



PROMOTING TREES OUTSIDE FORESTS

Action-Learning Pilot Program in Hoshangabad Landscape



SUNPREET KAUR

OCTOBER 2017

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This publication was produced for review by the United States Agency for International Development by Tetra Tech, through Contract No. AID-386-C-12-00002.

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DISCLAIMER

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ACRONYMS AND ABBREVIATIONS

ALPP	Action-Learning Pilot Program
DFO	Divisional Forest Officer
Forest-PLUS	Partnership for Land Use Science
INR	Indian Rupee
MOEFCC	Ministry of Environment, Forest and Climate Change
MPFD	Madhya Pradesh Forest Department
REDD	Reducing Emissions from Deforestation and Forest Degradation
SDO	Sub-Divisional Officer
TOF	Trees Outside Forests
USAID	United States Agency for International Development

UNITS

cu m	cubic meters
ha	hectare
km ²	square kilometers

1.0 INTRODUCTION

The Partnership for Land Use Science (Forest-PLUS) Program is a five-year initiative jointly designed by USAID/India and the Government of India's Ministry of Environment, Forest and Climate Change (MOEFCC). The Program is focused on US-India collaborative scientific and technical research, and exchanges that explore methods and approaches to reduce emissions from deforestation and forest degradation, and enhance sequestration through conservation and sustainable management of forests (REDD+). Forest-PLUS contributes to USAID/India's Development Objective of accelerating India's transition to a low emissions economy by providing technical assistance to develop, demonstrate, and institutionalize forest management practices that reduce greenhouse gas emissions from forested landscapes, increase sequestration of atmospheric carbon in forests, protect forest biodiversity health, and protect and/or enhance forest-based livelihoods, forest ecosystem services, and other social contributions of forests in India.

The Program is achieving these objectives through the development of tools, techniques, and methods: (1) for an ecosystem-based approach to forest management and increasing carbon sequestration; (2) for measurement, reporting and verification of carbon stocks; (3) for building institutional structures for effective forest resource governance; and (4) by deploying these tools, techniques, and methods in selected pilot clusters in the four demonstration landscapes, representing forest types widespread in India; and is supported by training programs and communication campaigns targeting a variety of audiences. The Program commenced in August 2012. The four demonstration landscapes are Shivamogga Forest Circle, Karnataka; Hoshangabad Forest Circle, Madhya Pradesh; Rampur Forest Circle, Himachal Pradesh; and the state of Sikkim.

In each of the four landscapes, Forest-PLUS initiated an Action-Learning Pilot Program (ALPP) to work with the local communities and State Forest Department officials on issues relevant to sustainable forest management and identify alternatives that ease policy bottlenecks for sustainable forest-based livelihoods. Forest-PLUS also piloted some tools, techniques, and methods developed or adapted under the program, at the ALPP sites.

In the Hoshangabad landscape, Forest-PLUS developed a program on Trees Outside Forests (TOF). This report documents the Forest-PLUS experience with the program – its objectives, activities, and key findings.

The rest of this report is divided into four broad sections. The geographical and policy context within which ALPP was developed and implemented is provided in the next section (2.0). Various activities undertaken as part of the program are presented in section 3.0. The key findings that emerged – for private forests as well as farm- and agro-forestry¹ – are discussed in Section 4.0. It is followed by a short concluding section that summarizes the key learning from the program.

¹ Henceforth, the term 'agro-forestry' has been used for both agro-forestry and farm-forestry, in the context of this report.

2.0 CONTEXT

2.1 HOSHANGABAD LANDSCAPE

In Madhya Pradesh, Forest-PLUS worked in the Hoshangabad landscape, which includes the Hoshangabad and Harda Districts and Forest Divisions. The Hoshangabad District in Madhya Pradesh is located between 21°22'N to 22°24'N latitude and 77°10'E to 78°33'E longitude (Department of Agriculture Cooperation and Farmers Welfare, 2013), covering a total area of 6,707 km², out of which 36.14 percent is covered by forests (FSI, 2015). Harda District is located between 21°53'N & 22°36' N latitude and 76°47'E to 77°20'E longitude (Department of Agriculture Cooperation and Farmers Welfare, 2013), covering an area of 3,330 km², out of which 30.5 percent is covered by forests (FSI, 2015). The two Forest Divisions are a part of the Hoshangabad Forest Circle.

The dry and moist deciduous forests of the landscape are dominated by *Tectona grandis* (teak), a commercially important tree species. It is also the preferred species for planting on private lands. The Hoshangabad landscape is unique in terms of having many 'private forests' in addition to agro-forestry plantations. The program, therefore, focused on issues pertaining to both (1) agro-forestry and (2) private forests. Together, these have been referred to as Trees Outside Forests or TOF. The landscape is well-known for several private forest management and agro-forestry initiatives that led to the *Lok vaniki*² (people's forestry) program.

