing, implementing, bench marking and monitoring stages has given the mission an edge and vision to achieve the targets, aims and goals of the mission ultimately resulting into fulfilling our international commitments of the nation in terms of NDC goals, Bonn Challenge. The world bank funded Ecosystem Services Improvement Project (ESIP) being implemented as an additionally in the selected GIM landscapes to create showcases have become the role models for forest landscape restoration.

The report **"Forest Landscape Based Planning & Restoration Initiatives Under Green India Mission- A Comprehensive Progress Report (2017 to 2021)"** offers useful insights on what worked, how and why, which in turn serve as lessons for replicating as well as improving the delivery in other forestry restoration projects.

(K. Raman)

ACKNOWLEDGEMENT

I would like to express my deepest gratitude to Ministry of Environment, Forest and Climate Change (MoEF& CC) Government of India and National Afforestation and Ecodevelopment Board (NAEB) New Delhi, for providing necessary support and direction for execution of GIM. ESIP & NAP projects. My sincere thanks to Mr. Andrew M. Mitchell, then Task Team Leader and Dr. Anupam Joshi, Task Team leader, Ecosystem Service Improvement Project, the World Bank for their valuable suggestions and guidance.

I am grateful to Hon. Forest Minister, Madhya Pradesh Dr. Kunwar Vijay Shah, and Shri Ashok Barnwal. Principal Secretary, Forest Madhya Pradesh for their constant support and encouragement for successful execution of projects.

A special gratitude goes to Shri Ramesh Kumar Gupta, Principal Chief Conservator of Forest and Head of Forest Forces, Madhya Pradesh for constant guidance and constructive suggestions for planning, development and implementation of project activities.

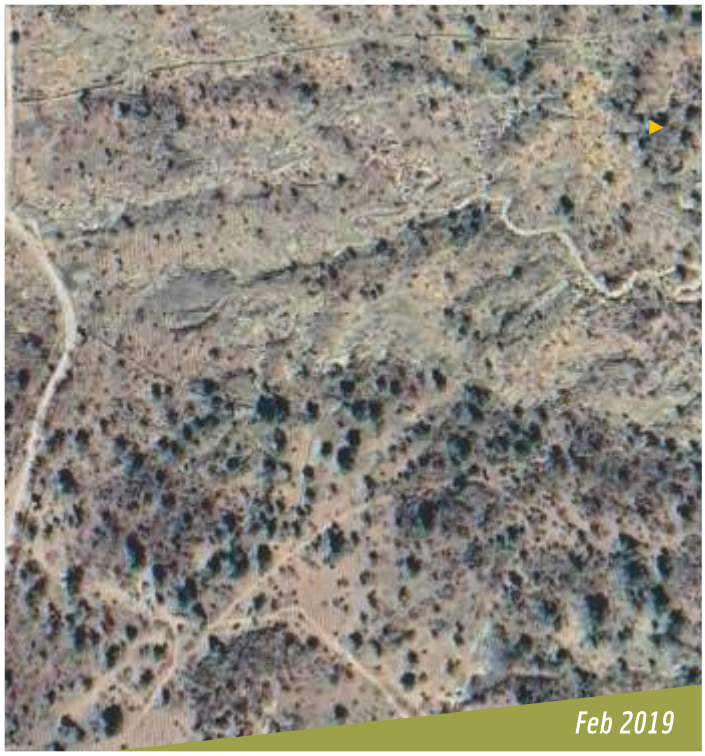
I acknowledge the support provided by the Chief Conservator of Forest and Divisional Forest Officers for successful management and implementation of GIM, ESIP and NAP in their divisions and helping in conducting field surveys. Furthermore, we would also like to acknowledge with much appreciation various kind of logistic support and active participation of the forest department field functionaries for their active participation in execution of activities in field.

I express my sincere thanks to the Joint Forest Management Committee members and villagers, the main stakeholders, without their constant support, successful implementation of the project activities would have not been possible.

Last but not the least, special thanks to the project team at Green India Mission, Satpura Bhawan, Bhopal for bringing out this publication, which will be a benchmark document to measure the impact of the project activities.

(K. Raman)

Forest Landscape Based Planning & Restoration
Green India Mission



Mili-watershed	5D5A2h
Range	Bhaura
Compartment	PF 391
Beat	Koyalari
JFMC	Koyalbuddi
Area	75 ha
Planting Year	2019

Location:
22°19'2"N 77°48'16"E
Google Earth images

CONTENTS

EXECUTIVE SUMMARY

The conservation and development of forest primarily involves three strategies – afforestation through natural/artificial regeneration, protection and management. The ministry of Environment Forest & Climate Change (MoEF & CC) is implementing three major schemes for development of forest areas i.e. National Afforestation Programme (NAP) scheme, National Mission for a Green India (GIM) and Forest Fire Prevention & Management Scheme (FFPM). While NAP is being implemented for afforestation of degraded forest lands, GIM aims at improving the quality of forest and increase in forest cover besides cross sectoral activities on landscape basis.

Madhya Pradesh is one of the most blessed states of India in terms of natural resources including rich and diverse forests. Madhya Pradesh Forest Department is pioneer in undertaking various forest landscape restoration projects in the state of MP. Two major schemes Green India Mission and National Afforestation Program is executed by Forest Department in the state. Ecosystem Services Improvement Project (ESIP) is a World Bank initiated pilot project in states of Madhya Pradesh and Chhattisgarh to act as an additionality to India Mission and is funded by the Global Environment Facility Trust Fund (US$24.64 million).

Responding to the climate change concerns the GIM and ESIP aim at overall improvement/restoration of forests landscapes while forest-based and diversified livelihood opportunities of forest dependent communities, through intensive capacity building through skill upgradation.

The National Mission for a Green India is one of the eight Missions under the National ActionPlan on Climate Change (NAPCC). Ecosystem Services Improvement Project (ESIP) came into existence in state of MP on 16.08.2017with signing of agreement of GEF with the Ministry of Environment Forest and Climate Change (MoEF&CC) India and International Bank for Reconstruction and Development (IBRD).The ESIP ports the goals of GIM by demonstrating models for adaptation-based mitigation through sustained land and ecosystem management and livelihood benefits as an additionality of over GIM activities including better carbon sequestration potential.

In accordance with the broad objective of ecological restoration of degraded forests and to develop the forest resources with peoples' participation, with focus on improvement in livelihoods, National Afforestation Programme (NAP) has been formulated by merger of four schemes. The NAP has been approved under 9th Plan of the Ministry of Environment & Forests, which is centrally sponsored and operated by National Afforestation and Eco-Development Board (NAEB). NAP aims to support and accelerate the on-going process of devolving forest conservation, protection, management and development functions to the Joint Forest Management Committees (JFMCs) at the village level, which are registered societies. The scheme is implemented by three tier institutional setup through the State Forest Development Agency (SFDA) at the state level, Forest Development Agency (FDA) at the forest division level and JFMCs at village level.

The Green India Mission Perspective plan proposes to treat 3,40,700 ha of the forest land and address the alternative fuel needs of 114,185 households. The approved perspective plan has an outlay of Rs 3,157.36 crores for treating the area undervarious submissions of GIM.Nevertheless, so far with an expenditure of Rs 90.07 crore, 20,098 ha. area has been treated and 45,84,043 saplings have been planted and 4,027 families have been provided training in various disciplines to provide alternative sources of employment. In order to reduce the pressure of firewood on forests, 4,618 alternative energy sources like pressure cookers, solar cookers, vermi-bio digesters, biomass-based cook stoves, electric induction stoves were distributed.

Under the National Afforestation Scheme, 8030 ha area was treated with an expenditure of 136.18 cr.

The total project cost of ESIP was Rs. 60.03cr. Expenditure of Rs. 40.53 cr. was done till October 2021 against the sanctioned APOs and 3024ha. forest land has been restored planting 9,45,463sapling. Investments for Improving Forest Quality in Selected Landscapes was done by upgrading five forest nurseries (Basapur Nursery Unit, Sehore, Holipura Nursery Unit, Sehore, Ahamadpur Nursery Unit, Bhopal, Amarwad 1 Nursery Unit and R & E Betul) with their existing infrastructure.

Various employment-oriented trainings were provided to3,202 rural beneficiaries under ESIP to provide additional income for their livelihood. To improve the traditional practice of Mahua flower collection, Mahua nets were distributed to the households (N. Betul-288, Hoshangabad-735, Sehore-675) of ESIP villages. The nets can be used for multiple years, making these simple investments effectively, increases the incomes of participating household, reduces the incidence of forest fires significantly (with all the associated benefits, including reduction in emissions, increased carbon storage and reduced habitat degradation) while being truly sustainable.

Madhya Pradesh Forest Department has established a best practice for planning and management of treated areas, and was well acknowledged by World Bank. STARMAP – Spatial Technology Approach for Restoration Mapping and Planning, is a well-established methodology of online monitoring of treated areas (Landscape restoration) as well as being used to plan the interventions (such as tree planting, fencing, water conservation measures etc). The system has been adapted to use drones to take geo-referenced photographs of before and after interventions.

1 INTRODUCTION

The National Mission for a Green India (GIM) was announced as one of the eight missions under the National Action Plan on Climate change (NAPCC). It recognizes that climate change phenomenon will seriously affect and alter the distribution, type and quality of natural biological resources of the country. The NAPCC addresses the urgent and critical concerns of sustainable development and identifies the close linkage of the economy with its natural resource base.

Mission for a Green India, commonly referred to as the Green India Mission (GIM) which aims to improve the forest cover by integrating the issues of forest quality and ecosystem services. It aims at protecting, restoring and enhancing India's diminishing forest cover and responding to climate change by a combination of adaptation and mitigation measures. Green India Mission takes a holistic view of greening and focuses on multiple ecosystem services, especially biodiversity, water, biomass, preserving mangroves, wetlands, critical habitats, and so forth. It also includes carbon sequestration as a co-benefit.

GIM has adopted an integrated cross-sectoral approach to implement programs on public as well as private lands, and to give local communities key roles in planning, decision making, implementation and monitoring.

Box-1
Broad Objectives of Green India Mission

to be covered over next 10 years

1. Increased forest/cover to the extent of 5 million hectare (mha) and improved quality of forest/tree cover of another 5 (mha) of forest/non-forest lands.
2. Improved/enhanced eco-system services like carbon sequestration and storage in forests and other ecosystems), hydrological services and biodiversity; along with providing services like fuel, fodder, and timber and no-timber forest produces (NTFPs).
3. Increased forest-based livelihood income of about 3 million households.

In accordance with the broad objectives of Green India Mission, Madhya Pradesh Forest Department is implementing the activities in ecological importance and vulnerable regions of the state by ensuring the participation of forest dependent communities in its implementations by making them a key stakeholder in mission activities.

Ecosystem Services Improvement Project (ESIP) is a World Bank pilot project in states of Madhya Pradesh and Chhattisgarh to facilitate the Green India Mission funded by the Global Environment Facility Trust Fund (US$24.64 million). The share of MP as a grant is about US$ 9 million. The ESIP came into existence in the state of Madhya Pradesh on 16/08/2017, with signing of agreement of GEF with the Ministry of Environment Forest and Climate Change (MoEF&CC) India and the International Bank for Reconstruction and Development (IBRD).

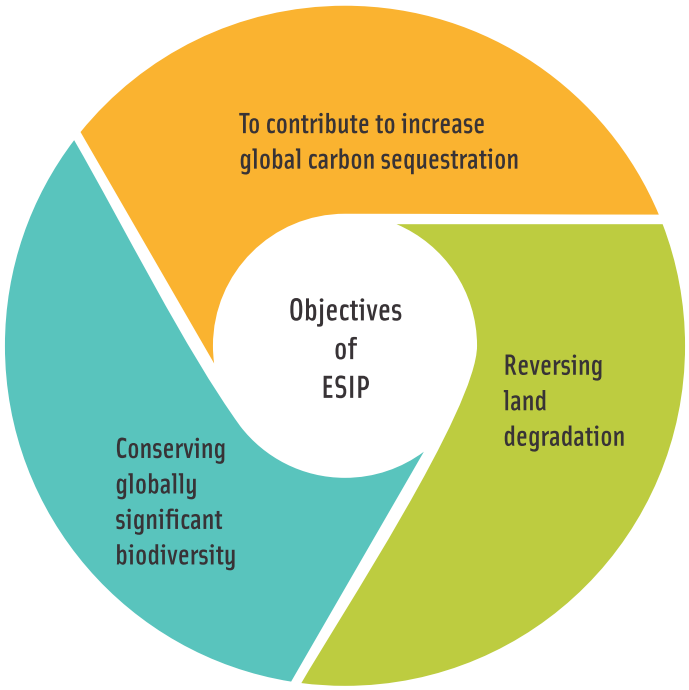


Figure 1: Higher level Objectives of ESIP

The ESIP supports the goals of GIM by demonstrating models for adaptation-based mitigation through sustained land and ecosystem management and livelihood benefits. Additionally, of ESIP interventions over GIM activities including better carbon sequestration potential. The ESIP project, in many ways, brings a new and novel approach to address some of the challenges in management of ecosystems and land. It has introduced new tools and technologies for better management of natural resources, including biodiversity and carbon assets and the use of advanced monitoring systems, which have become widely used and are considered a necessity in the forestry sector. A web-based national system for monitoring land degradation has been established at the national level.

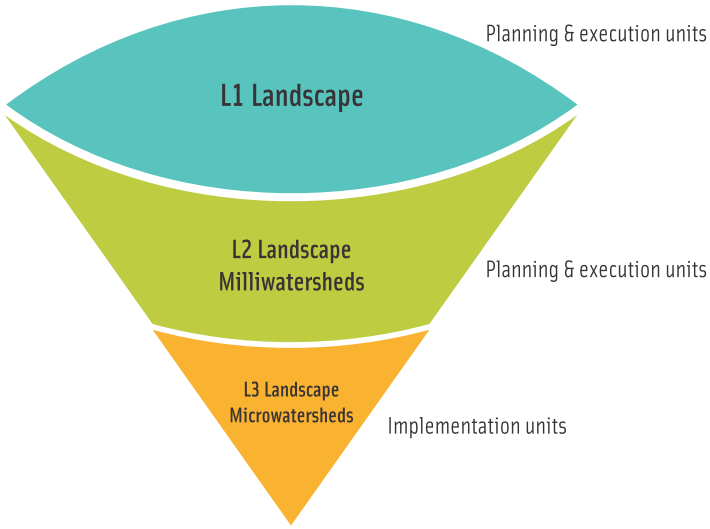
The state of MP has prepared a perspective plan for meeting the above challenge by identifying areas highly vulnerable to climate change and in the process impacting the climate and are in the need of immediate treatment. The areas have been identified in 18 forest divisions spread over 16 districts located in 8 different Climate based landscapes (L1 Level landscapes). For actual operation 122 Mili watersheds (L2 level landscapes) 735 Micro watersheds (L3 level landscapes) have been identified.

2 SELECTION OF LANDSCAPES UNDER GREEN INDIA MISSION

Landscapes need to be identified on the basis of both biophysical and socio-economic parameters, with an operation unit (about 4000-6000 ha) often co-terminus with micro/milli watershed. Landscape level approach was taken for implementation of mission activities which is alien with the Green India Mission guidelines.

The landscapes identified are on the basis of combination of criteria and indicators at multiple levels. The selection process follows a hierarchical approach, and aims to identify broad landscapes of importance.

Figure 2: Multiple level landscape approach for selection of operational units



The selection of L1 landscapes has been done on the basis of Agro-climatic zones. Madhya Pradesh has been divided into 11 Agroclimatic Zones. For the purpose of implementation of Green India Mission some minor changes have been done in the composition of these Agro-climatic zones and the state has been divided into eight L1 landscapes. The L2 landscape (operational units) were identified on the basis of two major criteria;

i. Impact of climate change on forests of MP

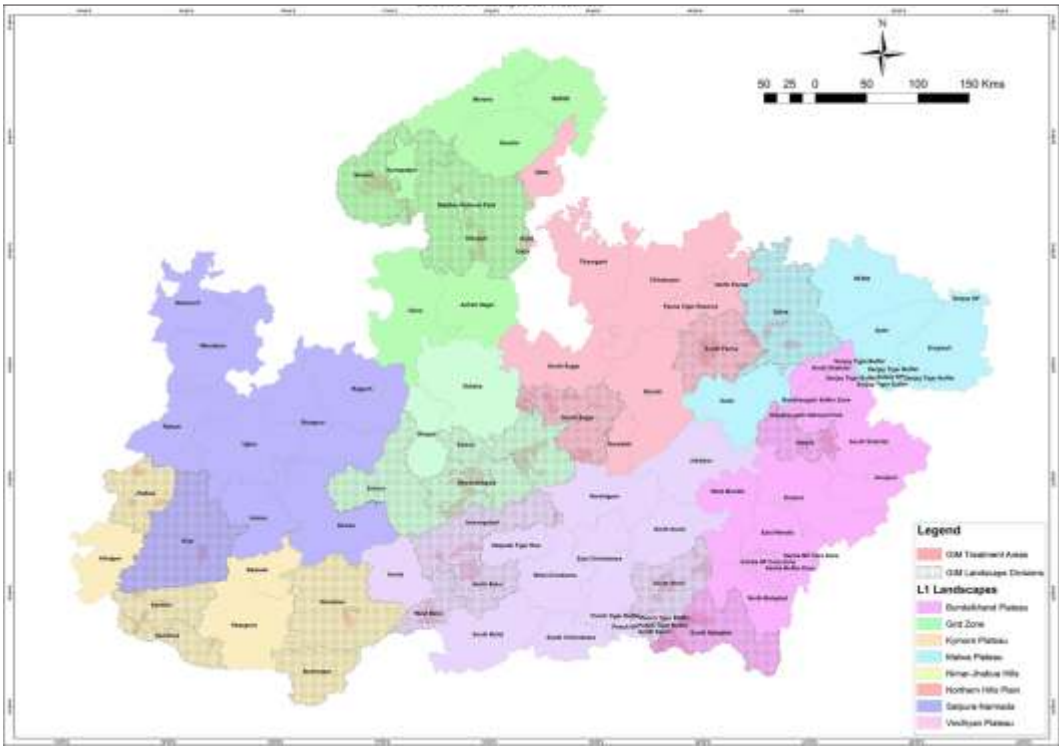
ii. Vulnerability profile for the districts of Madhya Pradesh. Based on the ecological importance total 122 milli-watersheds have been selected as L2 landscapes in 18 forest divisions spread over 16 districts. Each milli watershed comprises of various micro watershed, these 735 micro watersheds have been taken as operational units for implementation, area of these working units have been calculated with the help of Geographical Information System (GIS) and description of different level landscapes is given below:-

Table 1: Madhya Pradesh Landscape of Green India Mission

S.No	L1 Landscape	L2 Division	No. of Milli watershed as L2 Landscape	No. of Micro watershed as L3 Landscape	Area (ha)
1	Kymore plateau	Satna	4	28	33,343.09
2	Northern Hills Plains	Umaria	4	24	31,919.78
		S. Balaghat	12	71	74,703.37
3	Satpura - Narmada	Hoshangabad	5	30	33,355.73
		South Seoni	11	67	75,028.40
		North Betul	4	20	27,860.36
		West Betul	8	24	29,083.20
4	Vindhya Plateau	Raisen	10	67	51,000.26
		Obedullaganj	10	57	51,350.07
		Sehore	5	28	27,224.82
5	Malwa Plateau	Dhar	3	18	10,794.95
6	Nimar - Jhabua hills	Jhabua	3	20	20,596.94
		Badwani	3	21	18,218.11
		Sendhwa	2	11	11,708.77
		Khandwa	1	2	619.02
7	Bundelkhand	South Sagar	13	79	71,378.77
		South Panna	9	64	68,068.78
8	Gird	Sheopur	8	48	50,343.13
		Shivpuri	8	58	49,501.00
	Total		**122**	**735**	**735,479.53**

The state of Madhya Pradesh has prepared a perspective plan for the year 2016-17 to 2020-21 meeting the above challenge by identifying areas highly vulnerable to climate change and in the process impacting the climate and are in the need of immediate treatment. The plan proposes to treat 3,40,700 ha of the forest land and address the alternative fuel needs of 114,185 households. The approved perspective plan has an outlay of Rs 3,157.36 crores for treating the area under various submissions of GIM.

