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USAID/INDIA FOREST-PLUS 2.0 PROJECT—MID-TERM PERFORMANCE EVALUATION

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ACRONYMS

ALCI	Access Livelihoods Consulting India Limited
APCCF	Additional Principal Chief Conservator of Forests
CAMPA	Compensatory Afforestation Fund Management and Planning Authority
CBET	Community-Based Ecotourism
CED	Centre for Environment and Development
CF	Conservator of Forests
DC	District Collector
DFO	Divisional/District Forest Officer
DM	District Magistrate
DRDA	District Rural Development Agency
DSS	Decision Support System
DSS-F	Decision Support System for Forestry
DSS-PE	Decision Support System for Private Entities
EAFM	Ecosystem Approach to Forest Management
EDC	Eco-Development Committee
EEC	Environmental Education Centre
EQ	Evaluation Question
ES	Ecosystem Services
SFD	State Forest Department
FES	Foundation for Ecological Security
FGD	focus groups discussion
FPO	Farmer Producer Organization
FRI	Forest Research Institute
FSI	Forest Survey of India
FTF	Feed the Future
GA	Geographical Area
GHG	Greenhouse Gas
GIS	Geographical Information System
GoI	Government of India
HoFF	Head of Forest Force
HWC	Human-Wildlife Conflict
IAS	Indian Administrative Service
IBM	Incentive Based Mechanism
IDI	In-depth interview
IFS	Indian Forest Service
IMS	Information Management System
IP	Implementation Partner
IT	Information Technology
JFMC	Joint Forest Management Committee
KII	Key Informant Interview
LCM	Low-Cost Monitoring System
LMP	Landscape Management Plan
MDF	Moderately Dense Forest
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MLA	Member of the Legislative Assembly
MoEFCC	Ministry of Environment, Forest and Climate Change
MoU	Memorandum of Understanding
MP	Management Plan
NABARD	National Bank for Agriculture and Rural Development.
NDC	Nationally Determined Contribution
NTFP	Non-Timber Forest Product

NTFP-IMS	Non-Timber Forest Product Information Management System
NWPC	National Working Plan Code
PA	Protected Area
PCCF	Principal Chief Conservator of Forests
PD	Project Director
PFM	Participatory Forest Management
PLUS	Partnership for Land Use Science
SAR	Synthetic Aperture Radar
SBO	Sub-beat Officer
SFD	State Forest Department
SFDA	State Forest Development Agency
SFS	Senior Forestry Specialist
SHG	Self-help Group
SOP	Standard Operating Procedure
SSP	Site-Specific Plan
TIGRAM	Timber Georeferenced Area Management
TL	Team Leader
TOAT	Tour Operators Association of Telangana
TT	Tools and technologies
TTM	Tools, technologies, and methods
USAID	United States Agency for International Development
USG	United States Government
VDF	Very Dense Forest
VDVK	Van Dhan Vikas Kendra
VOA	Village Organization Assistant
VSS	Vana Samarakshana Samiti/Van Suraksha Samiti
WLS	Wildlife Sanctuary
WP	Working Plans
WPO	Working Plan Officer

ABSTRACT

The United States Agency for International Development's (USAID's) Forest-PLUS 2.0: Forest for Water and Prosperity is an $11.5 million, 5-year (2018–2023) activity that provides technical assistance to support the Government of India (GOI) and other stakeholders in managing forests as essential components of broad-based, inclusive, and sustainable economic growth that meets local needs and addresses global environmental challenges. The activity uses an ecosystem-based forest management approach to improve the management of targeted forest landscapes for enhanced ecosystem services and increased inclusive economic opportunities. This activity builds on the Forest-PLUS (Partnership for Land Use Science) technical assistance program that ran from 2012 to 2017.

In this mid-term evaluation, we assess the activity's progress to date in achieving its objectives and identify areas for improvements, suggested adjustments to existing programs, and recommended priorities for future implementation. For the evaluation, the team visited the activity sites in Bihar, Kerala, and Telangana and conducted 56 key informant interviews with government staff and activity partners, 33 focus group discussions, and 21 in-depth interviews with beneficiaries of the value chain activities. The team also conducted a desk review of project documents.

Overall, Forest-PLUS 2.0 responded to the needs of the GOI and State Forest Departments (SFDs) in developing tools, technologies, and methods for forest and ecosystem service management. It also piloted livelihood value chains that prioritize women and marginalized beneficiaries. However, the full impact of integrating ecosystem services into the broader landscape through landscape management planning and ecosystem service livelihood benefits will take time to materialize. Demand-driven tools and technologies that meet the SFDs' needs will likely have more long-term impact than standalone trainings and value chain demonstrations.

Over the remaining contract period, Forest-PLUS 2.0 will need to sustain momentum to bring some activities to fruition. Key recommendations include integrating landscape plans with district-level planning and identifying potential areas of convergence and funding for implementation; emphasizing the results of economic valuations with policymakers; demonstrating effective incentive-based pilots to bolster the policy and financial framework of ecosystem services-based planning; and providing continued direct support to the value chains to maximize their chance for success and sustainability and create action plans shared and agreed upon across stakeholders.

Recommendations for future activities include adapting the highly successful tool and technology development process to other states and contexts; linking ecorestoration activities initiated under Forest-PLUS 2.0 with the voluntary carbon market using the Working Plans as base documents; clarifying the relationship between forest, ecosystem services, and value chains; designing value chain activities more explicitly around the state institutional context; and, as an alternative or complement to value chain activities, considering outreach and interpretation opportunities that dovetail with state needs and priorities in the forest sector.

EXECUTIVE SUMMARY

EVALUATION PURPOSE AND EVALUATION QUESTIONS

The purpose of this mid-term evaluation of Forest-PLUS 2.0: forest for water and prosperity is to assess the activity's progress to date in achieving its objectives and identify areas for improvements, suggested adjustments to existing programs, and recommended priorities for future implementation. We aim for this evaluation to serve learning purposes by identifying any challenges experienced by the activity to date and formulating appropriate recommendations for corrective actions and effective implementation during the remaining years of the activity and future activities.

BACKGROUND

The United States Agency for International Development's (USAID's) Forest-PLUS 2.0: forest for water and prosperity is an $11.5 million, 5-year (2018–2023) activity that provides technical assistance to support the Government of India (GOI) and other stakeholders in managing forests as essential components of broad-based, inclusive, and sustainable economic growth that meets local needs and addresses global environmental challenges. The activity uses an ecosystem-based forest management approach to improve the management of targeted forest landscapes for enhanced ecosystem services and increased inclusive economic opportunities. This activity builds on the Forest-PLUS (Partnership for Land Use Science) technical assistance program that ran from 2012 to 2017.

EVALUATION QUESTIONS, DESIGN, METHODS, AND LIMITATIONS

The evaluation questions (EQs) focused on the extent to which progress has been made in achieving results across the three primary objectives of the activity, the extent to which women and marginalized groups were integrated into activities, the extent to which the GOI and beneficiary needs were addressed, identifying key lessons and recommendations, and considering if the activity's theory of change is still valid.

The team visited the activity sites in Bihar, Kerala, and Telangana and conducted 56 key informant interviews (KIIs) with government staff and activity partners, 33 focus group discussions (FGDs), and 21 in-depth interviews (IDIs) with beneficiaries of the value chain activities. The team also conducted a desk review of project documents. Data analysis methods included content analysis, triangulation, and site comparisons.

Forest-PLUS 2.0 conducted a wide variety of activities, including numerous trainings and workshops across several forest apps and tools as well as value chains. Capturing the entirety of the program, the results of all activities, and the perspectives across all participants is not possible. However, the evaluation team has made every attempt to access a wide range of respondents across the landscapes, the State Forest Departments (SFDs), value chain beneficiaries, and activity partners.

FINDINGS

EQ 1. To what extent is the theory of change still valid? Is the development hypothesis "an improved ecosystem approach to management will lead to improved ecosystem services and contribute to sustainable and inclusive economic growth" still valid?

Measurable impacts of this development hypothesis will take time and will depend on the scale and effectiveness of implementation. However, Forest-PLUS 2.0 has effectively integrated an Ecosystem

Approach to Forest Management (EAFM) within the Working Plans. It is too early to see improvements in ecosystem services, given that some working plans (WPs) have only recently been prepared, while many more are still underway. Nevertheless, there is every indication, given the degree to which the ecosystem-based approach is being integrated and scaled up, that improvements in ecosystem services will occur in forest landscapes where the prescriptions of ecosystem-oriented WPs are followed. The implementation of landscape management plans (LMPs) is yet to start, and their success will depend on the extent to which they are integrated within the district administration. Measuring the impact of improved management on and connections to livelihoods is an even more complex and long-term challenge. Another challenge is that many of the value chains were not forest-based, and thus not directly connected to forest management or improved ecosystem services.

EQ 2 To what extent has progress been made in achieving the results under Forest-PLUS 2.0?

Objective 1. To strengthen ecosystem-based management of forest landscapes

EQ 2.1 To what extent has the activity been able to promote ecosystem-based management of forest landscapes, and to what extent have the activity interventions led to, or will lead to, improvement in ecosystem services provided by forests and adjacent landscapes?

Forest-PLUS 2.0 has very effectively integrated an EAFM within the Working Plans. It is too early, however, to see improvements in ecosystem services, given that some WPs have only recently been prepared, while many more are still underway. Nevertheless, there is every indication, given the degree to which the ecosystem-based approach is being integrated and scaled up, that improvements in ecosystem services will indeed occur in forest landscapes where the prescriptions of ecosystem-oriented WPs are followed.

LMPs' ability to effectively promote an ecosystem-based approach to land management that will enhance ecosystem service flows is unclear. This will largely depend on whether the LMPs are implemented and integrated within district and Panchayat functioning, and whether this is sustained beyond the life of Forest-PLUS 2.0. There are early indications that this is most likely to happen where there is good buy-in by stakeholders and enabling policies and institutions are in place.

EQ 2.2 To what extent has the activity been successful in introducing innovative tools and technologies in managing and monitoring forested landscapes and in decision-making? And have these tools adequately responded to the needs of the state government agencies?

The Van system has found rapid institutional acceptance, and its use is being scaled up across the Forest-PLUS 2.0 states, as well as in Goa, a non–Forest-PLUS 2.0 state. Forest officers had accolades for several of the other tools and technologies introduced. For example, in Kerala, the DSS-Forestry tool was directly responsive to the state's Ecorestoration Policy of 2021 to remove plantations of exotic species and replace them with native ones. In Kerala, the Non-Timber Forest Product Information Management System (NTFP-IMS) app is set to go live across the state in November 2022. TIGRAM (Timber Georeferenced Area Management) is to be integrated with the National Transit Pass System and piloted in ten states of the country. The application and usefulness of other tools is less certain.

Objective 2. To factor ecosystem services into management of forest landscapes.

EQ 2.3 How effective have been the ecosystem valuation methodologies and their application in valuation? And is the activity on track in implementing appropriate incentive mechanism(s) for managing landscapes to provide ecosystem services?

Awareness of the valuation exercise and its results were limited to senior forest officers in the Forest-PLUS 2.0 landscapes. Valuation is a three-stage process: identification of ecosystem services (ES), their valuation, and use of the valuations in developing Incentive Based Mechanisms (IBMs). Respondents felt that the first two stages have been accomplished, but more focus is needed for the third, including presenting the results of the valuation to senior officers of the SFDs, the planning board, and policymakers. The difficulty in designing and promoting IBMs when there is little knowledge of the utility of valuation methodologies, or even the importance of ES, has led to IBM implementation in Forest-PLUS 2.0 landscapes being slow. COVID-19 has also played a role, compounded by an inability to obtain funding from the district administration or private partners, problems with marketing, and socio-political issues.

Objective 3. To increase economic opportunities from improved landscape management

Overall, the Vanasree Non-Timber Forest Product (NTFP) value chain in Kerala showed the most success. This activity was successful because it met SFD goals and priorities and Forest-PLUS 2.0 was able to approach this value chain in a similar way to Objectives 1 and 2, by primarily providing technical support for priorities established by the SFD. In contrast to the Vanasree NTFP value chain, the other value chains are based on single products or ecotourism activities, and only five of the value chains are fully or partly forest-based. There is no legal extraction of NTFPs in Bihar or Telangana, which is one of the reasons the value chains are not as connected to the forest in these states. Low forest cover in the landscapes of Gaya and Medak probably also contributed to the availability of non-forest-based livelihood options. This means the SFDs do not have as much interest in the value chain activities as the other Forest-PLUS 2.0 activities. Additionally, Forest-PLUS 2.0 implemented the value chains over a relatively short period. Given the time it took to identify and analyze value chains and consider the inclusion of women and marginalized people, activities did not begin until late 2019. The time they had to implement the value chains was further curtailed by COVID, which either delayed or created a gap in the value chains.

EQ 2.4 How have the economic opportunities (including those from improved ecosystem services) benefitted the beneficiaries? What are the community's perceptions about the new economic opportunities?

In general, beneficiaries have not yet significantly benefitted from the economic opportunities, and the activities are not yet self-sustaining. We heard from beneficiaries that they appreciate the new opportunities they have because of the value chains and hope to get continued support from Forest-PLUS 2.0 because they are concerned about sustaining the activities, have questions about material supply and marketing and about who owns the equipment they have been provided, and are waiting to see what benefits they will get when activity chains are fully up and running.

EQ 2.5 How much did the program interact with the targeted beneficiaries to include their voices in achieving the program objectives?

The value chains were designed to incorporate the inclusion of women and marginalized people, but not necessarily to include beneficiaries' voices. The value chains were implemented by community

leaders and government agencies introducing the activity chains and inviting people to participate. In some value chains, like incense, beneficiaries told us they felt their voices were heard by Forest-PLUS, but they also felt their concerns were not being addressed in a timely manner. Regarding some value chains, like tourism, beneficiaries said they were implemented in a top-down fashion without consideration for community interests or concerns.

EQ 3 How have the intervention activities and approaches integrated gender across program implementation?

EQ 3.1 What evidence exists to substantiate the reduction of the gender gap?

One-day introductory programs on Gender Sensitization and Leadership Development for senior officers and the field staff were conducted across all three landscapes, and gender was integrated into leadership trainings for some value chain beneficiaries. However, we were unable to find evidence for a reduction in the gender gap, although, anecdotally, participants were positive about the trainings and their impact. It was unclear whether and how gender trainings will be sustained after Forest-PLUS 2.0 ends. While a large proportion of the value chain beneficiaries are women, most of them involve women doing traditional labor, and we found only anecdotal evidence that value chain activities had an impact on some individual women's economic or social status.

EQ 3.2 To what extent the activity has been successful in involving and benefiting the marginalized communities?

In Kerala, only scheduled tribes can collect from the forest, so anyone involved in NTFP extraction is considered marginalized. In Bihar, given the socio-economic situation and the people targeted for the value chain activities, marginalized people were the primary beneficiaries of the activities. In Medak, it is less clear that marginalized people were the primary beneficiaries of activities, as the participants were primarily women who did not themselves collect from or depend on the forest for resources and, in the case of homestay and moringa plantation value chains, the participants were farmers with land.

EQ 4. To what extent does Forest-PLUS 2.0 respond to the GOI and beneficiaries' needs?

EQ 4.1 To what extent will the capacity building and technical assistance efforts to government institutions achieve the results of the activity?

The tools, technologies, and methods developed by Forest-PLUS 2.0 have been conceived and introduced in close consultation with the Ministry of Environment, Forest and Climate Change (MoEFCC) and the SFDs. The Van system has sped up and eased the burden of working plan development, formerly considered a rather laborious task. Because all the forest divisions across the country prepare working plans on a ten-year cycle, the Van system has garnered favor with the SFDs as it saves them both time and resources. However, the SFDs raised the issue of the capacity of their geographical information system (GIS) and information technology (IT) cells to integrate and use these technologies once Forest-PLUS 2.0 ends and asked for an approach paper or exit strategy to ensure a smooth transition. The need to continue building capacity in the use of the tools, EAFM, and the training of trainers was emphasized, especially because the SFDs have an influx of newly recruited staff who would benefit from this. Forest-PLUS 2.0's gender training programs are critical given the 33 percent reservation for women as forest guards in many states, but a special needs assessment should be conducted separately for them.

EQ 4.2 To what extent has the project engaged the private sector, and what are the results and lessons learnt?

Investment by the corporate sector in enterprise development is low. One reason is COVID, which hit when value chains were not yet ready to showcase to potential investors. Also, once COVID hit, investors limited their investments primarily to COVID-related activities. Additionally, the tourism sector was severely hit by COVID, making those value chains particularly difficult to demonstrate. Other factors also played a role in private sector investments. Tour operators are unwilling to invest in tourism options in forest areas managed by SFD and governed by stringent acts and policies. With regard to NTFPs, the private sector is usually looking for large volumes and marketability of and demand for products, which are slightly more difficult with NTFPs. In turn, SFDs also have reservations and limitations when working with the private sector, and they believe that the private sector are likely to overharvest and exploit resources unsustainably.

CONCLUSIONS

Through its technical support, Forest-PLUS 2.0 has taken an ambitious step in expanding the ecosystem approach to forests and the larger landscape. It has enhanced awareness of the value of forests and associated ecosystems in providing the ES needed for the functioning and prosperity of sectors such as agriculture, fisheries, irrigation, industry, and clean water supply. As several respondents said, the measure of a forest is far more than just timber or a habitat for wild animals. Forest-PLUS 2.0 has highlighted the need to rejuvenate ecosystems collectively at a landscape level. The reality, however, is that funding and integration at the district level are hard to achieve without enabling systems and institutions. Forest-PLUS 2.0 has underlined the challenges of expanding a forestry program outside forest areas and implementing ecosystem approaches at the landscape level. In terms of the livelihood activities, because most of them are not forest-based and do not match with the technical assistance model of Forest-PLUS 2.0, they are not sufficiently linked to contribute meaningfully to changing perceptions about ES. Additionally, not enough time and effort have been allocated to support and develop the value chains.

RECOMMENDATIONS

Recommendations for Forest-PLUS 2.0 to consider during the remaining period include:

- Integrate landscape plans with district-level planning and identify potential areas of convergence and funding for implementation.
- Amplify the results of economic valuations to policymakers through demonstrably effective incentive-based pilots to buttress the policy and financial framework of ecosystem services–based planning.
- Provide continued direct support to the value chains to maximize their chance for success and sustainability and create action plans for each shared and agreed upon across stakeholders.

Long-term recommendations:

- Consider applying and adapting the highly successful tool and technology deployment process to other states and contexts.
- Consider linking ecorestoration activities initiated under Forest-PLUS 2.0 with the voluntary carbon market using the Working Plans as a base document.
- Consider more-explicit requirements for value chains to be forest-based or, where that is not possible, explicate an explicit theory of change for value chains and their links to ecosystem services.
- Design value chain activities around institutional contexts, including capacities, needs, and priorities.

- Consider outreach and interpretation opportunities that dovetail with SFD interests and needs. Across all three states, education centers were opportunistically supported by Forest-PLUS 2.0, and they also fit Forest-PLUS 2.0's model of technical support to SFD.

EVALUATION PURPOSE AND EVALUATION QUESTIONS

EVALUATION PURPOSE

The purpose of this mid-term evaluation of Forest-PLUS 2.0: forest for water and prosperity is to assess the activity's progress to date in achieving its objectives and identify areas for improvements, suggested adjustments to existing programs, and recommended priorities for future implementation. We aim for this evaluation to serve learning purposes by identifying any challenges experienced by the activity to date and formulating appropriate recommendations for corrective actions and effective implementation during the remaining years of the activity and future activities.

This evaluation will focus on activity design and implementation, activity performance and progress, prospects for sustainability, and recommendations for improving the design and performance of the activity. The objectives of the mid-term evaluation are:

- Assess progress towards achieving Forest-PLUS 2.0 goals and objectives
- Assess the validity of the activity's strategic approaches and results framework
- Assess program performance by Implementing Partner and sub-partners
- Identify lessons learnt
- Recommend actions to improve performance, strategy, and future design

EVALUATION QUESTIONS

The evaluations questions are:

1. To what extent is the theory of change still valid? Is the development hypothesis "an improved ecosystem approach to management will lead to improved ecosystem services and contribute to sustainable and inclusive economic growth" still valid?
2. To what extent has progress been made in achieving the results under Forest-PLUS 2.0?
   - 2.1. To what extent has the project been able to promote ecosystem-based management of forest landscapes, and to what extent have the project interventions led to, or will lead to, improvement in ecosystem services provided by forests and adjacent landscapes.
   - 2.2. To what extent has the project been successful in introducing innovative tools and technologies in managing and monitoring forested landscapes and in decision-making? And have these tools adequately responded to the needs of the state government agencies?
   - 2.3. How effective have been the ecosystem valuation methodologies and their application in valuation? And is the project on track in implementing appropriate incentive mechanism(s) for managing landscapes to provide ecosystem services?
   - 2.4. How have the economic opportunities (including those from improved ecosystem services) benefitted the beneficiaries? What are the community's perceptions about the new economic opportunities?
   - 2.5. How much did the program interact with the targeted beneficiaries to include their voices in achieving the program objectives?
3. How have the intervention activities and approaches integrated gender across program implementation?
   - 3.1. What evidence exists to substantiate the reduction of the gender gap?
   - 3.2. To what extent has the activity been successful in involving and benefiting the marginalized communities?
4. To what extent does Forest-PLUS 2.0 respond to the GOI and beneficiaries' needs?
   - 4.1. To what extent will the capacity building and technical assistance efforts to government institutions achieve the results of the activity?
   - 4.2. To what extent has the project engaged the private sector, and what are the results and lessons learnt?