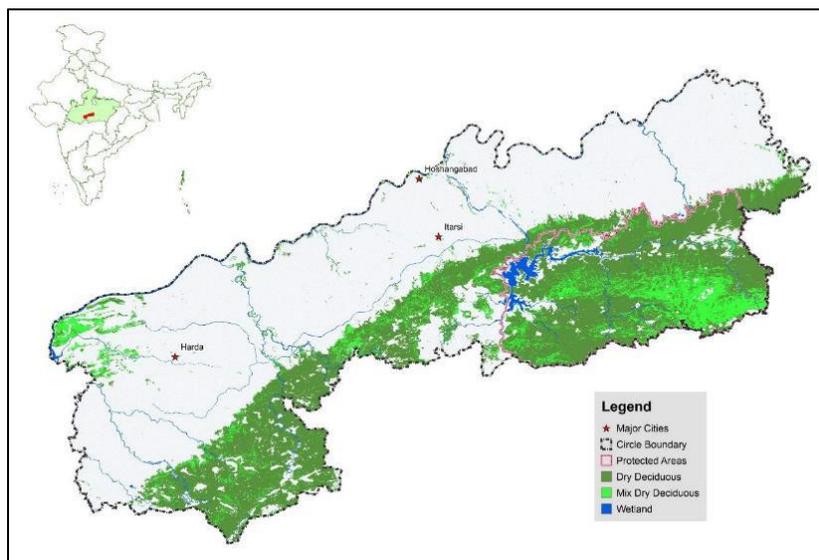


Figure 1: Map of Forest-PLUS landscape in Hoshangabad, Madhya Pradesh

2.2 POTENTIAL AND ISSUES

The Hoshangabad landscape has a huge potential for trees outside forests. The agro-climatic and soil conditions are suitable for growing tree crops in block plantations and also under various agro-forestry models. The landscape has perfect conditions for growing commercially valuable tree crops such as teak.

² *Lok Vaniki* is a private forest management initiative that was launched by the Government of Madhya Pradesh on a pilot basis in the late 1990s. Subsequently, in 2001, it was given a firm legal basis through the enactment of the Lok Vaniki Act.

In fact, the best quality teak in India comes from the forests of the landscape. The farmers of both Hoshangabad and Harda districts are used to growing cash crops for the market. They also have considerable experience of growing trees and bamboos. The landscape has several 'private forests', which, if managed sustainably, could supply large quantities of high quality timber such as teak³.

The promotion of trees on farmers' land in the landscape could have several benefits, such as (1) biomass for domestic use, (2) raw material for industry, (3) diversification and supplementation of farm incomes, (4) ameliorative and protective effects on agriculture fields and crops, and (5) reduction of pressure on natural forests. Thus, TOF are beneficial for household economies, the local economy, and the environment.

Trees outside forests also contribute towards climate change mitigation. Agro-forestry has a huge carbon sequestration potential, especially in the tropical regions (Albrecht & Kandji, 2003). The average carbon sequestration potential from agro-forestry in India is estimated to be 25 ton/ha/yr (Sathaye & Ravindranath, 1998) (Maikhuri, Semwa, Rao, Singh, & Saxena, 2000). The potential is considerably higher in areas (such as Hoshangabad landscape) that have a long growing season coupled with fertile soils and water availability.

The Government of Madhya Pradesh has made several attempts to promote agro-forestry and sustainable management of private forests. It has eased felling and transport restrictions on several agro-forestry species. It also brought in a separate law (Lok Vaniki Act, 2001) to facilitate sustainable management of private forests and to unlock their potential.

However, in spite of these efforts, TOF in the landscape remain far below their potential. The main reasons are policy and procedural constraints and bottlenecks. While the government has eased felling and transport restrictions on several tree species, these remain in place for commercially valuable species such as teak that have been 'nationalized' and can only be sold to the government. Thus, there is a government monopoly that distorts the market. Although the Lok Vaniki Act was believed to be a game changer, its impact on the ground has not been on expected lines. Private forest owners continue to face challenges in harvesting and selling timber from their lands. They have to pay as much as 50 percent of their crop's value to middlemen to get the official paperwork completed. It is, therefore, not surprising that most of them are keen to convert their private forests into agriculture fields. For example, it emerged during a stakeholder consultation organized by Forest-PLUS that in spite of having a huge potential, the landscape imports tree poles and other agro-forestry products from faraway states such as Karnataka.

It was in the context of this vast untapped potential of TOF that this action learning pilot program was designed; it was planned to better understand the field situation so that appropriate inputs could be provided to the policy makers. These inputs were timely as the Government of Madhya Pradesh was in the process of preparing a new agro-forestry policy and an incentive scheme titled *Niji Bhoomi par Vriksharopan Protsahan Yojana*.

³ Hoshangabad holds the distinction of being the first district in the state where a management plan for a private forest was prepared and approved in the year 1997 (Raghavan & Srivastava, 2002).

3.0 ACTION-LEARNING PILOT PROGRAM

The ALPP in Hoshangabad landscape sought to address issues related to TOF through work with farmers, Madhya Pradesh Forest Department (MPFD) frontline staff, and other stakeholders in selected pilot villages.