18 Forest Division : Selected For GIM



Forest Cover Map of Madhya Pradesh

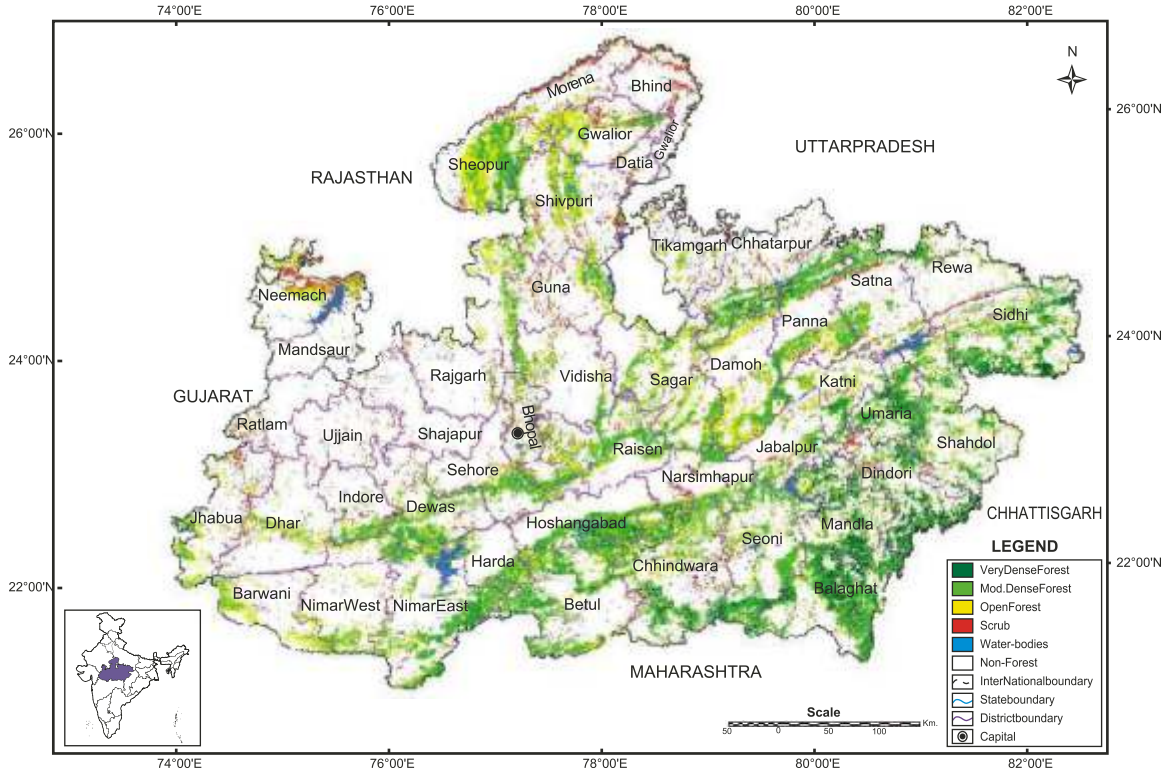


Figure 3: Green India Mission Forest Divisions

Based on the nature of forest and non-forest lands available in a micro watershed various activity have been proposed under different submissions of Green India Mission. Five (05) submissions were envisaged for execution of the plan.

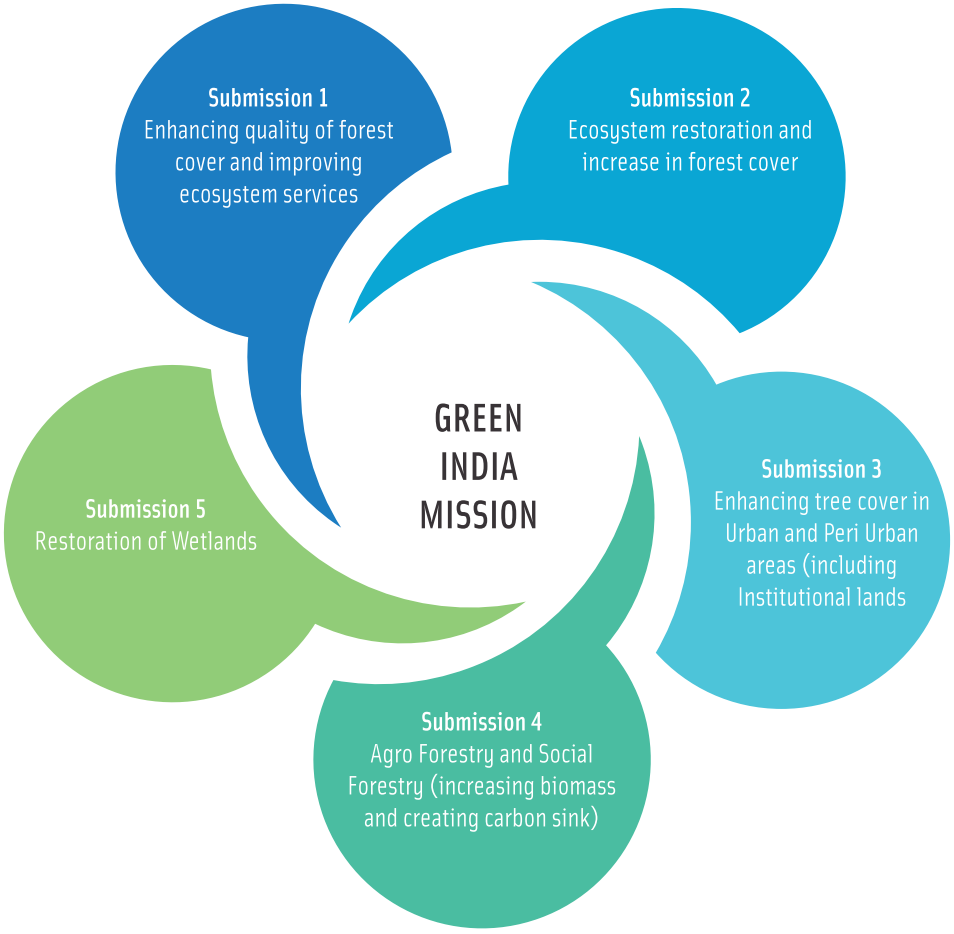


Figure 4: Green India Mission Main Five Submissions

The Ministry of Environment Forest and Climate Change, while releasing the amount to the state government revised the APO to 11914 ha, 3317 households with a revised outlay of Rs 41.8026 crores. Accordingly, only the 10.54% of the proposed landscapes and sub-missions were taken up for treatment during the year 2018-19. A total of 33 L2 and 79 L3 level landscapes were taken up for treatment in the 18 forest divisions identified under Mission for a Green India in the state of Madhya Pradesh.

2.1 ESIP Showcase areas :

Three L2 level landscapes with one milli-watershed each was selected in the districts of Hoshangabad (5D3D6k), Sehore (5D4A1b) and Betul (5D5A2h) for creating showcase for ESIP. Further, additional milli-watersheds were taken up in Betul (5D5A2j) and Sehore (5D2D8c & 5D2D8f) to carry out the works under APO 2020-21.

Details of the selected L1, L2 and L3 level landscapes, with milli-watersheds are given in table 2.

Table 2 : Details of L1, L2, L3 Level landscapes and forest area

S.No.	L1 Level Landscape	L2 Level Landscape		L3 Level Landscape	Forest Area (ha)				Non-Forest Area (ha)	Total Area (ha)
		Division	Milli-watershed	Micro-watershed	Dense Forest	Open Forest	Blank	Total Forest		
1	Satpura - Narmada	Hoshangabad	5D3D6k	7(5D3D6k1-7)	5947.25	128.93	491.61	6567.79	63.85	6631.64
2		North Betul	5D5A2h	6(5D5A2h1-6)	3622.99	1063.96	754.28	5441.23	4139.34	9580.57
			5D5A2j	8(5D5A2j3-8)	4073.53	696.50	835.67	5605.71	5735.50	11341.22
Satpura Narmada L1 Landscape Total					13643.768	1889.39	2081.56	17614.73	9938.69	27553.43
3	Vindhya Plateau		5D4A1b	5(5D4A1b1-5)	1187.83	1443.48	98.19	2729.5	1676.75	4406.25
			5D2D8c	8(5D2D8c1-8)	1757.58	1337.76	204.62	299.96	4308.48	7608.44
			5D2D8f	4(5D2D8f1-4)	543.11	1467.9	92.68	2103.69	1819.23	3922.92
Vindhya Plateau L1 Landscape Total					3488.22	4249.14	395.49	5133.15	7804.46	15937.61
Total	2	3	6	38	17132.288	6138.53	2477.05	22747.88	17743.15	43491.04

Table 3 : Demographic Profile of the selected divisions

Division	Villages	Male	Female	Total	HH	Sex Ratio	SC	ST	SC%	ST%	Literacy %
Hoshangabad	20	5616	5233	10849	2135	332	586	7630	5.4	70.33	47.92
Sehore	17	8186	7087	15273	3087	865	2045	6492	13.39	42.51	55.58
Betul	9	3640	3544	7184	10728	758	627	5381	5.84	50.16	50.12
Total of Project	46	17442	15864	33306	15950	652	3258	19503	9.78	58.56	51.2

2.2 ESIP Project Area :

The project covers 18 Green India Mission divisions (Badwani, Balaghat South, Betul North and West, Dhar, Dindori, Hoshangabad, Jhabua, Panna South, Raisen, Sagar South, Satna, Sehore, Sendhwa, Seoni South, Sheopur, Shivpuri and Umaria) across 17 districts in 8 L1 level landscapes.

The Ecosystem Services Improvement Project emphasis on three main components, which are given in figure 5.

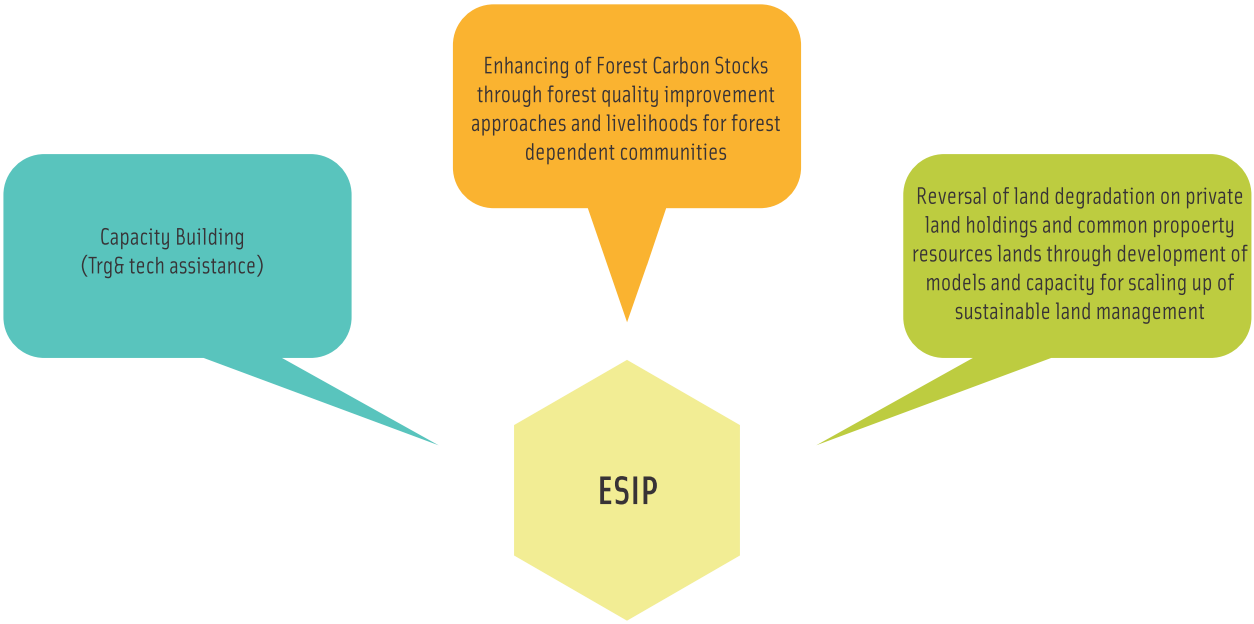


Figure 5: ESIP Project Components

2.3 Annual Plan of Operation (APO):

The ESIP APOs were prepared for the year 2017-18 and 2018-19 for implementation as per the provisions of Project Implementation Plan (PIP) and the cost table. The APOs were duly submitted to the Ministry of Environment, Forest & Climate Change. MP State made the presentation on 26th March 2018 to the National Project Committee and the first APO was approved for Rs. 1270.67 Lakh. Likewise, 3 APOs were approved for the year 2019-20 (Rs.2101.40), 2020-21 (Rs.3997.81) and 2021-22 (Rs.2208.63). Field works were carried out as per approved APOs.

Table 4: GIM Submissions and cross cutting interventions/ ESIP Project Activities

	Green India Mission	ESIP
	Component A	**Project Activities**
1	**Enhancing quality of forest cover and improving ecosystem services**	Strengthening Capacity and Skills of Government Institutions for Effective Delivery of Forestry and Land management Programs
1a	Moderately dense forest showing degradation	• Staff training in use of GIS systems • Support for identifying and mapping biodiversity corridors • Training and protocol development for biodiversity measurements in selected locations for preparing biodiversity management plans, especially in corridors. • Support for revising management plans (for protected areas, working plans for divisions and micro-plans prepared by JFMCs • Support for strengthening JFMCs on Biodiversity management as per NBA • Support for exposure visits for front line staff/JFMCs for improving management practices
1b	**Eco-restoration of degraded open forest**	
	Type A- With plenty of root stock	
	Type B- With Limited root stock - and open blanks	
	Type C- Of largely open areas with sparse growth	
1c	**Restoration of Grasslands**	
2	**Ecosystem restoration and increase in forest cover**	**Forest Carbon Stock Measuring & Monitoring – Capacity Building**
2f	Restoration of abandoned mining areas	• Technical support (consultancy) for developing carbon measurement and monitoring system • Support for hardware and software procurement and its deployment in the field • Staff training in carbon measurements and support for additional contractual staff • Networking with national (FSI) and international institutes for carbon measurements
3	**Enhancing tree cover in urban/ peri-urban areas (including institutional lands)**	**NTFP Capacity Building** • Developing sustainable use frameworks • Training of local frontline staff, JFMCs, user groups and SHGs in applyingNTFP frameworks • Developing community-based models for sustainableutilization of NTFP

	Green India Mission	ESIP
4	**Agro-forestry and social forestry**	**Improving Forest Quality and Productivity**
4a	farmer's land including current fallows	• Enhancing and restoring caron stocks in forest lands. • Upgrading/modernization of selected forest nurseries to raise high-quality native species planting material. • Building institutional capacity on new process for undertaking soil preparation, forest enrichment planting • Investments in restoration works on degraded forest lands. • Establishing a forest carbon monitoring system.
4b	Shelterbelt plantation	
4c	Highway/Rural roads/canals/Tank Bunds	
5	**Restoration of wetlands**	
6	**Improved fuel-use efficiency/ promoting alternative energy sources**	
	Component B	
1	Research (2% of A)	
2	Publicity/Media/Outreach Activities (1% of A)	
3	Monitoring and Evaluation (1% of A)	
4	Livelihood Improvement Activities (17% of A)	
5	Strengthening local level institutions (5 % of A)	
6	Strengthening FDs (5 % of A)	
7	Mission organization operation and maintenance, contingencies and overheads (4% A)	

3 POSSIBLE SOLUTIONS TO ENHANCE FOREST COVER, IMPROVE ECOSYSTEM SERVICES AND ADDRESS THE DRIVERS OF DEGRADATION

- Plantation activities carried out in the degraded and under stock forest area along with soil and moisture conservation work to improve the area under forest cover.
- Moderately dense forests are treated and protected so as to improve the quality and productivity of the forests.
- Regulation on grazing and to reduce biotic pressure on forests native fodder species are planted.
- Planting of fruits, fodder and small timber species (Agro forestry activities) on non-forest area to reduce the burden on forest land.
- Encouraged use of alternative energy sources by distributing fuel efficient devices among the villagers to reduce fuel wood dependency on forests.
- Capacity building activities of JFMC/ forest department field staff in implementation of GIM activities.
- Training and skill development activities carried out to provide additional source of livelihood to the local community.

4 PHYSICAL AND FINANCIAL PROGRESS

4.1 Physical and Financial Progress under Green India Mission

Under the approved APO 2019-20, total 20,427 ha. area was treated under forestry operations, in which about 10,643 ha area for plantation works was take up and 22,15,817 plants of native species ecologically suitable were planted. To reduce fuel wood pressure on forest nearly 1082 households were identified for alternate fuel energy devices like Biogas, LPG under Ujjawala Yojana, Solar cooker, Pressure cookers etc. from seven forest division of GIM landscapes. Forestry operations were carried out in 10,784 ha and 1683 energy saving devices were distributed to households under APO 2018-19 with an expenditure of Rs. 2825 lakhs.

Under the approved APO for FY 2020-21, 88 Forest Compartments covered forplantation works in 18 forest divisions and about 18,12,700 plants of native species ecologically suitable were planted. The species planted are Teak *(Tectona grandis)*, Chirol *(Holoptelea integrifolia)*, Awala *(Emblica officinalis)*, Mahua *(Madhuca longifolia)*, Khamer *(Gmelina arborea)*, Munga *(Moringa oleifera)*, Sitafal *(Annona squamosa)*, Arjun *(Terminalia arjuna)*, Imli *(Tamarindus indica)*, Kachnar *(Bauhinia variegata)*, Jamun *(Syzygium cumini)*, Neem (Azadirachta indica), Bahera *(Terminalia bellirica)*, Bel *(Aegle marmelos)*, Pipal *(Ficus religiosa)*, Mango *(Mangifera indica)*, Kathal *(Artocarpus heterophyllus)*, Amrud *(Psidium guajava)*, Shisham *(Dalbergia sissoo)*, Khair *(Acacia catechu)*. The APO covered 19,077 ha area for creation and maintenance of previous year plantations. In which, 51 ha. area was taken for advance work, 8736 ha. under creation and 10,290 ha. for maintenance works in 18 Forest Divisions for sites prepared in 2018-19 and for the new sites taken up in year 2019-20 to comprehensively treat the landscapes. No targets were allotted for promoting alternative fuel energy in the GIM landscapes in APO 2020-21.

APO FY 2020-21 was approved for Rs. 3549 lakhs. The approved APO was approved to treat 10,832 ha. for plantation works and 9861 ha. for maintenance works, i.e., 20,693 ha. under various submissions. No advance work was approved under APO FY 2020-21, Similarly, no funds were allotted for component B (support activities). Total expenditure by the state amounts to Rs. 3551.73 lakh.The schedule of release and utilization of funds by GIM M.P. is shown table 5.

Table 5
Details of funds released by MOEF & CC and expenditure by MP GIM

Year	Sanctioned APO	Released from MoEF & CC		Received from State Share			Utilized	Remarks
		Installment	Central Share	Central	State	Total		
2018-19		1	1022.497	1022.5	681.6	1704.16		
		2	1393.422					Rs. 2383.862 (1393.422 central share, 990.44 state share) lakh not transferred to SFDA
Total	**4180.26**		**1022.497**	**1022.497**	**681.664**	**1704.161**	**1626.04**	
2018-19			1532.535					Rs. 2554.225 lakh revalidated for APO 2018-19 on 7th June 2019.
		1	3065.298					Rs. 2600.712 lakh received for APO 2019-20 as 1st instalment
Total	**7886.40**		**4597.833**	**3092.965**	**2061.971**	**5154.936**	**3293.52**	
2021								
Total	**3549.00**			**1573.03**	**1048.69**	**2621.72**	**3551.73**	Amount of 2621.72 revalidated of APO 2019-20 1st instalment not received for APO 2020-21
Grand Total	**15615.66**		**5620.33**	**5688.494**	**3792.323**	**9480.817**	**8471.29**	

In FY 2020-21, under Budget Head 7488, National Afforestation Programme (Green India), no amount has been released for the sanctioned APO 2020-21. However, an amount of Rs. 2621.72 lakhs were revalidated from the first installment of APO 2019-20, in which, the Central Share was Rs. 1573.032 lakh and State share is Rs. 1048.688 lakh.