5. What are the overall accomplishments, challenges, and learnings out of the project implementation so far?

BACKGROUND

India has set ambitious targets for its national economy, growth of the private sector, employment of its citizens, and its role in international engagements. These include targets related to climate actions. Within the forest sector, GOI targets include:

- Increase forest and tree cover from the current 24 percent to 33 percent
- Enhance ecosystem services, including biodiversity, hydrological services, and carbon sequestration through improved management of 10 million hectares
- Increase national carbon stocks in forest and tree cover by 2.5–3 billion tons by 2030
- Improve livelihoods for about three million forest-dependent households

Forest-PLUS 2.0 builds on the success of Forest-PLUS and provides continued technical assistance to MoEFCC to strengthen ecosystem-based management practices on state and non-state lands.

A U.S.–India Memorandum of Understanding (MOU) was signed in November 2009 to enhance cooperation in energy security, energy efficiency, clean energy, and climate change. This led to a Partnership Agreement on Sustainable Forests and Climate Adaptation between the GOI and the United States signed in September 2010. Forestry programs were nested under this partnership agreement with the MoEFCC as the primary GOI counterpart. USAID funded the activity from the Sustainable Landscapes pillar of USAID's budget. After 2010, peer-to-peer collaboration between Indian and U.S. foresters continued through USAID's interagency agreement with the U.S. Forest Service (2011 onwards). The following year, the Forest-PLUS technical assistance program (2012–2017) began, and the current activity, Forest-PLUS 2.0: forest for water and prosperity technical assistance program (2018–2023), followed immediately.

The purpose of Forest-PLUS 2.0 is to provide technical assistance that supports the GOI and other stakeholders in managing forests as essential components of broad-based, inclusive, and sustainable economic growth that meets local needs and addresses global environmental challenges. The focus is on the multiple ecosystem services that the forest landscapes provide, which has been well enunciated in the National Forest Policy of GOI.

To achieve the goal of this program—improved management of targeted forest landscapes in India for enhanced ES and increased inclusive economic opportunities—an ecosystem-based forest management approach is used. The activity relies on close coordination and cooperation among Forest-PLUS 2.0 implementing partners, SFDs in targeted states, academic and research institutions, private sector entities, and forest-dependent communities. The approach builds on tools developed under USAID's predecessor Forest-PLUS program and considers multiple forest values—ecological, economic, social, cultural, and scientific—in the development and implementation of landscape-level forest management plans. The development hypothesis is that an improved ecosystem approach to management will in turn lead to improved ecosystem services and contribute to sustainable and inclusive economic growth in the country.

The three overarching objectives and sub-objectives of the Forest-PLUS 2.0 program are:

Objective 1: To strengthen ecosystem-based management of forest landscapes

- Sub-objective 1: Increase application of management planning processes on public and private lands in forest landscapes
- Sub-objective 2: Improve the collection, management, and application of information needed in land management decision-making

- Sub-objective 3: Enhance the use of innovative tools and technologies in managing and monitoring forest landscapes

Objective 2: To factor ecosystem services into management of forest landscapes

- Sub-objective 1: Quantify ecosystem services and their flows at landscape scale
- Sub-objective 2: Assess economic values of ecosystem services
- Sub-objective 3: Incorporate ecosystem services and their values into management planning process
- Sub-objective 4: Develop incentive mechanism(s) for managing landscapes to provide ecosystem services

Objective 3: To increase economic opportunities from improved landscape management

- Sub-objective 1: Identify and analyze prospective economic opportunities among forest-based value chains
- Sub-objective 2: Strengthen enterprises within selected forest-based value chains
- Sub-objective 3: Encourage investment in viable economic opportunities by private and public sectors

EVALUATION METHODS AND LIMITATIONS

Data collection took place over five weeks (see **Annex 1: Evaluation Timeline**).

DATA COLLECTION METHODS

The evaluation team used four data collection methodologies: 1) document review and indicator analysis; 2) 56 KIIs with government, private sector, and civil society/research organizations; 3) 33 FGDs and 21 in-depth individual interviews (IDIs) with community beneficiaries; and 4) site visit observations across the three landscapes. (See **Annex II for a summary of KIIs, FGDS and IDIs conducted).**

DOCUMENT REVIEW AND INDICATOR ANALYSIS

Document review entailed an assessment of activity-related literature to understand the activity context and underlying concept and how Tetra Tech ARD implemented the activity. Documents reviewed included the contract and subsequent modifications; activity reporting, including quarterly and annual progress reports; annual work plans; activity monitoring; evaluation and learning plans; other evaluation and strategy documents related to the activity; and background research documents on topics related to the activity themes and context (see **Annex XIV: Documents reviewed**).

KEY INFORMANT INTERVIEWS

Following document review and indicator analysis, the team leader and senior forestry specialist conducted KIIs with purposively selected samples of activity stakeholder groups. KIIs consisted of in-depth facilitated discussions conducted with individuals or small functional groups of related individuals (up to four participants) using a semi-structured "evolving subject-driven" approach. In this case, "semi-structured" means that the team utilized a pre-existing data collection protocol guide (see **Annex III: KII interview guide**). KIIs were also conducted for forest frontline staff on training sessions they had participated in and their use of the Van app. (**see Annex: IV. Questions for frontline staff on training and the Van app).**

The team conducted KIIs with:

1) GOI, State, and Division Forest Department staff: n=31 (7 female, 24 male)
2) Staff of other state government departments: n=6 (2 female, 4 male)
3) Tetra Tech ARD partners: n=14 (1 female, 13 male)
4) Academic and research institutes: n=1 (male)
5) Private sector entities: n=4 (male)

See Annex V for the full list of KIIs that were conducted (**Annex V: Number of KIIs conducted).**

FOCUS GROUP DISCUSSIONS AND IN-DEPTH INTERVIEWS WITH BENEFICIARIES AND FOREST FRONTLINE STAFF

The evaluation team conducted FGDs (n=33, with 178 participants total, 92 female, 86 male) and individual beneficiary interviews (n=21, 12 female, 9 male) across the value chains, incentive-based mechanisms, leadership, and gender trainings, and frontline SFD staff. See Annex VI for the full list of the FGDs that were conducted (**Annex VI: Number of FGDs conducted**). The evaluation team gave a list of the activities to the Implementation Partner we wanted to sample from and designed a field trip schedule with them that allowed us to visit each type of value chain and IBM. During those visits, we conducted FGDs and individual interviews to the extent possible given the logistics, time, and distance limitations.

The evaluation specialists at each activity site conducted FGDs with forest-dependent communities and activity beneficiaries. They conducted these discussions using a standardized list of questions (see **Annex VII: FGD questionnaire**).

Following FGDs, the evaluation specialists also conducted individual beneficiary interviews primarily with women and marginalized people to gain more in-depth understanding of their experiences with, perspectives on, and economic and non-economic benefits from Forest-PLUS 2.0.

SITE VISIT OBSERVATIONS

During the visits to activity sites to conduct KIIs, FGDs, and individual beneficiary interviews, the team used the opportunity to understand the context better based on firsthand observations. They also observed the use of technologies and community activities, which provided qualitative data that was used to inform and support findings and conclusions. The total number of meetings conducted for this evaluation and schedule of field visits are in Annex VIII and Annex IX **(See Annex VIII: List of meeting held and Annex IX: Schedule of field visits.**

DATA ANALYSIS METHODS

The evaluation team triangulated data from the indicator analysis, document review, preliminary KIIs, FGDs, and individual beneficiary interview protocols. The instruments were adapted and modified during the first field site visit, which all the evaluation specialists attended, along with the team leader and senior forestry specialist. The instruments needed to be relatively generic to capture results across such a diversity of activities. Throughout the KIIs and FGDs, the team members transcribed notes the same day to analyze daily responses, identify emerging trends, aggregate findings around common themes, and generate further probing questions (see **Annex X: Evaluation Matrix**).

Data analysis methods used by the team included:

- **Triangulation:** After fieldwork, triangulation enabled the evaluation team to cross-verify and cross-validate findings from data sources to identify correlations between findings related to the evaluation questions. Methodological triangulation also enabled the evaluation team to strengthen potential linkages and data accuracy in cases where results obtained through one method were less conclusive.

Content Analysis: Content analysis entailed a review of KIIs and beneficiary interviews to address each evaluation question and to identify and highlight notable examples of Forest-PLUS 2.0 successes and challenges that contributed to or hindered progress against targets identified through the indicator analysis.

Site Comparison: The team compared and contrasted data across sites to provide another form of triangulation. Kerala and Telangana are states with good forest cover and were selected for qualitative improvement with a focus on forest ecosystem services. Bihar has relatively little forest cover but high potential for promoting agroforestry and trees outside forests with potential for quantitative improvement of tree cover. We note, however, that the forest cover in the divisions chosen for Forest-PLUS 2.0 are not necessarily representative of the state. (See box 1).

Box 1: From FSI, 2021:

- Bihar State has 7.84% of geographical area (GA) under forests with only 0.35% under very dense forests (VDF) and 3.49% under moderately dense forests (MDF).
  - Gaya Division has 12.11% of GA under forests with 0% VDF and 2.7% MDF.
- Kerala State has high forest cover, with 54.7% of GA under forests with 5% VDF and 24.38% MDF.
  - Thiruvanthapuram Division has 60.17% of GA under forest cover with 2.7% VDF and 32.09% MDF.
- Telengana State has 18.93% of GA under forests with 1.45% VDF and 8.14% MDF.
  - Medak Division has 7.96% of GA under forests with 0% VDF and 1.23% MDF.

The team conducted data analysis throughout the evaluation to identify initial findings and conclusions for a consultative presentation (out-briefing) with USAID/India following fieldwork on September 6, 2022. The team then adapted the analysis based on feedback received during the presentation.

GUIDING PRINCIPLES

The evaluation team operated under the following guiding principles:

- **Participation:** to ensure that those affected by the activity can voice their expectations, experiences, learning points, and insights
- **Ownership:** to ensure that USAID and other key stakeholders own the evaluation process
- **Teamwork:** to ensure a diversity of approaches and seeking of consensus on the fundamental issues
- **Learning:** to ensure that USAID, the evaluation team, and other stakeholders can identify and utilize the lessons learnt and that the process contributes to clear activity improvements over the remaining implementation period

LIMITATIONS AND POTENTIAL BIASES

The evaluation methodology had potential biases and limitations with implications for the findings and conclusions drawn from this mid-term performance evaluation. The evaluation team took the following steps to mitigate these potential biases and limitations:

- **Positive response ("halo") bias:** Probing questions regarding development outcomes may result in positive response bias, i.e., the tendency of respondents to focus subjectively on positive outcomes. The team mitigated this bias by probing for both successes and challenges to develop the most holistic picture possible of Forest-PLUS 2.0 achievements and challenges relative to the evaluation questions. The evaluation team triangulated responses against data collected from the Forest-PLUS 2.0 activity.

- **Selection bias:** Selection bias is an inherent risk when implementers help to facilitate contact with members of some stakeholder groups. The team worked closely with USAID and Forest-PLUS 2.0 staff to organize KIIs and FGDs with activity stakeholders and beneficiaries. However, there remains a risk that activity staff only select the most active, responsive, or engaged individuals or the best examples of activity implementation. The team might thus only hear from key informants who report positive experiences. To minimize these risks, before launching data collection, the team requested that the Forest-PLUS 2.0 staff provide a complete list of stakeholders, beneficiaries, and activity sites in advance to mitigate the risk of selection bias. The team then identified individuals and sites from this list to interview based on availability in addition to ones suggested by the implementing partner.

- **Sampling limitations:** Due to time and resource constraints, the evaluation team could only conduct interviews with a select sample of each stakeholder group. The team worked closely with activity staff to identify a diverse set of interviewees from each stakeholder group to provide a comprehensive picture of activity performance and results. The team made sure to interview participants across the range of activities, workshops, and trainings conducted by Forest-PLUS 2.0.

- **Subjective measurements:** Qualitative approaches can result in performance analysis being dependent on the professional opinions and experience of the evaluation team, which may result in findings, conclusions, and recommendations derived from their subjective interpretations. The team mitigated this bias through systematic triangulation of findings across stakeholder groups and methods and by drawing evidence-based conclusions and recommendations based on the data.

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

FINDINGS

EQ 1. To what extent is the theory of change still valid? Is the development hypothesis "an improved ecosystem approach to management will lead to improved ecosystem services and contribute to sustainable and inclusive economic growth" still valid?

Recent evidence underlines the importance of biodiverse forest ecosystems for ES provision, including water. For example, studies from the Western Ghats, which encompasses one of the Forest-PLUS 2.0 landscapes (Kerala), indicate that the vegetation of this area contributes 25 to 50

percent of the southwest monsoon rainfall over the water deficit east coast of India.[1] Forest loss and degradation in the Western Ghats could influence water availability as far away as water-scarce peninsular India. Other studies show that some streams in forested catchments of parts of the Western Ghats with high diversity of native species are perennial, while those covered with plantations are intermittent. These transitions lead to reduced water flow for farmers during the lean seasons.

All these and many other studies on a range of ES make a persuasive argument for Forest-PLUS 2.0's development hypothesis and focus on Forest for Water and Prosperity. Improved ecosystem approaches to management focusing on native, biodiverse species lead to improved ecosystem services that could contribute to sustainable, inclusive outcomes for dependent communities and the economy. Forest-PLUS 2.0 incorporates this approach into Working Plans (WPs) for forest management in India and into LMPs for non-forest lands, such as the Vamanapuram river basin in Kerala. The range of tools, technologies, and training support this ecosystem service-based development hypothesis, such as the DSS-F tool for ecorestoration and removal of exotics in Kerala or the trainings on sustainable harvesting protocols or low-cost monitoring technologies for Bihar and Telangana. On the policy and economic front, Forest-PLUS 2.0 has introduced valuation studies for the landscape to argue for a forest's utility to the economy and for enhanced financing for improving ecosystem management in this sector.

Measurable impacts of this development hypothesis will take time and depend on the scale and effectiveness of implementation. WPs are likely to have a direct positive impact because they are mandated by law while the implementation of LMPs is yet to start and depends on the extent to which they will be integrated within the district administration, a challenging prospect in some states. High pressures on forests for development and livelihoods could attenuate the positive benefits of these measures, which is why the Decision Support System-Private Entities (DSS-PE) and other tools are important for facilitating tree plantation outside forests. This is also where the valuation studies and livelihood activities come in.

The basic developmental hypothesis has been supported through Forest-PLUS 2.0, but visible improvements in ecosystem services are hard to measure in only three years. Measuring their impact on and connections to livelihoods is an even more complex and lengthy challenge. Additionally, many of the value chains were not forest-based nor directly connected to forest management or improved ecosystem services.

EQ 2 To what extent has progress been made in achieving the results under Forest-PLUS 2.0?

To simplify the organization of results, we have answered EQ 2 by objective with the evaluation sub-questions answered within the relevant objective.

Objective 1. To strengthen ecosystem-based management of forest landscapes

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[1] Paul, S., Ghosh, S., Rajendran, K., & Murtugudde, R. (2018). Moisture supply from the Western Ghats forests to water deficit East Coast of India. Geophysical Research Letters, 45, 4337–4344. https://doi.org/10.1029/2018GL078198.

Ramachandran, T. V., Vinay, S. & Aithwal,H.A. (2016). Environmental Flow Assessment in a Lotic Ecosystem of Central Western Ghats, India. Hydrology Current Research 7: 248. doi:10.4172/2157-7587.1000248.

Objective 1 targets the strengthening of ecosystem-based management of forest landscapes through three sub-objectives: 1) the increased application of management planning processes on public and private lands in forest landscapes; 2) the improved collection, management, and application of information needed in land management decision-making; and 3) enhancing the use of innovative tools and technologies in managing and monitoring forest landscapes. We address the first two sub-objectives under EQ 2.1 and the use of innovative tools and technologies in EQ 2.2.

EQ 2.1 To what extent has the activity been able to promote ecosystem-based management of forest landscapes, and to what extent have the activity interventions led to or will lead to improvement in ecosystem services provided by forests and adjacent landscapes?

Forest-PLUS 2.0 envisions ecosystem-based management being strengthened in forest lands by factoring an ecosystem-based approach into the Working Plans (WPs) and moving away from the timber-centric approach of forest management in India. The forests of India are managed through the prescription of approved WPs under the uniform National Working Plan Code (NWPC), which was revised in 2014 and encourages management objectives that incorporate ES.

Forest-PLUS 2.0 landscapes include the forest divisions of Medak in Telangana, Gaya in Bihar, and Thiruvanthapuram in Kerala. However, these landscapes are not restricted to forest areas but include both public and private lands with a diversity of land uses, management, and tenurial regimes. To foster an EAFM and improve ecosystem services from these larger landscapes, this activity led to developing three LMPs for non-forest areas contiguous with or in proximity to recorded forest areas that are managed through WPs.

Working Plans in forest areas and adjacent landscapes

Forest-PLUS 2.0 has been singularly successful in promoting the preparation of Working Plans that incorporate an EAFM and are in accord with the NWPC 2014. While the activity initially targeted three WPs for Thiruvanthapuram, Medak, and Gaya Forest Divisions, far more have been or are being developed than planned. Working plans are under preparation for all 56 divisions in Telangana; 10 to 11 WPs are complete with 40 more being prepared. In Kerala, WPs for almost 50 percent of the state's divisions are either being developed or are ready. In Bihar, two more WPs are under preparation for Aurangabad and Nawada Forest Divisions. A significant contributory factor to this successful adoption and scaling up of WPs is the launch of the Van system, an integrated app and web portal for collecting forest inventory and ecosystem data developed under the NWPC 2014. The use of the Van app for WP preparation is described in EQ 2.2 on tools and technologies.

Given that WPs are the key documents that aid in managing India's forests, Forest-PLUS 2.0 has been very effective in promoting an ecosystem approach to the forest landscape. As an officer explained, "to achieve Forest-PLUS 2.0's objectives of incorporating EAFM and ecosystem services, the first step is the making of the WP, a detailed plan that is crucial for forest management." As various senior government officials emphasized, these WPs act as a "decision support system" to manage the forests and even as "watershed management plans' that could help improve flows of water in water-stressed landscapes like Gaya." Another officer said that the WP is the medium for "improving forest cover." "Gaya has 830 sq. km of forest area, and it is impossible to visit all the areas physically. But the plan helps to identify degraded areas that will receive more attention." Improving forest quality leads to improvements in ecosystem services.

For Kerala, the timing of Forest-PLUS 2.0 was fortuitous in enabling a shift to an EAFM. Massive floods in 2018 led to a reset of development programming with a new focus on ecosystem services

and climate-proofing Kerala by securing forests and ecorestoration. According to a GOI respondent, "Forest-PLUS 2.0 leveraged this to focus on forests for water and prosperity and shift from a utilitarian to a multiple use approach… And working plans are an effective way to achieve these objectives… So, Forest-PLUS 2.0 took the opportunity to work in areas where the WPs needed to be written, to transition them to multi-use management. It was a concrete action rather than theoretical, a new framework in alignment with NPWC… Using WPs, they were able to pilot and then replicate a built-in mechanism to mainstream the model to other forest divisions." Catalyzing a gradual shift to an EAFM through WPs, "could change the direction of forestry in Kerala and India." In Telangana, the Van system provided a boost to the preparation of the state's WPs given the emphasis on afforestation through the flagship program, the Telanganaku Haritha Haram.

The WPs have emphasized an EAFM. The Thiruvanthapuram WP has prescriptions for rare and unique ecosystems, such as *Myristica* swamps, grasslands, and *vayals* (wetlands), as well as species, such as the endemic Nilgiri Tahr and a declining rainforest species with just a few individuals (*Buchanania barberi*) that is endemic to the southern Western Ghats of Kerala. Plans within the WP for removing plantations of exotics, such as *Acacia mearnsii* (black wattle), *A. mangium*, *A. auriculiformis,* and Eucalyptus in accordance with Kerala's Ecorestoration Policy (2021) will further enhance forest quality and in time could improve ES.

On being asked how the WPs promote EAFM, informants said for the first time Part II of the Thiruvanthapuram WP has defined a working circle for areas outside the forest that includes information on mangroves and sacred groves, along with a reserve and nature-education working circle for public awareness. Part I of the WP also includes a new ecorestoration working circle. According to a GOI respondent, the wildlife prescriptions in the WP are at par with prescriptions laid out in the tiger conservation plans of Periyar. In Bihar, an officer said that, since forests are no longer managed for timber, there is now "a blurring of lines between Management Plans (MPs) and WPs[2] and both focus on conservation, ecosystems and biodiversity." Moreover, now a working plan is only complete when an MP of protected areas is made and added as an attachment to the WP.

