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IMPLEMENTATION COMPLETION AND RESULTS REPORT

ON A

GRANT FROM THE
GLOBAL ENVIRONMENT FACILITY TRUST FUND

IN THE AMOUNT OF SDR 18.73 MILLION

(US$24.64 MILLION EQUIVALENT)

TO INDIA

FOR AN

India Ecosystems Service Improvement Project
{JANUARY 29, 2024}

Environment, Natural Resources & The Blue Economy Global Practice
South Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective {Nov 30, 2023})

Currency Unit =	Indian Rupees
INR 82 =	US$1
US$ 1 =	SDR 0.76

FISCAL YEAR
July 1 - June 30

Regional Vice President:	Martin Raiser
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ABBREVIATIONS AND ACRONYMS

CBA	Cost-Benefit Analysis
CHG	Chhattisgarh
CPF	Country Partnership Framework
ESIP	Ecosystem Services Improvement Project
ESMF	Environment and Social Management Framework
GEF	Global Environment Facility
GHG	Greenhouse Gas
GIM	Green India Mission
GIS	Geographic Information System
GOI	Government of India
GRM	Grievance Redressal Mechanism
ICFRE	Indian Council of Forestry Research and Education
IFS	Integrated Farming System
ISR	Implementation Status Report
IUFR	Interim Unaudited Financial Report
IWMP	Integrated Watershed Management Program
JFMC	Joint Forest Management Committee
JFMC	Joint Forest Management Committee
LDN	Land Degradation Neutrality
M&E	Monitoring and Evaluation
MOEFCC	Ministry of Environment, Forest and Climate Change
MP	Madhya Pradesh
MTR	Mid Term Review
NDC	Nationally Determined Contribution
NRM	Natural Resource Management
NTFP	Non-Timber Forest Produce
PDO	Project Development Objective
PIU	Project Implementing Unit
PMU	Project Management Unit
SFD	State Forest Department
SHG	Self Help Group
SLEM	Sustainable Land and Ecosystem Management
STARMAP	Spatial Technology Approach for Restoration and Mapping and Planning
STEP	Systematic Tracking of Exchanges in Procurement
TOC	Theory of Change
VVK	*Van Vigyan Kendra* (Forest Science Center)
WBG	World Bank Group

TABLE OF CONTENTS

DATA SHEET

BASIC INFORMATION

Product Information

Project ID	Project Name
P133803	India Ecosystems Service Improvement Project
Country	Financing Instrument
India	Investment Project Financing
Original EA Category	Revised EA Category
Partial Assessment (B)	Partial Assessment (B)

Organizations

Borrower	Implementing Agency
Republic of India	Ministry of Environment, Forests and Climate Change

Project Development Objective (PDO)

Original PDO

The project development objective (PDO) is to Improve forest quality, land management and non-timber forest produce (NTFP) benefitsfor forest dependent communities in selected landscapes in Madhya Pradesh and Chhattisgarh.

FINANCING

	Original Amount (US$)	Revised Amount (US$)	Actual Disbursed (US$)
World Bank Financing			
TF-A3990	24,640,000	24,640,000	22,469,733
Total	**24,640,000**	**24,640,000**	**22,469,733**
Non-World Bank Financing			
Total	**0**	**0**	**0**
Total Project Cost	**24,640,000**	**24,640,000**	**22,469,733**

KEY DATES

Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
06-Jul-2017	07-Feb-2018	17-Feb-2020	30-Jul-2022	30-Jul-2023

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Amount Disbursed (US$M)	Key Revisions
03-Feb-2022	12.90	Change in Loan Closing Date(s)

KEY RATINGS

Outcome	Bank Performance	M&E Quality
Satisfactory	Satisfactory	Substantial

RATINGS OF PROJECT PERFORMANCE IN ISRs

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US$M)
01	15-Nov-2017	Satisfactory	Satisfactory	0
02	27-Jun-2018	Satisfactory	Moderately Satisfactory	0
03	28-Aug-2018	Satisfactory	Moderately Satisfactory	.06

04	01-Mar-2019	Satisfactory	Moderately Satisfactory	.10
05	04-May-2019	Satisfactory	Moderately Satisfactory	.21
06	27-Nov-2019	Satisfactory	Moderately Satisfactory	3.18
07	27-Mar-2020	Moderately Satisfactory	Moderately Unsatisfactory	4.13
08	21-Sep-2020	Moderately Satisfactory	Moderately Unsatisfactory	5.82
09	07-Dec-2020	Moderately Satisfactory	Moderately Satisfactory	6.85
10	06-Aug-2021	Moderately Satisfactory	Moderately Unsatisfactory	10.68
11	23-Dec-2021	Moderately Satisfactory	Moderately Satisfactory	12.31
12	12-May-2022	Satisfactory	Moderately Satisfactory	13.79
13	07-Nov-2022	Satisfactory	Moderately Satisfactory	15.73
14	22-May-2023	Satisfactory	Moderately Satisfactory	17.60
15	15-Aug-2023	Satisfactory	Moderately Satisfactory	19.50

SECTORS AND THEMES

Sectors

Major Sector/Sector	(%)
Agriculture, Fishing and Forestry	**62**
Public Administration - Agriculture, Fishing & Forestry	26
Forestry	36
Information and Communications Technologies	**8**
ICT Infrastructure	8
Industry, Trade and Services	**30**
Agricultural markets, commercialization and agri-business	30

Themes

Major Theme/ Theme (Level 2)/ Theme (Level 3)	(%)

Urban and Rural Development		**69**
Rural Development		69
Rural Markets		69
Environment and Natural Resource Management		**100**
Climate change		100
Mitigation		84
Adaptation		16
Renewable Natural Resources Asset Management		100
Forests Policies and institutions		26
Biodiversity		85
Landscape Management		100

ADM STAFF

Role	At Approval	At ICR
Vice President:	Annette Dixon	Martin Raiser
Country Director:	Junaid Kamal Ahmad	Auguste Tano Kouame
Director:	Paula Caballero	Valerie Hickey
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Project Team Leader:	Anupam Joshi	Anupam Joshi
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I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

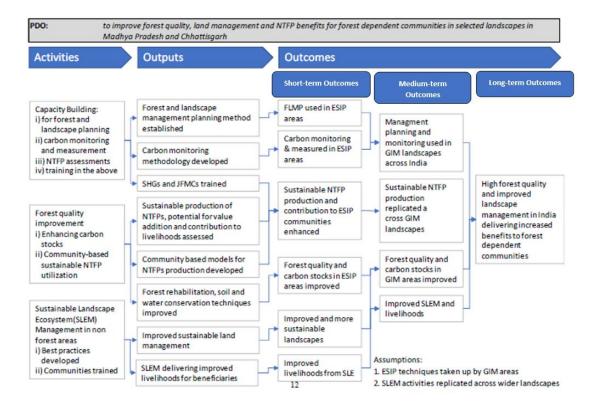### A. CONTEXT AT APPRAISAL

Context

1. **At appraisal, forest-dwelling and marginal farmers around forests continue to rely on forests for a range of ecosystem services and livelihoods.** Recognizing this, India's 12th Five Year Plan underscored forests as an important safety net[1] for the rural poor. Forests are also a repository of significant biodiversity with an estimated 47,000 species of plants and 90,000 species of animals that constitute 11 percent and 7 percent respectively of the species recorded in the world. With multiple demands on forests, the scale of land degradation and desertification was affecting about 32 percent and 25 percent respectively of India's total land area. Managing forests and degraded lands, therefore, was a priority in the context of achieving alleviation of rural poverty and biodiversity conservation. Forest grids in Madhya Pradesh (MP) and Chhattisgarh (CHG) were identified as having vulnerability to climate change[2]. A transition from a tree planting approach to a landscape restoration combining forest restoration, sustainable land management, farm productivity, watershed treatments, and livelihood concerns in rural communities was needed. The Government of India was designing the Green India Mission (GIM) with the objective of protecting, restoring, and enhancing India's diminishing forest cover and responding to climate change by a combination of adaptation and mitigation measures.

2. **The Ecosystem Services Improvement Project (ESIP) was, therefore, conceptualized and designed to support the GIM by demonstrating landscape restoration models for building resilience and adaptation to climate change through sustainable land and ecosystem management (SLEM) as well as livelihood benefits.** In selected landscapes of CHG and MP, the project's strategy was to enhance forest quality, land management, and non-timber forest products (NTFP) to produce benefits for forest-dependent communities. The project introduced new tools and techniques for integrating forestry and SLEM, monitoring of carbon assets, and decentralized approaches for forest dependent livelihoods through NTFP value chain improvement over a traditionally practiced plantation approach.

Theory of Change (Results Chain)

3. **The Theory of Change addresses the overall problem of poor forest quality and land management practices in selected forest and non-forest landscapes** contributing to low NTFPs benefits for forest dependent communities and low carbon and biodiversity values. In the medium term, these activities were expected to lead to improved management and community benefits from forests, watersheds, and pastures at selected sites in MP and CHG. Long-term project impacts were expected to include the adoption of institutional capacity building, replication of these gains in more broadly within the states and then to other states. The theory of change was designed to establish links between ESIP activities that would lead to improved forest cover and better sustainable landscape management, resulting in increased carbon sequestration and storage, improved water retention, and improved benefits for local communities and biodiversity.

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[1] Safety net, in this context, means provisioning food, fiber, fuel and other tradable goods to rural poor who may have temporarily lost their primary livelihood option, for example, loss of agriculture due to drought.
[2] The Results of the dynamic global response model – IBIS (Integrated Biosphere Simulator) predicted that nearly 73 percent of forested grids in MP and CHG are expected to undergo vegetation change, land degradation and soil erosion due to climate change.

Project Development Objectives (PDOs)

4. **The PDO is to improve forest quality, land management and Non-Timber Forest Produce (NTFP) benefits** for forest dependent communities in selected landscapes in Madhya Pradesh and Chhattisgarh.

Key Expected Outcomes and Outcome Indicators

5. **The original expected outcomes based on the PDO statement and the associated PDO indicators are as follows**:
   (i)   Improve Forest Quality for forest-dependent communities
   - **PDO Indicator 1:** Average cumulative carbon sequestered per hectare in areas supported by the project
   (ii) Improve Land Management for forest-dependent communities
   - **PDO Indicator 2:** Land area where sustainable land management practices were adopted as a result of the project
   - **PDO Indicator 3:** Targeted beneficiary groups engaged in participatory planning under the project
   (iii) Improve NTFP benefits for forest-dependent communities
   - **PDO Indicator 4:** People in targeted forest and adjacent communities with increased monetary or non-monetary benefits from forests
   (iv) Overall PDO statement
   - **PDO Indicator 5:** Direct Project beneficiaries, percent of which female

Components

6. **Component 1: Strengthen capacity of government institutions in forestry and land management programs in Madhya Pradesh and Chhattisgarh (US$4 million).** It supported enhancement of capacity and skills of the State Forest Departments, the Forest Development Agencies, and local communities for improving management of forest and land resources and ensuring the delivery of sustainable benefits to local communities that depend on these resources.

7. **Component 2: Investments for improving forest quality in selected landscapes (US$14.5 million).** Component 2 supported the improvement of the quality and productivity of existing forests to ensure sustained flows of ecosystem services and carbon sequestration, and ensured the sustainable harvesting and value addition of NTFP to provide economic benefits to forest dependent communities that promote conservation and improve ecological connectivity between critical biodiversity areas.

8. **Component 3: Scaling-up sustainable land and ecosystem management (SLEM) in selected landscapes (US$3.74 million).** Component 3 supported the prevention of land degradation and desertification and to increase above-ground forest carbon stock through a combination of activities to implement and scaleup tried-and-tested SLEM best practices, to increase national capacity for monitoring land degradation, and to track associated indicators and generate knowledge exchange on SLEM approaches.

9. **Component 4: Project Management (US$2.4 million).** Component 4 supported the establishment of a Project Management Unit (PMU) to coordinate and monitor project implementation and progress towards the envisaged development objective.

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

10. **The project underwent one restructuring throughout the project period of 6 years.** The Level 2 restructuring was approved on February 3, 2022, to extend the closing date by one year from July 30, 2022, to July 30, 2023. There were no other changes in the PDO, indicators or components.

Rationale for Changes and Their Implication on the Original Theory of Change

11. **The project was extended by one year to compensate for the time lost due to COVID-19 induced restrictions.** A one-year extension ensured the (i) availability of additional planting season, significantly helping in fully achieving the PDO, (ii) completing the remaining physical targets of forest quality restoration and (iii) scaling up of SLEM best practices in the targeted landscapes. There were no implications on the original Theory of Change.