4.1 IUFR & REIMBURSEMENT CLAIM UNDER ESIP

The total project cost was Rs. 60.03cr. Expenditure of Rs. 40.53 cr. was done till Otober 2021 against the sanctioned APOs. Amount of rs. 40.53 has been submitted for reimbursement, and all the claims submitted so far have been reimbursed. The IUFR submitted to MoEF & CC and World Bank in the prescribed IUFR. Audit till 2020-21 has been duly shared with the directorate and World Bank

Table : 6 (a) Cumulative Financial Progress

Division	All figures in INR in Cr.
Project Cost	60.03
Expenditure till 31st October 2021	40.53

Table : 6 (b) Financial year wise source of funds and component wise expenditure till 31 st Oct 2021 (INR in Cr)

Particulars	Financial Year					
	2017-18	2018-19	2019-20	2020-21	2021-22	Cumulative Progress
Total Receipts GOI/State Government World Bank Funds	0.44	6.43	10.26	18.06	5.34	40.53
Total	**0.44**	**6.43**	**10.26**	**18.06**	**5.34**	**40.53**
Components						
A. Strengthen Capacity of Government Institutions in Forestry and Land Management Programs	0.44	0.86	0.40	0.93	0.31	2.94
B. Investments for Improving Forest Quality in Selected Landscapes		4.79	8.62	16.53	4.43	34.37
C. Scaling-up Sustainable Land and Ecosystem Management in Selected Landscapes	-	0.23	0.43	-0.27	0	0.39
D. Project Management and Coordination	-	0.53	0.81	0.88	0.60	2.83
Component Totals	**0.44**	**6.43**	**10.26**	**18.05**	**5.34**	**40.53**

PROCUREMENT

1. To improve the traditional practice of Mahua flower collection, Mahua nets were distributed to the households (N. Betul-288, Hoshangabad-735, Sehore-675) of ESIP villages.

2. In SPIU M.P., the previously appointed consultants- GIS and Database expert, Forestry and Knowledge Management Expert and Procurement and Financial left the job. Therefore, for smooth operation of the project fresh procurement of the following consultants has been completed.

3. **Forestry/Ecosystems Service and Knowledge Management specialist :** Process completed and Award of Contract given in March 2020.

4. Social Development and Community Mobilization Expert: Process completed and Award of Contract given in March 2020.

5. GIS and Database expert: Process completed and Award of Contract given on October 2020.

6. Procurement & Financial Management Consultant: Process completed and Award of Contract given in April 2021.

7. Procurement process for SPIU Consultancies has been completed.

8. Contract has been awarded to the agency selected for the project **"Sustainable Harvesting protocols, Value Addition and Value Chain Development to non-timer Forest Products (NTFP) in M.P"** on May 2021. Project Inception Report has been submitted by MP Vigyan Sabha.

9. Contract has been awarded to the firm selected for **"IEC Strategy"** on July 2021. Project Inception Report has been submitted by Concept Orange.

GIS and Drone based Monitoring for Landscape Restoration

- Madhya Pradesh Forest Department has established a best practice for planning and management of plantation sites.
- **STARMAP** – Spatial Technology Approach for Restoration Mapping and Planning, is a well-established methodology of online monitoring of treated areas (Landscape restoration) as well as being used to plan the interventions (such as tree planting, fencing, water conservation measures etc.)
- The step wise methodology of STARMAP is given below -

  a GIS based pre-determination of boundaries and treated area (by KML file/shape file)

  b Registering the area proposed for treatment in the Plantation Monitoring System http://intranet.mpforest.gov.in/MPFD15/login.aspx?ReturnUrl=%2fMPFD15%2f

  c Creating a permanent grid and spot marking for continuous monitoring over the entire treatment area

  d Conducting Regeneration surveys every year and displaying them on independent third-party portals https://geo.mpforest.gov.in/geoportal/apps/webappviewer/index.html?id=42fccb4bf21f47aebadac5cbd4746da8

  e Maintaining geo-coded photographic records of each treatment site and making available at regular intervals photographs of the same site for comparison

  f To make available that boundaries to national body FSI for bi-annual estimation of forest cover and forest density

- The system was also used to monitor implementation progress as well as analyse the impact of the interventions, such as planting and assisted natural regeneration using drone camera and GIS software. The system has been adapted to use drones to take geo-referenced photographs before and after interventions.

Figure-6 Online Plantation Monitoring System at MPFD Website

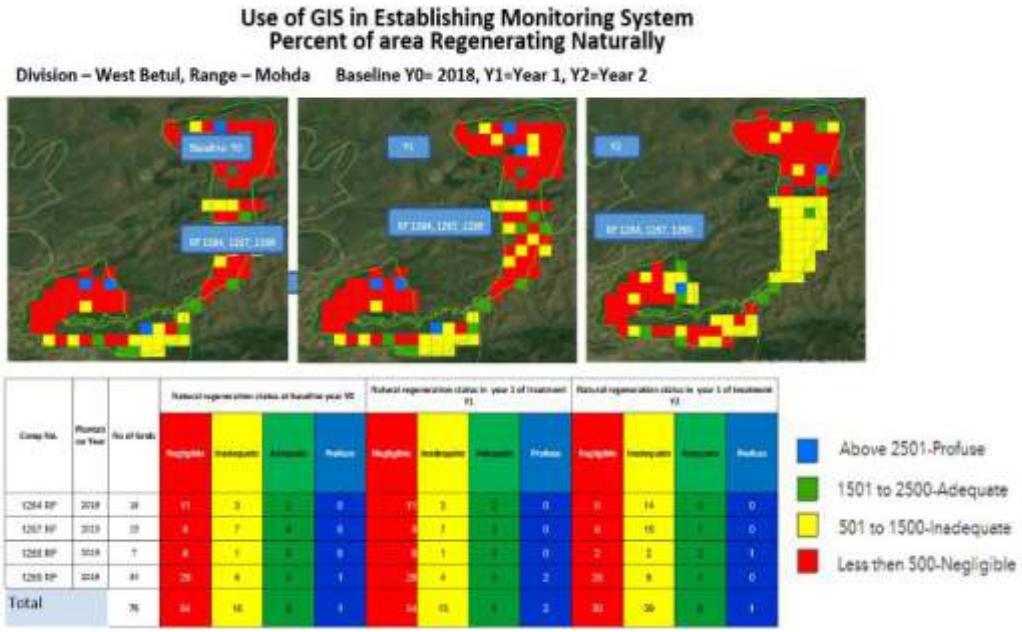


Figure-7 GIS based regeneration monitoring system

The online plantation monitoring system available on MPFD website also provides the information about number of plants planted under various submission of Green India Mission. The year wise planted are given in Table 7.

Table: 7 Number of Plants Planted under submissions of GIM during year 2019 & 2020 (Based on PMS Portal Data)

Submission	Number of Plants Planted		
	Year 2019	Year 2020	Total
Research High Density Plantation		4,140	4,140
Sub Mission 1(a) Moderately dense forest cover, but showing degradation	8,20,191	6,95,355	15,15,546
Sub Mission 1(b) Type A Eco-restoration of degraded open forests with plenty of root stocks	3,04,921	2,33,990	5,38,911
Sub Mission 1(b) Type B Eco-restoration of degraded open forest with limited rootstocks and open blanks	3,72,187	2,47,950	6,20,137
Sub Mission 1(b) Type C Eco-restoration of degraded open forest of large open areas with sparse undergrowth	4,00,268	45,84,50	8,58,718
Sub Mission 1(c) Restoration of grasslands	1,14,946	1,11,600	2,26,546
Sub Mission 2(f) Restoration of abandoned mining area	3,000	5,750	8,750
Sub Mission 3 Plantation in Urban & peri urban areas	1,33,057	1,985	1,35,042
Sub Mission 4(a) Agro-Forestry and Social Forestry in Farmer's land including current fallows	1,400	3,000	4,400
Sub Mission 4(b) Agro-Forestry and Social Forestry in Shelterbelt plantation	6,500	6,840	13,340
Sub Mission 4(c) Agro-Forestry and Social Forestry in Highways/ Rural roads /Canals/Tank Bunds	54,347	4,2840	97,187
Sub Mission 5 Restoration of wetlands	5,000	800	5,800
Total Plants Planted in 18 GIM Divisions	**22,15,817**	**18,12,700**	**40,28,517**

The survival percent survey of the plantations isconducted on semi-annual basis. During year 2019 and 2020 twice found as more than 70 percent. The survival percent for submission 1 (a) moderately dense forest showing degradation was noted between 82.24 to 91.20 percent for two consecutive years. The submission wise details of survival percent are given below in table 8.

Table: 8
Survival Percent of plantations under submissions of GIM during year 2019 & 2020
(Based on PMS Portal Data)

Submission	Average Survival Percent			
	Oct-19	May-20	Oct-20	May-21
Sub Mission 1(a) Moderately dense forest cover, but showing degradation	91.20	86.53	92.73	82.24
Sub Mission 1(b) Type A Eco restoration of degraded open forests with plenty of root stocks	95.49	88.16	94.25	87.78
Sub Mission 1(b) Type B Eco restoration of degraded open forest with limited rootstocks and open blanks	96.07	88.26	92.75	90.01
Sub Mission 1(b) Type C Eco restoration of degraded open forest of large open areas with sparse undergrowth	88.03	84.18	95.21	92.99
Sub Mission 1(c) Restoration of grasslands	96.71	91.76	95.64	94.59
Sub Mission 2(f) Restoration of abandoned mining area	93.43	85.87	97.59	90.55
Sub Mission 3(a) Plantation in Urban & peri urban areas	96.27	88.51	92.04	85.18
Sub Mission 4(a) Agroforestry and Social Forestry in Farmer's land including current fallows	94.86	85.00	89.31	70.00
Sub Mission 4(b) Agroforestry and Social Forestry in Shelterbelt plantation	98.67	85.69	93.18	90.85
Sub Mission 4(c) Agroforestry and Social Forestry in Highways/ Rural roads /Canals/Tank Bunds	94.51	86.32	90.60	82.12
Sub Mission 5 Restoration of wetlands	92.00	86.30	91.92	78.84

6 SUCCESS STORIES

6.1 Success Stories under different submissions of GIM

Submission 1a : Enhancing quality of Moderately Dense Forest Cover Showing degradation

The activities carried out in 16 divisions (Satna, Umaria, South Sagar, South Panna, South Balaghat, South Seoni, Barwani, Sendhwa, North Betul, West Betul, Hoshangabad, Sehore, Raisen, Obaidullaganj, Shivpuri & Sheopur) under this submission. Total area treated (cumulative achievement) under this submission 9750 ha. against 9759 ha. with an expenditure of Rs. 2528.52 lakh. Total physical achievement percent is 99.91% and financial achievement percent is 71.34 %.

Figure 7 - The operations carried out under submission 1 (a) submission

Site Preparation

Demarcation, fencing, uprooting lantana/ invasive species, Baseline natural Regeneration Survey, adoption of natural regeneration, adoption and promotion of valuable endemic pit digging, Soil & Moisture Conservation works, inspection path

Creation

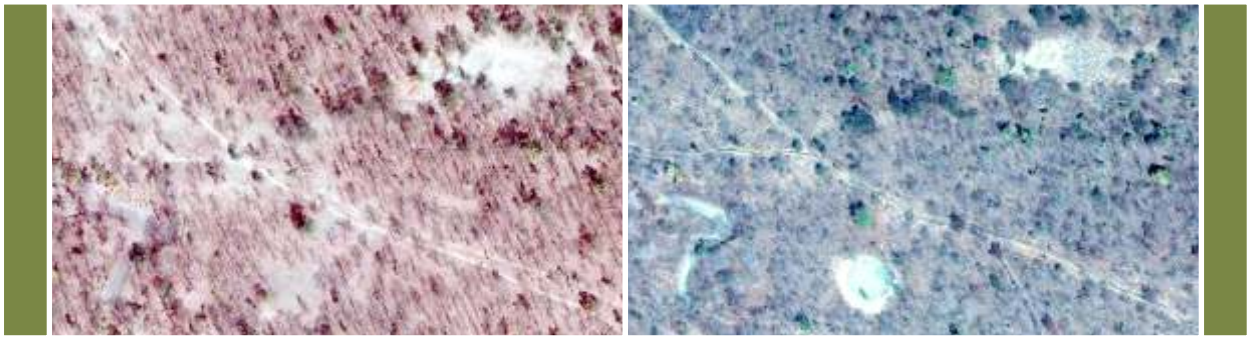
Gap Planting of native species, Adoption of natural seedlings, Afforestation through seed dibbling, natural regeneration survey first year, weeding, protection

Maintenance

Weeding, causality replacement, irrigation, fire protection, natural regeneration survey second year onwards.

Project Cost	48.64 lakhs	Landscape	Satpura Narmada
Area	335 hec.	Division	North Betul
Planting Year	2019	Mili-watershed	5D5A2j
Plants Planted	67000	Range	Shahpur
Species	Teak	Compartment	RF 183 & 176
Survival %	94.00 % (as on October 2020)	Beat	West Mudha
		JFMC	Muda & Kotha

Submission 1a : Moderately Dense Forest Cover Showing degradation



Submission 1b Type A: Eco-restoration of Degraded Open Forest with plenty of Root Stock

The activities carried out in 16 divisions (Satna, South Sagar, South Panna, South Balaghat, South Seoni, Barwani, Sendhwa, Dhar, Jhabua, West Betul, Hoshangabad, Sehore, Raisen, Obaidullaganj, Shivpuri & Sheopur) under this submission.

Total area treated (cumulative achievement) under this submission is 4033 ha. against 4155 ha. with an expenditure of Rs. 1197.86 lakh. Total physical achievement percent is 97.07% and financial achievement percent is 77.43%.

Submission : 1b Type B : Eco-restoration of Degraded Open Forest with limited Root Stock and Open Blank

The activities carried out in 13 divisions (Satna, South Sagar, South Panna, South Balaghat, South Seoni, Jhabua, North Betul, Hoshangabad, Sehore, Raisen, Obaidullaganj, Shivpuri & Sheopur) under this submission.

Location 25°36'43"N 76°48'32"E

Landscape	Gird
Division	Sheopur
Mili-watershed	2D1B8t
Range	Sheopur
Compartment	100 RF
Beat	Kalitalai
JFMC	Kalitalai
Project Duration	2018-19 to 2022-23

Total area treated (cumulative achievement) under this submission is 1330 ha. against 1393 ha. with an expenditure of Rs. 747.55 lakh. Total physical achievement percent is 95.49% and financial achievement percent is 75.56%.

Location 25°36'43"N 76°48'32"E

Landscape	Gird		
Division	Sheopur	Project Cost	Rs 38,11,658/-
Mili-watershed	2D1B8t	Area	48.120 ha
Range	Sheopur	Planting Year	2019
Compartment	100 RF	Plants Planted	16000
Beat	Kalitalai	Species	Chirhol, Jungle jalebi, Safed Siras/ Safed Shirish, Shisham
JFMC	Kalitalai		
Project Duration	2018-19 to 2022-23	Survival %	94.00 % (as on October 2020)

Submission: 1b Type C : Eco-restoration of Degraded Open Forest (largely open areas with sparse undergrowth)

The activities carried out in 15 divisions (Satna, South Sagar, South Panna, South Balaghat, South Seoni, Dhar, Barwani, Jhabua, North Betul, Hoshangabad, Raisen, Obaidullaganj, Shivpuri & Sheopur) under this submission.

Total area treated (cumulative achievement) under this submission is 1215 ha. against 1311 ha. with an expenditure of Rs. 928.48 lakh. Total physical achievement percent is 98.67 % and financial achievement percent is 67.38 %.

Submission: 1c: Restoration of Grasslands

The activities carried out in 09 divisions (South Panna, South Seoni, Dhar, Barwani, Sendhwa, Jhabua, Obaidullaganj, Shivpuri & Sheopur) under this submission.

The operations carried out under restoration of grassland are

Site Preparation - Demarcation, uprooting invasive species, fencing, deep ploughing for planting grass slips of indigenous species, development of grass beds, pit digging, baseline natural regeneration Survey .

Creation- uprooting invasive species, Seed sowing of native grass species, plantation of native species, natural regeneration survey first year, fire protection

Maintenance - Weeding, causality replacement, irrigation, fire protection, natural regeneration survey second year onwards.

BOX-2
Fodder Case Study - Sheopur Division

Sheopur forest division has treated 2177.52ha of land in various submission of GIM 739.42 ha., 12 sites were restored under submission 1 (c) restoration of grasslands. The activities of protection and securing forest land through chain-link facing, resulted in increased yield of grass increased by 5 to 6 times. On an average 2000 saplings of 14 species of grasses were planted.

Arrangement of distribution of fodder in the planting areas and pasture development areas (total 34 plantation sites) was done after organizing a meeting of JFMC (VFC) and an agreement was prepared for providing free grass to the community members. Records of beneficiary and quantity of grass provided to each beneficiary was kept by the JFMC. Due care was taken so that the planted saplings and natural regeneration was not damaged while cutting the grass.

During the year 2019 and 2020, about 68,795 kg of Murjaina (Cyperus rotundus) grass and 4,75,124 kg of grass (5,43,919 kg of grass) were provided to 2,223 JFMC members (beneficiaries) from 34 treatment areas. The average market price of Murjaina grass was Rs.15 per kg and fodder grass for animals was average Rs. 2/-

Total area treated (cumulative achievement) under this submission is 2005 ha. against 2032 ha. with an expenditure of Rs. 928.48 lakh. Total physical achievement percent is 98.67 % and financial achievement percent is 67.38 %.

Submission : 2f : Restoration of Abounded Mining Area

The activities carried out in 06 divisions (South Balaghat, Obaidullaganj, Raisen, South Panna, Satna & Shivpuri) under this submission.

Location 23°20'49"N 78°18'3"E

Landscape	Vindhya Plateau
Division	Raisen
Mili-watershed	5D4A5g
Range	Garhi
Compartment	104 RF
Beat	Sarra
JFMC	Suagarh
Project Duration	2018-19 to 2022-23

Project Cost	Rs 4,39,578/-
Area	3 ha
Planting Year	2019
Plants Planted	3000
Species	Aonla, Karanj/Kanji, Neem, Shisham, Teak, Others
Survival %	97.67 % (as on October 2020)

The operations carried out under submission 2f are

Site Preparation - Demarcation, fencing, land filling and land levelling, pit digging .

Creation - Plantation of native, ornamental, fire protection

Maintenance - Weeding, causality replacement, irrigation, fire protection, natural regeneration survey second year onwards

Total area treated (cumulative achievement) under this submission is 51 ha. against 56 ha. with an expenditure of Rs. 28.27 lakh. Total physical achievement percent is 91.89 % and financial achievement percent is 26.27 %.

Submission : 3 Plantation in Urban & Peri Urban areas

The activities carried out in all 18 GIM divisions under this submission.

Plantation in Urban & Periurban Area, City Forest Maihar, Division- Satna

Location 21°47'20.02"N 80°1'54.31"E

Landscape	Northern Hills Plains
Division	South Balaghat
Mili-watershed	4E5G5m
Range	Waraseoni
Compartment	RF 824
Beat	Khapa
JFMC	Bagholi
Project Duration	2018-2022

Project Cost	6.57 Lakhs
Area	6 ha
Planting Year	2019
Plants Planted	3750
Species	Gulmohar, Putranjiwa, Jamun, Aonla, Banyan, Pelafarm, Imli, Paraspeepal, Gular, Karanj, Harra, Neem, Peepal
Survival %	98.85 % (as on May 2020)

The operations carried out under Urban and peri-urban areas are-

Site Preparation - cleaning/ invasive species, fencing, pit digging, walking path way for citizens, making pagoda, nakshtra vatika, observation hut .