The specific objectives of the ALPP were:

- to understand the current field situation of agro-forestry and private forests;
- to identify major policy and procedural bottlenecks and constraints related to TOF; and
- to promote a dialog on TOF among major stakeholders.

3.1 PILOT AREA

The ALPP in Hoshangabad landscape was undertaken in two clusters, one each in the Hoshangabad and Harda Forest Divisions/districts. The details of these clusters are provided in Table 1.

Table 1: Selected clusters for implementation of the Action-Learning Pilot Program in Hoshangabad landscape

SN	FOREST DIVISION	FOREST RANGE	CLUSTER	VILLAGE
1.	Hoshangabad	Sukhtawa	Morpani	Morpani
2.				Mandikhoh
3.				Mariyarpura
4.				Gomti
5.	Harda	Temagaon	Kapasi	Kapasi
6.				Uskali
7.				Jinwani
8.				Jogikhera
9.				Barodghat

3.2 DESIGNING THE ACTION-LEARNING PILOT PROGRAM

The ALPP in Hoshangabad landscape was designed through a participatory process that involved a series of consultations with local communities, frontline staff and senior officials of MPFD, and other stakeholders to understand the various issues related to agro-forestry and private forests. A number of exploratory studies were undertaken and stakeholder consultations were organized as part of the design process. These are briefly discussed in this section.

3.2.1 EXPLORATORY STUDIES

A number of exploratory studies were done in the Hoshangabad landscape during 2014 and 2015. These studies sought to explore various aspects related to agro-forestry and private forests, and gain a better understanding of the key policy bottlenecks. These are briefly discussed here.

- ***Study on agro-forestry and private forests***

This study assessed the status of agro-forestry and private forests in the landscape, and their contribution to local livelihoods. The study covered 21 farmers practicing agro-forestry and nine private forest owners. The study identified major constraints in promoting local livelihoods based on agro-forestry and private forests.

- ***Study on assessment of opportunity costs of different categories of farmers practicing agro-forestry***

The study covered 45 farmers practicing agro-forestry and provided insights related to (1) the trends in agro-forestry practices adopted by different categories of farmers, and (2) economics of agro-forestry, including the farmers' opportunity costs.

- ***Survey of private forests and preparation of case studies highlighting policy constraints faced by private forest owners***

The study covered 49 private forest owners spread across 26 villages of the landscape. It revealed that most private forest owners were disinclined to continue with forestry due to various challenges faced by them. Most were interested in converting their private forests into agriculture fields.

- ***Status of “Orange Areas” and preparation of a plan for their development***

Certain disputed land areas that are claimed by both the Revenue Department and the Forest Department are known as “Orange” areas. The study covered one village in each Range of the Hoshangabad Forest Division to understand major issues related to “Orange” areas. The study reported on the origin of these areas and their current status in terms of extent, encroachment, and degradation. It was observed that 78 percent of the “Orange” areas studied had more than 200 trees per hectare and could also be used for promoting TOF.

3.2.2 STAKEHOLDER CONSULTATIONS

Along with the exploratory studies, a Circle-level stakeholder consultation was organized in association with MPFD in February 2015. During the consultation, the issue of TOF and its relevance for Hoshangabad Forest Circle was discussed, highlighting the need for designing the ALPP on TOF. It was decided during this consultation to take up ALPP in two clusters – one each in Hoshangabad and Harda.



Plate 1: Circle-level stakeholder consultation at Hoshangabad, February 2015

Another stakeholder consultation was organized in association with MPFD on ‘Institutional, Governance and Policy Aspects related to Forest Landscape Management’ in September 2015. During this consultation, deliberations were held on the institutional, governance and policy issues affecting TOF, among other issues. These discussions provided valuable inputs for designing the ALPP.



Plate 2: Stakeholder Consultation in progress at Hoshangabad, September 2015

The ALPP in Hoshangabad landscape was developed to work with two categories of target groups – agro-forestry practitioners and private forest owners. The following sections (3.3 and 3.4) detail the interventions carried out with each of these groups.

3.3 FIELD IMPLEMENTATION

The ALPP in Hoshangabad landscape was implemented with active involvement of the private forest owners, agro-forestry practitioners, MPFD, and other agencies such as research institutes. A number of activities were undertaken with private forest owners - stakeholder consultations, review of management plans, and a survey – and agro-forestry practitioners - baseline survey, plantation of native species, teak registration campaign, demonstration of agro-forestry model, and capacity building. These are discussed in this section.

PRIVATE FORESTS

3.3.1 CONSULTATIONS WITH PRIVATE FOREST OWNERS

A number of consultations were held with private forest owners between October 2016 and February 2017 to deliberate on issues related to felling, harvest and transport of timber from their private forests. Due to greater concentration of private forests in the pilot area in Harda, these consultations were mainly attended by private forest owners from Kapasi cluster.



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Plate 3: Consultation with private forest owners at Harda, October 2016

3.3.2 SURVEY, CASE STUDIES, AND REVIEW OF MANAGEMENT PLANS

Following the broader consultations with private forest owners, a field survey was undertaken during which detailed interactions were held with 11 private forest owners, and their case studies documented.