II. OUTCOME

A. RELEVANCE OF PDOs

Rating: High

Assessment of Relevance of PDOs and Rating

12.   **The project development objective remains highly relevant to the World Bank's Country Partnership Framework (CPF) for India FY18-22[3]** and contributed to the implementation of the World Bank Group (WBG) Climate Change Action Plan (2021-2025) and Action Plan on Climate Change Adaptation and Resilience[4]. It supported all three Focus Areas of the CPF, wherein (i) sustainable forestry and land management practices contributed to efficient use of country's natural resources towards growth and increased per unit carbon sequestration made biomass production efficient (CPF Pillar 1), (ii) value addition of NTFPs and market linkages created economic opportunities for forest-dependent communities, especially women and contributed to competitiveness and job creation (CPF Pillar 2) and (iii). investments in skill development and new competencies of forest frontline staff and community members improved human capital (CPF Pillar 3). The project also strengthened public agencies, such as the Indian Council of Forestry Research & Education (ICFRE), State Forest Departments (SFD) and other relevant institutions, to address significant service delivery gaps in the forestry sector. The relevant of the PDO is also high, as it (i) supported India's Nationally Determined Contributions (NDCs) targets of sequestering 2.5-3.0 billion tons of carbon through forestry, (ii) National Action Plan on Climate Change (NAPCC) and National Adaptation Plan (NAP) by a combination of adaptation and mitigation measures and (iii) Land degradation neutrality (LDN) targets (Bonn Challenge).

B. ACHIEVEMENT OF PDOs (EFFICACY)

Rating: Substantial

Assessment of Achievement of Each Objective/Outcome
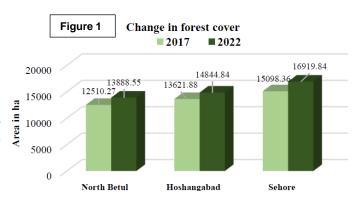
Outcome 1: Improve Forest Quality for forest-dependent communities.

13.   **The achievements of this outcome are marked by innovative approaches**. These approaches include: (i) measuring enhanced flow of ecosystem services as a metric of forest quality resulting in enhanced carbon sequestration leading to higher biomass volume of timber, firewood, fodder, and NTFPs, which are directly used by forest-dependent communities; (ii) achieving a significant shift in perception of communities recognizing the importance of forest conservation in providing increased income**s** to indigenous people; (iii) improving infrastructure for production of quality planting material and adoption of biodiversity monitoring in the larger landscape; (iv) introducing new tools {Spatial Technology Approach for Restoration Mapping and Planning (STARMAP)} and technologies (carbon flux towers) for better management of natural resources, including biodiversity and carbon assets; and (v) using advanced monitoring systems by setting up a web-based national system for monitoring land degradation and desertification. PDO indicators #1 and #3 and intermediate indicators #1.1 and #1.2 measuring this outcome were achieved (Annex 1).

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[3] Report Number 126667-IN
[4] Report No. 136368

14. **Enhancing and restoring carbon stocks in forest land.** The project recorded an increase in average carbon density from 59.88 tonnes/ha (2019) to 66.59 tonnes/ha (2023) in MP and from 74.11 tonnes/ha (2019) to 79.58 tonnes/ha (2023) in CHG. Carbon sequestration increased by 11.25 percent in MP and 7.51 precent in CHG, where the restored plantations are younger and, in another year, or two will reach the targeted increase of 10 percent over baseline sequestration rates. Forest area restored through project investments in MP (3,624 Ha) by planting over 1.1 million tree saplings of indigenous species has already

Figure 1 — Change in forest cover, 2017 and 2022 (Area in ha): North Betul 12510.27 (2017), 13888.55 (2022); Hoshangabad 13621.88 (2017), 14844.84 (2022); Sehore 15098.36 (2017), 16919.84 (2022).
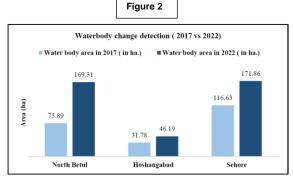
been captured through remote sensing (Fig.1). In terms of forest quality, this translates to an increase in area under natural regeneration from 852.04 to 1644.63 per ha (cumulates to a 144.7 percent increase). This was made possible by upgrading 11 forest nurseries in MP alone with polyhouses, micro-sprinklers, mist chamber, seed storage, and solar energy, which led to one nursery receiving ISO9000 certification.

15. **Capacity building of SFD and ICFRE.** The capacity building interventions have a substantial effect on the overall project efficacy. The use of advanced monitoring systems has helped track changes in land restoration, species diversity, and carbon sequestration, enabling informed decision-making and timely interventions. The use of modern technology is expected to support transition of state forest department towards a more efficient and technologically advanced institution in future.

16. **As part of the SFD interventions, "STARMAP", a Geographic Information System (GIS) based monitoring platform has been developed** for assessing abundance of native species and accordingly take decisions for restoring degraded patches. The Technology, ranging from remote sensing to drones to GIS etc., are also being used for monitoring, impact analysis and progress of the restoration interventions. To make the monitoring part easy, a mobile app, Forest Restoration Monitoring System, has been developed for surveying and preparing geo-referenced detailed plantation report (regeneration & stock survey) that can be directly uploaded on the web portal through smart phones. Over 400 field staff have been trained on the use of GIS system and the mobile app. Necessary hardware support has been provided at the state and field level including workstations, 72 advance Global Navigation Satellite System (GNSS) handsets were procured, and SFD staff trained (including refresher training) on their use. Over 65,000 ha of forestlands and corridors under biodiversity monitoring is covered by the SFD using a protocol developed by the project.

17. **As part of the ICFRE interventions, a total of 68 capacity-building programs covering 3107 participants were organized** on the measurement of forest carbon stocks for MP and CHG Forest department officials and Joint Forest Management Committees (JFMCs). Furthermore, two eddy covariance/ carbon flux towers with 42m height have been installed in both the project states for measuring real-time carbon fluxes of forests. The various equipment and applications procured/ developed as part of the project have significantly contributed towards reducing the manual efforts made by the front-line SFD staff in the field, bringing operational efficiency in SFD at the field level. ESIP implementation approach recognized the traditional knowledge, practices, and dependency of the communities and partnered with them leading to change in the perception of SFDs towards recognizing the importance of community involvement in forestry activities. This shift empowered the local communities and promoted their participation in planning, implementing, and monitoring project and other SFD activities.

Outcome 2: Improve land management for forest-dependent communities.

18. **The achievements of this outcome involved improving land productivity for enhancing adaptation and resilience capacity of the forest-dependent communities.** The landscape approach adopted allowed restoration of a larger area and contributed to meeting India's LDN target under the Bonn Challenge. This involved building forest department capacity for integrating SLEM in forestry programs and improved planning through engagement of citizen groups at the village level. PDO indicators #2 and intermediate indicators #2.1, #2.2, #3.1, #3.2 and #3.3 measuring this outcome were achieved (Annex 1).

19. **Landscape area restoration through treatment.** ESIP has covered a total of 25,316 ha under SLEM, 7,387 ha of restored forest through plantations and soil conservation and 50,538 ha landscape restored through land treatment. The adopted landscape approach resulted in the restoration of up to five times the actual treated area within the selected landscapes. The resulting improved ecosystem services 'have had widespread benefits for the larger population in the project states. Some of the notable impacts include:

20. **Watershed treatments and improved water flows** leading to better management of water resources resulting in improved water availability. The project invested in check dams, percolation pits, ponds, the repairing of wells etc. This led to increased availability of water during summer leading to increase in cultivable irrigated land for a leguminous crop in one of the landscapes in MP, which was confirmed by 66 percent respondents during the project-end survey. This was also verified through the state agricultural statistics compiled

Figure 2

independently by the MP Agriculture Department. Furthermore, the positive impact on fodder availability benefitted livestock-dependent communities in MP. Water body area increased by 160 Ha in the three project landscapes (Fig.2).

21. **Scaling-up SLEM Best Practices, led to increase in incomes of subsistence farmers.** Adoption of SLEM best practices resulted in efficient and sustainable land use leading to increased agricultural productivity and income for the beneficiaries. A range of best practices were scaled up that directly contributed to improved resilience of marginal farmers to climate change. These practices included (i) implementation of soil fertility improvement measures, such as the application of self-produced organic inputs vermicompost and biopesticides, that while improving soil health, reduced input costs for agriculture, (ii) introduction of improved cookstoves for reducing firewood use leading to avoided Green House Gas (GHG) emissions and improved indoor air quality. A total of 4,245 households in MP and 8,810 households in CHG received improved cookstoves in the project landscapes and during the project-end survey, 99 percent in MP and 100 percent in CHG reported reduction in firewood use by approximately 40 percent from the daily per household baseline of 20 kg in MP and 17.5 kg in CHG.

22. **SLEM best practices also promoted integrated farming systems (IFS).** The small and subsistence farmers who lack resources and are unable to adopt new and improved technologies for farming were supported under IFS for boosting productivity in climate-stressed regions and build resilience. The following practices were scaled up:

- *Provision of improved vegetable seeds:* A total of 4,382 (Kharif) and 4464 (Rabi) in MP and 8,718 (Kharif) and 9856 (Rabi) households in CHG received improved variety of vegetable seeds under ESIP and 96 percent reported improvement in production/yield as well as crop diversification during the project-end survey.

- *Vermicompost and biopesticides:* More than 5,022 households benefited from vermicompost, and 21,770 households benefited from biopesticide initiatives across the ESIP Forest Ranges. Of total households covered, more than 70 percent received training on these initiatives. Of these more than 65 percent households were producing and using vermicompost and/or bioinsecticides/pesticides confirming good adoption of SLEM best practices. The approximate cumulative annual value of vermicompost and biopesticides produced by each beneficiary household is Rs. 5,185 in MP and Rs. 4,132 in CHG, which help reduced input cost. Over 80 percent farmers reported cost savings as an immediate benefit.
- *Lac cultivation:* Lac cultivation is a source of supplementary income for rural and forest dwellers. A total of 2,612 households on Lac cultivation in CHG were supported of which, 95 percent reported an increase in household income after getting involved in lac cultivation.
- *WADI:* A traditional tree-based farming system to promote agroforestry, horticulture, and forestry was introduced to 4,276 households in MP and 11,795 households in CHG. During endline survey, 54 percent households (56 percent in MP and 51 percent in CHG) reported improved incomes and nutrition intake.
- *Micro irrigation systems*: Gravity-based drip irrigation system (2,394 units in CHG and 1,672 units in MP) and portable sprinkler irrigation system (1,198 units in MP) were installed for water use efficiency.
- *Azolla cultivation:* Total of 7,000 units (with accessories and mother seeds) were established (2467 in MP and 4533 household in CHG) for scaling up of Azolla cultivation for integrated farm development.

23. **Capacity building of Forest Departments and ICFRE on Land Management.** Institutional capacity for monitoring land management has been substantially built through ESIP through a web-based national system for monitoring land degradation and desertification. This will help identify trends and areas that require urgent attention and facilitate better coordination among various stakeholders. As a follow-on to the SLEM-Country Partnership Program and to ensure sustainability and scale-up of these SLEM best practices, the ESIP project supported the following activities:

- *Development of a Roadmap for Institutional and Policy Mainstreaming of SLEM in India:* The SLEM road map investigated the current state of institutional and policy arrangements in India; identified key gaps viz. institutional mechanism, data and capacity gaps. etc., and determined how these might be realigned and/or what policy reforms and changes are required to mainstream SLEM practices in making investments choices. The roadmap hence prepared has been released by the Secretary, Ministry of Environment, Forests and Climate Change (MOEFCC), Government of India (GOI) and provides specific guidelines to different Ministries/ Departments/ Research Organizations/ Civil Society Originations involved in restoration of degraded lands and to combat land degradation and desertification.

- *SLEM Knowledge Sharing and Reporting System*: This is an online SLEM Knowledge Sharing and Reporting System[5] for Capturing Trends and Status of Key Progress Indicators on Land Degradation and Desertification and for up scaling and mainstreaming SLEM best practices to help in strengthening the India's national reporting to United Nations Convention to Combat Desertification. Already, 7 organizations (5 government and 2 non-government) have started using this for submitting the information and data for national reporting.
- *Evaluation of Van Vigyan Kendra (VVK):* ESIP supported study on evaluation of the effectiveness of VVK established in different states for fulfilling the objectives of forestry extension services for enabling from Lab to Land transfer of technologies. The study suggested policy, institutional and capacity building measures to strengthen forest extension systems, which would require financing support.