Creation- Plantation of native, ornamental, medicinal species.

Maintenance - Weeding, causality replacement, irrigation, fire protection, cleaning waking path.

Total area treated (cumulative achievement) under this submission is 173ha. against 196 ha. with an expenditure of Rs. 271.29 lakh. Total physical achievement percent is 87.91 % and financial achievement percent is 70.10 %.

Submission: 4(a) Agro-forestry and Social Forestry in Farmer's land including current fallows

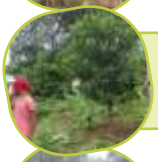
The activities carried out in all 18 GIM divisions under this submission.

Agro-forestry Beneficiary- Ravindra Navde
Village- Chunnabhatti, Range-Pansemal
Division- Sendhwa

Village- Gauraha, Range-Mohindra
Division- South Panna
Area before & after weeding

The operations carried out under submission 4 (a) are-

Site Preparation - Selection of beneficiaries, cleaning, fencing, pit digging



Creation- Plantation of native, ornamental, medicinal species.

Maintenance - Weeding, causality replacement, irrigation, fire protection, cleaning waking path.

Total area treated (cumulative achievement) under this submission is 1965ha. against 3934ha. with an expenditure of Rs. 273.57 lakh. Total physical achievement percent is 49.96% and financial achievement percent is 70.10 %.

Submission: 4(b) Agro-forestry and Social forestry in Shelterbelt Plantations

The activities carried out in 04 GIM divisions (Dhar, Jhabua, Barwani and Sendhwa)under this submission.

Landscape	Nimar Jhabua Hills
Division	Jhabua
Mili-watershed	5E2A5s
Range	Petlawad

Location 23°3'36"N 74°54'10"E

Compartment/Village	Sarangi
Beat/Panchayat	Sarangi
Project Duration	2019-2020 to 2023-24

Landscape	Nimar Jhabua Hills
Division	Jhabua
Mili-watershed	5E2A5s
Range	Petlawad
Compartment/Village	Sarangi
Beat/Panchayat	Sarangi
Project Duration	2019-2020 to 2023-24

Location 23°3'36"N 74°54'10"E

Project Cost	Rupees 11,40,480/-
Area	4 ha
Planting Year	2020
Plants Planted	4840
Species	Mixed
Survival %	97.60 % (as on October 2020)

The operations carried out under submission 4 (b) are-

Site Preparation - cleaning/ invasive species, fencing, pit digging

Creation- Plantation of Bans, Fruiting, ornamental, medicinal species.

Maintenance - Weeding, causality replacement, irrigation, fire protection, cleaning waking path.

Total area treated (cumulative achievement) under this submission is 25 ha. against 28 ha. with an expenditure of Rs. 34.69 lakh. Total physical achievement percent is 89.29% and financial achievement percent is 77.28 %.

Submission : 4(c) Agro-forestry and social forestry highways/rural roads/canals/ tank bunds plantations

The activities carried out in all18 GIM divisions under this submission.

Location 23°21'4"N 78°19'17"E

Landscape	Vindhya Plateau
Division	Raisen
Mili-watershed	5D4A5g
Range	Garhi
Compartment	RF 100
Project Duration	2018-19 to 2022-23
Area	4 ha

The operations carried out under submission 4 (c) are-

Site Preparation - Demarcation, cleaning, fencing, pit digging

Creation - Plantation of Bans, fruiting, ornamental, medicinal species, RET species.

Maintenance - Weeding, causality replacement, watering

Total area treated (cumulative achievement) under this submission is 585ha. against 883ha. with an expenditure of Rs. 513.74 lakh. Total physical achievement percent is 66.27% and financial achievement percent is 41.32%.

Submission: 5 Restoration of Wetlands

The activities carried out in all04 GIM (Sehore,South Sagar, South Seoni & Shivpuri) divisions under this submission.

Landscape	Bundelkhand	Compartment	734 RF
Division	South sagar	Beat	Patharia Jat
Mili-watershed	2C1E7d	JFMC	Sironja
Range	Sagar	Project Duration	2019-2020 to 2022-23

Location 23°49'33.55"N 78°48'30.24"E

Project Cost	Rupees 4,05,690/-		
Area	4 ha		
Planting Year	2019	Species	Kanji, Karanj, Bahera, Mango
Plants Planted	4000	Survival %	94.75 % (as on October 2020)

The operations carried out under restoration of wetlands are-

Site Preparation - Demarcation, uprooting lantana/ invasive species, fencing, pit digging, Soil & Moisture Conservation works, Construction or deepening of water bodies.

Creation- Plantation of native/RET species .

Maintenance - Weeding, causality replacement, irrigation, fire protection.

Total area treated (cumulative achievement) under this submission is 20ha. against 25ha. with an expenditure of Rs. 13.64 lakh. Total physical achievement percent is 80% and financial achievement percent is 40.98%.

6.2 Success Stories under various components of ESIP

COMPONENT – 2
IMPROVING FOREST QUALITY AND PRODUCTIVITY

2.1 Enhancing and restoring carbon stock in forest lands

2.1.1 Upgrading/modernization of select forest nurseries to raise high-quality native species planting material

Solar Pannel Amrawad-1 Nursery

Nursery bed Amrawad-1 Nursery

To cater the requirement of planting material of high-quality native species, planting material including rare, endangered & threatened species and vermicompost, 5 forest nurseries (Basapur Nursery Unit, Sehore, Holipura Nursery Unit, Sehore, Ahamadpur Nursery Unit, Bhopal, Amarwad 1 Nursery Unit and R & E Betul) was upgraded by improving the existing infrastructure like Cement concrete beds, poly house, green house, vermi-compost tanks, soil testing kits, seed treatment plant, mist chamber, seed storage, solar pumps help to produce better quality seedlings of the nursery.

Labour huts, toilets for labourwere constructed and RO was installed for drinking water facilities for labour and visitors.

Table: 9 Cumulative Progress of Nurseries Upgraded (F.Y.2018-19 to F.Y. 2020-21)

S No.	Component/Activities	Cumulative Progress of Four Nurseries as on 31st March 2021			
		Target		Achievement	
		Quantities	Amount (Rs.Lakh)	Quantities	Amount (Rs.Lakh)
1	Vermi Compost Unit	16 unit size 10mx6m	32.00	16 unit size 10mx6m	31.89
2	Mist Chamber	4 unit size 120 sq m	40.00	4 unit size 120 sq m	39.46
3	C.C. Bed	1200 Beds	180.00	895 Beds	131.01
4	Micro Sprinkler	1000 Bed (4/Bed)	25.00	1000 Bed (4/Bed)	24.38
5	Seed Treatment	2 unit size 15x20 m	10.00	2 unit size 15x20 m	9.97
6	Seed Store	4 nos	40.00	4 nos	39.94
7	Fencing	2000 Rmt.	20.00	2000 Rmt.	19.97
8	Signage	-	20.00	-	13.95
9	Inner Road of Nursery	2500 Rmt.	20.00	2500 Rmt.	19.95
10	Over Head Tank	4 nos	35.00	3 nos	24.97
11	Labor Hut	3 nos	14.00	3 nos	13.92
12	Gate	2 nos	2.00	2 nos	1.98
13	Poly House	3 unit size720 sqft	30.00	3 unit size720 sqft	30.55
14	Cocopit Unit with Shed	2 nos	3.00	2 nos	3.00
15	Compost Tank	16 nos	4.00	16 nos	3.97
16	Customer Visitors Facilities	1 unit size 713 sqft	10.00	1 unit size 713 sqft	9.88
17	Watch Tower	1 nos	5.00	1 nos	0.00
18	CCTV Comp/Laptop Camera	1 nos	2.50	1 nos	2.79
19	Solar Light	8 nos	2.00	8 nos	2.00
20	Furniture for Cust. Visitor Centre	0	1.00	0	1.00
21	SoilTestingMachine with Installation	4 nos	4.00	4 nos	4.06
22	Soil Testing Kits	4 nos	1.00	0.00	0.00
23	Shade for Soil Testing Mchn.	4 nos	4.00	4 nos	3.99
24	Green house	722 sqm	7.00	722 sqm	5.13
25	Root Trainer	1.00 Lac Unit Cell	20.00	1.00 Lac Unit Cell	19.99
26	Borewell Pump Pipe	1 nos	4.00	1 nos	3.98
27	Solar Pump Set	7.5 kw	9.00	7.5 kw	8.97
28	Toilet for Labour	1 nos	2.00	1 nos	2.00
29	Drinking Water RO	1 nos	1.00	1 nos	1.00
30	Revenue of Plants		0.00		18.16
	Total		**547.60**		**491.86**

ESIP COMPONENT – 2.1.3
INVESTMENTS IN RESTORATION WORKS ON DEGRADED FORESTLANDS

❶ During the year 2018-19 to 2020-21 a total of 3024 ha. (Betul-1074 ha., Hoshangabad-1400 ha., Sehore-550 ha.) of moderately dense forest showing degradation were taken for restoration works in the selected landscapes.

Table: 10 Plantation details under investments in restoration works on degraded forest land

Division	Year of Plantation	Fencing RMT	Area (Hac)	No. of Plants
Hoshangabad	2019	19933	600	130293
	2020	27864	600	118420
	2021	7691	200	21500
	Total	**55488**	**1400**	**270213**
Betul	2019	18100	179	125800
	2020	36600	695	146200
	2021	17236	200	90000
	Total	**71936**	**1074**	**36200**
Sehore	2019	36190	300	187500
	2020	4000	50	12000
	2021	14300	200	113750
	Total	**54490**	**550**	**313250**
Grand Total		181914	3024	945463

❷ The treated area was covered with 181914 RMT fencing and the total area under protection and maintenance was 3024 ha. The year wise milli & micro watershed and JFMC wise details of plantation site data for fencing, area, number of plants planted is given in table 11.

❸ The planting material used are, Native/NTFP Species – Amla (Phyllanthus emblica), Harra (Erminaliachebula), Baheda (Terminalia bellirica), Mahua (Madhuca longifolia), Neem (Azadirachta indica), Bel (Aegle marmelos), Teak (Tectona grandis), Bamboo (Dendrocalamusstrictus), Karanj (Millettia pinnata), Sissoo (Dalbergia sissoo), Chirol (Holoptelea integrifolia) etc.

RET Species - Achar (Buchananialanzan), Bija(Bixa orellana), Tinsa (Ougeiniaoojensis), Anjan (Hardwickiabinata), Kulla (Sterculia urens) etc.
Ficus Species - Pipal, Bargad, Gular, Pakar.
Fruit bearing Species - Aam, Sitafal, Amrud, Nimbu, Munga etc.

Table : 11 Plantation details of ESIP Landscapes under component 2.1.3 Investments in restoration works on degraded forestlands

Division- Hoshangabad												
Circle/Division	Miliwatershed	Micro Watershed	Range	Beat / Panchayat	Compt /	JFMC	Plantation ID	Fencing RMT	Year of	Area	No. of	Species planted
Hoshangabad / Hoshangabad	5D3D6k	5D3D6k6	Banapura	Pipalpota	4 RF	Pipalpota	106350	9200	2019	300	90000	Aaonla , Bahera , Bamboo , Mahua , Others
	5D3D6k	5D3D6k3	Itarsi	South Bhatna	165 RF	Ranjhi	106390	6133		200	15293	Aaonla , Bamboo , Karanj/Kanji , Khamher/
	5D3D6k	5D3D6k4	Sukhatawa	Pipariya	32 PF	Pipariya	106395	4600		100	25000	Aaonla , Bahera , Bamboo , Jamun ,
	Total							19933		600	130293	
	5D3D6k	5D3D6k6	Banapura	North Nayagaon	437 RF	Pipalpota	109062	12500	2020	300	75000	Aaonla , Bahera , Bamboo , Chirol ,
	5D3D6k	5D3D6k1	Itarsi	Imlipani	160 RF	Lalpani	109028	6820		150	21920	Aaonla , Mahua , Others
	5D3D6k	5D3D6k4	Sukhatawa	Pipariya	32 PF	Pipariya	109061	8544		150	21500	Aaonla , Anjan , Jamun , Kusum , Others ,
	Total							27864		600	118420	
	5D3D6k	5D3D6k3&4	Itarsi	South Ranjhi	167 RF	Ranjhi	New	7691	2021	200	21500	Bija, Bhilwa, Bamboo, Teak, Jamun, Bel,
	Total							7691		200	21500	
	Grand Total of Hoshangabad Division							55488		1400	270213	
Division- North Betul												
Betul / North Betul	5D5A2h	5D5A2h2	Bhoura	Koyalbuddi	391 PF	Koyalbuddi	105004	8000	2019	75	75000	Aaonla , Bahera , Bamboo , Karanj/Kanji ,
	5D5A2h	5D5A2h5		Kuppa	131 RF	Kuppa	105307	3800		50	20000	Bamboo
	5D5A2h	5D5A2h2		Kachar	389 PF	Kachar	105308	3500		25	25000	Aaonla , Amaltash , Bahera , Bamboo , Kachnar ,
	5D5A2h	5D5A2h4		Bhoura	400 PF	Bhouradha	105309	2800		29	5800	Bamboo , Karanj/Kanji , Kassod/Seemia , Others
	Total							18100		179	125800	
	5D5A2h	5D5A2h6	Bhoura	Kuppa	181 RF	Kuppa	108695	6000	2020	130	10200	Aaonla , Bahera , Bamboo , Harra , Kanji/Karanj ,
	5D5A2h	5D5A2h3		Handipani	128 RF	Handipani	108696	5500		125	9000	Aaonla , Achar/Char , Arjun , Bahera , Bamboo ,
	5D5A2h	5D5A2h5		Banabida	166 &167	Banabida	108697	8500		135	17000	Aaonla , Arjun , Bahera , Bamboo , Bhilwa , Harra
	5D5A2h	5D5A2h5		Kuppa	130 RF	Kuppa	108698	5800		125	11500	Aaonla , Arjun , Bamboo , Bija , Kanji/Karanj ,
	5D5A2h	5D5A2h1		Koyalari	159 RF	Koyalari	108699	3900		50	40000	Aaonla , Arjun , Bahera , Bamboo , Kachnar ,
	5D5A2h	5D5A2h4		Banabida	163 RF	Banabida	108701	6900		80	8500	Aaonla , Achar/Char , Arjun , Bahera , Bamboo ,
	5D5A2h	5D5A2h2		Koyalbuddi	391 PF	Koyalbuddi	109055	0		50	50000	Aaonla , Arjun , Bahera , Bamboo , Kanji/Karanj ,
	Total							36600		695	146200	
	5D5A2h	5D5A2h2	Bhoura	Kachar	127 RF	Kachar	New Plantation	3570	2021	60	30000	Teak, Bamboo, Aaonla, Bahera, Mahua,
	5D5A2h	5D5A2h4		Bhoura	400 PF	Bhouradha	New Plantation	3616		56	20000	Teak, Bamboo, Arjun, Bahera, Jamun,
	5D5A2h	5D5A2h1		Koyalari	159 RF	Koyalari	New Plantation	3150		35	25000	Teak, Bamboo, Aaonla, Bahera, Neem, Kusum
	5D5A2j	5D5A2j3	Shahpur	Pahadwadi	413 PF	Pahadwadi	New Plantation	6900		50	15000	Teak, Bamboo, Aaonla, Bahera, Neem, Shisham,
	Total							17236		200	90000	
	Grand Total of North Betul Division							71936		1074	362000	
Division- Sehore												
Bhopal / Sehore	5D4A1b	5D4A1b2	Budhni	Saidganj	651 PF	Khatpura	106744	4800	2019	50	31250	Aaonla , Bamboo , Karanj/Kanji , Mahua ,
	5D4A1b	5D4A1b2		Saidganj	652 PF	Khatpura	106745	3500		30	18750	Aaonla , Bamboo , Karanj/Kanji , Mahua ,
	5D4A1b	5D4A1b1		Shahaganj	646 PF	Hathalewa	106748	3500		30	18750	Arjun , Bahera , Bamboo , Jamun , Karanj/Kanji ,
	5D4A1b	5D4A1b2		Saidganj	651 PF	Khatpura	106749	3500		30	18750	Aaonla , Bamboo , Karanj/Kanji , Mahua ,
	5D4A1b	5D4A1b1		Shahaganj	661 RF	Chachmau	106751	3500		30	18750	Aaonla , Arjun , Bahera , Bamboo , Jamun ,
	5D4A1b	5D4A1b1		Shahaganj	647 PF	Hathalewa	106754	4000		35	21875	Aaonla , Bamboo , Jamun , Kasai , Khamher/
	5D4A1b	5D4A1b1		Shahaganj	648 PF	Nayapura	106757	3380		25	15625	Aaonla , Bamboo , Jamun , Kachnar ,
	5D4A1b	5D4A1b5		Saidganj	654 PF	Akola	106758	3380		25	15625	Bamboo , Teak
	5D4A1b	5D4A1b2		Khatpura (Dabari)	650 PF	Khatpura	106760	3380		25	15625	Aaonla , Bahera , Bamboo , Jamun , Kasai ,
	5D4A1b	5D4A1b2		Khatpura (Dabari)	645 PF	Paraswada	106769	3250		20	12500	Aaonla , Bahera , Bamboo , Jamun , Kachnar ,
	Total							36190		300	187500	
	5D4A1b	5D4A1b2	Budhni	Shahaganj	647 PF	Hathalewa	109430	4000	2020	50	12000	Aaonla , Arjun , Bahera , Bamboo , Bel , Jamun ,
	Total							4000		50	12000	
	5D2D8c	5D2D8c7	Budhni	Talpura	613 &	Talpura		9500	2021	50	20000	Teak, Bamboo, Aaonla, Mahua, Jamun, Safed
	5D2D8c	5D2D8c8		Pilikarar	617 & 618	Pilikarar		4800		150	93750	Bamboo, Aaonla, Mahua, Jamun, Safed Siris,
	Total							14300		200	113750	
	Grand Total of Sehore Division							54490		550	313250	
Great Grand Total of ESIP Divisions								181,914		3,024	945,463	

❹ Total number of plants planted is 9,45,463.

❺ Table 12 depicts the area treated, number of plants planted and total units of SMC work carried out in the plantation site during the year 2018 to 2020. It also shows the total wage labour force used to complete the advance work, creation and maintenance of the plantation sites as well as construction of soil and moisture conservation work.

Table : 12 Details of Area treated, SMC and Number of man-days generated

Division	Area treated in ha.	No. of Plants planted	No. of SMC work carried out	No. of Male Labour	No. of Female labour	Total Labour	No. of man-days generated
Hoshangabad	1200	248713	2679	1828	1055	2883	288300
N. Betul	874	265000	211	740	732	1472	147200
Sehore	350	199500	1265	1809	888	2697	269700
	2424	**713213**	**4155**	**4377**	**2675**	**7052**	**705200**

Source: Data received from divisions

❻ In Hoshangabad 1411 brushwood check dams, 1258 boulder check dams, 03 ponds, 06 repairing of wells and 01 installation of solar pump for drinking water purpose of villagers was done. About 2,88,300 man days were generated.

❼ Eleven plantation sites with an area of 874 ha. was treated in the Bhaura range of North Betul forest division. 2,65,000 plants were planted and 211 units of SMC work was done. The SMC structures made are 54 brushwood check dams, 13 stone check dams, 03 Gablion, 08 Percolation tanks and 02 percolation pits, 03 pond constructions with 27 other water harvesting structures were constructed.

❽ Total 1265 SMC units (14 pond construction, 03 pond deepening, 01 stop dam, 01 check dam, 01 wastevier, 169 percolation tank, 1076 percolation pits) constructed. 269700 man-days generated from plantation and SMC work.

❾ 705200 man-days of workwas generated in treating 2424 ha. from 28 plantation sites. The plantation and SMC work has created a positive impact on men (62%) and women (38%) in terms of generating labour for tribal (52%) as well as vulnerable communities (22%) and 26% from other groups.