Further, a number of management plans of private forest owners from Harda were reviewed to understand the plan formulation process, prescriptions and their rationale, and the challenges faced during field implementation of these plans.

AGRO-FORESTRY

3.3.3 BASELINE SURVEY

A household-level baseline census survey was conducted in the cluster villages during June-July 2015. The survey helped in understanding the socio-economic profile of the pilot villages (including education status, land-holding pattern, livestock ownership, and sources of fodder and fuelwood) and the present status of agro-forestry in these villages. A total of 890 households were surveyed, and about half of the respondents were women. The species' preference of farmers was also determined during the baseline survey, which was further validated when the plantation activity was taken up (discussed later in the report).



Plate 4: Training of field team at Hoshangabad, prior to the baseline survey

3.3.4 PLANTATION OF NATIVE SPECIES

One of the key objectives of ALPP was to understand the farmers' and private forest owners' perspective regarding TOF. In order to build rapport with the farmers and to better understand their reasons for planting (or not planting) trees, Forest-PLUS offered to provide tree saplings of selected native species to the interested farmers through a partnership arrangement with a third party. The individual farmers' interest in taking up plantation on their land was recorded through a series of field surveys. During 2015 and 2016, a total of 12,906 saplings were provided to the farmers. The species-wise break-down is provided in the following table:

Table 2: Species-wise break-up of actual saplings collected by the farmers

TREE SPECIES	NO. OF SAPLINGS
<i>Tectona grandis</i> (Teak)	5,984
<i>Dendrocalamus strictus</i> (Bamboo Desi)	2,060
<i>Embllica officinalis</i> (Aonla)	1,665
<i>Madhuca indica</i> (Mahua)	909
<i>Gmelina arborea</i> (Khamer)	660
<i>Buchanania lanzan</i> (Achaar)	510
<i>Aegle marmelos</i> (Bael)	310
<i>Bambusa arundinacea</i> (Bamboo Katang)	421
<i>Pongamia pinnata</i> (Karanj)	181
<i>Artocarpus heterophyullus</i> (Kathal)	148
<i>Azadirachta indica</i> (Neem)	34
<i>Pterocarpus marsupium</i> (Beeja)	14
<i>Dalbergia sissoo</i> (Shishum)	10
Total	12,906



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Plate 5: Nursery for the saplings



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Plate 6: Saplings ready for plantation in Morpani cluster

The sapling distribution and tree plantation activity not only helped in building rapport with the farmers but also provided valuable insights regarding the farmers' criteria for species selection and their preferred plantation models.

3.3.5 TEAK REGISTRATION CAMPAIGN

Apart from undertaking plantation, the ALPP also engaged further with the farmers on generating awareness regarding the process of registration of teak (a nationalized tree species). A teak registration campaign was conducted in the nine pilot villages during March-April 2017, which was further extended to more villages in the landscape to support teak growers in registering their teak trees with the regulatory authorities. This registration will be helpful for the farmers to easily obtain felling/transport permission once their plantations are ready for harvest.

As part of the campaign, village meetings were conducted to answer specific queries of the tree farmers. The farmers were supported in filling their forms, to be submitted to the Revenue and Forest Departments. The farmers' interaction with officials from the two departments was also facilitated in April 2017.



SOURAV PAHARI

Plate 7: A meeting organized at Hoshangabad under the Teak Registration Campaign, April 2017

3.3.6 AGRO-FORESTRY MODEL

As part of ALPP, a pilot demonstration of multi-tier agro-forestry plantation was taken up in Morpani cluster in Hoshangabad Forest Division. The demonstration was taken up on plots of six selected farmers from the pilot cluster villages and a five species' model was demonstrated. The species in the model included teak, bamboo, *aonla* (*Emblca officinalis*), papaya, and *kalmegh* (*Andrographis paniculata*). A simple and cost-efficient irrigation system for ensuring the plantation's survival during harsh summer months was also demonstrated.



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Plate 8: Seeding of *kalmegh* in one of the agro-forestry demonstration plots in Morpani cluster

3.3.7 CAPACITY BUILDING

One of the key activities under the ALPP was capacity building of agro-forestry farmers and private forest owners. This was done through exposure visits, orientation programs, and hands-on training.

- **Exposure Visits**

The objective of organizing exposure visits was to promote peer-to-peer learning and also to motivate the farmers to plant more trees. Therefore, visits were organized to the exemplary agro-forestry sites. Two exposure visits were organized by Forest-PLUS under ALPP.

The first exposure visit was organized in May 2015. Selected farmers and community members from the pilot cluster villages were taken to the farm of a successful agro-forestry practitioner in Biladiakala village, Banapura Range, in Hoshangabad Forest Division.



SAMIR STEPHAN KUJJUR

Plate 9: Exposure visit to an exemplary agro-forestry site in Biladiakala village, Hoshangabad

Another exposure visit was organized to Khandwa district during May 2016. The objective of this visit was to enable the farmers of the pilot villages to learn better agro-forestry techniques for adopting and scaling up agro-forestry in their villages. A total of 24 farmers participated in the exposure visit.