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[5] (https://nrdp.icfre.gov.in/)

- *Creation of a National Database for SLEM*: ESIP supported creation of a national database of SLEM institutions, networks, individuals, and initiatives working on SLEM in the country. It consists of 362 SLEM practitioners comprising of 117 organizations/ institutions, 159 individuals and community groups of SLEM practitioners, 21 awards winning practitioners and 65 other organizations working on piloting or scaling up SLEM initiatives.

Outcomes 3: Improve NTFPs benefits for forest-dependent communities.

24. **Value addition on select NTFPs led to increased incomes of indigenous peoples and sustainable harvesting by beneficiary groups.** Most forest-dependent communities comprising of forest dwellers, small and marginal landholders, landless individuals, small livestock holders, and NTFP collectors, as well as their community organizations such as JFMCs, Self Help Groups (SHGs), and other resource groups in the forest landscapes and micro-watersheds benefited from investments on this. Focused, and systematic efforts were made by the project implementing agencies to ensure meaningful community participation in planning, implementation and monitoring of project activities in the target landscapes in the form of, (i) participatory village planning for livelihoods; (ii) NTFP and natural resources management (NRM) interventions; (iii) training of JFMCs; and (iv) participatory biodiversity monitoring. The project helped develop Community-Based Models for Sustainable Utilization of NTFPs. Over 90 percent households in project landscapes are involved in NTFP collection. The most successful intervention has been introduction of Mahua flower collection nets that have (i) reduced the incidence of forest fires across 20,000 Ha in MP for three consecutive years; (ii) improved the quality of the collected flowers, which were sold at Rs 55/kg in contrast to Rs 35/kg Minimum Support Price listed by the Government of MP; and (iii) reduced the drudgery of women who are the bulk of NTFP collectors from about 5 days to 1 day. PDO indicator #4 and intermediate indicator #1.3 measuring this outcome were achieved (Annex 1).

25. **For outcome 3, the capacity building efforts were implemented by all the three project implementing agencies covering a range of alternative livelihoods.** These included fisheries, poultry, mushroom cultivation, lac cultivation, Mahua flowers etc. Besides, for those without access to land and forestry resources, the project provided alternative livelihood trainings on bangle making, electrician, motor winding, automobile

Figure 3

technician, driving etc. for jobs and self-employment. During the project end survey, 89 percent (86 percent female) respondents in MP and 63 percent (67 percent female) in CHG acknowledged improvement in their skill level after receiving the training. About 38 percent of respondents (31 percent female) in MP and 32 percent (33 percent female) in CHG received employment or got self-employment opportunity after receiving the skill training and almost 50 percent confirmed more than 20 percent increase in incomes (Fig. 3).

26. **The combined effect of the three outcomes is reflected in increased monetary and non-monetary benefits from forests for people in targeted forest and adjacent communities** While non-monetary benefits have been discussed above, the monetary benefits are reflected in the increase in average incomes from pre- to post- project period (Fig. 4). Both the non-monetary and monetary benefits contributed to resilience, adaptation, and mitigation benefits, thereby confirming that investments in forests and natural capital yield multiple Co-Benefits. The local communities

also realized the employability potential of the forest sector. In MP, a total of 5,74,537 person-days of work have been generated for local forest dwellers during the project period. Overall, the combination of forest quality restoration, capacity building programs for land productivity enhancement, skill development trainings, promotion of sustainable livelihoods and NTFP value addition has had a positive and tangible impact on the indigenous population. The shift in perception among these communities, where they recognize the importance of forest conservation and management, is evident through their active involvement in planning and implementation processes.
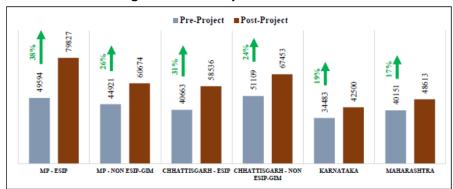
Figure 4. Monetary benefits Pre & Post ESIP

Justification of Overall Efficacy Rating

25. The project's efficacy is considered 'Substantial', as the project has successfully delivered with evidence on all the three outcomes of the PDO, that contributed to (i) improved agricultural productivity, reduced input costs, conserved natural resources, and enhanced the community's resilience to climate change; (ii) expanded the landscape approach and the positive impacts on ecosystem services, water resources, land and agriculture productivity; (iii) had a transformative effect on the forestry sector by enhancing monitoring capabilities, encouraging community involvement, and adopting scientific practices; (iv) improved forest productivity and soil conservation leading to greater carbon sequestration, supporting livelihoods and conserving natural resources; and (v) promoted active community participation in forest conservation and sustainable land management contributing to the preservation of their environment and securing better futures for locals.

C. EFFICIENCY

Design and Implementation Efficiency

26.   Aspects of the project design lent themselves towards efficient implementation of planned activities. In particular, the integrated nature of project components served well and improved efficiency as outputs supported across several outcomes. However, upon approval, the project faced disbursement lags due to delay in meeting GOI effectiveness conditions, a lag in fully setting up the state-level project implementation units (PIU) and finalizing annual plans. The ratings of 'Achievement of the PDO' and 'Implementation Progress' were initially lowered due to slow start resulting in lower-than-expected achievements of some of the PDO indicators. With 29 months remaining for implementation, the project was yet to disburse 83 percent of the funds, combined with under-achievements of some indicators at the Mid Term Review (MTR). At this point, the MTR specifically investigated the cause of these concerns through a borrower commitment assessment, which concluded that strong government ownership continued to exist for ESIP. Based on these positive results, time-bound and milestone-linked action plans for each of the three implementing agencies were jointly developed. These counterparts were prompt in adopting and implementing these action plans which resulted in gaining back lost time. The task team took several proactive measures, including close supervision and technical oversight for accelerating progress. Despite a global pandemic and weak implementation capacity, World Bank support enabled a substantial achievement of project outcomes. In the context of piloting first-

of-its-kind forestry and landscape activities, low IA capacity and factors beyond government or World Bank control, the counterparts have proved to be resilient, and the M&E systems have been effective to maintain the operational efficiency of the project.

Economic Analysis

27. **At appraisal, an economic analysis by estimating the value of additional carbon sequestered** through project interventions was conducted for a 20-year period. The analysis considered investments as the cost of enhancing the ecosystem services (totaling US$25 million). The cost-benefit analysis (CBA) took into account the timing of expenses and expected benefits from additional carbon credits since carbon sequestration is the primary ecosystem service targeted by the project. Assuming 10 percent incremental increase over the baseline carbon sequestration rates, and a 20-year period for a forest quality improvement project, the total additional carbon sequestered was estimated to be 10.80 million tons. Further, based on an assumption of $1.5 per metric tons of carbon credit, three different scenarios with an increase of 3, 5 and 10 percent of carbon credits after 10 years from the beginning of the project were developed. This would result in an IRR in the range of 28-32 percent, considering the fact that the project cost expenses occur in the first five years. The analysis indicated quite high benefit-cost ratio, between 2.13 and 2.31, for the three scenarios that justified the proposed investment as economically sound.

28. **At completion, the analysis from appraisal was recreated and modified** by using (i) expected disbursement figures, (ii) Strengthening the capacity of forest departments and local institutions, (iii) carbon credits from carbon emission reduction benefits and (iv) monetary benefits due to sustainable land and ecosystem management. The analysis is modelled around three scenarios using different values of carbon credits ranging from 1 carbon credit =$3.37-$20 to illustrate that even a small incremental value-added to ecosystem services can generate significant valuation benefits and justify the project investment. The project resulted in 7,387 hectares of total area restored, through various activities such as plantation, soil moisture conservation works etc. contributing to the enhancement and restoration of carbon stock in forested areas. For carbon credits estimation, it is assumed that 1 ha of area sequester 11 tonnes of CO_2 per year. Also, based on an assumption that there is one beneficiary per household in the ESIP forest range, the estimation of the monetary benefits for this component was conducted. The difference in difference of average annual income per household between the pre-project and post-project period is 26 percent in MP and 12 percent in CHG ESIP Forest Ranges. To estimate the benefits from the capacity building component, it has been assumed that the project resulted in efficiency improvement of 31,710 trainees. For The cost benefit analysis results in an IRR of 33, 36, and 41 percent for the three alternate scenarios. A detailed economic analysis is in Annex 4.

29. Overall, considering the aspects of long preparation phase, design and implementation efficiency and in recognition of the economic benefits, the overall efficiency of the project is rated as Substantial.

D. JUSTIFICATION OF OVERALL OUTCOME RATING

Rating: Satisfactory

30. **ESIP is assessed with high relevance at the end of the project period, substantial outcomes in all key indicators with substantial efficacy, and substantial efficiency, and thus overall, merits a Satisfactory rating.** The project successfully overcame the initial delays and covered the loss of planting season due to COVID-19. The 10 percent undisbursed amount is primarily on account of exchange rate savings, as the originally planned activities were fully implemented against the original budget in local currency. The project has directly contributed to India's NDCs, Bonn Challenge, World Bank Climate Action Strategy, and demonstrated that investments for restoring forests yield

significant ecosystem services, land productivity and livelihood Co-Benefits, three prominent metrics for also assessing resilience and adaptation to climate change. The successful implementation and lessons from ESIP have paved the way for a follow-on engagement with MOEFCC and select states, which is expected to lead to a new investment project.

E. OTHER OUTCOMES AND IMPACTS (IF ANY)

Gender

31. **The project had a focus on women and all outcomes relate to benefits for a large share of rural women and their households.** Most notably, the provisioning of Mahua nets, substantially reduced drudgery for women by reducing time required for collecting Mahua flowers by almost 75 percent. Given that women are typically responsible for collecting forest products and they form an active part of the afforestation workforce[6], this is a significant gender-positive impact. Other gender benefits included social, organizational, livelihoods benefits, and access to a range of other government schemes/platforms of forestry and agriculture. Women benefitted from the use of improved cook stoves through reduced indoor pollution and reduced burden of collecting firewood. ESIP supported the WBG Gender Strategy for FY16-FY23[7]. The project supported women-focused skills development by organizing trainings on tailoring, mushroom cultivation, fisheries, mahua products and more. Of the total respondents who received employment or got self-employment opportunity, 46 percent in MP and 50 percent in CHG reported increase in income after receiving the skill development training provided under ESIP. In the context of women being under-represented in village level decisions and in local statutory committees that manage forests and bioresources, the program prioritized enhancing women's voice and agency by demonstrating participatory planning for livelihood, NTFPs and NRM. Features of the project design that sought to address gender gaps included collecting gender disintegrated data and facilitating female participation in village-level planning.

32. **Results from the impact evaluation show that 50 percent of all project beneficiaries are women (achieving the ESIP target).** Minutes from community meetings, data from the M&E database and findings from the interviews and impact evaluation provide valuable information on women's participation in decision making processes and benefit-sharing at the grass-root level. Female participation has increased in NRM planning, but women's representation in key positions of village-level committees is still low, as it is cultural practice to elect elderly males to the leadership roles in the rural areas where the project was implemented.

Institutional Strengthening

33. **ESIP provided technical assistance to enhance the institutional capacity of the SFD**, Forest Development Agencies, and local communities, thereby contributing towards the achievement of the project's objectives. There was introduction and infusion of new technologies and upgraded online monitoring systems. Both the communities and forest officials benefited from capacity and skill development, especially on spatial planning, carbon assessments and biodiversity monitoring protocols. The state level institutions are now familiar with integrated landscape approaches combining both forest quality and land management under one program.

Poverty Reduction and Shared Prosperity

34. **The project has had significant positive impacts on poverty reduction and shared prosperity.** It mobilized and supported some of the most marginalized communities in remote areas having substantial representation of

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[6] UNDP Gender Equality Newsletter Vol. 4 (December 2019).
[7] Report No. 102114

indigenous peoples. It reduced disparities and promoted inclusiveness approach for sustainable income generating opportunities as well as for managing and planning the local forests and natural resources.

Other Unintended Outcomes and Impacts

35. **The project succeeded in fostering a deeper economic and social connection of communities with forests, landscapes, and biodiversity.** It was instrumental in reviving and making remunerative the traditional economic activities that are closely linked with natural resources such as NTFPs. The project also led to transformative changes in the forestry sector. Notably, it introduced a strategic shift from number-based targets (e.g., number of trees planted) to outcome-based approach for measuring ecosystem services (tons of carbon sequestered).