10. Ground water recharge with the help of construction of check dams, ponds, Deeping of ponds and construction of other water harvesting structures etc. has definitely shown a positive impact on the recovery of falling groundwater levels leading to the sustainability of the resource. Repairing of wells and installation of solar pump have significantly improved the drinking water facility.

Pond Deepening at Koyalbuddi-N. Betul

11. Growth status of planted species was collected and analyzed. The average girth of plants for two years of plantations in Hoshangabad division was found as 3.8 to 9.8 cm with average height 0.7 to 2.3 mt. In Sehore division the average girth ranges from 8 to 10 cm and height 1.1 to 1.75 mt. North Betul plantation growth status average girth from 2.8 to 6.2 cm and height 0.54 to 1.6 mt. The survival percentage of plantation sites was noted Hoshangabad > 85%, Sehore> 60% and N. Betul> 85% respectively. The division wise, compartment wise results are given in table 7.

Table: 7 Details of survival percentage and growth status of planted species

S No.	Division	Range	Compt No.	Plantation Year	Survival %				Avg. Girth (cm)	Avg. Height (m)
					Oct 2019	May 2020	Oct 2020	May 2021	as on May 2021	
1	**Hoshangabad**	Banapura	4 RF	2019	99.35	90.61	89.77	90.4	8.0	1.2
2		Itarsi	165 RF		95.02	93.3	90.12	90.1	5.5	1.3
3		Sukhtawa	32 PF		87.92	85.08	88.94	87.8	9.8	0.7
4		Banapura	437 RF	2020	-	-	97.45	96.0	8.0	0.9
5		Itarsi	160 RF		-	-	94.00	94.0	3.8	0.8
6		Sukhtawa	32 PF		-	-	97.23	97.2	3.8	2.3
7		Itarsi	167 RF	2021	-	-	-	-	-	-
8	**Sehore**	Budni	651 PF	2019	93.95	81.48	81.16	67.04	10	1.75
9			652 PF		90.51	82.61	88.92	58.82	10	1.5
10			646 PF		91.09	86.77	95.68	81.99	9	1.25
11			651 PF		90.91	80.78	72.82	68.8	10	1.75
12			661 RF		91.08	89.85	84.29	84.94	10	1.40
13			647 PF		90.72	87.91	85.65	76.99	8	1.40
14			648 PF		89.88	88.8	83.96	80.99	8	1.15
15			654 PF		90.48	80.52	85.89	63.30	8	1.1
16			650 PF		80.45	84.61	81.06	77.06	8	1.5
17			645 PF		86.51	80.23	83.5	73.41	9	1.4
18			647 PF	2020	-	-	99.77	82.72	8	1.5
19			613 & 618 RF	2021	-	-	-	-	-	-
20			617 & 618 RF		-	-	-	-	-	-
21	**Betul**	Bhoura	391 PF	2019	98.5	97.12	98.49	95.68	5.25	1.15
22			131 RF		91.8	57.08	90.5	90.00		1.6
23			389 PF		95.5	93.62	95.00	90.20	4.67	0.88
24			400 PF		98.74	95.5	97.07	90.52	6.14	1.07
25			181 RF	2020	-	-	98.43	97.59	5.0	1.08
26			128 RF		-	-	98.22	87.33	6.2	0.58
27			166 RF		-	-	98.00	86.96	2.8	0.54
28			130 RF		-	-	98.28	95.63	4.75	0.74
29			159 RF		-	-	97.60	96.40	4.36	0.85
30			163 RF		-	-	99.00	85.75	3.09	0.61
31			391 PF		v	v	98.23	97.16	5.8	0.88
32			127 RF	2021	-	-	-	-	-	-
33			400 PF		-	-	-	-	-	-
34			159 RF		-	-	-	-	-	-
35		Shahpur	413 PF		-	-	-	-	-	-

12 The growing stock data was collected and analysed. The change percent in the growing stock of the plantation site of Hoshangabad division is shown in table no. 14a.

Table: 14 (a) Growing Stock Analysis of Range Itarsi, Hoshangabad Division
(Compt. No. - RF 165, 166; Area-200 ha; Total No. of Grid - 38; Plantation Year 2019)

S. No	Species	Botanical Name	No. of Species	Growing Stock				
				Analysed data of Growing Stock (38 Grids)				
				Baseline (Y0)	First Year (Y1)		Second Year (Y2)	
					Average GBH (in cm)	% Changes	Average GBH (in cm)	% Changes
1	Achar	*Buchnania lanzan*	52	46.04	48.00	4.26	50.00	8.60
2	Amaltash	*Cassia fistula*	3	37.33	39.33	5.36	41.33	10.71
3	Aonla	*Emblica officinalis*	9	88.00	90.00	2.27	92.00	4.55
4	Astra	*Bauhinia racemosa*	14	44.00	46.00	4.55	47.93	8.93
5	Baheda	*Terminalia bellerica*	29	56.34	58.34	3.55	60.34	7.10
6	Bajar battu	*Ehretia laevis*	1	32.00	34.00	6.25	36.00	12.50
7	Bargad	*Ficus benghalensis*	1	348.00	350.00	0.57	352.00	1.15
8	Bel	*Aegle marmelos*	22	66.82	68.82	2.99	70.82	5.99
9	Bhilwa	*Semecarpus anacardium*	8	45.00	47.00	4.44	49.00	8.89
10	Bija	*Pterocarpus marsupium*	7	64.29	66.86	4.00	68.86	7.11
11	Dhaman	*Grewia tiliifolia*	2	70.00	72.00	2.86	74.00	5.71
12	Dhavda	*Anogeissus latifolia*	7	52.29	54.29	3.83	56.29	7.65
13	Dudhai	*Wrightia tinctoria*	7	35.43	37.43	5.65	39.43	11.29
14	Ghatol	*Zizyphus xylopyra*	1	78.00	80.00	2.56	82.00	5.13
15	Ghiriya	*Chloroxylon sweitenia*	294	43.97	45.97	4.56	47.98	9.12
16	Haldu	*Haldina cordifolia*	3	119.33	121.33	1.68	124.33	4.19
17	Harra	*Terminalia chebula*	11	37.64	39.64	5.31	41.64	10.63
18	Imli	*Tamarindus indica*	1	104.00	106.00	1.92	108.00	3.85
19	Jamun	*Syzygium cumini*	30	50.73	52.73	3.94	54.73	7.88
20	Kadka	*Kadka*	2	56.00	58.00	3.57	60.00	7.14
21	Kaim	*Stephegyne parvifolia*	3	58.67	60.67	3.41	62.67	6.82
22	Kakai	*Flacourtia indica*	14	51.43	53.43	3.89	55.43	7.78
23	Kari	*Saccopetalum tomentosum*	138	55.30	57.30	3.60	59.31	7.25
24	Kasai	*Bridelia retusa*	7	34.86	36.86	5.74	38.86	11.48
25	Khair	*Acacia catechu*	1	28.00	30.00	7.14	32.00	14.29
26	Kusum	*Schleichera oleosa*	2	48.00	50.00	4.17	52.00	8.33
27	Kumbhi	*Careya arborea*	3	38.00	40.00	5.26	42.00	10.53
28	Lendia	*Lagerstroemia parviflora*	50	44.72	46.72	4.47	48.72	8.94
29	Mahua	*Madhuca longifolia*	142	61.75	63.73	3.22	65.82	6.59
30	Moyan	*Lannea coromandelica*	19	66.74	68.84	3.15	70.79	6.07
31	Palash	*Butea monosperma*	1	48.00	50.00	4.17	52.00	8.33
32	Papda	*Gardenia latifolia*	17	40.00	42.06	5.15	44.06	10.15
33	Phansi	*Dalbergia paniculata*	7	90.86	92.86	2.20	94.86	4.40
34	Rinjha	*Acacia leucophloea*	16	77.50	79.50	2.58	81.50	5.16
35	Rohani	*Soymida febrifuga*	15	71.47	73.47	2.80	75.87	6.16
36	Saja	*Terminalia tomentosa*	143	53.50	55.47	3.69	57.57	7.61
37	Teak	*Tectona grandis*	52	55.88	57.81	3.44	60.02	7.40
38	Tendu	*Diospyros melanoxylon*	110	40.71	42.69	4.87	44.71	9.83

Table: 14 (b)

Growing stock data of Hoshangabad Division																																
S. No	Species	Botanical Name	No. of Species	No. of Trees (GBH in cm) Compt. No. - RF 165-166; Area-200 ha; Total No. of Grid - 38; Plantation Year 2019																												
				21-30			31-40			41-50			51-60			61-75			76-90			91-120			121 - above			Total		
				Y0	Y1	Y2	Y0	Y1	Y2	Y0	Y1	Y2	Y0	Y1	Y2	Y0	Y1	Y2	Y0	Y1	Y2	Y0	Y1	Y2	Y0	Y1	Y2	Y0	Y1	Y2
1	Achar	*Buchnania lanzan*	52	16	17	10	6	5	12	11	9	7	6	8	11	7	8	7	3	3	3	2	2	2				51	52	52
2	Amaltash	*Cassia fistula*	3	1			1	1	1	1	2	2																3	3	3
3	Aonla	*Emblica officinalis*	9				2	2	2				1	1	1				2	2	1	2	2	3	2	2	2	9	9	9
4	Astra	*Bauhinia racemosa*	14	5	4	3	3	4	5	3	2		1	2	4				1	1	1	1	1	1				14	14	14
5	Baheda	*Terminalia bellerica*	29	2	3	2	5	4	3	3	4	6	6	4	6	6	7	6	6	7	4			2				28	29	29
6	Bajar battu	*Ehretia laevis*	1				1	1	1																			1	1	1
7	Bargad	*Ficus benghalensis*	1																						1	1	1	1	1	1
8	Bel	*Aegle marmelos*	22	2	1		1	2	3	4	3	2	5	4	7	3	5	3	4	2	2	1	3	3	2	2	2	22	22	22
9	Bhilwa	*Semecarpus anacardium*	8	3	2	1	2	3	2	2	2	4										1	1	1				8	8	8
10	Bija	*Pterocarpus marsupium*	7							3	2	2	1	2	2				2	2	2	1	1	1				7	7	7
11	Dhaman	*Grewia tiliifolia*	2										1	1	1				1	1				1				2	2	2
12	Dhavda	*Anogeissus latifolia*	7	3	4	2			2							1	1	1	1	1	1				1	1	1	6	7	7
13	Dudhai	*Wrightia tinctoria*	7	2			4	6	5	1	1	2																7	7	7
14	Ghatol	*Zizyphus xylopyra*	1																1	1	1							1	1	1
15	Ghiriya	*Chloroxylon sweitenia*	294	80	73	58	71	76	68	43	51	58	28	36	55	30	29	30	20	21	13	2	4	8	3	3	4	277	293	294
16	Haldu	*Haldina cordifolia*	3																			2	2	2	1	1	1	3	3	3
17	Harra	*Terminalia chebula*	11	3	4	3	3	2	1	3	4	3	1	1	4													10	11	11
18	Imli	*Tamarindus indica*	1																			1	1	1				1	1	1
19	Jamun	*Syzygium cumini*	30	9	6	5	6	10	10	2	3	3	1	1	2	4	4	4	3	3	2	2	2	3	1	1	1	28	30	30
20	Kadka	*Kadka*	2				1				1	1				1	1	1										2	2	2
21	Kaim	*Stephegyne parvifolia*	3							2	1			1	2				1	1	1							3	3	3
22	Kakai	*Flacourtia indica*	14	6	3	3	1	4	4	2	2		2	2	4	1	1	1				1	1	1	1	1	1	14	14	14
23	Kari	*Saccopetalum tomentosum*	138	19	20	16	26	23	17	20	23	26	20	21	32	20	22	20	12	14	8	12	12	16	3	3	3	132	138	138
24	Kasai	*Bridelia retusa*	7	3	2	2	1	2	2	3	3	3																7	7	7
25	Khair	*Acacia catechu*	1	1	1				1																			1	1	1
26	Kusum	*Schleichera oleosa*	2							1	1	1	1	1	1													2	2	2
27	Kumbhi	*Careya arborea*	3	2	2	1			1				1		1		1											3	3	3
28	Lendia	*Lagerstroemia parviflora*	50	13	17	14	11	8	8	6	9	10	5	4	7	4	5	4	4	4	3	3	3	4				46	50	50
29	Mahua	*Madhuca longifolia*	142	37	37	28	10	17	24	16	15	12	10	10	17	18	18	18	13	15	10	17	16	16	13	14	17	134	142	142
30	Moyan	*Lannea coromandelica*	19	3	4	3	1	1	1	4	3	3	1	2	3	3	3	3				4	4	3	2	2	3	18	19	19
31	Palash	*Butea monosperma*	1							1	1				1													1	1	1
32	Papda	*Gardenia latifolia*	17	2	2	2	8	7	4	4	6	5	2	1	6		1											16	17	17
33	Phansi	*Dalbergia paniculata*	7				1	1		1	1	1			1	1	1	1	1	1		2	1	2	1	2	2	7	7	7
34	Rinjha	*Acacia leucophloea*	16				2	1		2	3	3	1	1	2	4	4	4	2	2	1	4	4	4	1	1	2	16	16	16
35	Rohani	*Soymida febrifuga*	15	1			2	3	1	2	2	4	1	1	1	1	1	1	2	2	2	6	6	6				15	15	15
36	Saja	*Terminalia tomentosa*	143	30	31	23	21	26	29	16	15	19	15	13	19	21	23	21	21	23	18	7	8	10	4	4	4	135	143	143
37	Teak	*Tectona grandis*	52	16	18	14	8	7	7	1	3	7	3	3	3	5	5	5	8	7	5	7	8	10	1	1	1	49	52	52
38	Tendu	*Diospyros melanoxylon*	110	35	37	31	25	26	25	16	18	20	10	10	17	12	14	12	3	2	2	2	3	3				103	110	110
		Total	**1244**	**294**	**288**	**221**	**223**	**242**	**239**	**173**	**190**	**204**	**123**	**130**	**210**	**142**	**154**	**142**	**111**	**115**	**80**	**80**	**85**	**103**	**37**	**39**	**45**	**1183**	**1243**	**1244**

13. 261 households were promoted to construct the Vermicompost units to encourage use of organic manure in agriculture. 101 units were set up in tribal households in villages of Hoshangabad. In villages of Budhni 80 units were constructed 07 at households of ST community and 68 at other (SC/OBC) communities. Similarly, 80 units were setup in the villages of Bhaura range North Betul, where 62 units were constructed at tribal households and 18 units at other (SC/OBC) communities.

14. Production of Vermicompost created additional economic benefit to the households by selling surplus produce of vermicompost to forest department for plantation sites or to the other villagers or in the market.

Figure Production of Vermicompost

7 GIM SUBMISSION/ INTERVENTION : PROMOTING ALTERNATIVE FUEL ENERGY

Various alternative fuel energy devices were distributed in 14 GIM (S. Balaghat, W. Betul, N. Betul, Obaidullaganj, Raisen, S. Panna, Sheopur, Hoshangabad,S.Sagar, S.Seoni, Jhabua, Barwani, Sendhwa, Satna) divisions. Division wise progress of alternate fuel devices is given below-

Table 15 – Division wise Alternative Energy Saving Devices distributed to the beneficiaries

	Type of Energy Saving Devices						
Division	Solar Cooker	Pressure Cooker	Solar Lamtern	Bio digestor /Community Biogas	Biomass based cook stove	Electric Induction	Total
Satna	19						19
Umaria							0
South Balaghat	176						176
Hoshangabad				1			1
South Seoni		275					275
North Betul		300				300	600
West Betul		375	114				489
Raisen	140						140
Obaidullaganj		485				483	968
Sehore							0
Dhar							0
Jhabua		123					123
Barwani		493					493
Sendhwa	68						68
South Sagar			30	17	333	112	492
South Panna		600					600
Sheopur		174					174
Shivpuri							0
Total	403	2,825	144	18	333	895	4618

Total cumulative achievement under this submission is 4618 households against 1879 households with an expenditure of Rs. 85.84 lakh. Total physical achievement percent is 56.46% and financial achievement percent is 28.01%.

Vermi biodigester (Biogas),
Village Sironja - S. Sagar divison

Biomassbased cookstove
Village Chandanpura – S. Sagar

Pressure Cooker
Village Magarda- S. Panna

Electric Induction cook stove-
Village Mudha – N. Betul

BOX-3
Promoting Alternative Fuel Energy

Mrs. Shivwati Dhurvey, from village Mudha, Range Shanpur, North Betul division was cooking food on traditional fuel wood chullha for her family. she required around 30-40 bundles of fuel wood every month. Besides fuel wood she was using LPG gas cook stove as well, for which the cylinder was refilled twice a year. Is is very glad after receiving Electric Induction and its utensils with electric connection for the same under GIM.

Shivwati expresses her happiness saying "mere priwar ka 100 rupye bijli ke bill me he pore mhine ka khana bn jata hai aur bartn saf kerne me bhi phle se kum smy lgta hai"

This saved her lot of time and energy spent on fuel wood collection, cleaning of pots-pans and also relieved from the smoke.

8 SUCCESS STORIES COMPONENT B- FOR SUPPORT ACTIVITIES UNDER GIM

8.1 Research

Research Projects on Biodiversity Assessment, Surveys, Ecosystem service valuation etc. are the research activities carried out by Barwani, Shivpuri, Dhar, Satna divisions and IIFM, MPSBB and PPSU. Total financial achievement is 202.62 lakhs (80.10%) against 252.96 lakhs.

Table 15 – Division wise Alternative Energy Saving Devices distributed to the beneficiaries

Research Project	High Density Plantations
Beat/Range/Division	Sironja/Sagar/South Sagar
Compartment no./ Ara in ha.	RF 734, 96 ha.
Species	Neem, Seesam,
Year of plantation	2019

Research Project	Developing Monitoring Framework for Hydrological Services of GIM Landscape
Landscape selected	Dhar, Sehore, S. Balaghat, Satna
Duration	April, 2019 to April 2021
Agency	IIFM, Bhopal
Project Cost in lakh Rs.	20.00

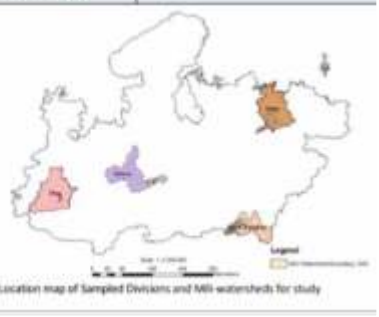


Fig. 1: Location map of Sampled Divisions and MRI watersheds for study

8.2(a) Publicity/Media/outreach activities under Green India Mission

Display Boards, Flyers, Flex, display stands, Press Release etc. was carried out for publicity of GIM activities in all 18 divisions including GIM head office. Total financial achievement is 43.66 lakhs (72.75%) against 60.11 lakhs.

8.2 (b) Documentation and Publicity Material under ESIP (subcomponent 1.6.4)

Various documentation and publicity material has been prepared as success stories of landscape transformation, awareness posters, slogan writing on walls of villages to make the beneficiaries aware was also undertaken in all the three divisions North Betul, Hoshangabad, and Sehore.

8.3 (a)Strengthening local-level Institutions under Green India Mission

Capacity Building/ Awareness generation/ Exposure Visits were carried out in all 18 divisions Rs. 54.85 (18.23%) lakhs financial target was achieved against Rs. 300.81 lakh.

Type of activity	Exposure Visit -Betul, Hoshangabad, Sehore
Participants	JFMC members-222, FD Staff- 58
Place	**Dundishikhar, Chhindwara, BCRLI project MPFD**
Best Practices showcase	• Forest Management by local communities • Landscape Planning by locals • Livelihood opportunities for local communities

Type of activity	Exposure Visit - Betul, Hoshangabad
Participants	JFMC members-98, FD Staff- 15
Place	**Ralegan Siddhi, Hivere Bazar, Maharastra**
Best Practices showcase	• Meeting with Shri. Anna Hazare (motivational speak – Liquor & tobacco rehabilitation) • Organic Farming/ community managed rainwater harvesting & water conservation

8.3 (b) Strengthening local-level Institutions under ESIP

1.6.1 Village level awareness workshop for ESIP

i. During project inception it was important to have village level awareness workshops for the rural stakeholders to make them aware about the project objectives and activities and their role in project implementation. However, this has to be a constant process to keep the project beneficiaries in line with the activities.

i. Across three divisions a target of 137 awareness workshops was approved out of which 65 workshops were proposed under APO 2020-21. Total awareness workshops organized were 35 under 3 APOs, no workshops were carried outunder APO 2020-21 because of COVID-19 pandemic.