Plate 10: Exposure visit to a private forest in Khandwa district in May 2016

These visits helped the local farmers in understanding various aspects related to different models of agro-forestry, including bund plantations, inter-cropping, and block plantations.

- **Orientation Programs**

The objective of organizing orientation programs was to spread awareness about new developments, concepts and ideas related to TOF among the participants. The Government of Madhya Pradesh has recently launched a scheme for incentivizing local persons who motivate farmers to plant trees on their private lands. These motivators are called *van doots* (forest messengers), who get incentive payments based on the number of trees planted (and surviving) on the farmers' land due to their efforts.

Two orientation programs were organized – the first on the concept on *van doots* and the second regarding latest scientific developments in agro-forestry. These are briefly discussed below.

In order to spread awareness in the pilot villages regarding the government scheme for *van-doots*, an orientation program was organized jointly with the district administration and MPFD in Harda district during May 2016. A total of 67 participants – all potential *van doots* – attended the program.



Plate 11: Orientation program for van doots organized in Harda district, May 2016

In order to make local farmers and MPFD frontline staff aware of the latest developments in agro-forestry and tree plantation management, a two-day orientation program was organized at the Tropical Forest Research Institute (TFRI), Jabalpur on 21-22 February, 2017. The participants interacted with the TFRI's scientists and visited trial plots and successful plantation sites. A total of 20 participants, including six MPFD frontline staff, attended the program.



Plate 12: Orientation program at TFRI organized in February 2017

- ***Hands-on Training***

The objective of hands-on training was to augment the managerial skills of the local farmers and private forest owners, so that they could better manage their plantations and forests.

- *Trees Outside Forests*

Two hands-on training programs on TOF were organized – one in Hoshangabad and the other in Harda – during September 2015. In the first training program held from September 6-7, 2015, 48 farmers from Sukhtawa, Itarsi and Banapura Ranges of Hoshangabad Forest Division participated. In the second training program held from September 8-9, 2015, 57 farmers from Rehatgaon, Temagaon and Handia Ranges of Harda Forest Division participated.

A combination of class-room sessions, field exercises, and group work was used to impart technical and managerial skills for better plantation and forest management.



Plate 13: Class-room session during the hands-on training program



Plate 14: Field work during the hands-on training program

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Plate 15: Group work in progress during the hands-on training program

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– *Management of Bamboo Clumps*

Bamboo has immense potential due to its multiple uses, resilience, fast growth and maturity within a short time period. However, this potential can only be realized if farmers are provided guidance on the appropriate management techniques.

During the course of implementation, a number of interactions were held in the cluster villages. During these discussions, it was observed that many farmers had planted bamboo on their agriculture fields but were not getting a good yield due to poor management practices. During the field visits, it was observed that the farmers had limited knowledge and skills about proper management of bamboo clumps.

Although several modern tools and techniques were available, the local farmers were using outdated methods.

In order to train the local farmers in better bamboo management practices, a two-day hands-on training program was jointly organized with the Madhya Pradesh State Bamboo Mission during September 2017. A total of 17 farmers, including three women farmers, participated in the program. As part of the program, an exposure visit was conducted to a bamboo plantation site in Harda district and to an experimental plot at Bhiletdev, Seoni Malwa. The farmers were imparted training on the various technical aspects related to bamboo propagation, clump management and harvest.



Plate 16: Orientation program on bamboo management, September 2017



Plate 17: Field work during the orientation program on bamboo management

4.0 KEY FINDINGS

The experience of ALPP in the Hoshangabad landscape highlighted a number of policy and procedural issues related to TOF that need attention. These are briefly discussed in this section. The issues that are common to both private forests and agro-forestry are presented first. Subsequently, the issues that are specific to either of the two categories of TOF are discussed.

4.1 COMMON ISSUES

4.1.1 TREE DIMENSIONS

The felling of trees inside government forests is governed by working plans. The working plans of the landscape have felling rules that specify certain conditions (including diameter at breast height or dbh) for felling (or not felling) trees of different species. As per these rules, there is a minimum dbh of 120 cm for harvest of *Tectona grandis*, *Terminalia tomentosa* and *Pterocarpus marsupium* trees and a minimum dbh of 90 cm for all other timber species. In theory, this requirement is for trees harvested from forest lands. However, in practice, it was observed that the forest officials extend the provisions of these rules to tree felling on private lands as well⁴.

While higher dimension timber does command higher market rate, the forest owner/tree farmer has to wait for a considerably longer period. It should be the tree owner's/farmer's decision (based on his or her needs and market conditions) to harvest trees of different dimensions. For example, if the owner/farmer needs money for some reason and wants to fell trees with dimensions lesser than those stipulated in the working plan, the necessary permission for felling should be granted. In other words, the private forest owners/tree farmers should be free to fell their trees, regardless of dimensions of those trees.