III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

36. **The project had a long preparation phase due to several reasons.** The initial project preparation focused on the Northern Western Ghats (including the states of Goa and Maharashtra), the Himalayan state of Nagaland and the two ESIP states of CHG and MP. At the same time, there were two GEF projects under preparation simultaneously – ESIP (US$20.1m) and an Integrated SLEM Project (US$4.54m). Given the projects overlapping objectives, and in an effort to achieve technical, operational and administrative efficiencies, the GOI, in consultation with the World Bank and GEF, decided on merging the two projects. As part of this consolidation, several changes took place such as the dropping of Commonwealth Agriculture Board International as an implementing agency, dropping of a sub-component on invasive species and dropping the additional states to then firm up only on MP and CHG. However, the project still couldn't be prepared as the co-financing project, GIM was obtaining requisite approvals from the GOI. Upon GIM's cabinet approval, World Bank related documents were being revised and consensus to be built with the clients, particularly on the PDO, results framework, integration of components from both projects, proposed targets, fund flow, fiduciary assessments, safeguard requirements and implementation arrangements. While these changes already postponed the preparation timelines, further delays on securing a Board Approval were experienced with non-achievement of the Department of Economic Affairs' readiness conditions, particularly on establishing the PIUs and staffing, lack of dedicated budget heads and clarity of fund flow between central and state governments.

37. **Despite time delays, the PDO and project design responded to the Government priorities and had realistic objectives.** The PDO was robust in crafting a forward-looking vision for balancing the development needs while focusing on building capacities, institutions, knowledge for sustainable management of forests and landscapes. Being a pilot project, the design allowed for taking measured risks in attempting to mainstreaming SLEM and enhancing terrestrial carbon assets in the wider landscape, where, unlike protected areas, many species do not have legal protection. Adequate and sound background analysis was undertaken in the form of site-specific studies and indicative plans for degraded forests and landscapes. Several multi-stakeholder consultative workshops were undertaken during preparation that contributed to the design. As a result, selection of sites and identification of target beneficiaries was appropriately done.

38. **Project design was simple and supported innovative and new approaches for NRM at the national and state level.** The project followed good design principles and housed piloting of investments in forestry and landscape management in clearly structured components with well-defined scope and geographies for implementation.

Stakeholders were appropriately selected with clearly identified beneficiary groups. There were three Implementing Agencies rendering a simple implementation mechanism. The project piloted several innovative approaches that were 'firsts' in the country.

- *"STARMAP"* a GIS based monitoring platform was developed to incorporate the present objectives of forest management in monitoring and evaluation of forest development works and to technological options.

- *SLEM Knowledge Sharing and Reporting System*, an online system for Capturing Trends and Status of Key Progress Indicators on Land Degradation and Desertification and for up scaling and mainstreaming SLEM best practices to help in strengthening the India's national reporting to United Nations Convention to Combat Desertification.

39. **Despite a long preparation phase, adequate background analysis was carried out that partially addressed the parameters that impacted its implementation.** The design placed emphasis on government capacity to own, lead and implement while disregarding setting up an innovative and efficient implementation mechanism. Following were the marginal shortcomings that went unnoticed during preparation:

- *Implementation risks were adequately assessed, but their mitigation measures were over-optimistically designed.* Considering the limited institutional capacity for implementation, financial management and procurement, the overall risk of 'substantial' for the project was adequately assessed. However, the designed mitigation measures could not resolve the initial implementation and disbursement challenges. In hindsight, from an operational and design perspective, ICFRE seemed to have low capacity for engaging communities and in identifying low-cost SLEM best practices. Accordingly, an action plan was developed with ICFRE to overcome the slow pace and boost its operational capacity for scaling up SLEM best practices.

- *Readiness for implementation was low.* Given that the preparation phase was rather long, the readiness of the implementing agencies was low and establishing the PIUs took some time. The implementation capacity remained low in the early stages of disbursement, before picking up by MTR.

40. **The choice of financing instrument, the GEF grant, created flexibility.** This aligned well with GOI approach of reconciling development and conservation. It put in place appropriate incentive mechanisms for local stakeholders (relating to reducing forest dependence, reduced emissions from improved cookstoves, reduced forest degradation and more) to benefit from conservation and sustainable use of natural resources. The GEF grant supported testing innovations by way of expanding conservation efforts to the landscape level, improving rural livelihoods, and promoting more biodiversity-friendly development in the surrounding production landscapes around protected areas. It consolidated and built on past experiences (building on the SLEM-Country Partnership Program initiated through the World Bank/GEF funded project on "Policy and Institutional Reform for Mainstreaming and Up-scaling Sustainable Land and Ecosystem Management in India") and demonstrated the effectiveness of new multi-stakeholder partnerships in managing high biodiversity landscapes. The GEF platform supported testing new institutional approaches to participatory conservation and provided important lessons for the GOI strategies and plans in this direction.

B. KEY FACTORS DURING IMPLEMENTATION

Factors subject to government and/or implementing entities control

41. **Upon approval, the project faced disbursement lags due to delay in effectiveness on account of not meeting one of the three effectiveness conditions.** Even after project effectiveness, there was a delay in launching the project,

fully setting up the state-level PIUs and finalizing annual plans, which gives direction to the PIUs on implementation and disbursement. ICFRE particularly experienced initial difficulty in continued disbursement lags, staff vacancies, delayed Grievance Redress Committee initiation and under-performance of scaling-up of SLEM best practices. The roll out of SLEM activities in the field was behind schedule (at MTR, target was only 27 percent achieved).

42. **Post MTR, once the project implementation and disbursement started picking up, the implementation progress suffered for two consecutive plantation seasons due to the combined impact of two waves of COVID.** Despite good technical outputs after the MTR, the loss of two consecutive plantation seasons had limited the field implementation in the period of FY20-21, as well as the capacity building of stakeholders. However, the lowering of the implementation progress rating was only due to the impact of COVID imposed implementation challenges and not a reflection of the performance of the project Implementing Agencies. Due to these unforeseen impacts, the implementing agencies requested a project extension by one year to build on the momentum and effectively achieve the targets. Despite facing COVID impacts, during the pandemic, the project still managed to continue high disbursement (post MTR), produce good technical outputs by way of scaling up of SLEM best practices, completion of SLEM plans, providing enhanced support for green livelihoods (at a time most needed during peak COVID) and continued increased area for forest restoration. The end of calendar year 2021 witnessed substantial improvement in project performance with an upgrade in critical ratings.

Factors subject to World Bank control

43. **The World Bank delivered regular project support in 15 biannual implementation-support missions over six years of implementation.** These missions are well recorded across 15 Implementation Support Review (ISRs) and 9 Aide Memoires. With an average of 2.5 missions per year, two changes in task team leadership, and the addition of a co-Task Team Leader, the project benefited from strong support from the locally-based World Bank team. The presence of Procurement, Financial Management and Environment and Social Specialists was helpful in providing timely resolution of fiduciary and safeguard issues. Adequate budget was made available to provide implementation support and the Bank task team included internationally experienced staff members and task team leaders also.

44. **Reporting of key issues and technical inputs.** The task team candidly reported the issues as they arose both in the timely ISRs and during the Tripartite Portfolio Review Meetings between the Bank, MOEFCC, State Governments and DEA. The early issues of implementation delays, unmet readiness conditions and disbursement lags were well-reflected in the aide memoires and the management letters. Both the senior Bank management and senior officials in the government were appraised of these early implementation issues, which helped in resolving the matter and upgrading the project ratings. Each aide memoire presented the status of agreed actions from previous missions. The Bank team provided several technical inputs and recommendations[16] in developing the knowledge products, designing of training manuals, organizing thematic workshops and consultations, and facilitating development of action plans for improving project performance.

45. **The MTR was a turning point in the project's implementation, which set it on a path to achieve intended outcomes.** Going into the MTR in March 2020, the project had disbursed less than a quarter of funds and needed to disburse 83 percent in 29 months. Inadequate project management structures and low absorption capacity of funds with inadequate technical support from the PMU had caused significant implementation delay. At the MTR, the team conducted an assessment of the borrower's commitment to the project, relevance to the PDO and institutional capacity for the project implementation. The MTR concluded in the affirmative the afore-mentioned assessments and guiding-questions, where the mission took stock of and finalized time-bound and milestone-linked action plans,

annual plans of operation (APOs), procurement plans, floating critical consultancy tenders on Component 3, and staffing requirements. Despite the COVID-induced lockdowns disbursement rose from 17 percent in March 2020 to 28 percent by Oct 2020, thereby changing the implementation trajectory for an upward momentum from then on.

46. **Specifically, the M&E framework and reporting systems were strengthened during the MTR leading to improved project performance.** A theory of change was developed to clarify project outcomes and illustrate the project results chains, the monitoring systems strengthened and procurement of technical partner agencies for scaling up of SLEM activities was completed. Combined, this advanced implementation progress of each component and improved project performance and reporting against the PDO and intermediate indicators as evident in an improved disbursement curve and improved ratings of individual components in the ISRs.

Factors outside the control of government and/or implementing entities

47. **In March 2020, the global Covid-19 pandemic induced a nation-wide curfew.** Lasting for months, this caused overall implementation delay, but the loss of two consecutive plantation seasons had limited the field implementation (particularly Comp 3) in the period of FY20-21, as well as the capacity building of stakeholders.

IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

A. QUALITY OF MONITORING AND EVALUATION (M&E)

M&E Design

48. **The project developed comprehensive monitoring, evaluation, and learning (ME&L) framework.** The framework was designed to facilitate: (a) results and outcome-based management; (b) learning and process enhancement (through participatory methods); and (c) impact evaluation. The ME&L framework was aligned as far as possible with government systems for efficiency and designed indicators were adequate to monitor progress towards PDO. The M&E design had provisions for using technologies that promoted science-based data collection through remote sensing, GIS, and carbon flux towers. Key M&E staff at the ICFRE and both state PIUs were responsible for monitoring the project. A key element of the ME&L framework was continuous learning to permit timely course corrections during implementation. Three sets of indicators were developed: (a) input-output indicators to measure implementation performance, including related process indicators; (b) intermediate results indicators to measure the performance of each project component; and (c) outcome indicators to assess the achievement of PDOs.

49. **The theory of change was coherent with clear links between planned short-term outputs**, intermediate, pathways and project development outcomes, and expected long-term transformational impacts. PDO indicators reflected the outcomes in the PDO and the setting of targets for forestry, landscape and NTFP related PDO indicators were clear. Design of component activities supported all the outcomes of the PDO in an integrated approach to ecosystem management emphasizing the shared assets and benefits of conservation and community outcomes.

M&E Implementation

50. **The project fully utilized its monitoring arrangements, embedded mainly in the PIUs, captured information on project/activity-based inputs, processes, outputs, and outcomes for dissemination by deploying online tools, use of mobile apps, GIS platforms and other technological solutions.** Regular data collection and GIS based plotting was carried out. Besides the project's results framework, data was collected on several other parameters that guided implementation. The project presented reports to the national governing body, national-level steering

committee, and state-level steering committees to help them advise the project. The ICFRE and State PIUs collected periodic reports on physical and financial progress from relevant departments. All this reporting was based on user-friendly offline Excel formats and featured in the final third-party impact evaluation along with regular reporting done under the ISRs. Numerous key project outputs were GIS-based and Web-based, such as STARMAP, Management Information System, Plantation Monitoring System, SLEM Portal for national reporting to United Nations Convention to Combat Desertification, and various reports such as 'Roadmap for Institutional & Policy Mainstreaming of SLEM in India', 'Baseline Report of Forest Carbon Stocks of ESIP Project Areas of Madhya Pradesh & Chhattisgarh', 'Measurement of Forest Carbon Stocks for Capacity Building of State Forest Departments' and 'Baseline Report of Socio-Economic Status of ESIP Project Areas of Chhattisgarh & Madhya Pradesh' (all links available in Annex 6). In hindsight, the project would have benefitted from third-party impact evaluation at MTR.

51. **The M&E team in the PIU employed several tools to systematically reported on financial and physical progress and achievement of outcomes.** Activity monitoring was undertaken on a regular basis by conducting field monitoring missions, reviewing monthly physical and financial progress reports by components, continuous government audits and results monitoring during World Bank biannual supervision missions, as well as mid-term and terminal impact evaluations. For contracts, weekly monitoring was put in place to track implementation progress. Safeguards compliance monitoring was undertaken by the PMU and PIUs and an active Grievance Redress Mechanism was established. To address any conflict and issue for management (however, they remained unused).