1.6.2 Range level workshop for villagers and range staff under ESIP

1.6.3 Division level workshop for officers, line departments, JFMC members and field staff under ESIP

i. A two-day reach-out workshop with two-day field visit of the landscape was organized at Pachmarhi, Madhya Pradesh during 22-24 August 2018 to facilitate the ESIP (Ecosystem Services Improvement Project), to facilitate the Mission for a Green India. The workshop was attended by the representative of Madhya Pradesh State Government Departments (Forest, Agriculture, Fisheries, Horticulture, State Bamboo Mission, State Planning Commission, MFP Federation, Sericulture and Animal Husbandry etc.), the World Bank, Forest Survey of India, TFRI, Jabalpur, IIFM, Bhopal and ICFRE, Dehradun, and the villagers of the selected landscapes.

ii. Nine division level, 22 Range level workshops were carried out to sensitize the stakeholders about the project objectives and to make strategies to achieve them. A total number of 5961 JFMCs member's and 553 government functionaries participated in various workshops.

8.4 (a) Strengthening FDs under Green India Mission

Various capacity building/ training was organized to build the capacities of forest department staff. Forest department officials including front line foresters from all 18 divisions participated in various capacity building activities under GIM.

8.4 (b) Strengthening FDs under ESIP

ESIP COMPONENT – 1
STRENGTHENING CAPACITY OF GOVERNMENT INSTITUTIONS IN FORESTRY AND LAND MANAGEMENT PROGRAMS

i. Staff training in use of GIS systems, Madhya Pradesh Forest Department I.T. Wing provided training to build the capacity of the staff for disseminating the concepts of GIS by developing basic understanding of GIS and hands-on practice for collection of GIS data as per the project need. Total 39 trainings were conducted; 540 forest department field staff participated.

ii. 72 Advanced GNSS handsets procured & issued to the 18 GIM forest divisions. I.T. Wing imparted and completed orientation training of all the forest divisions between 15th July – 9th August 2019. Refresher training for the field functionaries was conducted for 18 GIM divisions between 7th September to 10th December 2020.

iii. As hardware support, a workstation has been procured for the GIS Specialist, M.P. SPIU in February 2019. Also, new activities created and submitted on STEP on 1st March 2019 to procure GIS & Remote Sensing software for the GIS Specialist. The software's procurement has been made in July/August 2019. Each software estimated cost is about Rs. 20.00 Lakh. GIS and remote sensing work are being carried out with the software's to prepare the project site specific, carbon measurement stratification in each forest division.

iv. The GIS/GPS training manual was developed and published. It was distributed to the field functionaries of GIM and ESIP divisions, so that they can use it for further reference, if they face any difficulty in collecting field data using GPS devices and uploading information on an online portal. The same manual is also available on MPFD web portal with free access. https://mpforest.gov.in/HO_Outer/Wing_GIM_Detail.aspx

v. For developing carbon measurement and monitoring system: ICFRE, Dehradun team carried out the training of the field officials/staff for the carbon sequestration & measurement exercise in June 2019 and February 2021. The training was carried out in the three Divisions of North Betul, Sehore and Hoshangabad, about 130 field level staff were trained, 44 in June, 2019 and 86 in Feb '2021. The report was received from ICFRE, Dehradun for carbon measurement of ESIP divisions.

vi. A training was held in FSI, Dehradun from 30th January to 1st February 2019 on techniques of carbon measurement. SPIU MP coordinated with PCCF, Working Plan for sending officers along with officials of ESIP units for the training. 30 officials from the state forest department participated in the three-day programme in Dehradun. The training was organized at Forest Survey of India (FSI), Dehradun with an objective to help Madhya Pradesh team understand Carbon measurement techniques.

The training began with a brief round of introduction followed by the documentary on Forest Survey of India for an orientation of the institute. Followed by a detailed presentation by the Director General of the Institute. The training was divided into various sessions to make the participants understand the basic concept of carbon measurement and its techniques.

DG, FSI explained the IPCC framework for forest carbon assessment. He explained the two accounting paradigms for forest carbon assessment – stock difference approach and gain – loss approach, both the approaches were discussed in detail during the training. Discussions were held on forest cover mapping which was explained further in the laboratory session. Smt Meenakshi Joshi, Joint director forest geoinformatics division, FSI helped us understand the concept of forest cover and type mapping. She briefly explained the various divisions under forest geoinformatics.

The second day of training started with a detailed presentation of APCCF, Green India Mission on objectives, vision and submissions of GIM. Dr. Subrata Nandi, Scientist (Forestry and Ecology department) explained the use of high-resolution satellite data in assessment of carbon stocks and image-based analysis which helps in the carbon stock mapping.

Day three last session was on the field exercise protocols developed by ICFRE for carbon assessment. FSI team discussed that the sample size according to the landscape area is too low and should be reconsidered. Also, the participating team proposed ICFRE consultant to consider the entire landscape rather than considering only the forest cover area. The sampling technique of collecting litter and herbs was a little different than explained by FSI. The 1x1 m plot and 3x3 m plot is marked inside the plot area of 0.01 hectares for sampling whereas these plots are marked outside the sampling plot area by FSI. The three days training program ended with a feedback session followed by valedictory of all the participants.

8.5(a) Livelihood Improvement Activities under GIM

Skill development/trainings for livelihood was carried out for the rural community of GIM landscapes. Various type of skill enhancement training program was organized for the rural youth which resulted in increased income. Total 4027 persons trained / developed skills out of which 3479 persons were employed either by self-employment or getting a job. An expenditure of Rs. 378.16 (24.23%) lakhs were done against the financial target of Rs. 1560.80 lakh.

Under forestry-based livelihood activities 1567 persons were provided with different livelihood activities by enhancing their skills.

Table 16 (a) – Forest Based Livelihood Improvement Activities

S.No	Livelihood/Skill Development activities	Expenditure in Rs.	No. of Person trained	No. of Person Employed	Divisions
1	**Mahua collection using nets**	18,90,957	626	626	Hoshangabad, Satna, Sehore, N. Betul, W. Betul
2	**Bee Keeping & Honey Collection**	10,79,400	248	248	Hoshangabad, Umaria, S. Panna, Sheopur, Shivpuri
3	**Vermicompost**	40,31,357	410	410	N. Betul, Hoshangabad, Raisedn, S. Balaghat, Satna, Umaria, S. Panna, Shivpuri, Sehore
4	**Agarbatti Making**	13,22,281	65	65	Satna, Sheopur
5	**Bamboo crafts**	7,00,000	60	60	Satna
6	**Mushroom cultivation**	75,000	108	108	Hoshangabad, Umaria, West Betul
7	**Herbal colour making**	72,281	30	30	Sheopur
8	**Lac article making**	2,00,000	20	20	S. Balaghat
	Grand Total	**93,71,276**	**1,567**	**1,567**	

Component B- Livelihood Improvement Activities
Skill Development – Mushroom Cultivation

Persons trained	108
Project Cost	Rs. 75000/-
Person Employed	108
Employment type	Self Employment
Average Income	Rs. 20000-25000/- per Crop (100 bags)

Component B- Livelihood Improvement Activities
Skill Development – Lac Article Making

Persons trained	20
Project Cost	Rs. 2,00,000/-
Person Employed	20
Employment type	Self Employment
Average Income	Rs. 1500-2000/- per month

8.5(b) Livelihood Improvement Activities under ESIP

COMPONENT – 2.2
DEVELOPING COMMUNITY BASED MODEL FOR SUSTAINABLE UTILIZATION OF NTFPS

2.2.1 Mahua collection & value addition/ Duna pattal Manufacturing/ Promotion of Sericulture/Horticulture

2.2.2 Mushroom Cultivation/Livelihood Activities

2.2.3 Other MFP collection (Apiculture) and value addition Activities

Activities like training for Mahua value addition/processing, honey collection, MFP collection & value addition. Identification of livelihood interventions and beneficiaries screening with support of district units of State Rural Livelihood Mission in each division being carried out. The households were identified according to socio economic caste census (SECC data) based upon deprivation indicators. The 2019 households were trained in various forestry-based livelihood activities i.e. Mahua collection using net, Mushroom Production, and Honey collection/Apiculture etc. 87% identified households were from tribal communities.

Table: 16 (b) Details of Beneficiaries across Forest Based Livelihood Activities

Activities	Beneficiaries						
	Male	Female	Total	SC	ST	OBC	GEN
Bee Keeping/Honey Collection	28	0	28	28	0	0	0
Mahua Collection and Net Distribution	831	945	1776	1534	108	82	52
Sericulture	27	8	35	32	3	0	0
Mushroom Cultivation	87	123	210	198	0	0	10
Grand Total	**973**	**1076**	**2049**	**1792**	**111**	**82**	**62**
						Percentage of female beneficiaries	**53 %**
						Percentage of ST beneficiaries	**87.45 %**
						Percentage of other vulnerable communities (SC/OBCs)	**9.41 %**

i. To improve the traditional practice of Mahua flower collection, Mahua nets were distributed to the households (N. Betul-288, Hoshangabad-735, Sehore-675) of ESIP villages.

ii. The result of distribution of mahua nets has improved numerous tribal lives of the ESIP landscapes. The collection efficiency has also increased after the introduction of mahua nets. Earlier a person was able to collect a maximum 75 % of mahua flowers from one tree per day. 25% of the flower was lost due to contamination and or eaten by small insects / domestic animals. The quality of the collected flower significantly improved in terms of colour, shine and nutrient value which resulted in getting a hike in the sale price of about INR 15-25 /- per kg on the declared MSP of year 2021.

iii. The incidences of forest fires have significantly reduced after the use of Mahua nets in the ESIP forest areas.

iv. Mushroom cultivation is playing a vital role in making the rural community's livelihood stronger in the villages of N. Betul and Hoshangabad landscapes. As mushrooms are fast growing and do notneed much investment. The Cost of cultivation for one bag is around INR 50/- (spawn, pulses, grind, polythene etc.), the net return is INR 150 per bag. Total 102 households from three villages Koylari, Kuppa and Handipani, Bhoura range, N. Betul division and 98 households from villages Kesla (Bhumkapura), Lalpani, Pipariya, Bhatna, Ranjhi, Nayagaon, Pipalgota of Hoshangabad division. Average income per household with 100 bags production come to 15,000-20,000 per crop.

Laxmi Ramsingh Chauhan,
Village- Handipani,
Range- Bhoura,
Division- N. Betul

The diversified livelihood activities were planned as per the need of the rural youth. A need assessment was carried out and rural youth were mobilized to participate in the skill development activities. The trainings were provided by NSDC partner NGOs and post training assessment was made by NSQF accredited agencies. Total 2,460 persons were trained in different trades with an objective that the rural youth to generate income for their livelihood. Out of 2460 persons 1912 persons were employed.

Table 17 (a) – Diversified Livelihood Improvement Activities (Non forest based)

S.No	Livelihood/Skill Development activities	Expenditure in Rs.	No. of Person trained	No. of Person Employed	Divisions
1	**Sewing & Tailoring**	17,71,752	1018	1018	N. Betul, W. Betul, Hoshangabad, Jhabua, Obaidullaganj, Raisen, Sendhwa, S. Balaghat, Umaria, S. Panna, S. Sagar, Sehore, S. Seoni
2	**Computer**	4,02,600	151	135	N.Betul, W. Betul, Hoshangabad, Jhabua, Raisen, Sendhwa
3	**Dona Pattal making (Paper)**	4,68,700	68	62	S. Sagar, Sehore
4	**Sanitary Napkin making**	2,74,843	12	12	N. Betul
5	**Pisi-culture (fish farming)**	1,00,000	201	201	S. Seoni, Satna, Sehore, N. Betul, W. Betul
6	**Poultry**	9,000	117	57	Hoshangabad, S. Seoni, Umaria, Sehore
7	**Light motor vehicle driving**	6,77,600	77	77	Jhabua, Sehore, N. Betul, Barwani
8	**Security Guard (Unarmed)**	17,65,000	208	188	N. Betul, Sehore, Barwani, Sendhwa
9	**Electrician & motor winding (Assistant Electrician)**	10,20,000	102	89	N. Betul, W. Betul, Hoshangabad, Barwani, S. Balaghat
10	**Other Skill development activities (Beauty Parlour/ Soft toy making/ Embroidery/ Soap making/ Mason training)**	4,84,155	506	73	Dhar, S. Panna
	Total	**69,73,650**	**2460**	**1912**	

1.6.6 Skill Development Activities for youth

i. Demand driven Skill development trainings were organized regularly for village youth from ESIP landscapes to introduce them to diversified avenues of livelihoods. These diversified livelihood activities were mostly demand driven and women-oriented activities were given utmost preference.

Table: 17 (b) Diversified livelihood activities and beneficiary details

Activities	Beneficiaries						
	Male	Female	Total	SC	ST	OBC	GEN
Donapattal Making (Paper)	0	10	10	10	0	0	0
Poultry	110	260	370	272	54	5	39
Dairy Farming	258	22	280	142	37	77	24
Fish Farming	69	60	129	124	0	0	5
Light Motor Driving	5	0	5	3	2	0	0
Tailoring	0	231	231	148	38	34	11
Security guard	21	0	21	6	1	14	0
Computer Training	32	30	62	39	23	0	0
Sanitary Unit	0	12	12	12	0	0	0
Electrician & Motor Winding	30	3	33	33	0	0	0
Grand Total	**525**	**628**	**1153**	**789**	**155**	**130**	**79**
Percentage of female beneficiaries							**54 %**
Percentage of ST beneficiaries							**68 %**
Percentage of other vulnerable communities (SC/OBCs)							**25 %**

Industrial training was also followed up in collaboration with institutes like CII, Ashok Leyland and ATDC Local NGOs registered under NITI Aayog and NHDC partners have also been continuously involved in imparting these trainings to the rural youth. Over 1153 beneficiaries including 54% women have received various training in the three landscapes.

BOX-4

Livelihood initiatives of GIM helps SHGs emerge as key player during Covid19 lockdown

Under GIM skill development activity 1018 women trained for stitching and tailoring from 4 landscapes and 10 forest divisions, initiated the making of cotton masks during COVID-19 first county wide lockdown. The support and motivation of forest department field staff has encouraged them to come forward in this crucial situation and join hands to meet the demand of cotton face masks not only at local level but also ensures supply to other forest divisions (staff working in the field, labour working for plantation work, villagers going for Mahua collection and Chowkidars going for forest protection work) and other government functionaries.

The mask making activity was taken up by the women entrepreneurs very enthusiastically. Total investments in the raw material was approximately Rs.13,83,012 considering an average production of 2,03,765 masks. The cost of making one mask varied from one division to another btecause of the raw material cost varied from place to place which resulted into various manufacturing costs from INR 7 to 17. The sale proceeds earned was Rs. 6,47,024. The economic livelihood benefit to one-woman entrepreneur came up to an average income of Rs. 2,742 in 20-25 days' time.

The approach was unique in itself as the involvement of the SHG members in the process was not just a token but there was active participation in the whole process of making masks. This is more creditable as they had other commitments like household work and other forest-based livelihood activities like Mahua collection. Some women just worked for a short period to earn some cash for the family needs.This is a positive indicator of women empowerment as they have started planning for things beyond just the basic minimum need of a household. The form of direct income support provides short-term relief to mitigate acute financial strains and stimulates consumption during an economic downturn to the lower income households.

Component B- Livelihood Improvement Activities
Skill Development – Electrician & Motor Winding Trng

National Skills Qualifications Framework (NSQF Course)	Helper/ Assistant Electrician CON/ Q601
Persons trained	102
Project Cost	Rs. 10,20,000/-
Person Employed	89
Employment type	Self Employment and Jobs
Average Income	Salary Rs. 8000-10000 /- pm , own business Rs. 2500-3000 /- pm
Employment Opportunities	i. Panchayat under Pradhan Mantri Aawas Yojana ii. Local NGOs- Assistant Trainer, Monthly salary- Rs.6000/- iii. Industries – Vardhman Fabric Budhni- 2 trainees, Stipend Rs. 7018/- pm can be revised to Rs. 10.450/- after six months.

Component B- Livelihood Improvement Activities
Skill Development - Sewing & Tailoring

National Skills Qualifications Framework (NSQF Course)	Apparel made-up and home furnishing sector AMH/Q0301
Persons trained	1018
Project Cost	Rs. 17,71,752 /-
Person Employed	1018
Employment type	Self Employment and Jobs
Average Income	Rs. 3000-4000 /- per month
Placement	18 , Shahi Export Pvt Ltd, Bengaluru Salary - **9000/-** per month (West Betul and South Seoni)

8.6 Innovative Works done under ESIP

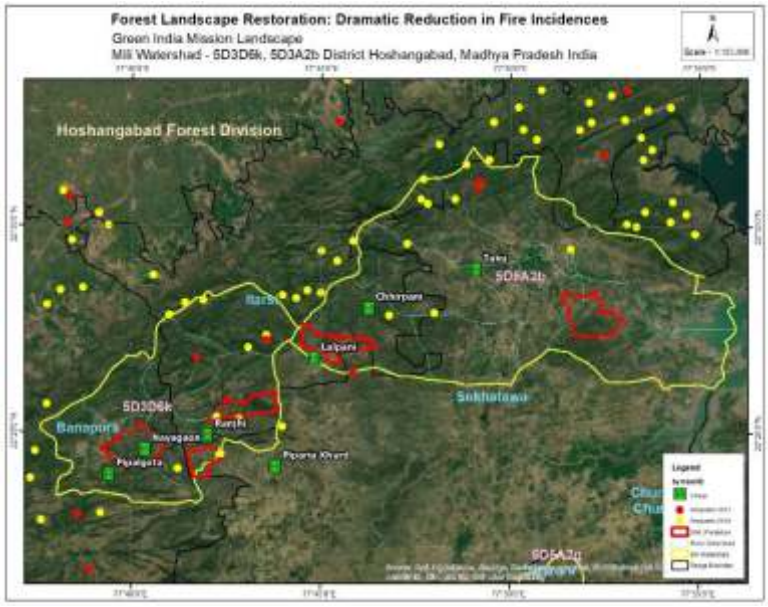
i. COVID-19 Pandemic Livelihood Initiative:

During the medical and health emergency situation of COVID-19, the women trained (SHGs/JFMCs) for stitching and tailoring from the three landscapes initiated the activity of mask making to address the issue of acute shortage of masks for the village communities and PPE kits for the health workers and the other law enforcing agencies. These masks were made of cotton cloth keeping it double layer with elastic or cotton loop to tie. Total 1,07,160 masks and 90 PPE kits were produced by 13 SHGs, 123 women from ESIP. The average income generated by the women of ESIP villages during pandemic time was INR 9,583/-.

ii. Mahua Net a tool to combat Forest Fire:

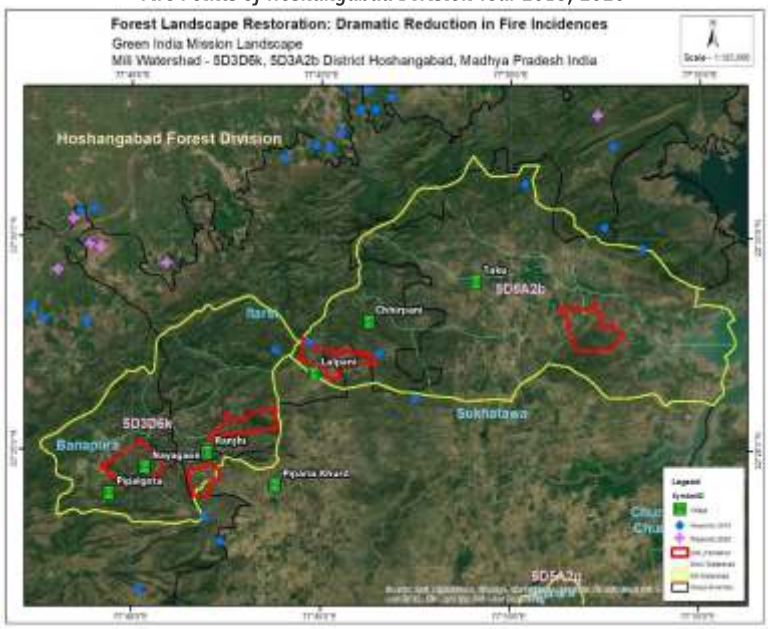
Forest fires have been a major cause of degradation of forests. Besides directly damaging the forest trees, the fire also adversely affects forest regeneration, microclimate, causes soil erosion, and wild life etc.Earlier forest fires were rampant in the whole of the landscape and the surrounding areas. However, as we can see from the fire map of the landscape for the period 2017 to 2020. As the project started in the year 2018, the fire points from the landscape kept diminishing and by 2020 the fire points as reported by the Forest Survey of India have become negligible in the landscape. There are many factors leading to this phenomenon one of the prominent features being the usage of Mahua net by the villages.