4.1.2 FELLING AND TRANSPORT

Harvesting of trees on private lands is governed by various rules. The permission for clear felling of the trees on private lands is granted under Sections 240 and 241 of the Madhya Pradesh Land Revenue Code, 1959. These sections stipulate the responsibility of granting permission and monitoring of harvesting between the Revenue and Forest Departments. As per the Code, the farmer has to apply to the *Naib tehsildar/Tehsildar*⁵, using the prescribed application form (Form A) in triplicate, with the details of number and species of trees and record of land ownership for obtaining permission to fell the trees on his or her private land. The *Naib tehsildar/Tehsildar* then forwards the application to Sub-Divisional Officer (SDO) for on-site verification. The *Naib tehsildar/Tehsildar*, SDO, and Range Forest Officer then jointly verify the ownership of the land, land boundary, and forest, number of trees, and diameter of trees that are proposed to be harvested. Based on the joint verification, the consent for approval is

⁴ In case of management plans made under Lok Vaniki, some plans were approved for felling teak trees above 80 cm dbh. However, later on, felling was disallowed even under these approved plans.

⁵ Revenue Department officials.

provided by the SDO. Following this, the *Naib Tehsildar/Tehsildar* gives approval to harvest the trees, the copy of which is shared with SDO/Divisional Forest Officer (DFO). On grant of permission, the trees are felled and hammered providing a unique identification number to every tree.

As per Sections 18 and 19 of the Indian Forest Act, 2917, the forest officials place a hammer mark on both the ends of the log after the completion of felling operation. Each log is placed adjacent to the stump and tallied to verify if it was felled from the same stump or procured illegally. The average time between the intimation given by the tree farmer/private forest owner and visit of forest officials is 20 days. During this time interval, the farmer has to protect the felled timber from theft and other unforeseen circumstances.

Once the felling process is completed, the next step is obtaining the 'transit pass', if the timber needs to be transported for sale or even for self-use. This is issued by the Forest Department and the time taken to issue it is on an average 20 days. The felling and transportation of seven tree species⁶ is regulated by the Madhya Pradesh Transit (Forest Produce) Rules, 2000.

Based on discussions with tree growers and private forest owners, the existing procedure takes five to eight months. Further, as close coordination between the Forest and Revenue Departments is required, there are procedural delays. As a result, middlemen play a major role and corner a significant proportion of the sale price as their commission. Although some reforms have been introduced, the system for felling and transportation of trees grown on private forests and farms is still cumbersome.

4.1.3 MARKETING OF PRODUCE

A private forest owner or tree farmer can sell teak only through MPFD. It, in turn, sells the timber to traders through auction (competitive bidding). Once the tree grower or private forest owner fells any regulated or nationalized trees, there are two options to realize the payment: (i) accept the fixed base rate, officially referred as off-set value⁷, or (ii) auction the timber as a separate lot. Using the base rate⁸, the payment process is initiated immediately. In the case of an auction, however, the tree grower/private forest owner has to wait until the timber is sold and the MPFD receives payment from the buyer.

Using the base rate, the Range Forest Officer calculates the quantity of timber (in cu m). Further, the timber is classified into different classes according to its grain size and length of logs. Based on these parameters, the actual price of timber is calculated, and after deduction of the hammering charges, the estimate is forwarded to the SDO, who, in turn, sends the same to the DFO. The DFO forwards the documents to the Principal Chief Conservator of Forests (PCCF) (Production) at the state level for approval. After the approval of the budget, the money is disbursed from government treasury as per budgetary provisions prescribed and the payment is subsequently made to the forest owner/tree farmer.

⁶ *Dalbergia latifolia* (Shisham), *Ougeinia oojainensis* (Tinsa), *Pterocarpus marsupium* (Beeja), *Santalum album* (Chandan), *Shorea robusta* (Sal), *Tectona grandis* (Teak), and *Terminalia tomentosa* (Saja)

⁷ The base/off-set rate is different for every forest depot. The base rate at Timarni forest depot (under Harda Forest Division) for a *Tectona grandis* (Teak) log of length 2-3 metre, 61-75 cm dbh, and grade 2 was fixed at INR 53,000 per cu m in the financial year 2016-17. Similar logs of grade 3A, 3B, 4A and 4B were worth INR 52,900, INR 42,000, INR 28,750, INR 20,950 per cu m, respectively.

⁸ Forest Department charges an administration charge of INR 100 per cu m, and depot handling charge of INR 300-400 per cu m. This amount is deducted from the payment released to the tree grower / private forest owner.

If in a particular year the budget is exhausted, the payments are withheld until the next budgetary allocation is made. The entire process takes 8-10 months after transportation of timber to the forest depot. Further, if the private forest owner/tree farmer is a member of a Scheduled Tribe, the payment is credited to an account maintained by the District Administration and s/he is allowed to withdraw only up to a specified amount in a given time period.

As auctions are conducted by MPFD at periodic intervals of two to three months, most of the tree farmers chose the base rate. For promotion of TOF, it would be better if payment at the base rate is released immediately even if the tree farmer elects sale of timber at auction. The difference between the auction price and base rate should be given to the tree farmer after MPFD receives payment from the successful bidder. This will help the tree growers realize the market value of their produce and timely payment.