Accompanying this shift in perspective was the training and sensitization for frontline staff on an EAFM. The field staff we interacted with in Kerala were aware of these ecosystems and talked enthusiastically about their area's biodiversity, pointing out the declining *Buchanania* individual by the side of the road in Palode range. A respondent whom we asked whether this EAFM training would translate into improved management said, "Yes, that's the beauty of it. Because data is collected by the frontline staff, frequent training was given to them. And they could understand the nuances of the *Myristica* swamps, and they are taking pride in this ecosystem. And while preparing the WP these learnings percolated down to the frontline staff. And earlier only the range officer had copies of the WP, but now even the frontline staff have them, and they are happy."

A frontline staff from Telangana, said that the WP preparation had changed her perspectives on forest resources. "Earlier trees were just trees but now we understand that these trees help to regulate water flows, store carbon, produce leaf litter and result in ecosystem services." Another staff person, who had collected data for the WP in 2016, said that this time the concept of ecosystem services was new, and she had filled in information on hydrological, provisioning services and on biodiversity for the WP. In Bihar, however, awareness of the EAFM was comparatively low, and a frontline staff person, who had attended an EAFM training according to the implementing

[2] WPs are prepared for territorial forest divisions, while MPs are prepared for protected areas (such as national parks and wildlife sanctuaries).

partner's training tracker, failed to remember it. Another frontline staff referred to grasses and herbs as, "*kachra*" (garbage) and appeared to only recognize the importance of trees to an ecosystem.

Not everyone concurs with the appropriateness of the EAFM approach or that it will lead to improvements in ES. A forest officer said that "timber was gold," and that the NWPC's shift away from timber to conservation had just encouraged illegal timber felling, rather than managing timber and legitimately supplying it to meet people's needs. Another officer, while lauding the ecosystem approach, felt that the failure to include the growing stock of valuable species like teak within the prescribed Part 1 of the WP was a lacuna in the NWPC-2014.

Landscape Management Plans for non-forest areas

Three LMPs have been prepared for each of the landscapes to improve landscape management for enhanced ecosystem services. These plans have been designed for use by the district authorities by converging relevant line departments and Panchayats. Most of the GOI officials appreciated the plans developed in all the landscapes. One official called it a "good plan," and another said it was a way "for methodological aspects of landscape management to be integrated within existing departments."

Implementation of LMPs in the three states is at a nascent stage. Government officials felt that operationalizing them could pose a significant challenge because the line departments tend to work in silos. According to a GOI official, "The LMP is a good if not astonishing plan but is difficult to implement in practice since it requires coordination between line departments and the convergence of resources and activities." In most states (e.g., Bihar, Telangana), implementation depends on the good offices of the District Magistrate/District Collector, who has innumerable duties. In Bihar, "there is no officer dedicated for the plan's implementation or a coordinating cell at either district or state level." Another officer said the LMP is a "good plan on paper."

In Telangana, integration with District Rural Development Agency (DRDA)[3] activities occurred through the Telanganaku Haritha Haram. Additionally, a Steering Committee headed by the District Collector has been set up for plan implementation. Nevertheless, a district administration official pointed out that while the LMP is "good," a concrete action plan for its implementation is required in the last year of Forest-PLUS 2.0 to ensure convergence. Currently, departments like irrigation and DRDA continue to work in silos. The official also said they had not received clear directives from the state administration for its implementation.

A DRDA official in Telangana said that although the LMP has detailed plans for each village that DRDA then implements, obtaining consistent funding for the LMPs is a problem. While fund flow from Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)[4] for plantations was good, watershed funds vary from year to year. Another issue, according to the Forest-PLUS 2.0 implementing partner, was the frequent transfer of people in positions of authority and the difficulty of ensuring continuity and continued enthusiasm in LMP implementation. Funding for the LMPs is also a problem in Bihar. The implementing partner told us that while the LMP targets 500 to 600 villages, the district administration has only limited funds available each year for the entire state, so their budgets cannot fund the LMPs.

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[3]DRDA oversees the implementation of anti-poverty programs at district level of the Ministry of Rural Development.
[4]Mahatma Gandhi National Rural Employment Guarantee Act guarantees the right to work by providing at least 100 days of wage employment in a financial year to every household whose adult members volunteer to do unskilled manual work.

Unlike WPs, there is no government mandate for LMPs, which Forest PLUS is pioneering in the three landscapes. LMP implementation and integration depend on the policy, institutional, and governance systems that vary across states. Successful outcomes are more likely where departmental convergence is easy to achieve (for example, in Kerala where line departments are under Panchayats).[5] Moreover, some Panchayat activities are already aligned with those of the SFD. They are used to working with the SFD, for example, through the carbon-neutral panchayats in the Ecorestoration Policy (2021) that integrate local self-government, departments, Joint Forest Management Committees, and Self-Help Groups for its implementation. Nevertheless, as a key informant pointed out, incorporating forest aspects in Panchayat functioning takes time and "linking and convincing the Panchayats and line departments that it's in the interest of everybody to implement the LMP."

Funding for LMP pilots is yet to materialize for Gaya. Implementation is further along in Thiruvanthapuram, where a pilot in the Vamanapuram Panchayat has been initiated. As mentioned earlier, this is made possible by Kerala's local self-government systems. Enabling policies and institutions are also key to integrating the LMP within the government. Kerala has an active Land Use Board for land use planning in the state, unlike many other parts of the country where these are not functional. Forest-PLUS 2.0 has collaborated with the Kerala State Land Use Board to integrate the LMP within a flagship 800-crore (USD 98 million) Vamanapuram River Basin project. MGNREGA, SFD, and Soil and Water Conservation authorities will jointly implement the pilot covering one micro-watershed with five wards.

Notably, there also appears to be good buy-in by the Panchayats and the local member of the legislative assembly (MLA). According to a local Panchayat member, while departments have been working under the Panchayat for 25 years, Forest-PLUS 2.0 provided "the vision to bring everyone on a common platform to carry out activities through convergence." An implementing partner also said that the local media is very active and closely scrutinizes initiatives like this. A government official further said that the success and implementation of the entire Vamanpuram project hinge on the performance of the LMP pilot. Consequently, there is much at stake for the LMP pilot in Thiruvanthapuram.

On being asked whether LMPs could promote convergence for improved ES flows, a forest official said, "one of the primary reasons Thiruvanthapuram was selected was because of two irrigation projects (Peppara and Neyyar Dam) that draw water from two wildlife sanctuaries (WLS) in the district. To an ordinary person, these sanctuaries are just meant for wild animals—tigers and elephants. But this Peppara Dam supplies clean drinking water to the city because of the WLS. But this connection is not sufficiently clear to the end users, and if one approaches the Trivandrum Municipal Corporation and asks them to get involved in the management of the sanctuary for the sake of the city's supplies of clean water, the connection would not be apparent to them. But through landscape management one can link the different players, although this takes time."

Summary

The activity has effectively integrated an EAFM within the WPs. However, it is too early to see improvements in ecosystem services, given that some WPs have only recently been prepared while many more are still underway. In most cases, the implementation of WP prescriptions has just begun, and it will take a few years before this translates into visible results. Nevertheless, there is

[5] Except the forest department

every indication, given the degree to which the ecosystem-based approach is being integrated and scaled up, that this will occur in forest landscapes where the prescriptions of ecosystem-oriented WPs are followed. Forest-PLUS 2.0 has also set up an environment education center at Pocharam WLS, facilitated interpretive exhibits and the design of a forest museum in Thiruvanthapuram, and established a butterfly park in Bodhgaya, all of which create awareness of conservation and ecosystems among students, tourists, local communities, and forest staff. If followed, training on sustainable harvesting protocols of Non-Timber Forest Produce in Thiruvanthapuram could also improve production of NTFPs (provisioning services).

According to the Forest-PLUS Quarterly Report April–June 2022, the project has reached its final target of six WPs and LMPs developed or revised that incorporate EAFM and quantify ecosystem services. A total of 573,360 hectares in the three targeted states has also been recorded under improved management. This is an overachievement of 113,360 ha from the target of 460,000 ha until year 4 of the activity and reflects the widespread scaling up of WPs that has occurred particularly in Telangana and Kerala. The forest divisions for this achievement are listed in **Annex XI (See Annex XI).**

In the case of LMPs, their ability to effectively promote an ecosystem-based approach to land management that will enhance ecosystem service flows is unclear. This will largely depend on whether they are implemented and integrated within the district and Panchayat functioning and whether this is sustained beyond the life of Forest-PLUS 2.0. Early indications show this is most likely when solid stakeholder buy-in and enabling policies and institutions are present.

EQ 2.2 To what extent has the activity been successful in introducing innovative tools and technologies in managing and monitoring forested landscapes and in decision-making? And have these tools adequately responded to the needs of the state government agencies?

Contributing to the successful scaling up of WPs achieved via Forest-PLUS 2.0 has been developing and refining various tools and technologies that aid in managing and monitoring forested landscapes and in decision-making. A diversified set of seven innovative tools and technologies have been or are being developed, of which the Van system is tailored for the preparation of WPs (see Box 2). While the Van system is designed for use in all three program landscapes, the most significant number of other TTs have been launched in Thiruvanthapuram division of Kerala (NTFP-IMS, DSS-F, TIGRAM). For the Medak landscape in Telangana, two tools are targeted at facilitating Telangana's flagship afforestation program, Telanganaku Haritha Haram for use primarily outside forest areas (LCM-Land use outside Forest and DSS-PE). The Low-Cost Monitoring System for Forest Management (LCM-Forest Management) has been piloted only in the Gaya landscape (Bihar).

A brief listing of the seven tools and technologies with their functional capabilities is provided below:

Box 2: Tools and Technologies

1. **Van:** a mobile app for collection of forest inventory and ecosystem data, and a web portal for automation of data analysis, developed in accordance with India's NWPC 2014 for the preparation of WPs.
2. **Non-Timber Forest Product Information Management System**: a mobile and web-based tool to record the inventory of NTFPs and supply chain transactions and to facilitate the buyer-seller interface.
3. **Decision Support System for Forests (DSS-Forestry):** a tool to facilitate afforestation and reforestation on forestlands.
4. **Decision Support System for Private Entities (DSS-Private Entities):** a tool for private entities to determine appropriate species and agroforestry practices for their lands.
5. **Low-Cost Monitoring System for Land Use Outside Forests (LCM-Outside Forests):** a tool to monitor land use outside forest lands (agroforestry plantations, trees outside forests, commercial plantations).
6. **Low-Cost Monitoring System for Forest Management (LCM-Forest Management):** a tool to monitor forest management in recorded forest areas.
7. **TIGRAM (Timber Georeferenced Area Management):** a web- and mobile-based system to improve transparency in providing timber transit permits to track harvesting, transportation, and sale of timber from private land.

EFFECTIVENESS OF THE TOOLS AND TECHNOLOGIES

We spoke with 15 senior forest officers and 40 frontline staff across the three states and asked them about the utility of the tools and technologies introduced by Forest-PLUS 2.0. A senior GOI respondent said that the project was, "strong on providing transfer of technology." As many as 87 percent of senior forest officers and 100 percent of frontline staff had positive things to say about the Van system suggesting that this is the most effective and widely used tool launched by Forest-PLUS 2.0. Forest officers used many superlatives while referring to Van, calling it "path-breaking" and "magical" in its ability to generate maps. Several of them emphasized that the earlier WPs had few maps.

The many maps incorporated in the new WPs have significant utility and are being used for restoration and plantation activities to prepare protection and fire management plans. This use directly aids field staff who have been "greatly benefitted by the quality maps, are very well acquainted with them now and are using them for the management and protection of forests." This view was corroborated in discussions with the forest frontline staff of Kulathapuzha range where most of the tools and technologies introduced in Kerala were piloted because of the range's high forest cover and biodiversity value.

Perhaps one of the most positive features of this app is that it has democratized data collection and made the working plan development process more inclusive. The frontline staff felt that before the launch of Van, they were just sent to collect data but had no idea of its use. By using Van, they now felt engaged in working plan development. One GOI respondent said, "for the first time ever, frontline staff are coming to me and asking for a copy of the WP because they want to see if their prescriptions have been included!" The frontline staff thought the Van app was easy to use, and unlike the earlier manual method of WP development, was quick and reduced WP preparation time from two to four years to about a year. A female frontline staff said, "Before, we used pen and paper for preparation, but the Van app changed this. Now the phone does all the work! I have learned much more than the use of just an app, I have now become more familiar with species and earlier I did not know the names. We had a Van app WhatsApp group, and we would take photographs and share in the group in which Forest-PLUS 2.0 was also there. This group helped us to identify species."

The Van app has also made data collection transparent and eliminated the entering of fraudulent data since all information is geo-tagged. Forest staff must go to a sampling point and enter the GPS coordinates before entering any more information. A GOI interviewee said they could monitor how much biodiversity an area harbors because it was easy to calculate biodiversity indices using the Van system.

Several GOI interviewees suggested that the hallmark of the Van system was its adaptability. For example, it could be used to prepare MPs for protected areas in addition to its use in WP development. The forest frontline staff at Kulathapuzha range in Kerala appeared to be engaged with the Van app and used it to prepare various plans, such as a human-wildlife conflict (HWC) mitigation plan, fire management, and protection plan. According to the staff, "we derived various aspects from the base data using Van app which we utilized for the human-elephant mitigation plan and fire plan which are chapters of the protection working circle."

The grids generated through the Van app could also be used as protection plan blocks in protected areas. Forest officers pointed to the potential use of the sampling grids for permanent monitoring of vegetation status and climate-induced shifts, and that talks were on with the Forest Survey of India (FSI) about this. In Telangana, the Van app also facilitated the Telanganaku Haritha Haram program, and data were collected from 18411 sampling points. Because of its utility to the Telanganaku Haritha program, there are plans to increase data collection frequency in Telangana to two years from the normal ten-year cycle for preparing WPs.

Although all the frontline staff interviewed knew about Van and generally had positive things to say about it, there were state-specific variations in their opinions relating to the ease of use. Of the frontline staff interviewed in Bihar, 73 percent said the Van app had loading, saving, and editing issues. They also often found that the local names of species differed from the Van app list, and they had to search and verify before entering the data. Frontline staff from Telangana and Kerala also faced some initial problems with its use but said that these were sorted out with the help of the Forest-PLUS 2.0 team. They worked closely with the Forest-PLUS 2.0 staff during the piloting of the app and data collection in the field. Two senior forest officers interviewed in all three landscapes were unaware of the app. At the same time, another felt that although the Van system was good, it needed to be made even more robust since it is also used to produce customized reports. He said that "the Van system should provide an A-to-Z solution so that we could make all kinds of reports through the portal."

Forest officers had accolades for several of the other tools and technologies as well. In Kerala, the DSS-Forestry tool was directly responsive to the state's Ecorestoration Policy of 2021 for the removal of plantations of exotic species and replacement with native ones. As one officer said, the Forest-PLUS 2.0 activity was a very useful and timely intervention. It coincided with discussions within the department on what needed to be done about the exotic plantations in the state. Another KI said that "it is an important tool with several good features such as an e-plantation and nursery journal." The frontline staff at Palode range used it to prepare Site-Specific Plans (SSPs) for restoring 24 plantations. Nevertheless, a respondent cautioned about an overreliance on the tool, given the complexity of forest ecosystems, especially rainforests.

When we asked the frontline staff about the potential usefulness of the NTFP-IMS, they replied that earlier, it was difficult to track the movement and quantities of NTFPs that were collected. Using this app, a proper channel of movement of the NTFPs could be established. They said it would be beneficial for the range officer and frontline staff to track the movement of NTFPs in the supply chain. The community could also monitor the movement of their NTFPs in the chain till the sale to

Vanasree shops, and the SFD would not be able to cheat the people. The app has been demonstrated to 98 households in the Pottamavu Van Samrakshan Samiti (VSS), and the ten people of the VSS with whom we had a FGD were aware of the app and its use. The community had also been trained in sustainable harvesting protocols for honey and *Garcinia gummi-gatta*. According to them, earlier they would cut down branches and trees, but the training taught them that by harvesting the produce sustainably, they could get yields every year, rather than at a gap of three to five years like previously.

Senior forest officers felt that the NTFP-IMS monitors the entire seven-step approach to NTFPs pioneered by the Forest-PLUS 2.0 and the SFD.[6] Moreover, the NTFP-IMS was not just about the tool but about the process involved in its development. For example, the SFD only had standalone ecoshops initially, but while developing the IMS, "they started talking to, and working together with the various players, started focusing on value addition, listing the resource base, conducting trainings, marketing, and initiated discussions with the pharmaceutical sector." We were told that a significant feature of NTFP-IMS is its ability to linking buyers and sellers, including bulk buyers via a 'virtual godown.'

The TIGRAM software is still in a nascent stage and is being developed to facilitate the implementation of the Kerala Promotion of Tree Growth in Non-Forest Areas Act, 2005. The staff where it was piloted (e.g., Kulathapuzha and Palode ranges) found this to be a useful tool for monitoring the transit of timber harvested outside forest areas that require permits. They said the tool would be introduced following MoEFCC clearance and would be particularly useful for the range officers. Another forest officer felt that institutionalizing and scaling up to other divisions might require changes since land issues are more complex in some other divisions compared with Thiruvanthapuram. These divisions have more notified villages, hence require permission to cut trees.[7]

In Telangana, the two tools-DSS-PE and LCM-Outside forests are designed to facilitate tree planting outside forest areas for the Telanganaku Haritha Haram program. DSS-PE will soon be handed over to the district administration. There have been delays in the finalization of the LCM because the Haritha Haram program did not provide some important schematic data. The SFD also wants to incorporate additional forest-based information on forest beats and sections. It is too early to discuss the tools' effectiveness, although a senior district official thought the DSS-PE was a good tool they will be able to use going forward. Another DRDA official had attended a training program on the web application and found it useful. The official also said that it provided information on indigenous species that they hadn't thought of before and suggested the plantation of 'pest control' species along agricultural 'bandhs' (embankments). The official said that the DSS-PE was to be handed over to the Panchayat secretary, followed by a training for them and progressive farmers. The training should prompt progressive farmers to carry out plantations on their land. A training of

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[6] This includes listing the NTFPs collected, inventorying the resource stock of prioritized NTFPs, resource use assessment, development of sustainable protocols, capacity building of collectors and institutions, enterprise development, promotion, branding, and market linkages

[7] Villages are divided into notified and non-notified villages based on the Kerala Promotion of Tree Growth in Non-Forest Areas Act, 2005. Villages in non-notified areas do not require permission to cut trees while those in notified villages do. The use of TIGRAM directly applies to this act, which states, "the owner of such tree shall, before transporting the timber, file before the Forest Range Officer, having jurisdiction over the area, a declaration containing details such as the survey number of the land from which the tree is cut, number of trees." "Provided further that where any timber of a specified tree is transported from the land to any other place, species of trees, quantity of timber and the place to which such timber is being transported, either directly or send it by registered post with acknowledgment due."

trainers was also planned to enable the district administration to carry out future trainings for the DSS without Forest-PLUS 2.0 help.

In Bihar, the Van app received praise from several senior forest staff but there seemed to be little awareness of the LCM-Forest Management tool. A forest officer said he was not aware of its status or how functional it was. All he knew was that the LCM would integrate with the Van system and be used to carry out inventories of forest areas. This lack of awareness is surprising, because a very senior Indian Administrative Services (IAS) official asked for its development. Perhaps if more state-level forest department stakeholders were aware of its function and utility, this might spur its adoption and usage for forest management in Bihar.

The implementing partner said that another technology, the Synthetic Aperture Radar, has been shelved because of a lack of interest in its adoption by the FSI.

DEGREE TO WHICH THE TOOL AND TECHNOLOGIES ARE BEING INSTITUTIONALIZED

The Van system has found rapid institutional acceptance with use scaling up across the Forest-PLUS 2.0 states. GOI officers mentioned that the system is being used for data collection in all 56 of Telangana's forest divisions and in two additional divisions of Bihar (Nawada and Aurangabad in addition to the Forest-PLUS 2.0 landscape of Gaya). In Kerala, while six WPs have already been prepared, five to six are currently underway. According to the progress update given to the Project Advisory Committee of the MoEFCC in late June 2022, the Van system is also in use in Goa, a non-Forest-PLUS 2.0 state, for WP preparation.

Some forest officers said that the NWPC is being amended and that the national committee created for this discussed Van's potential use in developing WPs across the country. If the NWPC mandates the use of Van nationally, it will certainly be a 'feather in the cap' for Forest-PLUS 2.0. However, this is yet to transpire. The fourth quarterly progress report mentions that in the Project Advisory Committee meeting on June 24, it was decided that a demonstration of the Van system would be given to the Forest Research Institute and the FSI, who would then provide feedback to the Ministry on its efficacy.