M&E Utilization

52. **M&E data and information was actively used for project management and accountability purposes and for continuously informing project implementation.** M&E data was regularly discussed at operational meetings and taken into account when planning and implementing project activities, which supported sound decision making, including on budgetary allocations. During monthly operational meetings, data on the indicators in the results framework as well as physical and financial progress were discussed. Steering Committees provided technical guidance and monitoring support. M&E data guided the reporting of progress against APOs as well helped set annual targets for project activities. Furthermore, M&E data figured prominently in the communication products packaged for a broad audience to inform about the project and its implementation.

Justification of Overall Rating of Quality of M&E

53. **Overall rating of the quality of the M&E is Substantial.** The M&E system was sufficient to assess the achievement of the PDO and progress in implementation. The project established a robust M&E system, evolving with the project, increasingly paid attention to tracking the RF closely, and provided data-based reporting on a range of critical implementation activities and outputs, which helped the management to improve performance.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

54. **No significant and irreversible environment and social safeguards impacts, risks and issues were observed.** The project complied with the safeguard policies and was rated "Category B" (partial assessment) with expected significant positive environmental and social impacts. The following safeguards policies applied: OP 4.01 Environment Assessment given the project spread over degraded forest areas and vulnerable and extreme poor as primary stakeholders; OP 4.04 Natural Habitats and OP 4.36 Forests to encourage the SFD to exercise due diligence and ensuring that activities in forestlands are aligned with their management/ working plans and do not result in any significant adverse impacts on forest quality; OP 4.10 Indigenous People, to ensure the inclusion and benefit sharing from the households of Scheduled Tribes and Scheduled Caste. The project remained in compliance with all the triggered safeguard policies and with the legal covenants. The project completed planned mitigation activities,

including the timely preparation and disclosure of safeguard instruments such as the Environment & Social Management Framework (ESMF), Environmental Assessment, and the Tribal Development Framework.

55. **Until the November 2019 ISR, the safeguard rating was maintained at 'Satisfactory', however, during the MTR in March 2020, it was downgraded to 'Moderately Satisfactory'.** This was done due to several reasons, (i) Initial reporting of beneficiary details regarding gender and social grouping were provide as aggregated data and not in specified formats, as per the ESMF; (ii) Delay in the appointment of the Social Specialists in CHG; (iii) Delay in the awareness of the GRM (already in place from effectiveness) and in operationalization of the Grievance Redress Committees; (iv) While participatory planning methods have been followed in resource use planning and management, the outputs needed to exist in writing/print, and copies of the plan (in the local language) were to be available with the community groups/JFMCs for ready reference; (v) Minor cases of motorable road access being cut off from main habitation due to ESIP plantations in two hamlets (Saliadan and Karhaiyapara with 15 and 20 households respectively).

56. **These problems were completely addressed within 6-8 months, as recorded in the ISRs and aide memoires through,** (i) Disaggregating data from reports as per Project ESMF norms; (ii) Hiring of Social Specialist at both ESIP states; (iii) Strengthening and awareness-building of GRM[8] along with formation and operationalization of Grievance Redress Committees; (iv) PIUs engaging the services of grassroots agencies that support community mobilization, capacity building efforts for enterprises, and facilitate strengthening of community-based institutions, including JFMCs, SHGs and User Groups, for NRM and data recording; (v) Access paths made for the two hamlets aforementioned. The 'Overall Safeguards Ratings' continued to remain 'Moderately Satisfactory' until project closure with project documents recording steady progress in completion of all planned mitigation activities.

Fiduciary Compliance

57. **Based on the Financial Management and Procurement capacity assessments carried out at preparation, Fiduciary Risk was assessed as "Substantial"** because of the PIUs lack of experience with World Bank operations, limited fiduciary capacity, a decentralized fund flow and weak reporting structures. As a result of the capacity assessment, several mitigation measures were proposed and implemented, such as, dedicated fiduciary training sessions on Bank procurement procedures, handholding of procurement focal points within each PIU through Bank and consultant support and establishing compliant handling mechanisms at all PIUs. The PIUs took time to familiarize themselves on Bank processes such as the use of Systematic Tracking of Exchanges in Procurement and the periodic submissions of APOs, Procurement Plans and Interim Unaudited Financial Reports. However, these issues were resolved through constant hand-holding support and guidance from Bank staff, where issues were periodically recoded in the ISRs, aide memoires and at Tripartite Meetings chaired by the DEA. Overall, the Financial Management rating was maintained as 'Satisfactory' and the Procurement rating was maintained as 'Moderately Satisfactory'.

C. BANK PERFORMANCE

Quality at Entry
58. **The project design was based on sound background analysis of the forest sector undertaken during preparation, which included learning from lessons under earlier forestry projects funded by the Bank.** Given that the project was conceived before the Paris Agreement and NDCs, it was able to foresee and pre-empt that carbon sequestration

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[8] At project closing, there were no complaints recorded through the GRM

would be a critical ecosystem service at the global level, which confirms the high quality of project design. The design contained ample provisions to onboard technical agencies that bridged the gap in institutional capacity. The design was not complex and included only two states and three implementing agencies across the two states. Only the forest departments were selected for implementing the project in both the states keeping the fund flow simple. The design incorporated lessons from previous projects on the challenges of release of funds from the center to the States and accordingly shifted the grant directly to be funded from the budget of the State Governments. The MOEFCC demonstrated full commitment reflected in early endorsement letter for the GEF Chief Executing Officer, helping in organizing a series of consultations from community to expert levels, technical workshops, field visits and fiduciary assessments. The project design had identified relevant sector gaps and project activities were planned to address these. Adequate background analysis was carried out for bringing efficiency and greater impact on the ground, and two GEF funded projects were merged to form one, which was bigger and followed landscape approach.

Quality of Supervision

59. **The World Bank team provided adequate supervision support and was proactive in elevating critical issues for management attention.** The World Bank's proactive leadership with close supervision and technical oversight was essential to accelerating implementation progress. Despite a global pandemic and weak IA capacity, World Bank support enabled a substantial achievement of project outcomes. Further, the project's design addressed the emerging priorities of the Government of India's GIM, including protecting and restoring India's forest cover and responding to climate change by a combination of adaptation and mitigation measures. The Bank conducted fiduciary and safeguards workshops to build borrower capacity and supported knowledge workshops. Key national institutes, such as the Forest Survey of India, were onboarded to help develop methodologies for technical assessment of carbon sequestration. The Bank reviewed and provided critical comments on the special studies carried out during project. The participation of fiduciary and safeguards colleagues during supervision visits helped in resolving any implementation issues.

Justification of Overall Rating of Bank Performance

Rating: Satisfactory

60. **The Bank team identified the strategic opportunity for this project, facilitated its preparation, and provided critical support to achieve the PDO over six years of progress and challenges.** The Bank provided regular, timely, and sound supervision and adequate technical advice to address those challenges and ensure the quality of project components and activities. Implementation support extended across all project components, multiple sectors, and rural locations with high climate vulnerability. The project successfully convened multiple stakeholders, including government and civil society, in testing multiple models and innovations within SLEM and forestry sector. This endeavor was supported with strong technical knowledge, international and national experience in project implementation, a deep appreciation of the national context, and the capabilities marshaled by Bank team members. The Bank team took several proactive measures, facilitated workshops by project officials, identifying sites and organizations of interest; and organized capacity building events with speakers whose knowledge of SLEM and forestry sector experiences broadened the understanding of local policymakers, academics, and implementing staff. Bank support, advice, reporting, and supervision were acknowledged and appreciated by ICFRE and state governments. Whenever possible, the Bank team, jointly with ICFRE and state officials, met with senior policymakers at the national and state level to apprise them of the project's relevance and progress. Such interactions contributed to positive outcomes that were not envisaged at appraisal but are expected to contribute to the sustainability of the project's results.

D. RISK TO DEVELOPMENT OUTCOME

61. **The overall risk to development outcome is rated as 'low'.** Income diversification and income increases were achieved (and over-achieved), in the long-term, the sustained accrual of these benefits depends on further access to opportunities and financial resources, as well as technical support services. In this regard, creating a strong community platform under the project through SHGs-SFD, providing livelihoods & support services through cadres, and the system developed for accessing financial resources through financial institutions deserves merit. The enhanced capacity of community institutions and SFDs confirms the likelihood of post-project continuity of services.

62. **Continuing institutional support: Both for further income, sustainability, growth, and access to a range of other services also fostered under the project is a crucial element in maintaining institutional support capacity at different levels.** The project has done well in this regard and successfully implemented the approach at a local scale. The ICFRE and SFD have emerged as critical support networks for SHGs, community organizations and individual locals of different types. The successful institutional support has paved the way for a potential follow-on engagement with MOEFCC and select states on forest landscape restoration. These institutions, in turn, will be supported by ESIP's strong linkages to, and growing demand for, its innovative SLEM and forestry sector intervention from a range of other state departments and agencies for delivering a range of ecosystem and livelihood services. This continuity of support will be critical to the various community organizations in the future.

V. LESSONS AND RECOMMENDATIONS

63. **A shift from a target-centric to an outcome-based approach can successfully help enhance flow of ecosystem services and help India achieve its NDC of sequestering 2.5-3.0 billion tonnes of CO_2eq.** The project demonstrated that focus of interventions when moved from tracking physical and financial progress to measurement of ecosystem services lead to transformative changes that directly benefit rural communities. As is seen under ESIP, restoration of a fraction of degraded forest for improving its quality influenced a much larger area of the landscape and increased the rate of carbon sequestration and capacity of providing water during pinch periods.

64. **Integration of Technology: The use of GIS, mobile apps etc. has proven to be effective in planning, implementing, and monitoring forest management activities.** It has helped SFD in reducing its efforts on sundry works and concentrate more on their conservation and protection role. It is recommended these technologies are further integrated into forest management practices to improve efficiency and effectiveness. SFD can also invest more into developing additional modules and functionalities to make them more useful and effective. Moreover, Technology and restoration models are now available to scale up carbon sequestration and measure it accurately. The project introduced the Carbon Flux Towers for measuring carbon sequestration on a near real time basis. Restoration models with use of planning tools, such as, STARMAP can speed up forest restoration and conserve indigenous tree diversity. Utilizing this approach, MP has already scaled up application of STARMAP throughout the State.

65. **From compartment-based investments to Landscape Level Planning combining investments on forest and non-forest lands can unlock greater economic and ecological benefits.** By integrating SLEM outside of forests as part forest restoration provide a wider range of economic and ecological benefits of enhancing land productivity, diversified livelihoods opportunities and increased ecosystem services, thereby, confirming that the landscape approach for restoration holds promise for scaling up while targeting restoration of degraded ecosystems.

66. **Critical policy and institutional reforms are necessary to make forestry remunerative for rural communities and for attracting private sector financing.** As demonstrated under ESIP, strategic investments in NTFP value chains can substantially enhance economic returns for the rural poor. With proper identification of select NTFPs, private

sector investments in value addition and marketing can upscale both the domestic and international trade in NTFPs and support setting up of forestry-enterprises amongst forest-dependent communities, who are otherwise remain unconnected to economic opportunities.

67. **Forests are an integral part of the natural capital and can be sustainably utilized for resilience, adaptation, and mitigation benefits against climate change.** Restoration models developed under ESIP confirm that forests are a low-cost pathway and/or Nature-based Solutions for addressing the climate change impacts. They make communities resilient by creating a safety net wherein communities increase their reliance on forest during climate shocks. Restored forests improve adaptation through increased flow of ecosystem services. When restored scientifically, forests can sequester more carbon over the baseline thereby increasing mitigation.

68. **Meeting readiness conditions, a robust M&E system and continuous supervision are essential to maintain project design and operational efficiency.** The task team candidly and systematically reported the early issues of implementation delays, unmet readiness conditions and disbursement lags in the aide memoires, ISRs and management letters as they arose. Both the senior Bank management and senior bureaucrats in the government were appraised of these early implementation issues, which helped in resolving the matter and upgrading the project ratings over the project lifecycle. The Bank team provided several technical inputs and recommendations in developing the knowledge products, designing of training manuals, organizing thematic workshops and consultations, and facilitating development of action plans for improving project performance. Hence, even though the project design was time consuming along with early implementation delays, the project outputs and outcomes responded to government priorities due to consistent implementation of M&E systems and continuous supervision.