The tree growers and forest owners face considerable challenges for marketing timber of non-regulated species as well. The marketing infrastructure (for example, market yard) and 'price discovery' mechanisms are poorly developed. Taxes are imposed by multiple agencies at various stages of processing. These marketing restrictions and cumbersome processes reduce the forest owners' and tree farmers' margins and disincentivize them from expanding their forestry operations.

4.2 ISSUES SPECIFIC TO PRIVATE FORESTS

The specific key findings emerging from the experience with private forest owners (apart from the common points presented in the previous section) are discussed here.

4.2.1 INFORMATION TO BE COLLECTED FOR MANAGEMENT PLAN

As mentioned earlier, the Lok Vaniki Act stipulated preparation, approval, implementation and monitoring of a management plan for a tree-clad area, commonly referred to as a private forest. A typical management plan includes basic information on the village, demographics, economic condition of private forest owner and is often up to 50 pages in length. As many of the private forest owners are illiterate, they need to get these details typed and bound, typically from a middleman. Notably, most of the information reported in a management plan is not considered by forest officials to decide approval or rejection of a management plan. Therefore, it is an avoidable burden on the private forest owner.

4.2.2 LAND BOUNDARY REPORT

After a management plan is submitted by the private forest owner, a land boundary report is prepared to demarcate the boundary of the land and certify that the trees proposed to be felled fall within this boundary. The land boundary report is prepared in the form of a *panchnama*⁹ prepared by the revenue inspector, *patwari*¹⁰ (as a representative of the Revenue Department), representative of MPFD, and five

⁹ A *panchnama* is a document having legal bearings which records evidences and findings that an officer makes at the scene of an enquiry.

¹⁰ A government official who keeps records regarding the ownership of land.

*panchs*¹¹ of the village. This report verifies the boundary of the land in four directions and certifies that the land is not under dispute with any other party. In practice, as eight persons are involved in preparation of the said report, it gets delayed due to non-availability of all officials and villagers at the same time. This leads to delay in approval of the management plan.

4.2.3 TRANSACTION COSTS

As per section 3(1) of The Madhya Pradesh Lok Vaniki Rules, 2011, “a *Bhumiswami*¹², who wants to undertake management of a tree-clad area shall submit an application for sanction of a management plan ... prepared by the *Bhumiswami* by engaging a person as per his discretion”. Thus, the engagement of a person for preparation and submission of a management plan should be voluntary. In practice, it was observed that the farmers were unable to prepare and submit the management plans on their own, and middlemen were an indispensable part of the process. The middlemen charged about 50 percent of the expected amount to be realized from the first felling proposed in the management plan (in some cases, especially Scheduled Tribes, this charge was up to 70 percent). This included the labor cost for felling, transportation, as well as ‘facilitation charges’ (see Box 1).

Box 1: Experience of a private forest owner

Ram Das Une is a resident of village Jinwani in Harda district. Ram had 300 trees spread over two hectares of private forest. In the year 2008, a middleman approached him to get his trees felled at a fixed commission of 50 percent of the amount to be realized. He received INR 3 lakhs, out of which INR 1.5 lakhs was paid to the middleman. Based on this experience, he did not apply for second tree felling cycle and started practising agriculture on the land from where the trees were felled.

This loss of revenue due to high transaction costs has significantly demotivated the private forest owners. While 47 management plans have completed their plan period, only four land owners applied to the authorities to renew and manage the land as a forest area. Another six new management plans were approved in the years 2016 and 2017. Table 3 provides an overview of management plans prepared under the *Lok Vaniki* Act in Harda Forest Division.

¹¹ Elected members that constitute a Gram Panchayat.

¹² In Madhya Pradesh, ‘tenure-holder’ or a person who holds land from the State Government is known as ‘*bhumiswami*’.

Table 3: Number of approved management plans, area under *Lok Vaniki*, timber production, and payments under private forests in Harda Forest Division (up to 31st March, 2017)

	NUMBER OF MANAGEMENT PLANS	AREA UNDER LOK VANIKI (IN HA)	TIMBER PRODUCED (IN CU M)	TOTAL PAYMENT MADE (IN INR LAKHS)
Where plan period completed, and full payments made	47	55	1836	523
Where plan period completed, felling was done, and payments pending	2	3	60	6
Where plan period completed but felling pending	112	164	2,617	517
Where plan period not completed	418	384	10,680	2,368
Total	579	606	15,193	3,414

4.2.4 PROCESS OF LAND USE CHANGE

Interactions with several private forest owners revealed a firm ‘anti-tree’ stance due to policy and procedural challenges faced by the private forest owners. Many private forest owners are keen to convert their land to agriculture as the agriculture produce (a) often has an assured minimum support price, (b) can be sold easily to private traders, (c) has minimal restrictions from regulatory bodies, (d) requires no involvement of middlemen for paperwork, and (e) sale proceeds are received quickly.