A forest officer referred to the launch of the NTFP-IMS in Kerala as a 'flagship project' and this technology is set to go live across the state in November 2022. The use of the DSS-Forestry has been institutionalized at the division level (Thiruvanthapuram) in Kerala. Green India Mission funds are being used to implement some of the SSPs. The evaluation team visited two of these sites where some preliminary soil and water conservation work and plantations had been carried out. Regarding TIGRAM, training is yet to be given to revenue officers, and we were told that the tool will be incorporated into the government's e-services through Akshaya Kendras. It was also mentioned that TIGRAM is to be integrated with the National Transit Pass System and piloted in ten states of the country.

District officials' awareness of DSS-PE suggests that this tool has the potential to be institutionalized within the district administration of Medak. Interestingly, a senior forest officer referred to the DSS-PE and LCM-Outside Forests as 'Medak-specific tools' while calling the Van system 'a state- and national-level' technology. This suggests that there are currently no plans to promote these tools beyond the Medak landscape. In any case, neither have been launched yet, although the DSS-PE is ready and set for handing over to the district administration at the next Steering Committee meeting. Significant handholding and promotion of the tools among the district staff would improve

the chances of success. As of now, the LCM-Outside Forest Areas technology is still being developed. How this tool will be used to cover 20 percent of the base period target for private land in a year as stipulated in the performance indicators is unclear.

According to the implementing partner, the LCM Forestry tool has been handed over to the Bihar Forest Department and server issues are being worked out by the department and Forest-PLUS 2.0. We could not determine whether this tool would be utilized within Gaya or other divisions of Bihar.

The Forest-PLUS Quarterly Report covering April–June 2022 mentions that the program has developed six innovative TTs, which exceeds the project target of four. The LCM-Outside Forest Areas is not included in this list. To date, only one TT—the Van system—has been institutionalized and adopted in WPs. However, based on the KIIs, several other tools appear either set for institutionalization or are likely to be. **Annex XI** details the targets and compares them to what the program achieved for the tools and technologies.

Objective 2. To factor ecosystem services into management of forest landscapes.

Objective 2 targets the factoring of ES into the management of forest landscapes through four sub-objectives that include quantifying ES and their flows at landscape level, assessing the economic values of ES, incorporating ES and their values into management planning processes and developing incentive mechanism(s) for managing landscapes to provide ecosystem services. Here we address the progress towards achieving Objective 2 under EQ 2.3.

EQ 2.3 How effective have been the ecosystem valuation methodologies and their application in valuation? And is the activity on track in implementing appropriate incentive mechanism(s) for managing landscapes to provide ecosystem services

The shift in emphasis away from the management of India's forests for timber has drawn attention to the need to emphasize the many other valuable services that a forest provides besides timber (such as hydrological services, carbon sequestration, climate regulation, biodiversity, and other provisioning services, including NTFPs and to quantify their economic value. Valuation methodologies are important in this context as they capture the values of forests and associated ecosystems in economic terms.

According to activity progress reports and information shared by them, baseline reports of ecosystem services have been prepared for three landscapes. A detailed economic valuation study using secondary data has been completed and is being updated where required with primary data. These economic values have been incorporated into the management planning process through the three WPs and three LMPs. We verified that these values are included in the three LMPs and one WP (Thiruvanthapuram) but did not have access to the other two WPs since these are awaiting MoEFCC approval. In addition, the following documents have been prepared to incorporate valuation methodologies into management planning processes:

- Guidelines to incorporate ecosystem services into working plans
- Standard Operating Procedures (SOPs) for baseline assessment of ecosystem services
- SOP for valuation of ecosystem services
- Strategy Paper on Ecosystem Services Valuation Methods

Awareness of the valuation exercise and the results were limited to senior forest officials in the Forest-PLUS 2.0 landscapes. Among officials engaged in the process, there was agreement that such valuations are useful, particularly with the new NWPC 2014 that devalues timber. According to an

official, the valuation of ES provides a strong justification for the protection of forest cover, given that forests are sandwiched between megadevelopment and the livelihood aspirations of people. Earlier, protecting forests for tigers and elephants was the justification for adopting an ES approach. Given escalating HWCs, this rationale is no longer tenable. Instead, the focus is on forests providing multiple services. Figures generated through valuation are essential at a planning level and helpful to policymakers. For example, at a national workshop, the valuation captured the interest of the director general of forests who said it should be replicated across the country. We were also told that efforts are underway to try and include valuations of ES within the next amendment of the NWPC. The GOI respondents also talked about the valuation's potential utility in influencing policy, such as fixing rates for forest diversion for CAMPA, Finance Commission flows, and national resource accounting.

Valuation is a three-stage process: the identification of ES, their valuation, and the use of valuations in developing IBMs. Respondents felt that the first two had been done, but that far more focus by Forest-PLUS 2.0 was required on presenting the results of the valuation to senior officers of the SFDs, the planning board, and policymakers. This is needed to convince them of its utility and purpose so that they understand the value of ES that forests provide besides timber. Some officers felt this process must also be accompanied by a strong, practical demonstration, such as focusing on water, "which is a low hanging fruit."

Others felt that translating valuations into IBMs for conservation was a long-drawn out process. Individual demonstrations could serve as 'icebreakers' at best. As one official said, "If we can quantify ES and then the cost and use the data to convince the government to increase the budget allocation to the sector, that would be the first step. Only as it matures, and at a later step, could IBMs be brought in." Another said that convincing policymakers of the utility of valuation and IBMs is hard. Many ideas suggested, such as the water board levying a one paisa tax, have been turned down. However, IBMs are already indirectly in place, such as the Ecosystem Management Fund in Kerala, which draws from ecotourism revenues and plows back funds to local communities, and "Forest-PLUS 2.0's ecotourism initiatives contribute to this kitty."[8]

In response to questions on the effectiveness of valuation methodologies and the extent to which the methodologies could be dovetailed with data collection by frontline staff, a respondent said that the methodologies must be foolproof but that the frontline staff must be able to do it for their areas, which means the techniques should be as simple as possible. He states that "scientific validity and field applicability are equally important. So, we cannot bargain one for the other. If it is scientifically very correct but our field officers cannot do it, then we are talking in terms of 20 years to get this process done and by that time it is of no relevance. We need to emphasize both scientific validity and field applicability." Two partners further underlined that the field staff must find ES data collection methods and valuations easy to carry out. Most of the SOPs that Forest-PLUS 2.0 has developed refer to the need to engage external consultants for the valuation exercises. More discussion is required on how to circumvent this issue.

Besides the difficulty in designing and promoting IBMs when there is little knowledge of the utility of valuation methodologies or even the importance of ES, IBM implementation in Forest-PLUS 2.0

[8] HTTPS://FOREST.KERALA.GOV.IN/IMAGES/ABC/NEW_EMF_GO_40-2017_MS.PDF. Ecosystem management fund. Forty percent of the ecosystem management fund will be used for the benefit of the local community, ten percent for forest protection and 15 percent for management and maintenance of ecotourism locations and facilities, four percent for environmental awareness, one percent for flexi fund with the CEO of forest development agency and 30 for participatory forest management fund.

landscapes has been slow. COVID has played a role compounded by an inability to obtain funding from the district administration and private partners, problems with marketing, and socio-political issues.

In Bihar, the IBM is the restoration of Ahar Pynes along the Phalgu river—traditional flood water harvesting systems consisting of reservoirs built at the end of drainage channels—by desilting, restructuring and tree planting along the *bandhs* (embankments). While MOUs have been signed with the local communities, work has not started due to funding constraints. Envisaged funding from ICICI Foundation has not materialized. This is because some of the areas are on government land where encroachment has occurred, and the government wants the foundation to give them the money so that their departments can undertake the work. As a private foundation, ICICI prefers to invest directly through a nonprofit. The implementing partner is awaiting the results of a proposal to National Bank for Agriculture and Rural Development (NABARD) to fund the activity.[9] With no progress despite many visits by Forest-PLUS 2.0 partners, the local people are becoming disillusioned. The success of this venture hinges on obtaining funds soon so that activities can be concluded within Forest-PLUS 2.0's timeframe. The Ahar Pyne rejuvenation is also a pilot in the LMP, and its success is critical to making a strong case for both landscape management and incentives for ecosystem services.

The IBM in Thiruvanthapuram envisages the stocking of market produce of the upstream Peringamala Panchayat in farmer producer organization (FPO)–run ecoshops of the downstream Vamanapuram Panchayat. This scheme provides an incentive to support conservation in the forested catchments of upstream Peringamala Panchayat, resulting in water flows for downstream paddy cultivation. However, according to the Forest-PLUS 2.0 partner, the different political affiliations of the upstream and downstream Panchayats have stymied cooperation and slowed the IBM process. Neither the Peringamala nor the Vamanapuram Panchayats appeared to know about the IBM, although the partner said that discussions with the FPO on stocking the produce have been initiated.

All three states have also initiated Community Based Ecotourism (CBET) as IBMs for conservation. We discuss the success of these CBETs under Objective 3 on the economic opportunities for beneficiaries. In Telangana, the sole IBM is CBET. While homestays and nature camps have been set up, there have been no visitors and few economic opportunities for the communities (see findings for Objective 3).

Objective 3. To increase economic opportunities from improved landscape management

Objective 3 aims to increase economic opportunities from improved landscape management through identifying and analyzing economic opportunities among forest-based value chains; strengthening enterprises within selected forest-based value chains; and encouraging investment in viable economic opportunities by private and public sectors. While describing the extent to which Forest-PLUS 2.0 has achieved success under Objective 3, we also address EQs 2.4 and 2.5.

To create inclusive economic opportunities, Forest-PLUS 2.0 analyzed a variety of potential value chains and shortlisted two types of forest-based value chains in each of the three landscapes: agroforestry value chains in Medak and Bihar, Vanasree NTFPs and medicinal plants value chain in Kerala, and community-based ecotourism value chains in all three landscapes. Forest-PLUS 2.0 analyzed the shortlisted value chains regarding gender and social inclusion, economic inclusion,

[9] National Bank for Agriculture and Rural Development.

markets, and institutions. The primary purpose of the value chain study was to identify potential 'beyond subsistence' enterprises in the value chains that would create economic opportunities for women, youth, and vulnerable communities in the landscape.

To date, Forest-PLUS 2.0 has supported twelve total value chain activities in the three sites (four in Medak, five in Gaya, three in Thiruvananthapuram):

1. Community-Based Ecotourism, including ecocamps, homestays, cafeterias, and zipline (Medak, Gaya, Thiruvananthapuram)
2. Strengthening Vanasree NTFP value chain—strategy, certification, procurement, NTFP-IMS and Virtual Godown (Thiruvananthapuram)
3. Stingless beekeeping (Thiruvananthapuram)
4. Trade facilitation for custard apple (Medak)
5. Biodegradable leaf plate enterprise (Medak)
6. Moringa growing and processing, marketing (Medak, Gaya)
7. Trade facilitation for Neem seeds and value addition (Gaya)[10]
8. Enterprise on Sabai grass (Gaya)
9. Incense sticks from recycled temple flowers (Gaya)

Vanasree NTFP value chain in Kerala

Overall, the Vanasree NTFP value chain in Kerala showed the most success. Vanasree is an initiative of the Kerala Forest Department for value addition and sale of different forest products. The SFD runs this initiative with the help of VSSs and ecodevelopment committees (EDCs). There are 65 outlets in different parts of the state that sell finished products, as well as 41 collection centers and 11 value addition centers located in the state's forest areas. Through these collection centers, NTFPs are purchased from the tribal communities, who are members of VSSs and EDCs. The NTFPs are then processed and sold at the Vanasree outlets.

This activity was successful because it met SFD goals and priorities and included several different activities that the SFD plans to scale up across the entire state during the life of Forest-PLUS 2.0. This meant that Forest-PLUS 2.0 could approach this value chain similarly to Objectives 1 and 2 by providing technical support for priorities established by the SFD.

The key activities in this value chain supported by Forest-PLUS 2.0 were:

- Piloting a seven-step NTFP process, which included sustainable harvesting protocols for ten NTFPs. The protocols are a template that can be used to create additional protocols for the other 145 NTFPs extracted across Kerala. The seven steps are:
  1. Listing of NTFPs
  2. Assessment of resources (quantity, abundance, distribution)
  3. Resource use assessment (formal and informal)
  4. Identification of primary users and collectors
  5. Capacity building
  6. Developing infrastructure
  7. Marketing

[10] Although the implementing partner listed neem as one of the value chains supported by Forest-PLUS 2.0 in Medak in reports, when we arrived in Medak, we were told that neem had only been explored as a potential value chain and was not implemented.

- Developing the NTFP-IMS, which consists of a web portal and a mobile application for producers, the SFD, and other stakeholders for NTFP enterprise management from collector to buyer.
- Providing branding and marketing support to the Vanasree ecoshops: 1) trademarking; 2) procuring FSSI - food labeling, nutrition; 3) designing ecofriendly packaging and labeling; 4) creating a standard ecofriendly ecoshop design to retrofit existing ones and for building new ones; and 5) communications like films and brochures to advertise Vanasree.
- Piloting value chains that will result in SOPs for cafeterias and NTFPs/ecoshops that will be formalized across the state.

These activities have great potential to be sustainable beyond the life of Forest-PLUS 2.0, because SFD has existing staff in Kerala to incorporate them into the existing institutional structures. SFD already has a coordinator for the Vanasree shops and range coordinators who work with VSSs to manage NTFP collection. The SFD also has a Participatory Forest Management cell consisting of three staff who support the community activities. The Forestry Information Bureau can take over the development and distribution of promotional materials.

Other value chains

In contrast to the Vanasree NTFP value chain, the other value chains are based on single agroforestry products or ecotourism activities. Only five of the value chains are entirely or partly forest-based. In Gaya, 1) 30 percent of the moringa leaves come from the forestland (plantations), while 70 percent come from private land, and 2) ecotourism activities are located on SFD land near religious tourism sites. In Kerala, 3) the three cafeterias are pre-existing activities in SFD tourism sites and 4) stingless bees. In Telangana, 5) custard apple is collected from the forest, although Forest-PLUS 2.0 is only working on the marketing end of the value chain and not directly with the collectors. Leaf plates[11] and moringa in Telangana and incense and sabai grass in Bihar are not linked to the forest. While tourism activities are linked to the natural and religious features of the landscapes, in Medak and Thiruvananthapuram the ecocamps and homestays are located on private land.

Box 3:
Community-Based Ecotourism activities

- Located on forest land
  - Ecocamps (two in Gaya)
  - Food from Forest cafeterias (one in Gaya, three in Thiruvananthapuram)
  - Zipline (one in Gaya)
- Not located on forest land
  - Ecocamps (one in Medak, one in Thiruvananthapuram)
  - Homestays (eight in Medak, one in Thiruvananthapuram)

Other value chains linked to forest:

- Strengthening Vanasree NTFP value chain (Thiruvananthapuram)
- Stingless beekeeping (Thiruvananthapuram)
- Trade facilitation for custard apple pulp, not working directly with collectors, buying product in market (Medak)
- Moringa plantation and processing center located on SFD land (Gaya)
- Trade facilitation for Neem seeds and value addition located on SFD land (Gaya)*

Other value chains not linked to forest:

- Biodegradable leaf plate enterprise (Medak)
- Moringa growing, processing, and marketing (Medak)
- Enterprise on Sabai grass (Gaya)
- Incense sticks from recycled temple flowers (Gaya)

One of the reasons that many of the value chains are not connected to the forest in Bihar and Telangana is because there is no legal extraction of NTFPs, although this is informally allowed at the District/Divisional Forest Officer's discretion. This means that the SFDs are not interested in the from another state because they are a better quality. The service provider also provides the plastic and cardboard layer used in the plates to make them more durable. While they do have 75 percent less plastic than a plastic plate, according to the service provider, they still have plastic in them. We also note that other women's SHGs have bought leaf plate making machines after seeing the Forest-PLUS 2.0 activity, but they have chosen to produce paper plates, not leaf ones, which are cheaper and easier to procure materials for value chain activities, at least relative to the other Forest-PLUS 2.0 activities. Also, because the SFDs primarily consider Forest-PLUS 2.0 a technical support program, the value chains do not fit into their understanding of the activity's main purpose or priorities. Even in Kerala, other than the Vanasree value chain, the SFD staff were not very interested in the other value chains. One staff member said the other value chain activities were

[11] In Medak, leaf plates were made for a short period of time initially using leaves from the forest, but now they are supplied by the service provider, Leaf Plate Technologies, Ltd., who imports them from another state because they are a better quality. The service provider also provides the plastic and cardboard layer used in the plates to make them more durable. While they do have 75 percent less plastic than a plastic plate, according to the service provider, they still have plastic in them. We also note that other women's SHGs have bought leaf plate making machines after seeing the Forest-PLUS 2.0 activity, but they have chosen to produce paper plates, not leaf ones, which are cheaper and easier to procure materials for.

nothing special or original, and he was unfamiliar with the cafeteria's 'food from forest' trainings inside the forest area or the ecocamp and homestay activities outside the forest area.

Because the SFD did not directly support many of the value chain activities in Bihar and Telangana, Forest-PLUS 2.0 turned to other government agencies, like Jeevika (Bihar Rural Livelihoods Promotion Society) in Bihar and DRDA in Medak to support the livelihood chains. However, the value chains are in addition to their normal activities, so they are institutionally limited in how much they can support and maintain the Forest-PLUS 2.0 value chains as they do in addition to their mandated responsibilities.

In addition to the lack of institutional support, the value chains are hampered because they are diverse and complex. Each value chain has different beneficiaries, public and private partners, relevant policies, and state contexts. Even in the best circumstances, value chain creation is difficult and rarely happens quickly or easily. Many enabling conditions are necessary for enterprise sustainability, starting with the producers who create the product through to financing and marketing (Table 2). Implementation requires building the technical capacity of the beneficiaries to participate in the activity and finding long-term institutional and marketing support for the activities. One Forest-PLUS 2.0 partner who accepted a one-year contract to develop value chains said they do not initiate their community livelihood activities with less than a five- to eight-year commitment.

Table 2. Enabling conditions

Conditions for enterprise sustainability	• Stakeholder alignment • Livelihood diversification • Market demand • Profit potential • Access to financing • Community ownership • Internal governance • Compliance with government requirements • Supportive policies • Business alliances and partnerships • Technical capacity • Marketing and financial management capacity • Sustainable source of inputs • Equipment and infrastructure	Conditions for conservation sustainability	• Cash and non-cash benefits • Benefit sharing • Linkage between benefits and behavior change • Resource use rights • Complementary strategic approaches • Targeted participation or benefits • Scale of the enterprise approach

From: THE NATURE OF CONSERVATION ENTERPRISES: A 20-year retrospective evaluation of the theory of change behind this widely used approach to biodiversity conservation, 2018. USAID Measuring Impact.[12]

[12] We note that USAID has a number of publications on conservation-related livelihoods activities, enterprises, and value chains that are relevant, including: A Sourcebook for Community-Based Forestry Enterprise Programming, 2020; A Framework for Monitoring, Evaluating, and Learning from Conservation Enterprises, 2020; Conservation Enterprises Learning Group: What We Have Learned, n.d.; Building a Conservation Enterprise: Keys for Success, 2017; The Nature of Conservation Enterprises: A 20-year retrospective evaluation of the theory of change behind this widely used approach to biodiversity conservation, 2018.

Unfortunately, Forest-PLUS 2.0 had a relatively short period to implement the value chains. Activities did not begin until late 2019, after preliminary assessments had been conducted to identify and analyze potential value chains and ways to include women and marginalized people. The time they had to implement the value chains was further curtailed by COVID, which either delayed or created a gap in all the value chains. For many value chains, this last year of Forest-PLUS 2.0 will be the first real test of their potential.

Given the short time available, Forest-PLUS 2.0 used one-year contracts with service providers to initiate many value chains. This means that once the contract was finished, the support for communities ended or is now limited to voluntary support from the contractors. For example, last year the service provider for the custard apple pulp processing value chain in Medak facilitated the sale of the pulp to an ice cream maker in Hyderabad. However, the service provider's contract is now over, and their staff told us it is not certain that DRDA will step in and support the activity this year, given other mandates or priorities. In contrast, the leaf plates, which was also a one-year contract, appears likely to continue as the service provider has said they will continue to support the women's groups and supply the items to make the plates because they are also making a profit.

In the case of the ecotourism activities, three tour operators fulfilled short-term contracts (one year) to train local communities to manage the ecocamps and homestays at all three sites. They said their part in the project was officially over now that their contracts had ended. Still, they would continue supporting the communities by advertising on their websites and booking with them if they received inquiries. No regular tourists have come to the ecocamps or homestay sites (overnighters) due to COVID interrupting tourism. This coming tourist season starting in September or October will be the first real test of the potential of the ecotourism value chains. However, since the contractors are participating voluntarily, determining the extent they will support these sites is difficult. To date, the tourism partners have not yet added the sites to their web pages.

EQ 2.4 How have the economic opportunities (including those from improved ecosystem services) benefitted the beneficiaries? What are the community's perceptions about the new economic opportunities?