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ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: The project development objective (PDO) is to Improve forest quality, land management and non-timber

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
People in Forest&Adjacent Community with Monetary/non-monetary benefit from forest (Number, Custom)	Number	0.00 28-Feb-2015	5,000.00 30-Jul-2023	5,000.00 30-Jul-2023	18,834.00 30-Jul-2023

Comments (achievements against targets):

Achieved and Exceeded (377%). The indicator measures the scale at which people benefitted from project activities, covering all the three parts of the PDO, namely, from forest quality, land management and NTFPs. It tracks policies, institutional arrangements, investment plans and outreach influenced by the decision-making processes supported by the project. This indicator also reflects the success of the efforts made by the project in reducing the unsustainable practices and enhancing the alternative income sources for the project beneficiaries for overall livelihood improvement of forest-dependent communities. Livelihood improvement could be broadly categorized under three buckets – (i) skill enhancement through technical training (tailoring, traditional crats, electrician etc.), (ii) forest quality improvement (increased volume of NTFPs and its value addition, wage opportunities in restoring ecosystems, increased water availability for additional cropping), and (iii) improving land productivity on agricultural farms (vermicomposting, hybrid seeds,

upscaling SLEM practices). Increased monetary and non-monetary benefits from forests are good proxy indicator to measure increased adaptation capacity and resilience against climate change.

Data Sources: This assessment is based on an impact evaluation that gathered actual data/evidence through the analysis of the approved Annual Action Plans, annual progress reports, technical support provided and household level survey in project landscapes at completion

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
People in Forest & Adj. Community with benefit from forest-female (Number, Custom)	Number	0.00 28-Feb-2015	2,500.00 30-Jul-2023	2,500.00 30-Jul-2023	9,655.00 30-Jul-2023

Comments (achievements against targets):

Achieved and Exceeded (386%). The indicator measures the proportion of direct beneficiaries that are female. While the indicator measures the absolute number of female beneficiaries, it was projected at 50 percent of the total target. In absolute terms, the indicator exceeded and in percent terms, it achieved the 50% target. This confirms the gender focus of the project activities as well as female participation in project planning and implementation.

Data Sources: Annual progress reports and impact evaluation report.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
People in Forest&Adj.	Number	0.00	2,500.00	2,500.00	14,954.00

		28-Feb-2015	30-Jul-2023	30-Jul-2023	30-Jul-2023
community with benefit from forest-ethnic minority/indigenous (Number, custom)					

Comments (achievements against targets):

Achieved and Exceeded (598%). This indicator measures the extent to which the indigenous communities (called tribal in the Indian context) benefitted from the project. While the indicator measures the absolute number of tribal beneficiaries, it was projected at 50 percent of the total target. This confirms that outreach, inclusion, community engagement and participation by vulnerable groups was well designed and executed.

Data Sources: Annual progress reports and impact evaluation report.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Land area under sustainable landscape managment practices (Hectare (Ha), Corporate)	Hectare(Ha)	0.00 28-Feb-2015	25,000.00 30-Jul-2023	25,000.00 30-Jul-2023	25,316.00 30-Jul-2023

Comments (achievements against targets):

Achieved (101%). This indicator measures the extent to which the SLEM best practices were scaled up within the targeted project landscapes. A range of pre-identified and tested SLEM best practices were scaled up with some customization to suit local landscape conditions. Number of farmers benefitted in terms of improved land productivity from these activities were captured under other indicators covering benefits. The achievement under this indicator directly contributes to sustaining integrated food systems and supply chains as well as to India's Bonn Challenge target of restoring 26 million ha.

Data Sources: Direct beneficiary feedback obtained during implementation support missions, Annual progress reports and impact evaluation report.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Average cumulative carbon sequestered per hectare in areas supported by the project (Tones/year, Custom)	Tons/year	2.53 28-Feb-2015	2.78 30-Jul-2023	2.78 30-Jul-2023	2.78 30-Jul-2023

Comments (achievements against targets):

Achieved (100%) in Madhya Pradesh (11.25%) and partially achieved in Chhattisgarh (7.51%). This indicator measures the key primary ecosystem service, carbon sequestration, targeted by the project. The restoration of degraded forests was delayed in Chhattisgarh, as a result, at the time of measuring carbon sequestration, the forests were still in early stage of growth. Whereas in MP, the forests had grown sufficiently to achieve the project target. Given equivalent area and seedling survival rates at par with Madhya Pradesh, Chhattisgarh is expected to achieve the 10% carbon sequestration target in another year. The results show that scientifically developed forest restoration models can aid India in achieving the ambitious NDC target of sequestering 2.5-3.0 billion tons of CO2 eq. through additional forests.

Data Source: Data from 5-pool carbon sequestration analysis and automated data collected through two Eddy co-variance carbon flux towers installed by the project, one each in MP & CHG.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Targeted beneficiary groups engaged in participatory planning under the project (Number, Custom)	Number	0.00 28-Feb-2015	500.00 30-Jul-2023	500.00 30-Jul-2023	630.00 30-Jul-2023

Comments (achievements against targets):
Achieved and Exceeded (126%). This indicator measures the corporate indicator of citizen engagement and confirms that the project followed a successful strategy of engaging beneficiary groups at each stage of preparation (stakeholder consultations) and implementation (community level decision making meetings). For each SLEM scaling up plan, the general body of the *Gram Panchayat* passed a resolution, confirming that the SLEM plans were prepared following a citizen centric approach.

Data Source: *Gram Sabha* resolutions, ICFRE annual progress reports and Impact Evaluation Report.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Direct project beneficiaries (Number, Custom)	Number	0.00	25,000.00	25,000.00	66,402.00
		28-Feb-2015	30-Jul-2023	30-Jul-2023	30-Jul-2023

Comments (achievements against targets):
Achieved and Exceeded (265%). The indicator measures the number of people benefitting directly from project activities. This is not an outcome indicator per-se and is not linked to any specific component or activity, but the result was assessed during the final impact evaluation study covering all project components and activities across all project landscapes as well as in the government institutions that were supported for capacity building.

Data Sources: Impact evaluation report, project M&E and annual progress reports.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Female beneficiaries	Percentage	0.00	50.00	50.00	50.00

(percentage, Custom Supplement)		28-Feb-2015	30-Jul-2023	30-Jul-2023	30-Jul-2023

Comments (achievements against targets):
Achieved (100%). The indicator measures the proportion of direct beneficiaries that are female with a target set at 50 percent. At project completion, women account for 50 percent of project beneficiaries under all components across all project activities and targeted project landscapes.

Data sources: Impact evaluation report, project M&E and annual progress reports.

A.2 Intermediate Results Indicators

Component: Strengthen Capacity of Government Institutions in Forestry and Land Management Programs in Madhya Pradesh and Chhattisgarh

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Area of forestlands and corridors under biodiv monitor by SFD use protocol dev. by proj (Ha, Custom)	Hectare(Ha)	0.00 28-Feb-2015	25,000.00 30-Jul-2023	25,000.00 30-Jul-2023	25,748.00 30-Jul-2023

Comments (achievements against targets):
Achieved (103%). The project brought areas of forests and corridors (usually narrow areas connecting two habitats facilitating wildlife movement between them) under monitoring using the biodiversity monitoring protocol developed through project support. This indicator supported use of scientifically tested protocols to monitor the status of species and presence-absence of rare, endangered and threatened species in the project landscapes. It also introduced new institutional approaches for landscape management by widening the scope and scale of biodiversity monitoring.

Data Sources: Verification of biodiversity monitoring protocols, impact evaluation report, project M&E and annual progress reports.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Participating states with carbon stock measurement and monitoring system supported by project oepration (Number, Custom)	Number	0.00 28-Feb-2015	2.00 30-Jul-2023	2.00 30-Jul-2023	2.00 30-Jul-2023

Comments (achievements against targets):

Achieved (100%). The two participating states were the targets and in both states, carbon assessment baselines were developed, stock measurement was carried out for the 5 forest carbon pools, and the carbon flux towers were installed and commissioned. The two carbon flux towers continue to provide near real time data for measuring round the clock carbon sequestration in forests. This directly contributes to building state level institutional capacity and ensuring scientific approaches for monitoring, reporting and verification.

Data Sources: Annual progress reports and carbon sequestration assessment reports from/by ICFRE

Component: Investments for Improving Forest Quality in Selected Landscapes

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
New Areas outside protected areas managed as bio-div friendly (Ha, Number,	Number	0.00 28-Feb-2015	30,000.00 30-Jul-2023	30,000.00 30-Jul-2023	66,655.00 30-Jul-2023

Custom)				

Comments (achievements against targets):

Achieved and Exceeded (222%). The number reported under this indicator combines the areas brought under biodiversity monitoring in corridors, area under those SLEM best practices that contribute to enhancing soil microbiota and forest area restored. This indicator was added, as it was one of the World Bank core indicators at the time of project preparation. It is no longer a core indicator of the World Bank.

Data Sources: Annual progress reports.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Landscape area restored through treatment of 10,000Ha through project support (Hectare, Custom)	Hectare(Ha)	0.00 28-Feb-2015	50,000.00 30-Jul-2023	50,000.00 30-Jul-2023	50,538.00 30-Jul-2023

Comments (achievements against targets):

Achieved (101%). This indicator emphasizes that by physically treating a smaller area within a landscape, the benefits of such treatments percolate wider in the landscape. For instance, increase in cropping area in some of the villages in Madhya Pradesh, as a result of the upstream restoration of forest area that increased the availability of irrigation water in the catchment during the pinch summer months. This is a measured evidence in support of applying the landscape approach for ecosystem restoration for enhanced flow of ecosystem services, such as, water and pollinators, both of which are critical inputs for agriculture.

Data Sources: GIS-based estimation carried out by the SFDs of MP & CHG.

Component: Scaling-up Sustainable Land and Ecosystem Management in Selected Landscapes

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Govt agencies using the online land degredation and dessertification indicator portal for reporting (Number, Custom)	Number	0.00 28-Feb-2015	5.00 30-Jul-2023	5.00 30-Jul-2023	5.00 30-Jul-2023

Comments (achievements against targets):

Achieved (100%). This indicator measures state-level institutional capacity strengthening and use of digital technology for data monitoring and reporting. The data reported through this portal (developed through project support) will bring efficiency and accuracy in preparing reports and submissions, that are India's obligations under UNCCD. It will provide updates on tracking India's international commitments under the Bonn challenge.

Data Sources: Annual progress report of ICFRE.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
SLEM best practices disseminated on ICFRE knowledge platform (Number, Custom)	Number	0.00 28-Feb-2015	10.00 30-Jul-2023	10.00 30-Jul-2023	12.00 30-Jul-2023

Comments (achievements against targets):

Achieved (120%). This indicator measures the extent of dissemination of knowledge projects focusing on sustainable land management that helps restore land productivity. Online availability of knowledge products not only ensures wider dissemination at local, sub-national, national and global levels, but also

provides opportunities for periodic updating of the knowledge by the end-users. The SLEM best practices uploaded on the knowledge platform are from actual field implementation supported under the project. This knowledge platform will also help network professionals working on restoration of land productivity, the impacts of which will continue well beyond the project implementation period. The knowledge platform is now part of the Center of Excellence established at ICFRE.

Data Sources: Annual progress report from ICFRE and actual browsing of the portal

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Land users adopting sustainable land mgmt. practices as a result of project (Number, Custom)	Number	5,000.00 28-Feb-2015	5,000.00 30-Jul-2023	5,000.00 30-Jul-2023	17,854.00 30-Jul-2023

Comments (achievements against targets):
Achieved and Exceeded (357%). This indicator reports the number of people/farmers consistently using SLEM best practices for enhancing the productivity of their farmland. Given the nature of support, for example, providing kits and technical support for establishing vermicomposting units at household/farm level is ensuring that farmers are able to lower their inputs costs on fertilizers, as well as, ensuring the sustainability of the practice beyond the project period.

Data Sources: Direct feedback received from land users during mission visits, impact evaluation report and project progress report from ICFRE.

Component: Project Management

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised	Actual Achieved at Completion

				Target	
Govt Institutions Provided w/CB to improve mgmt of forest resources (Number, Custom)	Number	0.00 28-Feb-2015	8.00 30-Jul-2023	8.00 30-Jul-2023	21.00 30-Jul-2023

Comments (achievements against targets):

Achieved and Exceeded (263%). This indicator reports the number of government institutions supported by the project for improving management of forest resources through a series of capacity building programs and trainings, covering key areas of carbon sequestration estimation, biodiversity monitoring, SLEM practices etc.

Data source: Impact evaluation report and project progress reports.