The incidences of forest fires have significantly reduced after the use of Mahua nets by the community members. The data of fire incidences reported in last 4 years with in ESIP treated areas are; 2017 (zero), 2018 (4) 2019 (5) and 2020 (zero)respectively. Google earth images with fire points plotted for the years 2017 to 2020 shows significant reduction in fire incidences in the year2020 as compared to 2018 and 2019 in the landscape being treated under ESIP.



Fire Points of Hoshangabad Division Year 2017, 2018

Fire Points of Hoshangabad Division Year 2019, 2020



Conclusion:

Therefore, introduction of nets for collection of Mahua flowers turned out to be a transformative investment and has significantly impacted the -

1. Income of 348 households of Hoshangabad landscape, from INR 25,65,000 to 57,15,350/- in two years from 2018 to 2020.
2. Improvement in quality of mahua flowers.
3. Increase in natural regeneration and growing stock.
4. Reduction in number of fires incidents from year 2018 to 2020.
5. This can be thought of as a tool of forest protection in forest landscape.

iii. Monitoring of regeneration through plantation monitoring system.

Table: 11 Details of plant per ha. calculated from regeneration survey with % change

S No.	Division	No. of Site	Area under treatment	Year of Plantation	Regeneration plant per hac.			% Changes of Regeneration
					Baseline (Y0)	First Year (Y1)	First Year (Y2)	
1	Hoshangabad	3	600	2019	963.55	1357.19	1726.45	59.97
		3	600	2020	1128.10	1409.33		5.85
2	North Betul	4	179	2019	302.62	763.27	922.41	24.93
		7	695	2020	579.55	1258.53		178.51
3	Sehore	10	300	2019	1038.36	994.66	1114.76	117.16
		1	50	2020	2160.71			1.58
		28	2424		1028.82	1156.59	1254.54	17.18

Division - Hoshangabad (Per Hac. Plant Regenerated)

2.1.3 Investments in restoration works on degraded forestlands

Circle/Division	Range	Compt. / Village	Plantation ID	Year of Plantation	Area (Hac)	No. of Plants	Regeneration Plant Per Hac		
							Baseline (Y0)	1st Year (Y1)	2nd Year (Y2)
Hoshangabad / Hoshangabad	Banapura	4 RF	106350	2019	300	90200	855.77	1183.93	1980.36
	Itars	165 RF	106390		200	15293	1009.87	1802.63	1914.00
	Sukhatawa	32 PF	106395		100	25000	1025.00	1285.00	1285.00
	Total				600	130293			
	Banapura	437 RF	109062	2020	300	75300	646.67	1210.00	
	Itars	160 RF	109028		150	21920	1087.00	1340.00	
	Sukhatawa	32 PF	109061		150	21500	1550.64	1878.00	
	Total				600	118420			
	Grand Total				1200	248713			

S.No.	Circle	Division	Range	Comp No.	Plantation ID	Scheme	Plantation Year	Area hac	No of Grids	Natural regeneration status at baseline year Y0				Natural regeneration status in year 1 of treatment Y1				Natural regeneration status in year 1 of treatment Y2			
										Negligible	Inadequate	Adequate	Profuse	Negligible	Inadequate	Adequate	Profuse	Negligible	Inadequate	Adequate	Profuse
1	Hoshangabad	Hoshangabad	Banapura	4 RF	106350	ESIP	2019	300	70	35	21	10	4	30	19	14	7	3	22	28	17
2	Hoshangabad	Hoshangabad	Itarsi	165, 166 RF	106390	ESIP	2019	200	38	18	15	2	3	15	8	5	10	8	6	15	9
3	Hoshangabad	Hoshangabad	Sukhatawa	32 PF	106395	ESIP	2019	100	25	14	5	1	3	8	13	2	2	9	9	3	4
							Total Regeneration 2019	600	133	65	41	15	12	53	40	21	19	20	37	46	30
							Percent of area naturally regenerating			20.30				30.08				57.14			
4	Hoshangabad	Hoshangabad	Banapura	437 RF	109062	ESIP	2020	300	75	37	33	4	1	21	39	14	1				
5	Hoshangabad	Hoshangabad	Itarsi	160 RF	109028	ESIP	2020	150	39	7	27	5	0	5	18	16	0				
6	Hoshangabad	Hoshangabad	Sukhatawa	32 PF	109061	ESIP	2020	150	39	8	20	4	7	7	20	4	8				
							Total Regeneration 2020	600	153	52	80	13	8	33	77	34	9				
							Percent of area naturally regenerating			13.73				28.10							

Data will be collected by Oct-2021

- Above 2501-Profuse
- 1501 to 2500-Adequate
- 501 to 1500-Inadequate
- Less then 500-Negligible

Natural Regeneration = Unestablished+Established/Total No of Grids*100

Division - North Betul (Per Hac. Plant Regenerated)

2.1.3 Investments in restoration works on degraded forestlands

Circle/Division	Range	Compt / Village	Plantation ID	Year of Plantation	Area (Hac)	No. of Plants	Regeneration Plant Per Hac		
							Baseline (Y0)	1st Year (Y1)	2nd Year (Y2)
Betul / North Betul	Bhoura	391 PF	105004	2019	75	75000	301.47	901.65	1088.24
		131 RF	105307		50	20000	287.50	612.50	850.00
		389 PF	105308		25	25000	527.78	916.67	1013.89
		400 PF	105309		29	5800	93.75	531.25	937.50
	Total				179	125800			
	Bhoura	181 RF	108695	2020	130	10000	299	950.00	Data will be collected by Oct-2021
		128 RF	108696		125	9000	690.00	915.00	
		166 &167 RF	108697		135	17000	868.64	1678.03	
		130 RF	108698		125	11500	221.00	595.00	
		159 RF	108699		50	40000	204.55	1395.45	
		163 RF	108701		80	35000	775.00	1018.75	
		391 PF	109055		50	50000	364.58	1385.42	
	Total				695	146200			
	Grand Total				874	272000			

S.No.	Circle	Division	Range	Comp No.	Plantation ID	Scheme	Plantation Year	Area Hac	No of Grids	Natural regeneration status at baseline year Y0				Natural regeneration status in year 1 of treatment Y1				Natural regeneration status in year 1 of treatment Y2			
										Negligible	Inadequate	Adequate	Profuse	Negligible	Inadequate	Adequate	Profuse	Negligible	Inadequate	Adequate	Profuse
1	Betul	North Betul	Bhaura	391 PF	105004	ESIP	2019	75	17	13	4	0	0	3	11	3	0	10	2	3	2
2	Betul	North Betul	Bhaura	131 RF	105307	ESIP		50	10	7	3	0	0	5	5	0	0	5	5	0	0
3	Betul	North Betul	Bhaura	389 PF	105308	ESIP		25	9	2	7	0	0	4	5	0	0	3	5	1	0
4	Betul	North Betul	Bhaura	400 PF	105309	ESIP		29	4	4	0	0	0	2	2	0	0	1	2	1	0
Total Regeneration 2019								179	40	26	14	0	0	14	23	3	0	19	14	5	2
Percent of area naturally regenerating										0				7.50				17.50			
5	Betul	North Betul	Bhaura	181 RF	108695	ESIP	2020	130	25	18	7	0	0	3	19	3	0	Data will be collected by Oct-2021			
6	Betul	North Betul	Bhaura	128 RF	108696	ESIP		125	25	12	9	3	1	12	9	3	1				
7	Betul	North Betul	Bhaura	166 RF	108697	ESIP		135	33	12	15	6	0	9	7	8	9				
8	Betul	North Betul	Bhaura	130 RF	108698	ESIP		125	25	21	4	0	0	15	10	0	0				
9	Betul	North Betul	Bhaura	159 RF	108699	ESIP		50	11	10	0	1	0	4	2	3	2				
10	Betul	North Betul	Bhaura	163 RF	108701	ESIP		80	20	8	11	1	0	7	8	3	2				
11	Betul	North Betul	Bhaura	391 PF	109055	ESIP		50	12	8	4	0	0	4	3	3	2				
Total Regeneration 2020								695	151	89	50	11	1	54	58	23	16				
Percent of area naturally regenerating										7.95				25.83							

Division - Sehore (Per Hac. Plant Regenerated)

2.1.3 Investments in restoration works on degraded forestlands

Circle/Division	Range	Compt / Village	Plantation ID	Year of Plantation	Area (Hac)	No. of Plants	Regeneration Plant Per Hac		
							Baseline (Y0)	1st Year (Y1)	2nd Year (Y2)
Bhopal / Sehore	Budhni	651 PF	106747	2019	50	31250	250.00	517.71	617.65
		652 PF	106745		30	18750	375.00	520.83	468.75
		646 PF	106748		30	18750	2875.00	1500.00	1333.33
		651 PF	106749		30	18750	210.94	458.75	393.44
		661 RF	106751		30	18750	1604.17	1354.17	750.00
		647 PF	106754		35	21875	479.17	1041.67	937.50
		648 PF	106757		25	15625	1437.50	1500.00	1812.50
		654 PF	106758		25	15625	750.00	975.00	700.00
		650 PF	106760		25	15625	214.29	446.43	535.71
		645 PF	106709		20	12500	2187.50	1625.00	3093.75
					300	187500			

S.No.	Circle	Division	Range	Compt No.	Plantation ID	Scheme	Plantation Year	Area Hac	No of Grids	Natural regeneration status at baseline year Y0				Natural regeneration status in year 1 of treatment Y1				Natural regeneration status in year 1 of treatment Y2			
										Negligible	Inadequate	Adequate	Profuse	Negligible	Inadequate	Adequate	Profuse	Negligible	Inadequate	Adequate	Profuse
1	Bhopal	Sehore	Budhni	651 PF	106744	ESIP	2019	50	17	13	4	0	0	11	5	1	0	11	4	2	0
2	Bhopal	Sehore	Budhni	652 PF	106745	ESIP		30	12	9	3	0	0	7	4	1	0	7	5	0	0
3	Bhopal	Sehore	Budhni	646 PF	106748	ESIP		30	6	1	3	0	2	0	4	2	0	2	2	0	2
4	Bhopal	Sehore	Budhni	651 PF	106749	ESIP		30	16	13	3	0	0	11	4	1	0	13	1	2	0
5	Bhopal	Sehore	Budhni	661 RF	106751	ESIP		30	6	2	2	0	2	2	3	0	1	4	1	0	1
6	Bhopal	Sehore	Budhni	647 PF	106754	ESIP		35	6	3	3	0	0	3	2	0	1	2	4	0	0
7	Bhopal	Sehore	Budhni	648 PF	106757	ESIP		25	8	2	2	1	1	3	1	1	1	0	2	5	1
8	Bhopal	Sehore	Budhni	654 PF	106758	ESIP		25	5	2	2	1	0	1	2	2	0	2	2	1	0
9	Bhopal	Sehore	Budhni	650 PF	106760	ESIP		25	7	7	0	0	0	4	3	0	0	4	3	0	0
10	Bhopal	Sehore	Budhni	645 PF	106709	ESIP		20	4	0	1	2	1	0	1	3	0	0	0	1	3
Total Regeneration 2019								300	87	52	23	6	6	42	29	13	3	45	24	11	7
Percent of area naturally regenerating										13.79				18.39				20.69			

Natural Regeneration = Unestablished+Established/Total No of Grids*100

8.8 ENVIRONMENTAL & SOCIAL SAFEGUARDS (ESMF)

1. All key livelihood interventions and employment opportunities created in the ESIP landscapes were monitored considering the social indicators of "Environmental and Social Management Framework (ESMF)" and an Environmental and Social Management Framework Implementation Status Report from project inception to December 2020 has been prepared and submitted.

2. Complaint redressal :

   - The State Level at PIU MP and District Level Grievance Redressal Committee has been constituted in all three divisions of ESIP landscapes.

   - A complaint has been registered by villagers of Koyalbuddi, Panchayat Kachhar, range Bhoura, N. Betul division regarding the Pond Deeping activity carried out under SLEM best practices by ICFRE, Dehradun.

   - The complaint was registered by the villagers to Kachhar Panchayat on 22nd January 2021, that the machines and tractor of the local villagers can be used to implement the work, so that the villagers could get the benefit of income out of it.

   - The complaint was resolved by Panchayat Level Grievance Redressal Committee (Kachhar Panchayat) had a meeting with the villagers of Koyalbuddi and on 25th January 2021 issued a letter of "No Objection" to the District Grievance committee.

   - The action taken report submitted by District Grievance committee, North Betul on 5th July 2021 to SPIU, MP, that the SLEM activity of Pond Deepening at Koyallbuddi has been completed and Panchayat has resolved the complaint.

9 (a) GIM RESULTS FRAMEWORK: BENCHMARKING

Table 19 (a)- GIM Implementation Guidelines-Results Framework based progress in the state (progress as on 31 March 2021)

S.No	Expected Results	Indicator	Data Source / Method	Progress
1	**Forest/tree cover on forest/non-forest lands is enhanced**	% area with forest cover	Forest survey Remote sensing and ground trothing	196 KML files out of 240 plantations, sites covering an area of 15,850 ha. uploaded in Plantation Monitoring portal.
		% area in various density class		
2	**Quality of Forest Cover and Ecosystem Services of Forest/ Non-Forest is Improved**			
	a. Moderately dense (1.5 mha.)	a1. % of forest naturally regenerated	Data from permanent plots	**Survey for 192 sites done as per MPFD guideline. Forest Naturally regenerated- 9750 ha. Mission achievement - 6.83 % APO Cumulative achievement - 99.91%**
		a2. Shannon Weiner Index	Data from permanent plots	H= 3.048 to 3.287 Range- Unchera Division- Satna
		a3. Carbon Sequestered	Data from permanent plots	Estimated Carbon Seq 77.71 t/ha. (FSI, report, 2019) Carbon measurement training by FSI & ICFRE to 18 GIM divisions. More than 100 field officers/staff trained.
		a4. Above ground biomass	Data from permanent plots	
	b. Open Forest (3.0 mha.)	b1. % of forest naturally regenerated	Data from permanent plots	6,578 ha. (6.99 %) naturally regenerated (against mission target 93,124ha.) 6,578 ha. (95.09%) naturally regenerated (against last 3 years target 6,858 ha.)
		b2. Shannon Weiner Index	Data from permanent plots	
		b3. Carbon Sequestered	Data from permanent plots	
		b4. Above ground biomass	Data from permanent plots	
	c. Degraded grassland (0.40 mha.)	c. Biomass	Data from permanent plots	
	d. Wetlands (0.10 mha)	d. % Wetland Area Achieved	Data from permanent plots	Survey for 04 sites done as per MPFD guideline. Wetland area achieved- 20 ha. Mission achievement – 5.71 % APO Cumulative achievement – 80 %
3	**Ecosystem are restored and forest cover is increased in**			
	a. Scrubs (0.8 mha.)	a. % of area that is adequately stocked/ Productive	Data from permanent plots	
	b. Ravines (0.10 mha.)	b. % of area reclaimed		
	c. Abandoned mining areas	c. % of area reclaimed		Survey for 03 sites done as per MPFD guideline. Area reclaimed- 51 ha. Mission achievement - 8.72% APO Cumulative achievement- 91.89%

S.No	Expected Results	Indicator	Data Source / Method	Progress
4	**Public Forest/ Non-Forest Areas** (taken up under the mission) are managed by the community institutions	% of area under the management of community institutions	Village survey/survey of the forest area (PRA/RRA)	**110** micro-plan prepared conducting PRA. Area under management of community institutions **Urban /Peri-urban- 172 ha.** Mission achievement - 45.88 % APO Cumulative achievement- 87.91% **Agroforestry- 1965 ha.** Mission achievement - 5.32 % APO Cumulative achievement - 87.91% **Shelterbelts- 25 ha.** Mission achievement – 7.29 % APO Cumulative achievement- 89.29% **Highways/rural roads- 585 ha.** Mission achievement – 4.45 % APO Cumulative achievement- 66.27%
5	**Improved fuelwood used efficiency and alternate energy devices adopted by the households in Mission targeted areas**	% of HH reporting use of alternative energy devices	Sample HH Survey (n=6037)	76.49% (4618 HH) reported use of alternative energy devices
		% of HH reporting using fuel efficient devices	Sample HH Survey	57.13% (2673 HH) using fuel wood efficient devices
6	**Forest/non-forest-based livelihoods income for 3 million forest dependent households is enhanced in MTA**	No. of targeted households (HH) reporting at least 25% increase in real income	Sample HH Survey in the targeted area and estimation	Livelihood Skill Enhancement of 4027 (66.70%) households. Forestry –1567 (25.95%) Non-Forestry -2460 (40.75%) 3479 (86.39%) HH reported increased in real income.
7	**Forest/non-forest-based livelihoods of about 3 million households living in and around forest are diversified**	% of HH reporting diversification of income source% of HH reporting increase in number of days of employment in Primary occupation	Sample HH Survey	3479 (86%) beneficiaries reported diversified source of income HH Increase in number of days - 50.76% (average 50 days per HH/yr) 4,42,000 man-days employment generated (wage labour) under treated area.

9 (B) ESIP RESULT FRAMEWORK

The progress of the project was monitored on the set intermediate result indicators for the project components. The results of the monitoring are given below.

Table: 19 (b) Ecosystem Service Improvement Project Result Framework

Indicators	PDO Level Results indicators	Cumulative Target Year 2021	Achievement till Oct' 2021	Remarks
Indicator One	People in targeted forest and adjacent communities with increase monitory or non-monitory benefits from forests (disaggregated by: Female; ethnic minority/indigenous people)	1250	2049	Increased monetary benefits from forests Increase
	Females		1076	
	Ethnic minority/ Indigenous people		2025	
Indicator Four	Targeted beneficiary groups engaged in participatory planning under the project	200	359	Households (out of 359 HHs 54.63% belongs to ST caste group)
Indicator Five	Direct Project beneficiaries of which female (Nos)	5000	7546	
Intermediate results 1.3	Direct Project beneficiaries of which female (Nos)	8	19	North Betul-7 Sehore -7 Hoshangabad -5
Intermediate Results 3.2	SLEM best practices disseminated on ICFRE knowledge platform (Nos)	3	9	Report of SES MP received from ICFRE. 09 SLEM best practices completed by ICFRE.

Intermediate Result (Component 2) : Investments for improving forest quality in selected landscapes

Intermediate Result Indicators	Unit of Measure	Baseline 2015	Target	Cumulative Achievement						Frequency	Description/ Definition
				2017	2018	2019	2020	2021	End Target		
Intermediate Results 2.2: Landscape area restored through treatment of 10,000 ha through project support	Ha	0	0	0	1079	2424	3024	3624	3624	Annual	Details of plantation is uploaded on plantation monitoring system. Regeneration status of restored area is published on GIM landscape portal.