Due to high transaction costs of private forest management, many private owners seem to be slowly changing the land use to agriculture. Many private forest owners try to extract the maximum possible quantity of timber in the first felling cycle itself. The middlemen also encourage private forest owners to fell more trees because their payment is linked to the amount the owner receives from the sale of timber. Therefore, the management plan mainly becomes a felling plan.

Once the first cycle of felling is completed, many private forest owners do not plant the required number of trees for regeneration that they are supposed to, as per the management plan. Therefore, these owners do not get permission in future to fell trees from their land. Over time,, they gradually convert their private forest into agriculture land.



SUSHIL SAIGAL

Plate 18: A private forest in Harda being converted into agriculture land

4.3 ISSUES SPECIFIC TO AGRO-FORESTRY

The specific key findings emerging from the experience with agro-forestry practitioners (apart from the common points discussed in the previous section) are discussed here.

4.3.1 CURRENT SCENARIO

As mentioned before, a baseline survey was undertaken in the pilot villages. This survey helped in understanding the current situation of agro-forestry in the landscape. Some of the key findings of the baseline survey were:

- In Morpani cluster, 85 percent of the households reported to have trees on their private lands, while the corresponding figure for Kapasi cluster was almost 70 percent.
- In terms of the planting pattern of trees on private lands, 46 percent of the households reported boundary plantation, almost 20 percent reported strip plantation, 14 percent reported block plantation, almost 15 percent reported inter-cropping, while two percent reported a scattered plantation (see Table 4).
- In terms of income from trees in the year preceding the baseline survey, a total of 54 trees of teak were sold, whereby a gross income of INR 447,000, and a net income of INR 336,000 was earned from sale of teak trees. Further 1500 bamboo were also sold during the same period, whereby a gross income of INR 52,000 and a net income of INR 40,000 was earned.

Table 4: Dominant tree planting patterns on private land

VILLAGE	BOUNDARY (%)	STRIP (%)	BLOCK (%)	INTER-CROPPING (%)	SCATTERED (%)	ANY OTHER (%)	TOTAL (%)
Morpani	33.01	21.99	15.26	19.64	7.16	2.94	100.00
Mandikhoh	40.91	21.08	20.12	14.04	0.35	3.51	100.00
Mariyarpura	55.22	17.64	10.90	12.64	2.47	1.12	100.00
Gomti	50.31	17.71	16.25	15.73	0.00	0	100.00

Sub-total	44.86	19.61	15.63	15.51	2.5	1.89	100.00
Kapasi	53.44	18.83	11.41	14.77	0.00	1.56	100.00
Uskali	59.17	18.13	9.17	10.42	1.04	2.08	100.00
Jinwani	47.00	23.00	11.17	15.50	0.00	3.33	100.00
Jogikhera	56.11	14.44	9.44	14.44	5.56	0	100.00
Barodaghat	52.09	17.31	9.78	13.36	0.00	7.46	100.00
Sub-total	53.56	18.34	10.19	13.7	1.32	2.89	100.00
TOTAL	46.21	19.81	14.17	14.95	2.00	2.85	100.00

4.3.2 LACK OF AWARENESS AND INSTITUTIONAL SUPPORT

There exists a huge gap in terms of awareness and understanding regarding various policies, procedures, and schemes related to agro-forestry. Most of the tree farmers consulted by Forest-PLUS were not aware of the rules, regulations and procedures required for registration, permission for felling, transport and sale of timber produce. Therefore, they had to depend on middlemen, who often exploited them. The tree farmers had little awareness about various government initiatives and schemes. They also reported that, unlike agriculture, there was very little institutional support for tree farming. The tree farmers did not get any technical guidance, extension support, institutional credit, or insurance benefit.

4.3.3 LACK OF CERTIFIED PLANTING STOCK

Agro-forestry is a long-term enterprise. The tree farmer has to block his or her land for ten or more years before s/he can get any return on investment. The nature of planting stock (seed/seedlings) is a key determiner of the outcome in terms of yield. Unlike agriculture, there is no availability of certified planting stock. This is a major constraint for the growth of agro-forestry. The potential of quality planting stock was highlighted in the landscape when one private sector company introduced teak clones. The growth pattern and yield of these are reportedly far superior to the locally available planting stock.



Plate 19: Clonal teak coppice showing high growth in just one growing season

5.0 CONCLUSION

Trees grown outside of Forest Lands have immense untapped potential. This potential, however, needs to be unlocked through the removal of policy bottlenecks so that private forest owners and tree farmers are incentivized to plant more trees.

A number of steps have been taken by the central and the state governments to remove various policy constraints, but more needs to be done to unshackle this sector. The current regulatory framework is based on excessive documentation, opaque flow of information, and guardianship by the State. This is reflected in excessive delays in obtaining permissions to fell, transport, and sell timber. Owing to these constraints, many land owners are not interested in planting trees.

This is a loss for the country as India is a net importer of pulpwood and timber and spends considerable foreign exchange on import of these products. Given the right incentives, Indian farmers are capable of not only meeting the country's growing needs of tree products, but also make it a net exporter.

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