In general, beneficiaries have not yet significantly benefitted from the economic opportunities, and the activities are not yet self-sustaining. We heard from beneficiaries that they appreciate their new opportunities because of the value chains. They hope to get continued support from Forest-PLUS 2.0 until the activities are fully up and running. They are concerned about sustaining the activities and have questions about material supply and marketing and who owns the equipment they are using. They are waiting to see what benefits they will get when activity chains become functional.

One member of the cafeteria group in Bihar said, "Activities and trainings supported by Forest-Plus 2.0 has supported the communities, but none of the programs are running fully. It is like supporting the inauguration and then stopping support after it. The villagers were very enthusiastic when Forest Plus [came]. Some of the women involved with incense sticks are making some money, but other activities, like the cafeteria, are closed. In this case, we get discouraged. It will be good if the forest plus team can have regular meetings with us and support us initially until it starts running well."

Another woman who participated in the tourism and leadership and gender trainings in Bihar said, "I attended the leadership and adventure program with a great hope. We invested our 15 days attending this training without any compensation, but we are still waiting to be part of the real program. I, along with other women participants, were very hopeful that it will provide us good income support but now we do not know when the government is going to start this."

One woman participating in the Sabai grass activity said, "The best contribution of FP was that it has made us to understand the relationship between humans and forest. The training on making utensils with Sabai grass is welcome. I, along with many women in my village, are doing this, and this has definitely helped us in supporting our families and becoming independent. However, the challenge for us is the lack of demand for the product and the cost of Sabai grass. Many women fail to make considerable income, and because of that they become discouraged. It would be good if this can be streamlined, and FP supports marketing. We also do not have land to farm Sabai grass, so getting Sabai grass at subsidized cost will boost the morale of the women in this community."

EQ 2.5 How much did the program interact with the targeted beneficiaries to include their voices in achieving the program objectives?

In Bihar, beneficiaries told us they felt their voices were heard by Forest-PLUS 2.0, but they also felt their concerns were not being addressed promptly. One woman involved in incense making said, "We are engaged in incense sticks making and have been earning some money, but the problem is lack of marketing skills in us. We have requested many times for help to explore this, so that our business streamlined, but it has been delayed."

In some activities, beneficiaries said the value chains, especially tourism, were top-down. One local leader and a leadership and gender training participant in Bihar said, "It is good that the forest department has started programs for promoting ecotourism and agroforestry in the locality, but it should not come from the top, but from the people. Programs like a nature camp in this area are not going to work, as most of the people come here for religious reasons, not to enjoy nature. Even schools around the areas do not want to send their children, but as this order came from the top, we and others in the Forest Committee must work hard to fulfill the formalities. The forest department and Forest Plus should fix this basic issue before promoting fancy projects like this."

Another person involved in tourism in Bihar said, "The government officials along with Forest Plus 2.0 teams visited this place and once I was invited to attend the program about CBET. However, this official or any other stakeholders never contacted me or anybody else who better understands ecology and opportunity in this area. This area has potential opportunity for ecotourism and agroforestry, but without taking the stakeholders together and consulting the grassroots people, the program is doomed to fail. Inauguration was done for ecotourism and nature camping in Barabar nursery, but after that I have never heard about any development."

In Medak, one group of EDC members said they were told to participate in EDCs reformulated by Forest-PLUS 2.0 but are not doing any activities nor receiving any benefits. In the case of the ecotourism homestay participants, the tour operator himself used the word "forced" to describe people's participation in the activities because it was difficult to find people who wanted to participate. They trained 40 people, but only eight of those people were willing to try. The participants are very concerned about the benefits of the activity and the impacts of tourists on their community. However, the individuals participating in the ecocamp in Medak were positive and hopeful that they could handle the activity and benefit from it.

In contrast, in Kerala, in the Kallar site, they said the service provider "is learning from us because we know the environment and can guide them. When they enter the forest, we tell them about precautions they need to take to protect themselves from snakes and animal attacks. We tell them the local names of wildlife." The participants also felt like the activity was "a good opportunity for the community to speak about our cultural heritage and showcase our tribal activities."

EQ 3 How have the intervention activities and approaches integrated gender across program implementation?

EQ 3.1 What evidence exists to substantiate the reduction of the gender gap?

Leadership and gender trainings

Forest-PLUS 2.0 conducted one-day introductory programs on Gender Sensitization and Leadership Development for senior officers and the field staff across all three landscapes. The sessions aimed to sensitize participants towards gender issues and support women forestry professionals to overcome roadblocks they face while building their strengths and abilities. Topics covered included gender bias, gender blind spots, and gender equity and created a space for discussions on the components of leadership and its convergence with gender.

Forest staff said that overall, men and women worked well together already in the SFDs, but they said the gender training was enjoyable and helpful. They mentioned specifically enjoying the interactive nature of the training activities. Female forest staff who participated felt this training helped expand their understanding of gender issues and made it easier for them to discuss these issues with their colleagues. One female sub-beat officer said, "We learned how to reduce the gender gap between men and women. How to cooperate during working hours, how to address issues of communication." One female sub-beat officer mentioned that now the female staff felt comfortable talking to their male colleagues about various issues, and they felt like a family and were more empowered with a greater team spirit. Some male participants mentioned that the training helped improve staff communication. One male sub-beat officer also said that the gender training helped them understand the role of women in communities in natural resource extraction.

We could not confirm if these leadership and gender trainings would continue after Forest-PLUS 2.0 ends. In Medak, the SFD said they have no way to continue them with existing staff but could consider hiring outside contractors.

Gender and value chain beneficiaries

Because of the emphasis on gender integration in Forest-PLUS 2.0 value chains, many of the value chain beneficiaries are women. Five of the 12 chains have primarily women beneficiaries (incense, sabai grass, custard apple, leaf plates, cafeteria food from forest), with many also participating in moringa and neem collection.

The context in the different states is important to understanding the relationship between value chains and gender. Bihar is one of the poorest states in India, with a relatively small percentage of women economically active outside the home. By contrast, women in Kerala dominate some NTFP value chains, from harvesting to marketing and sales. Telangana has invested heavily in women's self-help groups (SHGs) and has been especially successful in laying a foundation for sustainable cooperatives through links to banks and credit. Forest-PLUS 2.0 has been able to work through these groups.

Many value chains involve women doing traditional "women's" work. The IP noted in the gender analysis that encouraging women to participate in non-traditional activities, like guiding tourists, would be beneficial. In the ecocamp in Kerala, where women had the chance to participate in guide trainings sponsored by Forest-PLUS 2.0, one woman mentioned that this training both increased her knowledge of birds and butterflies and gave her a new livelihood activity. She said she was

encouraged to work as a guide, unlike the SFD-run camps where women are not allowed to be guides.

EQ 3.2 To what extent has the activity been successful in involving and benefiting marginalized communities?

In Bihar, given the socio-economic situation and the people targeted for the value chain activities, marginalized people were the primary beneficiaries. However, because participants were chosen in the traditional manner of the village leader disseminating information about opportunities and recruiting participants, beneficiaries mentioned some preferential selection of participants, especially for tourism activities.

Also, because the people are marginalized, some value chain activities are difficult for them to take advantage of fully. For example, they do not have access to land necessary to plant their own moringa and neem trees. One woman said, "The idea of moringa leaves and neem seeds is good for us. I have made some money after selling moringa leaves and it has helped me in buying things of my choice. However, most of my community people are landless, and I have only one moringa tree. In this case, it will not help much. Last year, we planted moringa trees on the side of the road, but cattle grazed it."

In Medak, it is less clear that marginalized people were the primary beneficiaries of activities. The participants in the custard apple processing and leaf plate value chains were women who did not themselves collect from or depend on the forest for resources and participants in the homestay and moringa activities were farmers with land. For example, the moringa processing unit (drier and powder maker) were provided to one family with land who had planted moringa, and only three women were trained in moringa collection. Forest-PLUS 2.0 is not directly working with collectors of custard apple, who would be more marginalized.

Only scheduled tribes can collect from the forest in Kerala, so anyone involved in NTFP extraction is considered legally marginalized.

EQ 4. To what extent does Forest-PLUS-2.0 respond to the GOI and beneficiaries' needs?

EQ 4.1 To what extent will the capacity building and technical assistance efforts to government institutions achieve the results of the activity?

A clear learning emerging from Forest-PLUS 2.0 is that the efficacy of these tools, technologies, and methods (TTMs) and the extent to which they are utilized and internalized is linked to their utility for the GOI including the SFD and other departments. These TTMs have been conceived and introduced in close consultation with MoEFCC and the SFDs. The Van system has speeded up and eased the burden of working plan development, earlier considered a rather laborious task. Because all the forest divisions across the country prepare working plans on a ten-year cycle, the Van system has garnered favor with the forest departments as it saves them time and resources.

Uptake of TTMs also correlates with how effectively the departments have leveraged the Forest-PLUS 2.0 technical assistance to meet their specific requirements for managing and monitoring their landscapes. The three tools introduced in Kerala were developed in response to specific contexts. DSS-Forestry helps with the implementation of the state's ecorestoration policy. The NTFP-IMS was initiated in response to a need to track the extraction, movement, and sale of NTFPs. This was triggered, according to a key informant, by an incident where there was a demand for 1,000 tons of

Kunthirikkam resin by the department, but although the estimated production from the forests is about 3,000 tons, the official record of harvests was only 30 tons. TIGRAM, the timber traceability tool, was developed because, as a respondent put it, "we were recently in the media for the wrong reasons due to illegal felling of timber from private lands. Developing such a tool is beneficial as it ensures transparency."

TTMs are also being developed for non-forest areas. In Telangana, the two tools are designed to support plantations as part of the state's flagship afforestation program, the *Telanganaku Haritha Haram*.[13] The difference, in this case, is that they target areas outside forests and require adoption and use by the line departments, the district administration, and private farmers. Although the forest department is a nodal agency for *Haritha*, these other stakeholders need to be vested in these technologies to sustain their usage post Forest-PLUS 2.0. Enhanced efforts are needed in the next year to work with stakeholders in demonstrating their utility.

The data gathered via Van also has other potential uses for long-term monitoring of vegetation, integrates GIS layers for map production, and is adaptable to a range of contexts. Van's malleability has been recognized by the Forest Departments, and they are considering deploying it for other purposes besides WP preparation. Data collected by the TTMs could also be used to address some of India's international commitments, such as the Nationally Determined Contributions and reporting to various conventions. Efforts are currently on to try and upscale these tools and approaches to the national level by including use of the Van app and valuations within the NWPC.

Most forest departments raised the issue of the capacity of their GIS and IT cells to integrate and use these technologies once Forest-PLUS 2.0 ends and asked for an approach paper or exit strategy to ensure a smooth transition. The need to continue building capacity in use of the tools, EAFM, and the training of trainers was emphasized, especially because the forest departments have an influx of newly recruited staff who would benefit from this. Forest-PLUS 2.0's gender training programs are particularly important given the 33 percent reservation for women as forest guards in many states, but a special needs assessment should be conducted separately for them.

EQ 4.2 To what extent has the project engaged the private sector, and what are the results and lessons learnt?

The activity indicators show that engagement with the private sector in Forest-PLUS 2.0 has underachieved against a $12 million target for the project's life. The degree of investment is currently $783,786, although the remaining year 5 target is $2.25 million. The total target for public-private partnerships for the life of the project is nine, but the number achieved to date is six, which was the target for year 3. The activity progress reports document that the performance is low but for many valid reasons. Many of the reasons they gave were confirmed by field visits.

Investment by the corporate sector in enterprise development is low. One reason is COVID, which hit when value chains were not yet ready to showcase to potential investors. And once COVID hit, investors limited their investments primarily to COVID-related activities. Additionally, the tourism sector was badly hit by COVID, making those value chains particularly difficult to demonstrate.

Other factors also played a role in private sector investments. Tour operators are unwilling to invest in tourism in forest areas managed by SFD, which are governed by stringent acts and policies. In two of the sites, the tourism operators chose to work outside the SFD area. In the third, where the

[13] DSS-PE and LCM-Outside Forests

ecotourism sites are located on SFD land, the tourism operator is not actively supporting the site, and booking has been turned over to a local travel agent. The SFD also has reservations about working with the private sector to promote ecotourism ventures.

In terms of NTFPs, the private sector is usually looking for large volumes and marketability of and demand for products, which are more difficult with NTFPs from forest lands. In turn, SFDs also have reservations and limitations when working with the private sector, and they believe that private players are likely to overharvest and exploit resources unsustainably.

CONCLUSIONS

This section addresses EQ 5 "What are the overall accomplishments, challenges, and learnings out of the activity implementation so far?"

A GOI respondent asked about Forest-PLUS 2.0's approach and vision said, "FP 2.0 has effectively used decentralized planning and catalyzed changes with small funds that lead to institutional change for scaling up. The focus is on process, not activities. It has been a transformative process for the SFD and most importantly has a ripple effect." Perhaps one of the most effective examples of this transformative approach has been the development of a diversified range of innovative TTMs for improved ecosystem management and on building capacity to use them.

Through its technical support, Forest-PLUS 2.0 has taken an ambitious step in expanding the ecosystem approach to the larger landscape. Landscape management planning enhances awareness of the value of forests and associated ecosystems in providing the ES needed for the functioning and prosperity of sectors such as agriculture, fisheries, irrigation, industry, and clean water supply. As several respondents said, the measure of a forest is far more than timber or as a habitat for wild animals. Forest-PLUS 2.0's launch of LMPs has highlighted the need to rejuvenate ecosystems collectively at a landscape level.

The reality, however, is that funding and integration at the district level are hard to achieve without enabling systems and institutions. Forest-PLUS 2.0 underlined the challenges of expanding a forestry program outside forest areas and implementing ecosystem approaches at the landscape level.

Forming and strengthening district-level committees under the leadership of the District Magistrate or District Collector is an important way forward for landscape planning in Bihar and Telangana, although transfers of key officers are a significant impediment. In these states, directives for LMP implementation should come from the state administration (e.g., the Principal Chief Conservator of Forests and Additional Secretary rank officers). In Kerala, where departments converge under Panchayats, these LMPs represent one of the first uses of a river basin approach to landscape management in the state. Landscape planning has also been instrumental in the planned redesignation of forests into landscape circles based on a watershed approach in Kerala.

Valuing ES addresses GOI's shift in focus away from timber-centric management of forests. Monetary values of ES can inform state and national policies on green accounting, Finance Commission flows, fixing of rates for forest diversion, and enhancing budgetary allocations to the sector. However, for this to happen, dissemination of the results of valuation will be required, along with the dovetailing of sophisticated valuation methodologies with simple ways to capture this information in the field.

In terms of the livelihood activities, because most of them are not forest-based and do not match with the technical assistance model of Forest-PLUS 2.0, they are insufficiently linked to FD needs or

to "move the needle" towards ecosystem services like Objectives 1 and 2. Because extraction is not legally possible in some states, it is difficult to link improved management with extractive value chains.

The SFD does not show as much interest in the value chain activities at all three sites relative to the other activities. In Kerala, one SFD person said the value chain activities other than the Vanasree NTFP value chain were nothing special or original. He was unaware of the tourism activities both inside the forest area, like the cafeterias, and outside, like the ecocamp. Individuals within the SFD may champion and support livelihood value chain activities, like the previous DFO in Bodhgaya. Still, this interest is not institutionalized in the two sites where extraction is only informally allowed.

In most cases, insufficient time has been allocated to support and develop the value chains. The number and variety of value chains Forest-PLUS 2.0 has initiated is extremely ambitious, given their resources. Many of the activities were done under short-term (one-year) subcontracts, which is not enough time to sufficiently build the capacity of the community or establish market connections to show people the benefits of the activity, much less establish sustainable, long-term market relationships. The short-term support for the value chains was compounded by COVID, which meant some activities had a long gap between trainings, which might have happened before COVID, and implementation now that COVID has subsided.

For the tourism value chains, the use of subcontracts for one year to initiate these activities was insufficient. Because of COVID, these activities suffered a delay or gap in their implementation. The subcontractors are currently voluntarily consulting with the communities since the contracts have ended, and there is some confusion among the communities about how to carry the activities forward.

It is very difficult to say which of the activities will be sustainable after Forest-PLUS 2.0 ends because, at this point, benefits have not accrued to communities in a way that makes them feel that the activity is dependable. With sufficient monitoring and support given to each value chain, this could change in the next year.

RECOMMENDATIONS

Remaining period of Forest-PLUS 2.0

The following are some recommendations that Forest-PLUS 2.0 could undertake in the remaining period of the contract. Overall, a package of good practices from Forest-PLUS 2.0 should be documented and turned over to state departments and the district administration.

Objective 1. To strengthen ecosystem-based management of forest landscapes

- Strengthen LMP implementation by:
    - Identifying and prioritizing activities that will have the most impact.
    - Drawing up a concrete action plan for their implementation.
    - Identifying credible funding sources and opportunities to integrate with line department activities
    - Requesting state administration for a directive on LMP implementation to district authorities.
- Provide more communication and outreach to policymakers, educational institutions, and district authorities on the LMP and case studies of what worked and what did not after Forest-PLUS 2.0 to inform future initiatives.

- Build capacity:
    - Scale up the training of trainers to provide refresher training and institutionalize knowledge of the Van app for working plan divisions.
    - Focus on integrating EAFM training into state and central forest institutions that are field-based, interactive, and engaging.
    - Conduct training on landscape management planning using successful Forest-PLUS 2.0 case studies in state and central administrative academies and forest training institutions.
    - Given Forest-PLUS 2.0's success in developing and deploying a range of tools and technologies that meet multiple GOI needs, consider providing process documentation on the enabling factors for this as a reference for future USAID activities in India and elsewhere.
- Develop robust servers.
- Enhance capacity of GIS cells within the SFDs to enable institutionalization of the tools and technologies post-Forest-PLUS 2.0.
    - Prepare an exit strategy and approach paper on institutionalizing the tools, techniques, and methodologies to enable an effective transition at the closure of Forest-PLUS 2.0.

Objective 2. **To factor ecosystem services into management of forest landscapes.**

- Amplify the results of the valuations to senior government officials and policymakers through state- and national-level workshops and present the results of valuations to senior forest officers, planning, and water boards.
- Explore ways to simplify valuation methodologies and link them to data collection by frontline staff.
- Strengthen implementation of IBMs by drawing up time-bound action plans in collaboration with district authorities.
- Integrate IBMs within existing government schemes and programs and, if necessary, provide direct support for their implementation.

Objective 3. **To increase economic opportunities from improved landscape management**

- Create action plans for each value chain with input and buy-in from government and private partners to maximize their chances of success and sustainability.
- Evaluate each value chain according to the enabling conditions necessary to make it succeed and provide direct support to the value chains and the IBM activities in this last year.
- Continue to engage with the private sector to support, strengthen, and market existing enterprises.
- Increase SFD capacity for value chain development and marketing in Medak and Gaya to support the value chains after Forest-PLUS 2.0 ends for forest-based products like moringa, neem, and custard apple.

Long-term recommendations for Forest-PLUS 2.0

- Consider applying and adapting the highly successful tool and technology deployment process to other states and contexts (e.g., developing MPs for protected areas using the Van system) based on the requirements of the GOI and SFDs.
- Consider linking ecorestoration activities initiated under Forest-PLUS 2.0 with the voluntary carbon market using the Working Plans as a base document.
- Consider explicit requirements for value chains to be forest-based. If they are not, delineate an explicit theory of change for links between value chains and ecosystem services.

- Design value chain activities around institutional contexts, including capacities, needs, and priorities.
- Consider outreach and interpretation opportunities that dovetail with SFD interests and needs. Across all three states, Forest-PLUS 2.0 opportunistically supported education centers, which fit Forest-PLUS 2.0's model of technical support to SFDs.

ANNEXES

ANNEX I: EVALUATION TIMEFRAME

The evaluation team will implement this mid-term evaluation between July 11 and October 31, 2022. The India CLAIM Chief of Party initiated the evaluation on July 11 with a document review and an inception meeting. Implementation milestones began with the submission of an inception report on July 21 to provide the detailed methodology for the assessment, following an initial consultation held with the implementing partner on July 20th. This was followed by an inception meeting with USAID/India on 29 July, followed by an in-person in-briefing by the team leader, the whole evaluation team, and USAID/India on August 8. Data collection, including Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs), took place over a five-week period commencing July 21 and continuing to September 2. Following data collection, the evaluation team presented their preliminary findings to USAID India on September 6. This was followed by a full debriefing to the USAID/India Mission on September 21. Following the presentation, the team wrote the draft assessment reports for submission to USAID /India by September 30 and the final report for submission in October.