National Afforestation Programme

Objectives of the Scheme

i. Super-Goal: Sustainable development and management of forest resources.

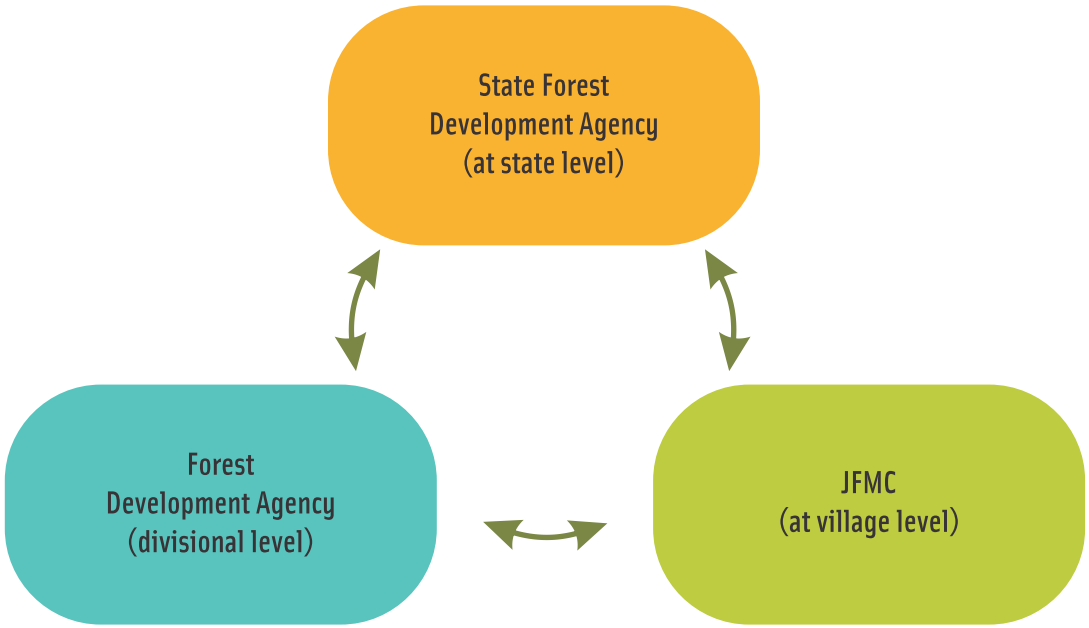
ii. Goal: Increase and/ or Improve Forest and Tree Cover (FTC)

iii. Purpose: Rehabilitation of degraded forests and other areas by institutionalizing decentralized/ participatory forest management and supplementing livelihoods improvement processes

Aim :-

To support and accelerate the on-going process of devolving forest conservation, protection, management and development functions to the Joint Forest Management Committees (JFMCs) at the village level, which are registered societies.

NAP Implementation Framework
(3 tier institutional setup)

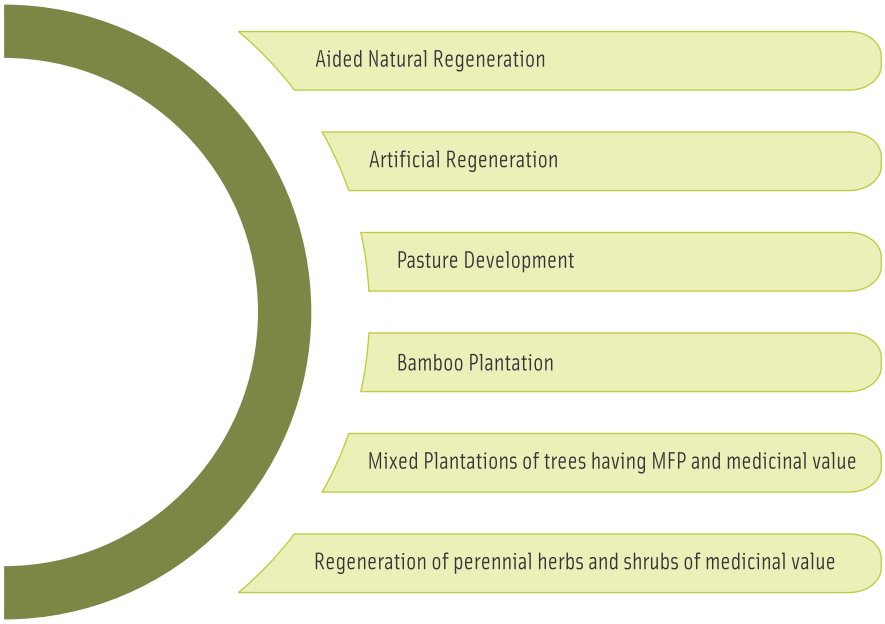


Annual Plan of Operation (APO) and Funding pattern :

The Scheme is demand driven and afforestation area is sanctioned on the basis of past performance, potential degraded forest land available for eco-restoration and availability of budget. The Annual Plan of Operation (APO) of SFDAs is approved as per Guidelines of NAP. NAP is a centrally sponsored scheme which is implemented with the fund sharing pattern of 60: 40 percent between Centre and States.

The major components of the scheme includes :-

a) Afforestation under Seven plantation models



b) Strengthening of JFM
- Constitution of JFMC (per JFMC)
- Microplanning (per JFMC)

c) Awareness Generation
d) Microplanning
e) Fencing
f) Soil & Moisture Conservation
g) Entry Point Activities
h) Training & Capacity Building
i) Value Addition and Marketing of Forest Produce
j) Concomitant Monitoring & Evaluation
k) Overheads
l) Use of Improved Technology

Progress under scheme (2019-20 to 2021-22)

- National Afforestation & Eco-development Board (NAEB), Ministry of Environment, Forest and Climate Change (MoEFCC) vide letter dated 08-09-2020 sanctioned the Annual Plan of Operation (APO) 2019-20 revised and proposed as APO 2020-21 of rupees 5.13 crores including the previous available balance rupees 341.35 lakhs for only the maintenance of plantations carried out in 8030 hectares and released rupees 94.75 lakhs in the SFDA account.

- The State did not receive any sanction in the year 2019-20 and 2021-22.

Proposed work programme for 2020-21
Central Sector Scheme "National Afforestration Programme" (NAP)
Agency - State Forest Development Agency, Madhya Pradesh

	Approved Wage rate: Rs. 360		TOTAL	
Sl. No.	Item of work	Rate (in Rs.)	Physical & Financial target/ outlay of 2020-21	
			Phy.	Fin.
1	2	3	4	5
1	Aided Natural Regeneration (200 plants/ha)	9750		
	ADMR	46800		
	a) Advance Work	18720	0	0.00
	b) Creation	16380	0	0.00
	b) Maintenance I Year	5616	1928	108.27
	II Year	3744	0	0.00
	III Year	2340	1760	41.18
	Subtotal :	46800	3688	149.45
2	Artificial Regeneration (1100 Plants/ha)	17100	0	0
	ADMR	82080	0	0
	a) Advance Work	32832	0	0.00
	b) Creation	28728	0	0.00
	b) Maintenance I Year	9850	282	27.77
	II Year	6566	0	0.00
	III Year	4104	145	5.95
	Subtotal :	82080	427	33.72
3	Pasture Development (400 plants/ha)	11100	0	0
	ADMR	53280	0	0
	a) Advance Work	21312	0	0.00
	b) Creation	18648	0	0.00
	b) Maintenance I Year	6394	1435	91.75
	II Year	4262	0	0.00
	III Year	2664	875	23.32
	Subtotal :	53280	2310	115.07

Sl. No.	Item of work		Rate (in Rs.)	Physical & Financial target/ outlay of 2020-21	
4	Bamboo Plantation (625 plants/ha)		9300	0	0
	ADMR		44640	0	0
	a) Advance Work		17856	0	0.00
	b) Creation		15624	0	0.00
	b) Maintenance	I Year	5357	550	29.48
		II Year	3571	0	0.00
		III Year	2232	450	10.06
		Subtotal :	44640	1000	39.54
5	Mixed Plantation (1100 plants/ha)		17100	0	0
	ADMR		82080	0	0
	a) Advance Work		32832	0	0.00
	b) Creation		28728	0	0.00
	b) Maintenance	I Year	9850	350	34.47
		II Year	6566	0	0.00
		III Year	4104	90	3.69
		Subtotal :	82080	440	38.16
6	Regeneration H&S (2000 plants/ha)		20400	0	0
	ADMR		97920	0	0
	a) Advance Work		39168	0	0.00
	b) Creation		34272	0	0.00
	b) Maintenance	I Year	11750	75	8.81
		II Year	7834	0	0.00
		III Year	4896	90	4.41
		Subtotal :	97920	165	13.22
		(A) Total Works :		8030	389.16
		Total Plant. cost		0	389.16
	Fencing 5%				19.46
	M&E 2%				7.78
	SMC 15%			0	57.88
	IOH 10%			0	38.92
	EPA (@ Rs 2000/- ha)			0	0.00
	B Total			0	124.03
	ST (A+B)			0	513.19
	60% Central Share				307.92

Expenditure details:

S.No	Utilization	Amount in Lakh Rs.
1	Utilized for the FY 2019-20 (as on 31st March, 2020)	279.61
2	Utilized for the FY 2020-21 (as on 31st March, 2021)	209.89
3	Utilized for the FY 2020-21 (as on 31st Dec, 2021)	78.94
	Total Utilized	568.44

Monitoring and Evaluation under the scheme :

- Madhya Pradesh forest department has established a Plantation Monitoring System for the to monitor all the plantation work done by the state. It includes registration, geo-mapping (kml/kmz boundary polygons), activity wise photographs, pre-monsoon and post-monsoon evaluation by field staff etc.

- As per NAP implementation guidelines the SFDA will commission independent evaluation of each FDA project twice during the project cycle. The first will be called 1st Concurrent Evaluation, and will be done in the 24- 36 months of project operation. The 1st Concurrent Evaluation will focus on assessment of the degree of peoples' participation in the functioning of JFMCs, in particular during micro-planning and implementation of initial project activities. The second evaluation will be the Final Evaluation of the project, to be done after 3 years of the last tranche of tree planting in the project. The final Evaluation will focus on the quality of peoples' participation, success of regeneration, in terms of expansion and improvement in vegetation, and poverty impacts of the project.

- In pursuance of NAP implementation guidelines the Madhya Pradesh State Forest Development Authority sanctioned the Monitoring, Evaluation and Project Impact Assessment work for Plantations carried out under the scheme in the rainy season of FY 2015-16 (second evaluation) and FY 2016-17 (first evaluation) to State Forest Research Institute (SFRI), Jabalpur based on terms and conditions of invited tenders.

- Rupees 41,14,000/- were sanctioned to State Forest Research Institute (SFRI), Jabalpur for the said work, out of which rupees 12,34,200/- has been released as second installment on 13.08.2021 as per the terms of tender.

- The institute has submitted Interim reports for the allotted FDAs.

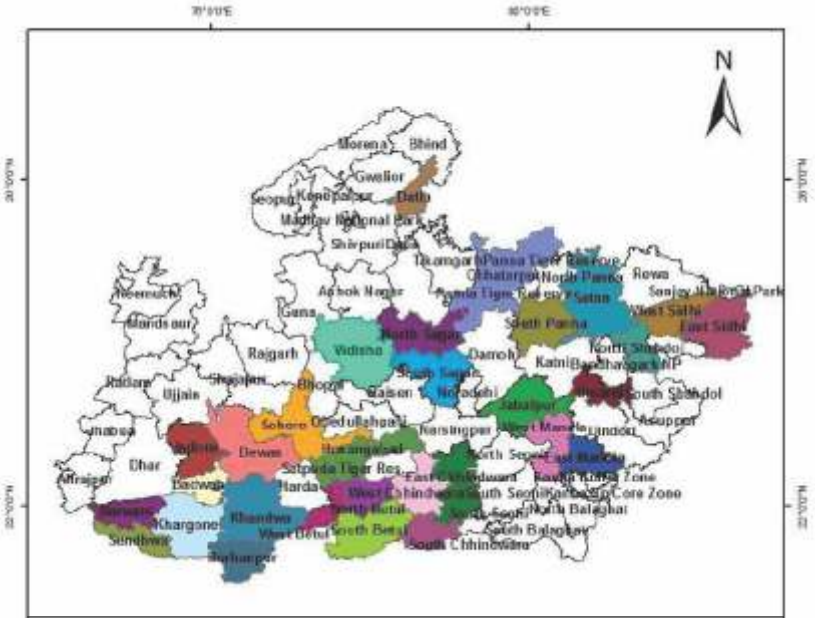


Figure Map showing the study sites of different FDAs for the plantations year 2015-16 of MP Forest Divisions

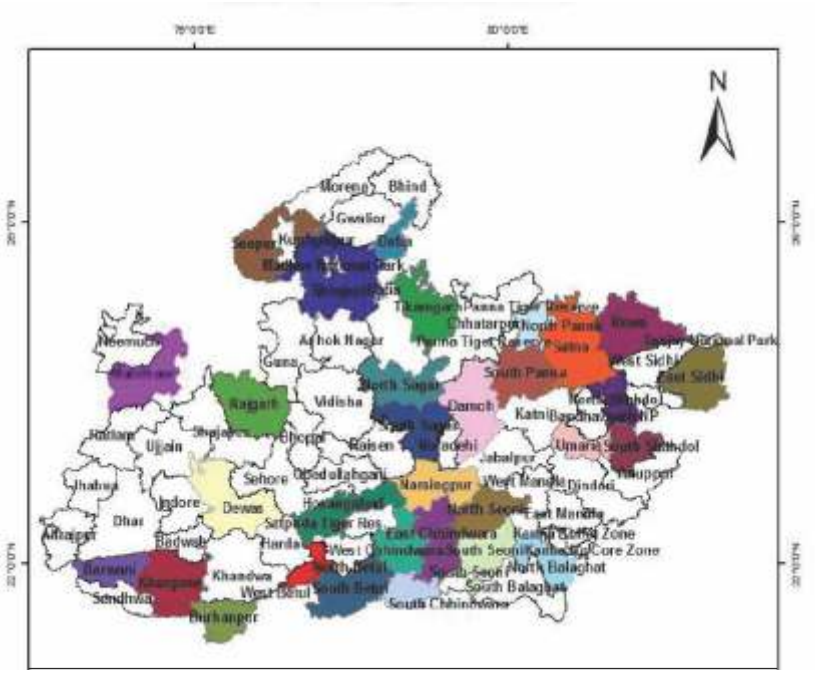


Figure Map showing the study sites of different FDAs for the plantations year 2016-17 of MP Forest Divisions

General impacts of project at a glance :

1. Employment opportunities were created.
2. Siltation of soil was observed in those FDAs where SMC works were carried out, after soil and water conservation measures.
3. Soil erosion was found to be checked slightly in those FDAs in which soil and moisture conservation works and afforestation activities were carried out.
4. People are aware of environment, conservation of natural resources and importance of forests to an extent.
5. The water level in the project area has increased slightly due to implementation of FDA works.
6. In most of the FDAs grass production was found increased significantly resulting in increase in domestic milk production, as the grass production in the treated areas was distributed of cost, among the JFMC members and villagers.
7. Agriculture crop production was also increased to some extent, in some FDAs as a result of implementation of the project.
8. People got employment from the implementation of FDA activities which enabled them to fulfill their daily needs.

Recommendations :

1. Chain link fencing is highly effective in controlling biotic pressure especially by wildlife. Looking to the degree of biotic pressure all plantations should be closed by chain link fencing.
2. Entry Point Activities are necessary before afforestation activities to motivate the people towards the protection of forest.
3. Activities decided by the committees should be taken up on priority basis.
4. Entry point activities should be taken up in advance before taking up the plantation works, and this will develop interest of local villagers in forest conservation.
5. Provision of basic facilities of health, education, irrigation and communication has to be made in FDA areas, which is lacking at present.
6. Most of the forests adjoining the villages are in degraded condition due to excessive demand of fuel wood therefore, some fast growing species for fuel wood and grasses for fodder should be grown to fulfill the demand. Under EPA, provision of LPG connection can be done to reduce the demand of fuel wood.
7. More training and awareness programmes should be carried out for creating awareness through trainings, demonstrations, posters and addressing mass gatherings.
8. Considering the success of the FDA project, it is suggested that it should be extended to other forest areas so that majority of people can get the benefit and participate themselves in the forest and village development programmes.
9. Information regarding provenance of seeds from where it is received for planting in the field areas.
10. More attention is required on capacity building of the villagers.

Snapshots of FDA Plantations

Figure 1 FDA work of Indore, Plantation year 2015-16

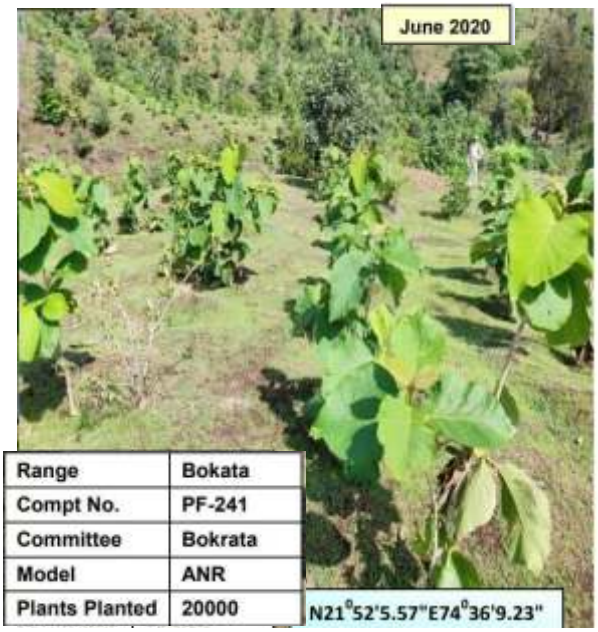


Figure 2 FDA work of Badwani, Plantation year 2015-16

Figure 3 FDA work of Shahdol, Plantation year 2016-17

Figure 4 FDA work of Satna, Plantation year 2016-17

Best practices of ESIP-MP Acknowledged by World Bank

Madhya Pradesh's has emerged as a leader in developing site specific management planning and has established a best practice – STARMAP – Spatial Technology Approach for Restoration Mapping and Planning, which is now being applied to non-ESIP landscapes within the state. As well as being used to plan the interventions (such as tree planting, fencing, water conservation measures etc.) the system can be used to monitor implementation progress as well as analyze the impact of some of the interventions, such as planting and assisted natural 3 regeneration. The system has been adapted to use drones to take geo-referenced photographs before and after interventions.

(Ref: Page 2 para 06 sub para 03 of the AideMemoire for the 5th World Bank Implementation Support Mission for the ESIP held on October 26th to 29th, 2020).

As part of ESIP support to JFMCs in MP, nets were provided to facilitate the collection of flowers from the Mahua tree (an important NTFP). This has turned out to be a transformative investment, as it eliminated the need to burn the ground and eased and increased flower collection. Analysis of the hotspot data provided by the forest survey of India (FSI) before and after the provision of these nets shows that the incidence of forest fires in the landscapes reduced by an impressive 18,000 ha. At the same time the quantity of Mahua flowers increased from 855 quintals in 2018, without the use of nets to 1600 quintals in 2020 using both methods. The nets can be used for multiple years, making these simple investments effectively triple wins, in that it increases the incomes of participating household, reduces the incidence of forest fires significantly (with all the associated benefits, including reduction in emissions, increased carbon storage and reduced habitat degradation) while being truly sustainable.

(Ref: Page 3 para 10 of the AideMemoire for the 5th World Bank Implementation Support Mission for the ESIP held on October 26th to 29th, 2020).

जहाँ है हरियाली ।
वहाँ है खुशहाली ।।

GREEN INDIA MISSION

- a strategy for climate change mitigation
- enhancement of forest cover
- improvement of ecosystem services
- livelihood opportunities for forest dependent communitities

Green India Mission
Madhya Pradesh Forest Department

Additional PCCF, Green India Mission
Satpura Bhawan, Bhopal, Madhya Pradesh
Tel.: 0755 2674268, 9424790089
Email : apccfgim@mp.gov.in
https//www.mpforest.gov.in

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