ANNEX 2. Outputs by Components

Objective/Outcome 1: Improve Forest Quality for Forest-Dependent Communities	
Outcome Indicators	**Outcome Indicator No. 1:** People in targeted forest and adjacent communities with increased monetary or non-monetary benefits from forests (disaggregated by female 50%) – 9,636 Beneficiaries (5010 female); <u>Achieved</u> **Outcome Indicator No. 3:** Average cumulative carbon sequestered per hectare in areas supported by the project – 9.8% increment over baseline; <u>Achieved</u>
Intermediate Results Indicators	**IR 1.1**: Area of forestlands & corridors under biodiversity monitoring by the SFD using a protocol developed by project (ha) – 25,748; <u>Achieved</u> **IR 1.2**: Participating states with carbon stock measurement and monitoring system supported by the project operational (Number) – 2; <u>Achieved</u>
Key Outputs by Component (linked to the achievement of the Objective/Outcome 1)	**Component 1** 1.1 Capacity building programs on improving management of forest and land resources organized by MP SFD – 239 1.2 Capacity building programs on improving management of forest and land resources organized by CHG SFD – 60 1.3 Capacity building programs on improving management of forest and land resources organized by ICFRE – 42 1.4 "STARMAP" a GIS based monitoring platform developed by MP SFD 1.5 Mobile App (Forest Restoration Monitoring System) developed by MP SFD – 400 field staff 1.6 MP SFD staff trained on use of GIS System – 39 trainings organized covering 540 forest staff across 18 forest divisions **Component 2** 2.1 In MP, Treatment of 3,624 ha. of degraded forest and moderately dense forest by planting 11,75,963 plants. 2.2 In MP, Upgradation of 11 nurseries of high-quality native species/rare, endangered and threatened species by improving existing infrastructure (cement concrete beds, polyhouse, green house, fogger system micro-sprinkler, vermicompost tanks, mist chamber, seed storage, solar pumps, toilets, labout huts, customer visitor facility. 2.3 In CHG, Treatment of 3,763 ha. of degraded forest and moderately dense forest by planting 10,53,376 plants 2.4 Forestlands and corridors under biodiversity monitoring covered by SFD using protocol developed by project – 25,748 ha 2.5 Eddy Covariance/Carbon Flux Towers with 42m height installed in MP and CHG – 2 Towers

Objective/Outcome 2: Improved Land Management for Forest Dependent Communities	
Outcome Indicators	**Outcome Indicator No. 2:** Land area under SLEM practices (ha): 25,316.23; <u>Achieved</u>
Intermediate Results Indicators	**IR 2.1:** New areas outside protected areas are managed as bio-diversity friendly (ha) – 66,655; <u>Achieved</u> **IR 2.2:** Landscapes area restored through treatment of 10,000 ha through project support (ha) – 50,538; <u>Achieved</u> **IR 3.1:** Govt. agencies using the online land degradation and desertification indicator portal for reporting (Number) – 7; <u>Achieved</u> **IR 3.2:** SLEM best practices disseminated on ICFRE knowledge platform (Number) – 12; <u>Achieved</u> **IR 3.3**: Land users adopting SLEM practices as a result of the project (Number) – 17,854; <u>Achieved</u>
Key Outputs by Component (linked to the achievement of the Objective/Outcome 2)	**Component 1** 1.1 Capacity building programs on scaling up SLEM practices organized by ICFRE covering 18,133 participants (50% female) – 223 1.2 Web-based national system for monitoring land degradation and desertification developed 1.3 Development of a Roadmap for Institutional and Policy Mainstreaming of SLEM in India 1.4 Developed SLEM Knowledge Sharing and Reporting System 1.5 Creation of a National Database for SLEM **Component 3** 3.1 New areas outside protected areas managed as biodiversity friendly in MP (32,180 ha) and CHG (34,475 ha). 3.2 Treatment of land through water conservation works such as check dams, percolation pits, ponds, well-repairing in MP (3,624 ha) and CHG (3,763 ha). 3.3 Rainwater harvesting and augmentation of ground water resource and Climate proofing fish farming – 228 (CHG) & 735 (MP) beneficiaries 3.4 Lac cultivation for livelihood generation and biodiversity conservation – 4,914 (CHG) 3.5 Vermi-composting – 7,329 (CHG) & 7737 (MP) beneficiaries 3.6 Improved Cookstoves leading to reduced dependence on forest firewood – 26,544 (CHG) & 26874 (MP) beneficiaries 3.7 Biopesticides & biofertilizers application for productivity enhancement – 26,874 (CHG) & 12,153 (MP) beneficiaries 3.8 Improved vegetable seeds (Kharif & Rabi Season) for integrated farm development – 27,000 (CHG) & 12,300 (MP) beneficiaries 3.9 WADI tree-based farming – 26,205 (CHG) & 12,822 (MP) beneficiaries 3.10 SRI, a system of rice intensification Azolla broadcasting in Rice fields – 93 (CHG) beneficiaries

	3.11 Azolla cultivation – 14,100 (CHG) & 6,900 (MP) beneficiaries 3.12 Gravity based Drip Irrigation System and Portable Sprinkler Irrigation System – 6,642 (CHG) & 9,225 (MP) beneficiaries
Objective/Outcome 3: Improve NTFPs benefits for forest-dependent communities	
Outcome Indicators	**Outcome Indicator No. 4:** Targeted beneficiary groups engaged in participatory focus group planning under project (Number) – 500; <u>Achieved</u>
Intermediate Results Indicators	**IR 1.3:** Government institutions provided with capacity-building support to improve the management of forest resources (Number) – 21; <u>Achieved</u>
Key Outputs by Component (linked to the achievement of the Objective/Outcome 3)	**Component 1** 1.1 Developed sustainable harvesting protocols for 25 (MP) & 12 (CHG) NTFP species 1.2 Training on sustainable harvesting protocols imparted – 745 (MP) & 4,161 (CHG) beneficiaries **Component 2** 2.1 Growing stock of valuable NTFP (medicinal plants) was improved – 60 ha 2.2 Skill Development training on NTFP business enterprise to local communities in order to combat impact of climate change and secure alternative livelihoods for vulnerable communities 2.3 Investments on NTFP value addition to increase people's incomes

ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

Name	Role
Preparation	
Anupam Joshi	Task Team Leader(s)
Jurminla Jurminla	Procurement Specialist(s)
Anantha Krishna Karur	Financial Management Specialist
Sarita Rana	Team Member
Latha Sridhar	Team Member
Victor Manuel Ordonez Conde	Team Member
Madhavi M. Pillai	Team Member
Varun Singh	Social Specialist
Giovanni Bo	Counsel
Ijeoma Emenanjo	Team Member
Sharlene Jehanbux Chichgar	Social Specialist
Supervision/ICR	
Anupam Joshi	Task Team Leader(s)
Priti Jain	Procurement Specialist(s)
Krishnamurthy Sankaranarayanan	Financial Management Specialist
Avanish Kant	Environmental Specialist
Aditi Jha	Team Member
Vidya Venugopal	Counsel
Pablo Cesar Benitez Ponce	Team Member
Varun Singh	Social Specialist
Anantha Krishna Karur	Team Member

Radha Narayan	Procurement Team
Latha Sridhar	Team Member
Poonam Rohatgi	Team Member

B. STAFF TIME AND COST

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US$ (including travel and consultant costs)
Preparation		
FY13	0	995.60
FY14	7.450	34,050.05
FY15	14.522	81,242.00
FY16	4.319	25,060.86
FY17	8.196	44,919.14
FY18	29.470	195,860.39
FY19	.603	2,759.84
FY20	0	- 8.98
FY22	0	- 86.17
Total	**64.56**	**384,792.73**
Supervision/ICR		
FY19	16.374	123,167.53
FY20	14.763	128,578.43
FY21	15.896	107,930.65
FY22	17.721	117,804.52
FY23	16.613	224,757.86
FY24	8.000	34,052.91
Total	**89.37**	**736,291.90**

ANNEX 3. PROJECT COST BY COMPONENT

Components	Amount at Approval (US$M)	Actual at Project Closing (US$M)	Percentage of Approval (US$M)
Strengthen Capacity of Government Institutions in Forestry and Land Management Programs in Madhya Pradesh and Chhattisgarh	4.0	2.15	53.73%
Investments for Improving Forest Quality in Selected Landscapes	14.50	14.04	96.85%
Scaling-up Sustainable Land and Ecosystem Management in Selected Landscapes	3.74	4.69	125.27%
Project Management	2.40	1.59	66.25%
Total	**24.64**	**22.47**	**91.18%**

ANNEX 4. EFFICIENCY ANALYSIS

1. **The project generated both tangible and non-tangible economic benefits**. However, the economic analysis quantifies only a subset of the benefits that some of the project activities are envisaged to provide. The benefits of this project are associated mostly with increased income of the forest dwelling and adjacent communities due to sustainable land and ecosystem management; positive changes in the livelihood patterns; skill development; SLEM interventions; development of community-based models for sustainable utilization of NTFPs; reduction in GHG emissions; and strengthened capacity and skills of government institutions and local communities in forestry and land management programs.

2. **The economic analysis at the time of completion is not comparable with the appraisal estimates** which were based only on the expected benefits from additional carbon credits assuming 10 percent incremental increase over the baseline carbon sequestration rates, and a 20-year period for a forest quality improvement project. At completion, the economic analysis is based on the (i) economic life of the project (10 years), (ii) break-even point where economic benefits justify the capital expenditures and (iii) expected disbursement figures.

Table Anx 4.1 - Expected Disbursements

Year	2018	2019	2020	2021	2022	2023
Investment Disbursement Ration	4.06%	16.23%	24.35%	20.29%	20.29%	14.78%

3. **As many of these benefits do not translate into direct and measurable monetary benefits**, the analysis focuses on the benefits generated due to sustainable land and ecosystem management, carbon credits from carbon emission reduction and sustainable forest management by strengthening the capacity of forest departments and local institutions. A discussion about the benefits from the three components is as follows:

Sustainable land and ecosystem management

4. A**t the time of appraisal, there were no benefits estimated for this component due to data paucity.** But at the time of completion, a total of 25,316.23 hectares of the area was covered under SLEM and 10 SLEM best practices were implemented in MP and CHG which benefitted around 17,854 households. These best practices supported sustained improvement in the incomes and well-being of farm families in the project areas by focusing on agricultural transformation, sustainable rural livelihood security and enhanced adaptive capacity to climate change. Also, 300 capacity development programs were organized by the SFD of MP and CHG and ICFRE and 223 capacity-building programs on scaling up of SLEM organized by ICFRE covering 18,133 participants. The SFDs of MP and CHG developed sustainable harvesting protocols for NTFPs and provided skill development training to the local communities in order to combat the impact of climate change and secure the livelihood of vulnerable communities under ESIP. The Mahua Net Initiative has provided the tribal households with a reliable source of income and nutrition and resulted in a reduction in forest fire incidents through the use of nets to collect the flowers.

5. **The project also provided non-monetary benefits to the larger population in the two states** from improved forest quality and ecosystems services such as improved water flows, climate amelioration, land productivity, shift in the occupation pattern of the target communities from agriculture and casual labour to NTFP sale and involvement in horticulture and agroforestry. The project has further provided various other non-monetary

benefits such as skill development, alternate livelihood, and SLEM interventions etc. Under the component of community participation in forest management, several capacity building programs were organized for local communities and community institutions, and as per the evaluation survey results, a high level of community engagement and adoption of the project activities was reported.

6. Due to the various interventions, the average income from the pre-project period has increased in the post-project period more in ESIP Forest Ranges as compared to non ESIP- GIM Forest Ranges. As per the project's evaluation report[9]:

    "The average annual income per household has increased in ESIP households due to project interventions"

    In ESIP Forest Ranges-
    *   The average annual income per household in Madhya Pradesh has increased from Rs. 49,594 to Rs. 79,827 and in Chhattisgarh from Rs. 40,663 to Rs. 58,536.

    In non ESIP- GIM Forest Ranges
    *   The average annual income per household in Madhya Pradesh has increased from Rs. 44,921 to Rs. 60,674 and in Chhattisgarh from Rs. 51,109 to Rs. 67,453.
        *   The average annual income per household in Karnataka has increased from Rs. 34,483 to Rs. 42,500 and in Maharashtra from Rs. 40,151 to Rs. 48,613.