EVALUATION TIMELINE – DELIVERABLE DATES

TASK / DELIVERABLE /	DATE (2022)
Document Review and Gap Analysis	July 11 –July 21
Inception Report submitted to USAID/India	July 21
Inception Report approved by USAID/India	July 27
Inception meeting with USAID/India	July 29
Drafting data collection instruments	July 21-August 1
Share drafts of data collection instruments	August 8
Planning and scheduling KIIs and FGDs	July 21- September 2
Conducting KIIs with GOI and discussions with USAID and IP	July 21 – September 2
Evaluation team In-briefing meeting with USAID/ India	August 8
Training of Evaluation Specialists in preparation for field data collection	August 9
Conducting KIIs and FGDs in landscapes	August 10-September 2
Visit to Site 1: Bihar (Gaya) by TL and SFS	August 10-17
Sharing of pre-tested tools with USAID	August 14 or so
Visits to Site 2: Kerala (Thiruvanthapuram by TL and SFS	August 18-25
Visit to Site 3: Telangana (Medak) by TL and SFS	August 26-September 2

EVALUATION TIMELINE – DELIVERABLE DATES	
Data transcription, summary, and analysis	July 21-September 2
Debriefing Meeting with USAID/India before TL departs India September 7	September 6
Produce Draft Assessment Report	September 2-30
Draft Assessment Report submitted to USAID/India	September 30
USAID/India reviews DRAFT report and provides comments	September 30 – October 14
Evaluation team reviews comments and finalizes report	October 14 - 19
Final Assessment Report submitted to USAID/India	October 19

a. Precise dates may vary slightly depending on USAID direction, travel possibilities and logistics.

Evaluation Timeframe Gantt chart

Activities and Milestones	July			August											September						October	
	11	21	29	1	5	7	8	9	11	18	19	25	26	31	1	2	5	6	21	30	14	19
Document review and gap analysis																						
Inception Report																						
Inception Meeting with USAID/India																						
Drafting data collection instruments																						
Planning and scheduling KIIs and FGDs																						
Conducting KIIs with GOI and discussions with USAID and IP																						
Inbriefing meeting with USAID/India																						
Training of Evaluation Specialists																						
Conducting KIIs and FGDs in landscapes																						
Visit to Site 1: Bihar (Gaya)																						
Visit to Site 2: Kerala (Thiruvanthapuram)																						
Visit to Site 3: Telengana (Medak)																						
Data transcription, summary, and analysis																						
Mini-debriefing with USAID and presentation of preliminary findings																						
Final debriefing with USAID/India Mission and presentation of findings																						
Produce Draft Assessment Report																						
Submission of Draft Assessment Report																						
USAID/India reviews draf report and provides comments																						
Finalization of Final Assessment Report																						
Submission of Final Assessment Report																						

ANNEX II. SUMMARY OF KIIS, FGDS, AND IDIS CONDUCTED

State	Division/ Area	# Of FGDs	Sex of participants	FGD participants	IDIs	KIIs	Total # of KIIs, FGDs and IDIs	Total # of participants in KII, FGDs and IDIs
Bihar	Gaya/Patna	9	Female	22	6	3	41	31
			Male	24	5	18	-	47
Total		**9**		**46**	**11**	**21**	**41**	**78**
Telengana	Medak	10	Female	35	5	5	36	45
			Male	18	4	12	-	34
Total		**10**		**53**	**9**	**17**	**36**	**79**
Kerala	Thiruvananthapuram	14	Female	35	1	2	28	38
			Male	44	0	11	-	55
Total		**14**		**79**	**1**	**13**	**28**	**93**
Other locations		0	Female	0	0	0	0	0
			Male	0	0	5	5	5
Total		**0**	-	**0**	**0**	**5**	**5**	**5**
Total across all locations		**33**	-	**178**	**21**	**56**	**110**	**255**
Total Female				**92**	**12**	**10**		**114**
Total Male				**86**	**9**	**46**		**141**

ANNEX III. KII INTERVIEW GUIDE

DATE OF INTERVIEW:

NAME OF INTERVIEWER:

NAME OF RESPONDENT(S):

TITLE/POSITION:

TELEPHONE/EMAIL:

STATE:

MALE: ☐

FEMALE: ☐

ACTIVITIES

How long have you been involved with the Forest-PLUS 2.0 project?

(For GoI) How has Forest-PLUS 2.0 supported your government agency? And how have you been involved?

(For partners) What activities of Forest-PLUS 2.0 did your organization implement? And how have you been involved?

Questions relevant to EQ 2.1. To what extent has the project been able to promote ecosystem-based management of forest landscapes, and to what extent the project interventions led to or will lead to improvement in ecosystem services provided by forests and adjacent landscapes.

Overall, would you say that the tools, techniques, and management planning processes that Forest-PLUS 2.0 introduced have been able to promote an ecosystem-based approach to forest management?

If yes, please describe.

If no, why do you think they did not?

Do you think they will in the future?

How useful do you think the introduction of landscape management planning is for improved ecosystem-based management and ecosystem services?

If a great deal or some, why?

If not useful, why not?

EQ 2.2. To what extent has the project been successful in introducing innovative tools and technologies in managing and monitoring forested landscapes and in decision

making? And have these tools adequately responded to the needs of the state government agencies?

To what extent has the project been successful in introducing tools and technologies to manage and monitor the forest?

If not, why not?

If a great deal or some, have these tools and technologies improved decision-making for forest management?

If yes or maybe, how? If no, why not?

Have these tools and technologies adequately responded to the needs of your agency?

If yes or maybe, please describe.

If no, please describe.

What tools and techniques are you familiar with?

Overall, how usable were those tools, techniques, or methods in your work?

What tools, techniques, or methods were particularly effective? Why?

Which tools, techniques, or methods do you think were least effective? Why?

EQ 2.3 How effective have the measurement of ecosystem services and ecosystem valuation methodologies been and their application in valuation? And is the project on track in implementing appropriate incentive mechanism(s) for managing landscapes to provide ecosystem services?

Are you familiar with the ecosystem valuation methodologies introduced by Forest-PLUS 2.0

Have these been effective in promoting the measurement and valuation of ecosystem services (in your landscape)?

If yes, how?

If no, why not?

Do you think these valuation methodologies have contributed to **improved management** and Improved flows of ecosystem services?

If yes or somewhat, how?

If no, why not?

Are you familiar with Incentive Based Mechanisms (IBMs) introduced under Forest Plus 2.0

If yes or somewhat, which ones? Where have these been implemented?

Do you think these IBMs have contributed to **improved management** and improved flows of ecosystem services?

If yes or somewhat, how?

If no, why not?

EQ 2.4 How have the economic opportunities (including those from improved ecosystem services/IBMs) benefitted the beneficiaries? What are the community's perceptions about the new economic opportunities?

Have the improved ecosystem services/IBMs we discussed earlier benefitted local communities?

If yes or somewhat, who has benefited and how have they benefited?

If no, why not?

Are you familiar with the value chains (economic and livelihood activities) of Forest-PLUS 2.0?

If yes or somewhat, please describe which ones (bold ones are being continued in optional period)

If yes, have they benefited local communities?

If yes or somehow, how?

If no, why not?

Do you think that the economic opportunities for beneficiaries could be improved?

If yes or somewhat, how?

EQ. 2.5: How much did the program interact with the targeted beneficiaries to include their voices in achieving the program objectives?

In your role with Forest-PLUS 2.0, did you interact with targeted beneficiaries?

If yes or somewhat, with whom and how?

Based on your experience, to what extent do you think the program included the voices and perspectives of targeted beneficiaries?

If yes or somehow, please describe how (specific activities or pathways) and the extent to which they included them.

If no, why not?

EQ 3.1: What evidence exists to substantiate the reduction of gender gap?

Has Forest Plus 2.0 contributed to reducing the gender gap?

If yes, how was gender integrated? Which activities are you familiar with?

How did the activities reduce the gender gap?

If no, why not?

EQ 3.2: To what extent the activity has been successful in involving and benefiting the marginalized communities?

Has Forest Plus 2.0 involved marginalized groups in its activities?

If yes, how and which activities?

Which marginalized groups have been included?

If no, why not?

Has Forest Plus 2.0 benefited marginalized groups in its activities?

If yes, how have they benefited?

If no, why not?

EQ 4.1: To what extent will the capacity building and technical assistance efforts to Government institutions achieve the results of the activity? I.e. to develop and demonstrate viable, practical, and replicable field models that contribute toward India meeting its goals of economic and ecological sustainability in landscape management.

Has Forest Plus 2.0 addressed the capacity-building and technical assistance needs of your agency adequately given its objectives?

If yes or somewhat, please describe.

If no, why not?

What gaps remain?

EQ 4.2: To what extent has the project engaged the private sector and what are the results and lessons learnt?

Were you involved with any activities involving the private sector?

If yes, please describe.

What have been the results of the private sector engagement?

What has worked well with the private sector activities?

What has been difficult?

Do you have recommendations for projects engaging with the private sector?

EQ 5: What are the overall accomplishments, challenges, and learnings out of the project implementation so far?

What is Forest-PLUS 2.0's biggest achievement to date?

If there were one or two changes you would have liked to have made to the project, what would they be?

What unanticipated factors positively or negatively affected your government agency's participation with Forest-PLUS?

What are some positive or negative unexpected results of your government agency's involvement with Forest-PLUS?

Do you have any other thoughts about or recommendations for Forest-PLUS 2.0 that you would like to share with us?

ANNEX IV. QUESTIONS FOR FRONTLINE STAFF ON TRAINING AND THE VAN APP

DATE OF INTERVIEW:

NAME OF INTERVIEWER:

NAME OF RESPONDENT(S):

TITLE/POSITION:

TELEPHONE/EMAIL:

STATE:

MALE:

FEMALE:

Have you heard of the Forest-PLUS 2.0 project?

If so, how long have you been involved with the Forest-PLUS 2.0 project?

Have you undergone any training as part of FP 2? If yes, how many?

Please describe the training, year and type (probe for Van app, EAFM, leadership, gender, other)

Did you find the training/s useful? If yes, why? If not why?

Did you utilize the training? If so, how and what did they teach you to do differently? If not, why not?

Would you like to see more trainings organized? If yes, what kinds?

Are any other FP activities happening in your range/beat/subbeat? If yes, how are you involved in these activities? Are people benefitting? (Here probe for Ahar Pynes, income generating).

Do you have any recommendations/suggestions/learnings from the FP 2 activity

Specifically, if they answer they have undergone training on the Van app or have heard of it, as them:

Is the Van app loaded on your phone? If yes, ask him/her to open it and show it to you and see how familiar they seem with the app

What did you use the Van app for? How long did you use it in the field?

Was the Van app appropriate for the work you had to do and why?

Are there any features of the Van app that you like? Is there anything about it you don't like or should be changed?

When they demonstrate the app to you, either observe yourself or ask them the extent to which they understand how to use the app properly.

Very much o

Quite a bit o

Adequately o

Minimally o

Not at all o

ANNEX V. NUMBER OF KIIS CONDUCTED

State	Area	Sex	Forest officers	Forest frontline staff	Other government staff	IP nonprofit partners	IP private sector partners	Academic and research institutes	Private Sector	Total KIIs
Bihar	Gaya/Patna	Female	0	3	0	0	0	0	0	3
		Male	6	6	2	2	2	0	0	18
Total			**6**	**9**	**2**	**2**	**2**	**0**	**0**	**21**
Telangana	Medak	Female	0	3	2	0	0	0		5
		Male	3	1	1	0	3	0	4	12
Total			**3**	**4**	**3**	**0**	**3**	**0**	**4**	**17**
Kerala	Thiruvananthapuram	Female	0	1	0	0	1	0	0	2
		Male	6	2	1	0	2	0	0	11
Total			**6**	**3**	**1**	**0**	**3**	**0**	**0**	**13**
Other locations		Female	0	0	0	0	0	0	0	0
		Male	0	0	0	4	0	1	0	5
Total			**0**	**0**	**0**	**4**	**0**	**1**	**0**	**5**
Total KIIs			**15**	**16**	**6**	**6**	**8**	**1**	**4**	**56**

State	Area	Sex	Forest officers	Forest frontline staff	Other government staff	IP nonprofit partners	IP private sector partners	Academic and research institutes	Private Sector	Total KIIs
Total Female			0	7	2	0	1	0	0	10
Total Male			15	9	4	6	7	1	4	46

ANNEX VI: NUMBER OF FGDS CONDUCTED

State	# FGD Forest frontline	M	F	# FGD Forest others	M	F	# FGD Government others	M	F	# FGD other	M	F	# FGD communities	M	F	Total #s of FGDs	Total M	Total F
Bihar	1	3	0	0	0	0	0	0	0	0	0	0	8	21	22	9	24	22
Telangana	2	10	2	0	0	0	1	2	2	0	0	0	7	6	31	10	18	35
Kerala	2	9	2	1	3	0	0	1	0	1	4	0	10	27	33	14	44	35
Other locations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**5**	**22**	**4**	**1**	**3**	**0**	**1**	**3**	**2**	**1**	**4**	**0**	**25**	**54**	**86**	**33**	**86**	**92**
Grand Total # FGDs	**33**																	

ANNEX VII. FGD QUESTIONNAIRE

INFORMED CONSENT

INTRODUCTION FOR FOCUS GROUP: *Thank you for taking the time to meet with us today. My name is [NAME]. I am a researcher from a company called Panagora Group, which is based in the United States. Our team is conducting a mid-term evaluation of the activity called Forest-PLUS 2.0. Thank you for meeting with me to talk about your experience with Forest-PLUS 2.0.*

CONFIDENTIALITY: *We would like to conduct a discussion with you today to learn about your experience with this activity. Your responses, along with responses from other participants will be compiled into findings for a report. The report will be publicly available once it is complete, but it will not include your name or other identifying information. Readers will not be able to identify the specific individuals we spoke to from any specific quotes or data in the report.*

The interview is expected to take about 60 minutes.

STRUCTURE: *As part of this discussion, I will ask you questions about your activities with Forest-Plus 2.0. It is important to give everyone an opportunity to speak about her/his experience, so I will do my best to be sure everyone has a chance to participate.*

CONSENT: *It is important to understand that while we would like your help in this study, you do not have to participate if you do not want to, and you do not have to answer any questions if you feel uncomfortable doing so.*

You may ask questions at any time during our discussion. If you have questions or concerns about the research after we leave today, you can contact me at [EMAIL] or [PHONE NUMBER].

Do you have any questions before we start?

By saying "yes," and participating in this study, you are indicating that you have heard this consent statement, had an opportunity to ask any questions about your participation, and voluntarily consent to participate.

Will you participate in this interview? You may answer yes or no.

- ☐ Yes, I will participate
- ☐ No, I will not participate

Are you okay with us recording the interview? You may answer yes or no.

- ☐ Yes, I am okay with recording the interview
- ☐ No, I am not okay with recording the interview

FOCUS GROUP DISCUSSION GUIDE FOR COMMUNITY LEADERS GROUPS (LIKE JFMC COMMITTEE)

DATE OF FGD:

NAME OF FACILITATOR:

NAME OF NOTE TAKER:

STATE:

DISTRICT:

NAMES OF PARTICIPANTS:

NUMBER OF WOMEN:

CHECK ONE:

☐ VALUE CHAIN ACTIVITY Which one? _____

☐ IBM ACTIVITY Which one? _____

☐ LEADERSHIP TRAINING

INTRODUCTIONS

Introduce yourself and why you are there. Don't assume the partner has done it or fully explained who you are.

Ask them to introduce themselves and explain what FP activities they have participated in.

PARTICIPATION

How was your group identified and selected by Forest-PLUS 2.0?

How were the trainings or activities chosen for your group? What was the process?

How has your committee/organization used the tool, technique, method, training that Forest PLUS introduced?

Were there any follow-ups conducted by the Forest plus team regarding your application of and trainings to community members on the tools/techniques/methods and trainings introduced by Forest plus? If yes, how was this done and what was the frequency of these follow-ups?

How did you share this information (pertaining to tools/techniques/methods and trainings you were introduced to by Forest plus) with your community members?

How did you select the beneficiaries to train/share this information with? Was this selection criteria defined by Forest plus or you?

WOMEN

Did women participate in the activity?

In what ways did women participate? E.g. governance, entrepreneurship, or employment?

Please describe.

Did you do anything special to ensure women participated in the activity?

If yes, please describe.

MARGINALIZED

In what ways did marginalized participate? E.g. governance, entrepreneurship, or employment?

Did you do anything special to ensure marginalized people participated?

If yes, who and please describe what you did to ensure their participation?

VOICE

Do you feel Forest PLUS 2.0 interacted with your group and community members to include your opinions and preferences in the activities?

EFFECTIVENESS

What activities (tools, techniques, or methods) were particularly effective? Why? Probe for all tools/techniques/methods mentioned as a response to Q3

What activities (tools, techniques, or methods) were least effective? Why? Probe for all tools/techniques/methods mentioned as a response to Q3

BENEFITS

Do you feel that Forest PLUS 2.0 has benefited the community?

In what ways?

Do you feel that your Forest PLUS 2.0 activities were successful in involving and benefiting women?

In what ways?

Are there barriers or difficulty?

To what extent the activity has been successful in involving and benefiting the marginalized communities?

In what ways?

Are there barriers or difficulty?

Do you feel that Forest PLUS 2.0 benefited the community economically?

If yes, in what way?

Who benefited to the greatest extent?

Ask if it's possible to quantify the benefits depending on what they describe.

FUTURE

What skills, tools, techniques, or methods do you still need?

What could have been done better to suit your needs?

Do you have any additional recommendations for future activities like these?

LINKS

What do you perceive the links are between FB 2.0 activities and the forest?

FOCUS GROUP DISCUSSION GUIDE FOR COMMUNITY GROUPS AND IN-DEPTH INDIVIDUAL INTERVIEWS

DATE OF FGD:

NAME OF FACILITATOR:

NAME OF NOTE TAKER:

STATE:

DISTRICT:

NAMES OF PARTICIPANTS:

NUMBER OF WOMEN:

CHECK ONE:

☐ VALUE CHAIN ACTIVITY Which one? _____

☐ IBM ACTIVITY Which one? _____

☐ LEADERSHIP TRAINING

INTRODUCTIONS

Introduce yourself. Don't assume the partner has done it.

Ask them to introduce themselves and explain what FP activities they have participated in.

PARTICIPATION

Do you know about Forest-PLUS 2.0?

Have you been part/heard of Forest Plus 2.0 activities (training/workshop)?

Who conducted the training and for how many days/times they have attended the training?

How was X (e.g. moringa) chosen as an activity in your community?

How did you come to participate?

Did both men and women participate in the event you attended? Was it about even or more men or more women?

PROBE

- Why do think more men/women attended the event?
- Who do you personally think it was more relevant for and why?
- According to you, who has gained more due to Forest Plus Programs: - Men or Women?

VOICE

Did you contribute to the event? How? (shared an idea.., etc.)

Do you think people feel comfortable voicing their thoughts at the event?

Did you speak up at the event? About what?

BENEFITS

Do you feel that the FP 2.0 activities you have participated in have benefited you?

How have you benefited? (list all the ways, a brainstorm)

How has your family benefited? How?

Has your community benefited? How?

Do you feel that the FP 2.0 activities have benefited others in your community?

Who?

How?

Has your community in general benefited? How?

Which benefits of FP 2.0 we have talked about are the most important in your opinion?

Has your livelihood improved after your participation in FP 2.0?

Please describe.

If not described, ask - have these opportunities benefited you in terms of income?

If not described, ask - have these opportunities benefited you in other ways?

Has your awareness or perceptions changed toward the forest and its benefits because of FP 2.0?

Please describe.

Do you do anything differently in your daily life or work because of what you learned or received from the Forest-PLUS project? Why or why not?

FUTURE

What skills, tools, techniques, or methods do you still need?

What could have been done better to suit your needs?

Do you have any additional recommendations for future activities like these?

LINKS

Are these activities linked to the forest?

If yes, how?