7. **The project benefitted around 52,171 beneficiaries, of which 50 percent were in MP and 50 percent in CHG.** The project beneficiaries in target communities have achieved increased monetary or non-monetary benefits from ESIP interventions in various ways such as improved agriculture, increased water availability for irrigation, efficiency in NTFPs collection & processing, skill development, alternate livelihood, SLEM interventions, change in occupation pattern, etc. Also, based on an assumption that there is one beneficiary per household in the ESIP forest range, the estimation of the monetary benefits for this component has been conducted.

8. **The difference in average annual income per household between the pre-project and post-project period is 26 percent in Madhya Pradesh and 12 percent in Chhattisgarh ESIP Forest Ranges.** As per the ESIP impact assessment report, this change can be attributed to the various interventions carried out under ESIP, based on which the estimation of benefits has been made. The value of the total benefits due to the annual income increases per household is estimated to be US$68.6 million, over the next 10 years.

    Improved Forest Quality of selected landscapes and Carbon Stock

9. **At appraisal, an economic analysis by estimating the value of additional carbon sequestered through project interventions was conducted for a 20-year period.** The analysis considered investments as the cost

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[9] Indian Council of Forestry Research and Education, Dehradun & Insight Development Consulting Group, New Delhi (2023). *Final Evaluation Report: Independent Evaluation of Overall Impacts of the Project Activities in Sync with the Project Objectives and the Indicators Under the Results Framework of the Ecosystem Services Improvement Project.*

of enhancing the ecosystem services (totaling $25 million). The CBA took into account the timing of expenses and expected benefits from additional carbon credits since carbon sequestration is the primary ecosystem service targeted by the project. Assuming 10 percent incremental increase over the baseline carbon sequestration rates, and a 20-year period for a forest quality improvement project, the total additional carbon sequestered was estimated to be 10.80 million tons. Further, based on an assumption of $1.5 per metric tons of carbon credit, three different scenarios with an increase of 3 percent, 5 percent and 10 percent of carbon credits after 10 years from the beginning of the project were developed. This resulted in an IRR in the range of 28-32 percent, considering the fact that the project cost expenses occur in the first five years. The analysis indicated quite high benefit-cost ratio, between 2.13 and 2.31, for the three scenarios that justified the proposed investment as economically sound.

10. **At the time of completion, estimation of the benefits out of this component is based on the total area restored due to ESIP.** The results show that a significant increase in the growing stock and natural regeneration area has been achieved in MP and Chhattisgarh. The project resulted in 7,387 hectares of total area restored, through various activities such as plantation, soil moisture conservation works etc. contributing to the enhancement and restoration of carbon stock in forested areas. For carbon credits estimation, it is assumed that 1 hectare of area sequester 11 tonnes of CO_2 per year. The analysis is modelled around three scenarios using different values of carbon credits ranging from 1 carbon credit =$3.37-$20 to illustrate that even a small incremental value-added to ecosystem services can generate significant valuation benefits and justify the project investment. This is projected to result in total benefits ranging from US$3.3 million, US$9.9 million and US$19.8 million for scenario 1, scenario 2 and scenario 3 respectively over the next 10 years.

Table Anx 4.2- Carbon Credit Rate (Scenarios)

	Scenario 1	Scenario 2	Scenario 3
Carbon Credit (USD)	3.37	10	20
Project beneficiaries (monetary benefits)	52171	52171	52171
Total Participants Trained	31710	31710	31710
IRR	33%	36%	41%

As depicted in the table, the cost benefit analysis resulted in an IRR of 33 percent, 36 percent, and 41 percent, for the three scenarios with varying values of carbon credits.

Strengthened Government Capacity in forestry and land management programs

11. **One of the objectives of the project was to strengthen the capacity of government institutions in forestry and land management programs in MP and CHG.** The SFDs, FDAs, and local communities were provided technical assistance to enhance their capacity and skills for improved forest management. The interventions included building institutional capacity, testing and piloting nationwide systems for monitoring forest carbon stocks, and conducting training for human resource capacities.

12. **The SFDs of MP and CHG organized several national and international trainings, workshops, and**

exposure visits to enhance their capacity in GIS, monitoring platforms, mobile applications, and hardware support. STARMAP, a GIS-based monitoring platform has been developed by Madhya Pradesh SFD and 25,748 ha of forestlands and corridors under biodiversity monitoring by the MP SFD using a protocol developed by the project. ICFRE organized 68 capacity building programs, stakeholders, and expert consultation workshops, installed eddy covariance/carbon flux towers for measuring carbon fluxes of forests, and estimated the forest carbon stock for the year 2019. The ESIP project supported activities such as the development of a roadmap for institutional and policy mainstreaming of SLEM in India, the development of an online national reporting portal, and the evaluation of VVKs. The project also supported in the creation of a national database for SLEM practitioners and initiatives, consisting of 362 SLEM practitioners from 117 organizations/institutions, 159 individuals and community groups of SLEM practitioners, 21 award-winning practitioners, and 65 other organizations working on piloting or scaling up SLEM initiatives in the country. The main aim of these initiatives and activities is to promote sustainable land management, enhance agricultural productivity, and minimize environmental impacts in India.

13. **At closing, 31,710 participants were trained, of which 93 percent were forest staff.** As per the project's evaluation survey, the participants reported a notable improvement in efficiency, ranging from 15 - 30 percent, particularly in monitoring forest regeneration. But to be prudent, a conservative estimate of 20 percent improvement in efficiency has been adopted for estimation of economic benefits from this component. This is estimated to generate economic benefits up to $3.3 million over the next 10 years.

ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS

The draft ICR report was shared with the borrower on December 19, 2023.

The borrower accepted the ICR findings and ratings and provided editorial suggestions, which have been incorporated.

ANNEX 6. ESIP KNOWLEDGE GENERATION CAMPAIGN

Overview of ESIP Communications Products, Technical Reports and Sector Publications

ESIP Voices from the Field
Women Farmer shared her experiences in Conserving Forest of Jharkhand - *LINK*
State News Channel: Showcasing multiple outcomes from ESIP project in Chhattisgarh - *LINK*
Interview with Madhya Pradesh Farmer on the benefits of Clean Cookstoves - *LINK*
Interview with Forest Officials at ICFRE - *LINK*
Interview with MP Farmer on Integrated farm development for sustainable land productivity - *LINK*
ESIP Innovations on Seed Variety Covered by Kisan TV - *LINK*
Success Stories from Farmers and Forest Officers on Livelihoods, Betul, MP – *LINK*
Success Stories from State Forest Department on Forest Quality Enhancement, MP - *LINK*
Success Stories from Farmers and Forest Officers on NTFPs, Hoshangabad, MP - *LINK*
Convergence of Green India Mission and ESIP - *LINK*
Success Stories from Farmers and Forest Officers on Ecosystem Services, Sehore, MP - *LINK*
Film on ecosystem service improvement through ESIP, Balrampur, Chhattisgarh - *LINK*
Showcasing outcomes on Carbon Stock improvements through plantations, North Betul, MP - *LINK*
ESIP Forest Improvement Activities
Measurement and Monitoring of Forest Carbon Stocks and Capacity Building - *LINK*
Enhancing Forest Stock Quality, ICFRE - *LINK*
Forest Fire Prevention Initiatives: Mahua Nets - *LINK*
Forest & Landscape Restoration Activities, MP - *LINK*
Green India Mission benefitting from ESIP supported Innovations - *LINK*
ESIP NTFP Livelihood Enhancement Activities
SLEM Practice on Lac Cultivation for Livelihood Generation - *LINK*
NTFP Practices in the forests of Chhattisgarh - *LINK*
Sustainable Practices for Mahua Collection and Processing - *LINK*
Farmer Mela on Sustainable NTFP Practices and Product Showcase at ICFRE - *LINK*
Benefits of Lac Cultivation supported by ESIP - *LINK*
Mahua Bakery Training and Outcomes - *LINK*
Transforming Lives through ESIP Livelihood Activities - *LINK*
ESIP Sustainable Land Productivity Improvement Activities
Scaling up of SLEM Practice on Vermicomposting for Sustainable Land Productivity - *LINK*
Biopesticides & Biofertilizers Preparation for Sustainable Land Production - *LINK*
Scaling up of Improved Cook Stoves for SLEM - *LINK*
SLEM Practice on Rain-Water Harvesting & Augmentation of Water Resources - *LINK*

Film on Expansion of Vermicompost Practices at ICFRE - *LINK*
Improved Cook Stoves distributed by ICFRE - *LINK*
Vermi-compost success story with GIM & ESIP Collaboration, MP - *LINK*
ESIP Awareness Generation & Capacity Building
Beneficiary Awareness Generation Multimedia - *LINK*
ICFRE-IFGTB Mass Clean Drive-World Environment Day -2023 - *LINK*
Awareness rally on World Environment Day, 2023 at ICFRE - TFRI, Jabalpur, MP - *LINK*
ESIP supporting Mission LIFE at ICFRE - *LINK*
ESIP Research supporting Agro-Forestry in other states - *LINK*
ESIP International Workshop at ICFRE, Dehradun - *LINK*
Workshop on 'Eliminating All Forms of Violence & Discrepancies Against Women, ICFRE - *LINK*
Tree Growers Conference: Attendance by ESIP supported farmers - *LINK*
Awareness on International Biological Diversity Day - *LINK*
Mobile and Web-based apps on Awareness Generation - *LINK*
ESIP supported exhibition stall at Vigyan Sarvatra Pujyate Mega Expo - *LINK*
Madhya Pradesh State Awareness of ESIP Components and Activities - *LINK*
ESIP Publications
Roadmap for Institutional & Policy Mainstreaming of SLEM in India - *LINK*
Proceedings of the National Workshop on Agroforestry & Farm Forestry for SLEM - *LINK*
Baseline Report of Forest Carbon Stocks of ESIP Project Areas of Madhya Pradesh - *LINK*
Baseline Report of Forest Carbon Stocks of ESIP Project Areas of Chhattisgarh - *LINK*
Resource Manual: Measurement of Forest Carbon Stocks for Capacity Building of State Forest Departments - *LINK*
Compendium For Policy Makers: Roadmap for Institutional & Policy Mainstreaming of SLEM in India - *LINK*
Baseline Report of Socio-Economic Status of ESIP Project Areas of Chhattisgarh - *LINK*
Baseline Report of Socio-Economic Status of ESIP Project Areas of Madhya Pradesh - *LINK*
ESIP Guidance Manuals for Farmers & Locals
Rainwater Harvesting - Asurefire way to prevent land desertification: Best practices for sustainable land management - *LINK*
Neemastra - Farming Protector: Best Practices for Sustainable Land Management - *LINK*
Jeevamrut - Plant health medicine: Best method of sustainable land management - *LINK*
Dasparni Ark - The Protector of the Crop: Best Practices for Sustainable Land Management - *LINK*
Brahmastra - Complete protection from pests and diseases of farming: Best method of sustainable land management - *LINK*
Beejamrut - Healthy Seeds Best Crops: Best Practices for Sustainable Land Management - *LINK*
Amrit Pani - Amrit for Farming: Best Practices for Sustainable Land Management - *LINK*
Earthworm Manure - Nutrient Rich Organic Fertilizers: Best Practices for Sustainable Land Management - *LINK*
Lac farming - A source of income for lakhs: Best method of sustainable land management - *LINK*
Nadep Fertilizer - Giving Meaning to Waste: Best Practice of Sustainable Land Management - *LINK*

ESIP Guidance Manuals for Forest Officers & Researchers
Wadi System – A tree-based farming system for Sustainable Land and Ecosystem Management :A SLEM Best Practice - *LINK*
Ecosystem Services Improvement Project to improve the quality of forests, increase productivity and improve the livelihoods of forest-based communities - *LINK*
Rain water harvesting and augmentation of water resources for Sustainable Land and Ecosystem Management : A SLEM Best Practice - *LINK*
Rehabilitation of Degraded Bamboo Forests and Agarbatti Preparation : A SLEM Best Practice - *LINK*
Climate proofing fish farming : A SLEM Best Practice - *LINK*
Eco-Restoration and Institution Strengthening : A SLEM Best Practice -*LINK*
Chauka System- A water conservation practice as a part of community resource management : A SLEM Best Practice - *LINK*
Livelihood Diversification through Integrated Production System :Aonla based Agro-forestry : A SLEM Best Practice - *LINK*
Lac Cultivation for livelihood generation and biodiversity conservation : A SLEM Best Practice - *LINK*
Integrated farm development for sustainable land productivity : A SLEM Best Practice - *LINK*
System of Rice Intensification (SRI) : A SLEM Best Practice - *LINK*