ANNEX VIII: LIST OF MEETINGS HELD

1	July 12	Project inception meeting with Panagora Group (Virtual meeting)
2	July 20	Meeting of Panagora Group with IP Tetra Tech ARD (Virtual meeting)
3	July 29	Meeting with USAID/India, Delhi (Virtual meeting)
4	July 27	Enterprise Development Specialist, Tetra Tech, Delhi (Virtual meeting)
5	July 27	Landscape Ecologist, Tetra Tech, Delhi (Virtual meeting)
6	July 28	Partnership, Innovation & Private Sector Engagement Specialist, Tetra Tech, Delhi (Virtual meeting)
7	July 28	Training and Capacity Building Specialist, Tetra Tech, Delhi, (Virtual meeting)
8	July 29	Presentation on Forest-PLUS 2.0 (Virtual meeting)
9	August 3	Meeting to discuss site visits (Virtual meeting)
10	August 4	Executive Director and Project Director, Centre for Environment and Development (CED) (Virtual meeting)
11	August 5	Demonstration of tools by Tetra Tech, Delhi
12	August 5	Foundation for Ecological Security, Gujarat (Virtual meeting)
13	August 8	Tetra Tech, Delhi
14	August 9	Inbrief with USAID/India
15	August 10	Regional Director, Gaya, Bihar
16	August 10	PRERANA, Gaya, Bihar
17	August 11	DFO Gaya, Bihar
18	August 11	Meeting with Barachatti frontline staff: Beat Officer, and sub-beat officer, Gaya, Bihar
19	August 12	Livelihood Officer, Gaya, Bihar
20	August 12	Staff of Butterfly Park, Bodhgaya, Gaya, Bihar
21	August 12	Nature Mates staff member at Butterfly Park, Bodhgaya, Gaya, Bihar
22	August 13	Community Forest, Gaya, Bihar
23	August 13	Incense group, Dungeshwari, Gaya, Bihar
24	August 13	Adventure group beneficiaries, Dungeshwari, Gaya, Bihar
25	August 14	Meeting with Bhaik Joint Forest Management Committee (JFMC), Barabar Hills, Gaya, Bihar
26	August 14	Moringa Beneficiaries, Bhaik Nursery, Gaya, Bihar
27	August 14	Sabai grass beneficiaries, Kuri Sarai, Gaya, Bihar
28	August 15	Leadership beneficiary, Bhaik Nursery, Gaya, Bihar
29	August 15	Frontline staff, Bhaik Nursery, Gaya, Bihar
30	August 15	Moringa beneficiary, Lodhipur, Gaya, Bihar
31	August 16	Leadership and adventure group beneficiary, Dungeshwari, Gaya, Bihar
32	August 16	Incense beneficiary, Dungeshwari, Gaya, Bihar
33	August 16	Adventure group beneficiary, Dungeshwari
34	August 16	C.P. Khanduja, PCCF (Development), Patna, Bihar
35	August 16	CF and ex Nodal Officer Forest-PLUS 2.0, Patna, Bihar
36	August 16	PCCF and Head of Forest Force (HoFF,) Development, Patna, Bihar
37	August 16	ICICI Foundation, Patna, Bihar

38	August 16	Former DFO Gaya, Patna, Bihar
39	August 17	Cafeteria beneficiary, Dungeshwari, Gaya, Bihar
40	August 17	Adventure group beneficiary, Dungeshwari, Gaya, Bihar
41	August 18	Meeting with IFS APCCF Forest and Vigilance and with DCF-WP and R, Thiruvanthapuram, Kerala
42	August 18	Director and staff of CED, Thiruvanthapuram, Kerala
43	August 18	Faculty member, TERI University, Delhi
44	August 18	Adventure and leadership beneficiary, Gaya, Bihar
45	August 18	Frontline workers, Vatika Park, Barachatti
46	August 18	SBO, Butterfly Park, Gaya, Bihar
47	August 18	Female frontline workers, Barachatti Forest Range, Gaya, Bihar
48	August 19	Male frontline workers, Gulpa Range, Tankuppa Block, Gaya, Bihar
49	August 19	Ahar Pyne Beneficiaries, Misir Bigaha, Gaya, Bihar
50	August 19	President and Members of Vamanapuram Panchayat, Thiruvanthapuram, Kerala
51	August 19	President and Members of Peringamala Panchayat, Thiruvanthapuram, Kerala
52	August 19	Pethalakarikam VSS, Thiruvanthapuram, Kerala
53	August 19	Njaraneeli VSS, Peringamala,Thiruvanthapuram, Kerala
54	August 19	Interaction with FPO, Thiruvanthapuram, Kerala
55	August 19	Beat Officer, Peringamala, Thiruvanthapuram, Kerala
56	August 19	Beat Forest Officer, Peringamala, Thiruvanthapuram, Kerala
57	August 20	CEO Kabai Community Tourism and Services, Thiruvanthapuram, Kerala
58	August 20	Kallar Ecotourism Society, Thiruvanthapuram, Kerala
59	August 20	Ponmudi VSS, Thiruvanthapuram, Kerala
60	August 20	Kallar VSS, Thiruvanthapuram, Kerala
61	August 20	Cafeteria group, Kallar ecotourism site, Thiruvanthapuram, Kerala
62	August 20	Neem and Sabai Grass beneficiaries, Sakardas Nabada, Gaya, Bihar
63	August 20	Agroforestry beneficiaries, Titmo Nursery, Gaya, Bihar
64	August 21	Frontline worker, Lohagarh, Gaya, Bihar
65	August 21	Neem and Sabai grass beneficiary, Kurisarai, Gaya, Bihar
66	August 21	Sabai grass beneficiary, Prabhat Nagar, Gaya, Bihar
67	August 21	Anala Gujarat (Virtual meeting)
68	August 22	Commissioner, Kerala State Land Use Board, Thiruvanthapuram, Kerala
69	August 22	Range Officer, Kulatthupuza, Thiruvanthapuram, Kerala
70	August 22	Pottamavu VSS, Thiruvanthapuram, Kerala
71	August 22	Soil and Moisture, Agriculture Department, Gaya, Bihar
72	August 22	Dhan Foundation, Bodh Gaya Office, Gaya, Bihar
73	August 23	Working Plan Officer, Thiruvanthapuram, Kerala (Virtual meeting)
74	August 23	Palode Forest Range Office, Thiruvanthapuram, Kerala
75	August 24	Software Engineer, and Revanth Kumar Gurram, Senior Software Engineer, GISFY, Thiruvanthapuram, Kerala
76	August 24	Frontline staff and FGD with cafeteria beneficiaries, Kottur Elephant Rehabilitation Centre, Thiruvanthapuram, Kerala

77	August 24	Participatory Forest Management Cell at Forest Headquarters, Thiruvanthapuram, Kerala
78	August 24	Manager, Vanashree Processing Unit, Thiruvanthapuram, Kerala
79	August 24	Debriefing with IFS, Thiruvanthapuram, Kerala
80	August 24	IFS, PCCF and HoFF, Thiruvanthapuram, Kerala
81	August 25	Adiparambu Village, Thiruvanthapuram, Kerala
82	August 25	Thannimoodu Village, Thiruvanthapuram, Kerala
83	August 25	DFO, Thiruvanthapuram, Kerala
84	August 26	PCCF CAMPA and CEO, Nodal Officer Forest-PLUS 2.0, Hyderabad, Telangana
85	August 26	Livelihoods Programme Division, Director, Access Livelihoods Services, Hyderabad, Telangana
86	August 26	Morpheus Tours, Hyderabad, Telangana
87	August 27	Former DFO, and present DFO, Medak Range, Telangana
88	August 27	Frontline staff, Medak, Telangana
89	August 27	Burugupalli EDC and Pocharam EDC, Medak, Telangana
90	August 27	Homestay activity beneficiary at Burugupalli, Medak, Telangana
91	August 29	IAS, Additional Collector, Medak, Telangana
92	August 29	Meeting with Project Officer cum plantation officer, DRDA, Medak, Telangana
93	August 29	Meeting with DRDA representative, Medak, Telangana
94	August 29	Dantepalle EDC members, Medak, Telangana
95	August 29	Leaf plate making unit beneficiaries at Japti Shivanoor, Medak, Telangana
96	August 29	Former PCCF and HoFF, Thiruvanthapuram, Kerala (Virtual meeting)
97	August 30	Frontline staff., Medak, Telangana
98	August 30	Frontline forest staff and DFO of Narsapur, Medak, Telangana
99	August 30	Frontline staff of Medak Range and Ramayampet Range, Medak, Telangana
100	August 30	Leaf plate making beneficiary 1 at Janshi Lingapur, Medak, Telangana
101	August 30	Leaf plate making beneficiary 2 at Janshi Lingapur, Medak, Telangana
102	August 30	Moringa plantation beneficiary 1 at Ibrahimabad, Medak, Telangana
103	August 30	Moringa plantation beneficiary 2 at Ibrahimabad, Medak, Telangana
104	August 31	Leaf Plate Technologies Pvt. Ltd., Medak, Telangana
105	August 31	Members of Leaf Plate Making Unit at Dumra Charu, Medak, Telangana
106	August 31	Tour Operators Association of Telangana (TOAT) at Begumpet Country Club, Hyderabad
107	September 1	DRDA block staff and Access Livelihoods Consulting India representative, Medak, Telangana
108	September 1	Custard Apple pulp extraction unit members, Medak, Telangana
109	September 1	Moringa plantation and Moringa powder making unit, Medak, Telangana
110	September 2	Custard Apple Value Chain Development beneficiary at Bhimraopalli, Medak, Telangana
111	September 2	K. Rani, Village Organization Assistant, DRDA at Bhimraopalli, Medak, Telangana
112	September 6	Mini debrief presentation with USAID/India in Delhi
113	September 21	Debrief presentation with USAID/India in Delhi

ANNEX IX: SCHEDULE OF FIELD VISITS TO THE THREE FOREST-PLUS 2.0 LANDSCAPES BY TEAM LEADER AND SENIOR FORESTRY SPECIALIST

Gaya landscape

Date	Persons/Organizations/Agency	Purpose
August 10 (Wednesday)	Travel to Gaya Meeting with Regional Director, Forest-PLUS 2.0 Discussion with Prerana team	 To get an overview of Forest-PLUS 2.0 activities in the landscape and the different stakeholders. Get an overview and status update on the value chain activities and finalize the village/site visit plan
August 11 (Thursday)	Meeting with DFO, Gaya Two frontline staff from Barachutti range at the Biodiversity Park Official from Jeevika program	Van system, LMP, and value chain activities. Get appointments fixed with HoFF and other senior officials at the SFD HQ in Patna, and with the Gaya District Magistrate. Interaction with SFD frontline staff on Van system, WP data collection, training programs Discussion on LMP, exposure visits, and convergence for value chain
August 12 (Friday)	Visit to Butterfly Park Visit to Gaya Range Office and interaction with staff	Go around the park, rearing center, interaction with local staff and with Nature Mates Interaction with SFD frontline staff on Van system, WP preparation, training programs

Date	Persons/Organizations/Agency	Purpose
August 13 (Saturday)	Visit to Dungeshwari Visit to Aropur area (Ahar pyne system understanding) Meeting with Nodal Officer, Conservator of Forests, Gaya	Discussion with Dungeshwari JFMC members on community enterprise and CBET activities Discussion with women group on incense stick enterprise Dungeshwari CBET site visit Interaction with Ahar Pyne Samiti on IBM activities Visit an Ahar Pyne network Discuss Working Plan, use of Van system, LMP, value chain activities
August 14 (Sunday)	Visit to Barabar (Gaughat Nursery) Visit to Kurisarai	Discussion with Bhaik JFMC members Visit to the Moringa Plantation Visit to the Moringa powder processing center Visit to Barabar Nature Camp Discussion with community on Moringa activities See Sabai grass enterprises and interact with community members
August 15 (Monday)	Meeting with PRERANA coordinator 9 a.m. Travel to Patna	Discuss activities To meet with SFD
August 16 (Tuesday)	Meeting with Senior Project Manager, ICICI Foundation Meeting with HoFF & PCCF, PCCF (Working Plan), and PCCF (Development) in SFD HQ Meeting wih, ex Nodal Officer, Forest-PLUS 2.0, and Former DFO, Gaya	Discussion on Moringa Value Chain Discuss WP, Van system, and other tools, scaling up/replication Discussion on Forest-PLUS 2.0 activities in Gaya during their tenure
August 17 (Wednesday)	Travel to Thiruvanthapuram	

Schedule of Field Visit to Thiruvananthapuram Landscape by the Mid-Term Evaluation Team August 18–25

Date	Persons/Organizations/Agency	Purpose
August 18 (Thursday)	Meeting with Regional Director—Kerala, Forest-PLUS 2.0 Meeting with IFS, APCCF- Vigilance & Forest Intelligence, Nodal Officer DCF- WP&R Meeting with CED team	Get an overview of Forest-PLUS 2.0 activities in the landscape, different stakeholders, and finalize the village/site visit plan Get an overview and status update on the Forest-PLUS 2.0 activities, Working Plans, policy, technology tools, NTFP Management—7-Step Approach, etc. Discussion on LMP, Ecosystem Services Baseline study
August 19 (Friday)	Visit to Peringamala and Vamanapuram Meeting with Gram Panchayats Meeting with Karshika Karma Sena	LMP and IBM—Vamanapuram River Basin—Interaction with Vamanapuram Panchayat and Karshika Karma Sena (FPO) Piloting of EAFM-based LMP in Peringamala Gram Panchayat Meeting with leaders and members of Gram Panchayat Meeting with VSSs (Pethalakarikkam and Njaraneeli)
August 20 (Saturday)	Visit to ecotourism sites in project landscape Visit to Kallar Ecocamp (Kabani) Meeting with Kabani Community Tourism and Services Pvt. Ltd.	Visit to Kallar and Ponmudi ecotourism sites and interaction with VSS members and local staff Interaction with Kallar Ecotourism Society Discussion on CBET and Kallar Ecocamp activities

Date	Persons/Organizations/Agency	Purpose
August 22 (Monday)	Meeting with Commissioner, Kerala State Land Use Board Visit to Range Office in Kulathupuzha Meeting with Range Officer, Dy. Range Officer, and other staff Visit to Pottamavu VSS	Discussion on LMP and piloting Interaction with SFD frontline staff on Van system, DSS-F, NTFP-IMS, sample plots, unique ecosystems (Myristica), ecorestoration, teak plantation, working plan preparation process, gender and training programs Kulathupuzha Museum project, Shankily Agarbatti Oru Katha Campaign Beekeeping pilots, NTFP sustainable harvesting protocol, Shankily Agarbatti
August 23 (Tuesday)	Visit to Palode Range Meeting with Range Officer, Palode Dy. Range Officer, Palode and other staff Working Plan Officer (Online)	Interaction with community on NTFP value chain activities Use of Van system, field inventory data collection, model ecoshop concept and visit to the upcoming model ecoshop, food from forest theme café and SOP EAFM-based Working Plan, visit to ecorestoration sites, DSS-F demonstration, Discussion on LMP and piloting Discussion on Van system and other tools, Model Working Plan, Working Circles, replication

Date	Persons/Organizations/Agency	Purpose
August 24 (Wednesday)	Meeting with GISFY team Meeting with Participatory Forest Management (PFM) - Manager, SFD HQ, State Forest Development Agency (State Forest Development Agency), Thiruvananthapuram Visit to Vanasree Processing Center and Ecoshop PFM, Divisional Coordinator Vanasree Manager, Thiruvananthapuram Forest Division, and other staff of Processing Center and Ecoshop Meeting with IFS (Retd.) HoFF & PCCF (online on 29th August)	NTFP-IMS demonstration and details on technical support to SFD Discussion on Vanasree and support from Forest-PLUS 2.0, NTFP-IMS piloting, capacity building, Van Dhan Vikas Kendras (VDVKs) Vanasree shops and value addition areas, use of NTFP-IMS, VDVK Discuss all Forest-PLUS 2.0 activities
August 25 (Thursday)	Meeting with IFS, DFO, Thiruvananthapuram Travel to Hyderabad	Discussion about Working Plan, use of Van system, LMP, value chain activities (ecotourism, NTFPs, Vanasree) DSS-Forestry, VDVKs, beekeeping pilots

Visit to Site 3: Telangana (Medak) by TL and SFS: August 26–September 2

Date	Persons/Organizations/Agency	Purpose
August 26 (Friday)	Meeting with Regional Director, Forest-PLUS 2.0 Meeting with Nodal Officer IFS, PCCF, CAMPA & CEO, Nodal Officer Forest-PLUS 2.0 Discussion with Access Livelihoods Consulting India, Morpheus Tours	Get an overview of Forest-PLUS 2.0 activities in the landscape and the different stakeholders Discussion about Working Plan, use of Van system, LMP, value chain activities Get an overview and status update on the value chain activities
August 27 (Saturday)	Meeting with Dy. CF, DFO, Medak, and DFO, Medak	Overview of Forest-PLUS 2.0 activities—Van, WPs, LMP, IBM, value chain
	Proposed ecotourism value chain sites: Pocharam Wildlife Sanctuary—CBET, Ecocamp Visit to Environmental Education Centre (EEC)	Interaction with EDCs at EEC, Pocharam, and visit to Burugupalle village for homestays
August 29 (Monday)	Meeting with Project Director, DRDA, and team	Discussion on LMP, Value chain activities (Leaf plate Custard apple, Moringa, CBET, etc.)
	Meeting with Addl. Collector, Medak	District officials (DC) involved in LMP and/or those piloting or familiar with tools such as the DSS-PE
August 30 (Tuesday)	Visit to Medak and Narsapur Ranges Visit to Narsapur Urban Park	Interaction with frontline staff on Van system, WP preparation, training
August 31 (Wednesday)	Visit to Medak landscape Value chain sites (NTFPs) • Custard apple (Toopran) • Leaf plate scaling up (Ramayampet)	Discussions with beneficiaries at Toopran & Chegunta Discussions with SHGs of leaf plate unit
Sept 01 (Thursday)	Travel to Manevar Jalalpur from Hyderabad Visit to Moringa plantation	Discussions with SHG members and beneficiaries

Date	Persons/Organizations/Agency	Purpose
	Meeting with Leaf Plate Technologies Pvt. Ltd. and with TOAT in Hyderabad	Discussion on scaling up of leaf plate enterprise and discussion on collaborations for community-based ecotourism
Sept 02 (Friday)	Travel to Delhi	

ANNEX X. EVALUATION MATRIX

EVALUATION QUESTION	DATA SOURCE	DATA COLLECTION METHOD	DATA ANALYSIS METHOD
To what extent is the theory of change still valid? Is the development hypothesis "an improved ecosystem approach to management will lead to improved ecosystem services and contribute to sustainable and inclusive economic growth" still valid?1	Activity documents IP and partners GOI national, state, and district Private sector Community beneficiaries Other? (e.g., research and academic institutions) Or possibly same as Q5 (info gathered from Q2-Q4, esp. Q2)	Document review KIIs with partners and stakeholders Focus group discussion with beneficiaries	Analysis of key findings and conclusions from EQ2-5
To what extent has progress been made in achieving the results under Forest-PLUS 2.0?	Activity documents IP and partners GOI national, state, and district Private sector Community beneficiaries Other? (e.g., research and academic institutions)	Document review Activity indicators KIIs with partners and stakeholders Focus group discussion with beneficiaries	Content analysis of KIIs and FGDs Gaps analysis of KIIs and FGDs Patterns and comparisons among three sites2 Indicator analysis Data triangulation
How have the intervention activities and approaches integrated gender and marginalized groups across program implementation?	Activity documents IP and partners GOI national, state, and district	KIIs with partners and stakeholders Focus group and individual members discussion with beneficiaries	Indicator analysis Content analysis of FGDs held with separately with women and marginalized groups)

EVALUATION QUESTION	DATA SOURCE	DATA COLLECTION METHOD	DATA ANALYSIS METHOD
	Community beneficiaries		Summary of relevant KIIs Data triangulation
To what extent does Forest-PLUS-2.0 respond to the Government of India and beneficiary's needs?	Activity documents GOI national, state, and district Private sector Community beneficiaries IP and partners Other?	KIIs with partners and stakeholders Focus group and selected individual member discussion with beneficiaries	Triangulation Content analysis of KIIs and FGDs
What are the overall accomplishments, challenges, and learnings out of the activity implementation so far?	Information collected in answering EQ1-5	Same key stakeholder interview to answer EQ1-5	Re-analysis of key findings and conclusions from the perspective of identifying lessons learned and recommendations

ANNEX XI. PERFORMANCE AGAINST INDICATORS

Sl. No.	Performance indicator	Project Target	Targets/Actuals				Description
			Y1–3	Y1–3	Y4	Y5	
			Target	Achievement	Target	Target	
1	Greenhouse gas (GHG) emissions, estimated in metric tons of CO_2 equivalent, reduced, sequestered, or avoided through sustainable landscapes activities supported by USG assistance [EG.13-6] **Outcome**	3.3M (603,193 achieved)	600,000 (against a baseline of 4,574,000)	603,193 (Against a target of 600,000)	1,200,000	1,500,000	

Sl. No.	Performance indicator	Project Target	Targets/Actuals				Description
			Y1–3	Y1–3	Y4	Y5	
			Target	Achievement	Target	Target	
2	Number of hectares under improved management expected to reduce GHG emissions as a result of USG assistance [EG.13-8] **Outcome**	710,000 (725,681 already achieved)	210,000	180,144	250,000 (Already achieved 5,45,537)	250,000	Overachieved the target
3	Number of hectares under improved management practices or technologies with USG assistance [FTF EG.3.2.-25] **Outcome**	1.2M (3,592,898 achieved to date)	319,856	529,168	500,000 (3,063,730 Achieved)	300,000	
Objective 1. Strengthen an Ecosystem Approach to Landscape Management							
4	Number of tools, databases, monitoring systems institutionalized and adopted in working and LMPs [Custom] **Outcome**	4 (1 achieved to date)		1	NA		Van
5	Number of tools, databases, monitoring systems revised/developed in collaboration with SFD for use in landscape management planning [Custom] **Output**	4 (6 achieved to date)		6	NA		VAN, DSS-F, DSS-PE, NTFP-IMS, TIGRAM, LCM—Forest Management Overachieved
Objective 2: Factor Ecosystem Services into Management of Forest Landscape							
6	Number of Working Plans and LMPs developed/revised that						3 LMPs (Gaya, Medak, Thiruvananthapuram)

Sl. No.	Performance indicator	Project Target	Targets/Actuals				Description
			Y1–3	Y1–3	Y4	Y5	
			Target	Achievement	Target	Target	
	incorporate EAFM and quantify ecosystem services [Custom] **Output**	6 (Target achieved)		6	NA		3 WPs (Gaya, Medak, Thiruvananthapuram)
7	Area of forest land with improved management as a results of USG assistance [Custom] **Outcome**	710,000 ha		275,744 ha (against Y3 target of 210,000 ha)	297,616 ha (against Y4 target of 250,000 ha)		Forest areas of Medak, Thiruvananthapuram, Gaya, Munnar and Marayoor forest divisions Y4: Kerala: Kozhikode, Achankovil, Mankulam, Punalur, Thenmala, Palakada, Chalukudi Telangana: Paloncha, Bhadarachalam
8	Number of institutions with improved capacity to address sustainable landscapes issues as supported by USG assistance [EG.13-2] **Outcome**	12	3	3	5	**4**	
Objective 3: Increased Economic Opportunities from Improved Landscape Management							
9	Number of people receiving livelihood co-benefits (monetary or non-monetary) associated with the implementation of USG sustainable landscapes activities [EG.13-5] **Outcome**	4,000,000 (Achieved 454,620)	1,500,000	454,620	1,000,000	1,500,000	Target achieved
10	Number of forest-based enterprises established and functional in the target	5 (Achieved to date is 10)	5	10	0	0	

Sl. No.	Performance indicator	Project Target	Targets/Actuals				Description
			Y1–3	Y1–3	Y4	Y5	
			Target	Achievement	Target	Target	
	landscapes through USG assistance [Custom] **Outcome**						
11	Amount of investment mobilized (in USD) for sustainable landscapes as supported by USG assistance (EG.13-4) **Outcome**	12M (Achieved is 783,786)	2.75M	783,786	7M	2.25	
12	Number of public-private partnerships formed as a result of USG assistance [Custom] **Outcome**	9 (Achieved 6)	6	6	3	0	
Crosscutting							
13	Percentage of female participants in USG-assisted programs designed to increase access to productive economic resources (assets, credit, income, or employment) [GNDR-2] **Output**	40%	40%	53.90%	40% (Achieved 76.14 in q1, 51.89% in q2, 60.86% in q3)	**40%**	
14	Percentage of women trained through USG assistance who demonstrate an increase in leadership skills and capacity. [Custom] **Outcome**	50%	50%	34.1%	50%	**50%**	
15	Number of people trained in sustainable landscapes supported by USG assistance [EG.13-1] **Output**	2,200 (Achieved 2,676)	600	2,294	1,500 (359 trained till now)	**100**	

Source: USAID Quarterly Progress report April 1–30 June 2022 and information provided by Tetra Tech

ANNEX XII. EVALUATION SCOPE OF WORK

EVALUATION PURPOSE

The purpose of this mid-term evaluation of "Forest PLUS: forest for water and prosperity (Forest-PLUS 2.0)" is to assess the activity's progress in achieving its objectives to date and identify areas for improvements, suggested adjustments to existing programs, and recommended priorities for future implementation. The evaluation aims to serve learning purposes by identifying any challenges incurred by the activity to date and formulating appropriate recommendations for corrective actions and effective implementation during the remaining years of the activity and future activities.

The evaluation will focus on activity design and implementation, activity performance and progress, prospects for sustainability, and recommendations for improving the design and performance of the activity. The Forest-PLUS 2.0 activity has three technical components, with eight specific strategies derived from the Results Framework for the program. The objectives of the midterm evaluation are:

- Assess progress towards achieving Forest-PLUS 2.0 goals and objectives;
- Assess the validity of the activity's strategic approaches and results framework;
- Assess program performance by Implementing Partner and sub-partners;
- Identify lessons learned;
- Recommend actions to improve performance, strategy, and future design.

EVALUATION QUESTIONS

The evaluation team will provide conclusions and recommendations related to the following EQs and sub-questions through data collection and analysis for this mid-term performance evaluation.

EVALUATION QUESTIONS AND SUB-QUESTIONSLE	
QUESTIONS	SUB-QUESTIONS
To what extent is the theory of change still valid? Is the development hypothesis "an improved ecosystem approach to management will lead to improved ecosystem services and contribute to sustainable and inclusive economic growth" still valid?	

EVALUATION QUESTIONS AND SUB-QUESTIONSLE	
To what extent has progress been made in achieving the results under Forest-PLUS 2.0?	To what extent has the activity been able to promote ecosystem-based management of forest landscapes, and to what extent the activity interventions led to or will lead to improvement in ecosystem services provided by forests and adjacent landscapes. To what extent has the activity been successful in introducing innovative tools and technologies in managing and monitoring forested landscapes and in decision making? And have these tools adequately responded to the needs of the state government agencies? How effective has been the ecosystem valuation methodologies and its application in valuation? And is the activity on track in implementing appropriate incentive mechanism(s) for managing landscapes to provide ecosystem services? How have the economic opportunities (including those from improved ecosystem services) benefitted to the beneficiaries? What are the community's perceptions about the new economic opportunities? How much did the program interact with the targeted beneficiaries to include their voices in achieving the program objectives?
How have the intervention activities and approaches integrated gender and marginalized groups across program implementation?	What evidence exists to substantiate the reduction of gender gap? To what extent the activity has been successful in involving and benefiting the marginalized communities?
To what extent does Forest-PLUS-2.0 respond to the Government of India and beneficiary's needs?	4.1. To what extent will the capacity building and technical assistance efforts to Government institutions achieve the results of the activity? 4.2 To what extent has the activity engaged the private sector and what are the results and lessons learnt?
What are the overall accomplishments, challenges, and learnings out of the activity implementation so far?	

ACTIVITY BACKGROUND

India has set ambitious targets for its national economy, growth of the private sector, employment of its citizens, and its role in international engagements. These include targets related to climate actions. Within the forest sector, the GoI targets include:

- Increased forest and tree cover from the current 24 percent to 33 percent;
- Enhanced ecosystem services, including biodiversity, hydrological services, and carbon sequestration as a result of improved management of 10 million hectares;
- Increased national carbon stocks in forest and tree cover by 2.5-3 billion tons by 2030; and
- Improved livelihoods for about three million forest-dependent households.

Forest-PLUS 2.0 builds on the success of Forest-PLUS and provides continued technical assistance to The Ministry of Environment, Forest and Climate Change (MoEFCC) to strengthen ecosystem-based management practices on state and non-state lands.

A U.S.-India Memorandum of Understanding (MoU) was signed in November 2009 to enhance cooperation in energy security, energy efficiency, clean energy, and climate change. This led to a Partnership Agreement on Sustainable Forests and Climate Adaptation signed between the Government of India and the United States of America in September 2010. This included forestry programs nested under this partnership agreement with the MoEFCC as the primary GOI counterpart. USAID funded the activity from the Sustainable Landscapes pillar of USAID's budget. After 2010, peer-to-peer collaboration between Indian and U.S. foresters continued through USAID's interagency agreement with the U.S. Forest Service (2011 onwards). The following year, Forest-PLUS (Partnership for Land Use Science) technical assistance program (2012-17) began, and the current activity, Forest-PLUS 2.0: forest for water and prosperity, technical assistance program (2018-23), followed immediately.

The purpose of the Forest-PLUS 2.0 is to provide technical assistance that supports the Government of India (GoI) and other stakeholders in managing forests as essential components of broad-based, inclusive, and sustainable economic growth that meets local needs and addresses global environmental challenges. The focus is on the multiple ecosystem services that the forest landscapes provide, which has been well enunciated in the National Forest Policy of GoI.

To achieve the goal of this program - improved management of targeted forest landscapes in India for enhanced ecosystem services and increased inclusive economic opportunities – an ecosystem-based forest management approach is used. The activity relies on close coordination and cooperation among Forest-PLUS 2.0 implementing partners, State Forest Departments (SFDs) in targeted states, academic and research institutions, private sector entities, and forest-dependent communities. The approach builds on tools developed under USAID's predecessor Partnership for Land Use Science (Forest-PLUS) program and considers multiple forest values - ecological, economic, social, cultural, and scientific - in the development and implementation of landscape-level forest management plans. The development hypothesis is that an improved ecosystem approach to management will in turn lead to improved ecosystem services and contribute to sustainable and inclusive economic growth in the country.

The three overarching objectives and sub-objectives of the Forest-PLUS 2.0 program are:

Objective 1: To strengthen ecosystem-based management of forest landscapes

- Sub-objective 1: Increase application of management planning processes on public and private lands in forest landscapes
- Sub-Objective 2: Improve the collection, management, and application of information needed in land management decision-making
- Sub-Objective 3: Enhance the use of innovative tools and technologies in managing and monitoring forest landscapes

Objective 2: To factor ecosystem services into management of forest landscapes

- Sub-Objective 1: Quantify ecosystem services and their flows at landscape scale
- Sub-Objective 2: Assess economic values of ecosystem services
- Sub-Objective 3: Incorporate ecosystem services and their values into management planning process
- Sub-Objective 4: Develop incentive mechanism(s) for managing landscapes to provide ecosystem services

Objective 3: To increase economic opportunities from improved landscape management

- Sub-Objective 1: Identify and analyze prospective economic opportunities among forest-based value chains
- Sub-Objective 2: Strengthen enterprises within selected forest-based value chains
- Sub-Objective 3: Encourage investment in viable economic opportunities by private and public sectors.

DATA COLLECTION METHODS

The evaluation team will employ four data collection methodologies, including 1) document review and indicator analysis; 2) key informant interviews (KIIs) with government, private, and civil society/research organizations; 3) focus group discussions with community beneficiaries and individual interviews and 4) site visit observations.

Document Review and Indicator Analysis

Document review will entail an assessment of activity-related literature to understand the activity's context and underlying concept and how Tetra Tech ARD has implemented the activity. Documents for review will include the contract and any subsequent modifications, activity reporting, including quarterly and annual progress reports, annual work plans, activity monitoring, evaluation and learning plans, other evaluation and strategy documents related to the activity, and background research documents on topics related to the activity themes and context.

KEY INFORMANT INTERVIEWS

Following document review and indicator analysis, the team leader and forestry specialist will conduct KIIs with purposively selected samples of activity stakeholder groups. KIIs will consist of in-depth facilitated discussions conducted with individuals or small functional groups of related individuals (e.g., up to four participants) using a semi-structured "evolving subject-driven" approach. In this case, "semi-structured' means that the team will utilize a pre-existing data collection protocol (guide), while "evolving subject-driven" refers to an iterative process in which information is assembled across successive interviews so that it can be aggregated and analyzed cohesively and consistently.[14] Provisionally, the evaluation team anticipates that these groups will consist of:

6) **Government of India counterpart staff –** Central, State, and Division Forest Department staff;
    a. MoEFCC forest policy group

[14] King, Gary, Robert Keohane, and Sydney Verba *'Designing Social Inquiry: Scientific Inference in Qualitative Research' Princeton University Press"* Princeton University Press, 2016

b. State and Division Forest Department officials

7) **Academic and research institutes**
8) **Private sector entities**

After the kick-off meeting with the whole team, the evaluation team will develop a provisional list of specific respondents from each stakeholder group and forward it to USAID/India for review and finalization (See Annex 5).

The purpose of the KIIs will be to probe document review results and indicator analysis for findings related to the evaluation questions. Purposive sampling of KII participants will consist of selection according to the likelihood of significant knowledge of activity activities, as well as prioritizing diversity of informants to the extent possible throughout data collection within the limited time and personnel resources available to the evaluation team.

FOCUS GROUP DISCUSSIONS

The evaluation specialists at each activity site will conduct focus group discussions with forest-dependent communities and activity beneficiaries. Discussions will be conducted using a standardized list of questions. Following approval of this report and recruitment of the evaluation specialists, the team will develop the final focus group discussion questions and protocols.

Following FGDs, the ES will conduct individual beneficiary interviews primarily with individual women and marginalized people to gain more in-depth understanding of their experiences of, perspectives about, and economic and non-economic benefits from FP 2.0.

FGDs and individual beneficiary interviews will be conducted across the value chains, incentive-based mechanism, and leadership trainings. We have provided a list of the activities to the IP that we would like to sample from and discussed with them a field trip schedule that allows us to visit each type of value chain and IBM. During those visits, we will conduct FGDs and individual interviews to the extent possible Additional FGDs and individual interviews may need to be conducted by the ESs after the TL and FS depart. Any activities that the TL and FS can't visit, due to distance constraints or weather issues, will also be visited at a later date by the ES.

The IP will provide help setting meetings up and accompany us to the field so we can find the sites and people but they will not be present at any KIIs, FGDs, or individual beneficiary interviews.

SITE VISIT OBSERVATION

During the visits to activity sites to conduct KIIs, FGDs, and individual beneficiary interviews, the team will use opportunity to understand better the context based on firsthand observations. During visits, team members will observe the use of technologies and community activities that will provide qualitative data to inform and support findings and conclusions.

DATA ANALYSIS METHODS

The evaluation team will triangulate data from the indicator analysis, document review, and preliminary KIIS to develop standardized KIIs and FGDs and individual beneficiary interviews. The instruments will be adapted and modified as the evaluation progresses with either the FS or TL being present during the initial FGDs and individual beneficiary interviews at each site to work with the ES to adapt and modify as necessary. With such a diversity of activities, the instruments need to be relatively generic to capture results across the activities. Throughout the KIIs and FGDs, the team

members will transcribe key notes into standardized MS Excel-based forms the same day to the extent possible to analyze daily responses to identify emerging trends, aggregate findings around common themes, and generate further probing questions (see **Annex 2: Evaluation Matrix**).

Data analysis methods used by the team will include:

- **Triangulation –** After fieldwork, triangulation will enable the evaluation team to cross-verify and cross-validate findings from distinct data sources to identify correlations between findings related to the evaluation questions. Methodological triangulation will also enable the evaluation team to strengthen potential linkages and data accuracy in cases where results obtained through one method are less conclusive than another.

- **Content Analysis**– Content analysis will entail a review of KII and FGDs to address each evaluation question and to identify and highlight notable examples of Forest-PLUS 2.0 successes and challenges that contributed to or hindered progress against indicator targets identified through the indicator analysis.; and,

- **Site Comparison**– The team will compare and contrast data across sites to provide another form of triangulation to interrogate the evaluation questions. Three states were chosen for their distinct and contrasting contexts. Kerala and Telangana are states with good forest cover and were selected for qualitative improvement with a focus on the forest ecosystem services. Bihar has relatively little forest cover but high potential for promoting agroforestry and trees outside forests with potential for quantitative improvement of tree cover.

The evaluation team will conduct data analysis throughout this evaluation to identify initial findings and conclusions for a consultative presentation (out-briefing) with USAID/India following fieldwork. Based on feedback during the presentation, the team will continue and adapt the analysis until the draft evaluation report is submitted. Following submission of the final evaluation report, all data collected by the evaluation team will be made available to USAID in a format scrubbed of identifying text to protect respondent confidentiality.

GUIDING PRINCIPLES

The evaluation team will operate under following guiding principles:

- **Participation -** to ensure that those affected by the activity can voice their expectations, experience, learning points and insights;

- **Ownership -** to ensure that USAID and other key stakeholders own the evaluation process;

- **Teamwork -** to ensure a diversity of approaches and seeking of consensus on the fundamental issues; and,

- **Learning -** to ensure that USAID, the evaluation team, and other stakeholders can identify and utilize the lessons learned and that the process contributes to clear activity improvements over the remaining implementation period.

LIMITATIONS AND POTENTIAL BIASES

The proposed evaluation methodology has potential biases and limitations that have implications for the findings and conclusions drawn from this mid-term performance evaluation. These, and the steps the evaluation team will take to mitigate them, include:

- **Positive response ('halo') bias:** Probing questions regarding development outcomes may result in positive response bias, *i.e.,* the tendency of respondents to focus subjectively on positive outcomes. The teams will mitigate this bias by probing for both successes and challenges to develop the most holistic picture possible of Forest-PLUS 2.0 achievements and challenges relative to the evaluation questions. Responses will also be triangulated against data collected from the Forest-PLUS 2.0 activity.

- **Selection bias:** Selection bias is an inherent risk when implementers help to facilitate contact with member of some stakeholder groups. The team will work closely with USAID and Forest-PLUS 2.0 staff to organize KIIs and FGDs with activity stakeholders and beneficiaries. However, there remains a risk that staff will select the most active, responsive, or engaged individuals or the best examples of activity implementation. The team may only hear from key informants who report positive experiences. Before launching data collection, the team will request that Forest-PLUS 2.0 staff provide a universal list of stakeholders, beneficiaries, and activity sites in advance to mitigate the risk of selection bias. Subsequently, the team will identify individuals and sites from this list to contact and visit for interviews.

- **Sampling limitations:** Due to time and resource constraints, the evaluation team will only be able to conduct KIIs with a selected sample of each stakeholder group. While the team will work closely with activity staff to identify a diverse set of interviewees from each stakeholder group, this does not provide a comprehensive picture of activity performance and results but serves as a basis for probing around topics. Given that the team cannot interview every person who has participated in FP 2.0, we will only be able to interview some portion across the variety of activities, workshops, and trainings conducted by FP 2.0.

Subjective measurements: Qualitative approaches can result in performance analysis being dependent on the professional opinions and experience of the evaluation team, which may result in findings, conclusions, and recommendations derived from their subjective interpretations. The team will mitigate this bias through systematic triangulation of findings across stakeholder groups and methods and drawing evidence-based conclusions and recommendations based on the data rather than on their professional experiences.

ANNEX XIII. EVALUATION TEAM MEMBERS

The evaluation team comprised of six team members, as follows:

Teri Allendorf - Senior Conservation Biologist (Team Leader): The evaluation will be led by the Team Leader. The team leader will be responsible for the overall implementation of the evaluation, including finalizing the development of the data collection tools and ensuring that all expected tasks and deliverables are achieved on time and of high quality. She will oversee the overall design of the evaluation framework, including methodology determination, schedule organization, and meetings. She will also lead interviews and manage other data collection events, supervise, and actively lead data analysis with input from team members, lead the development of conclusions and recommendations based on findings derived from the data and draft the initial presentation of findings and draft and final evaluation report.

Pia Sethi - Senior Forestry Specialist: The evaluation will be supported by a Senior Forest Specialist with more than twenty years of professional experience in research, evaluation, and program management of forestry activities, including practical experience in activity implementation and evaluation, knowledge of the landscape and protected areas management. The Senior Forest Specialist has advanced degrees in ecology and conservation biology and a Ph.D. in forest ecology. The Senior Forest Specialist will participate in document review, drafting of data collection instruments, conducting KIIs and providing input, including contextual background, into all data collection and analysis activities. She will also coordinate the activities of the three evaluation specialists and supervise their data collection. She will contribute to data analysis, writing of the findings, conclusions and recommendations and presenting the findings and writing of the draft and final evaluation report.

Three Evaluation Specialists - one per site They will be primarily responsible for supporting the Team Leader and Senior Forestry Specialist in field data collection, including conducting FGDs and in-depth interviews at each site, transcribing collected data and supporting data analysis.

The three evaluation specialists are

1. Sujeet Kumar
2. Soumik Kundu
3. Bhaskar Bora

In addition, three translators with a background in natural resources will provide translation services in Malayalam and Telugu

They are

1. S. R. Shiffin (Malayalam)
2. A M Maneesh (Malayalam)
3. Rudra Atri (Telugu)

Ankita Babbar - Logistician

Under the direction of the Team Leader, the Logistician will be responsible for organizing all the travel arrangements.

SUMMARY OF TEAM MEMBER LOE AND DELIVERABLES		
POSITION	LOE	DELIVERABLES
Team Leader	50	Evaluation Work Plan and Inception Report Design of the evaluation methodology Overall supervision of the evaluation team Oversight of data collection and analysis Over responsibility for DRAFT and FINAL Evaluation Report
Senior Forestry Specialist	48	Support the team leader in the following activities Draft summaries of findings from document review as assigned by TL Activity planning, team coordination meetings Developing evaluation methodology Designing data collection instruments Select evaluation specialists including evaluate CVs and conduct interviews Coordinate with the logistician and evaluation specialists to plan field work and assign KIIs and FGDs and conduct fieldwork Supervision of field data collection and review of other team members' work products Site visit observations Supporting presentations to USAID and other stakeholders Drafting and finalizing deliverables including findings, conclusion and recommendations Draft sections of consultative presentation as assigned by TL Draft sections of evaluation report as assigned by TL
Three Evaluation Specialists (1 for each site)	30 each	Support the Team Leader and Senior Forest Specialist in field data collection Conduct of FGDs and KIIs as assigned by TL in each of the three field sites Conduct gender disaggregated FGDs where appropriate Summarizing of interviews and data entry including transcriptions Support for data analysis and drafting assigned sections of reports and presentations
Logistician	10	Update and manage interview planner as assigned by TL Weekly status report to Team Leader on meetings scheduled, logistics arranged, and record management updates

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