

PARTNERSHIP FOR LAND USE SCIENCE (FOREST-PLUS) PROGRAM

Forest-PLUS Tools and Methods, Achievements to Date



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FOREST-PLUS TOOLS AND METHODS

Achievements to Date

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ABOUT FOREST-PLUS

USAID Forest-PLUS is a bilateral program between India and the U.S. to develop solutions for sustainable forest land use in India. The program, in partnership with the Ministry of Environment, Forest and Climate Change (MoEFCC), prepares India to implement successfully Reducing Emissions from Deforestation and Forest Degradation (REDD+), an international mechanism for climate change mitigation, livelihoods improvement, and biodiversity protection.

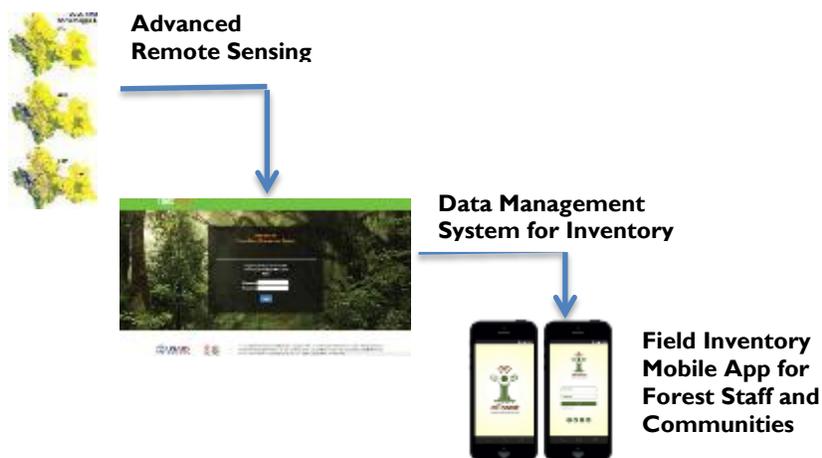
Forest-PLUS develops approaches – including tools, techniques and methods - to meet this objective and tests them in an adaptive framework in India, focusing on its four pilot sites. These approaches scaled up will help meet the bilateral goals for the program in India.

TO IMPROVE FOREST PLANNING AND MANAGEMENT

Improved designs and tools enable better, more efficient forest management for multiple uses.

FOREST-PLUS FOREST INVENTORY MANAGEMENT TOOLBOX

Data availability and the tools to collect, analyze, and report on that data are crucial for REDD+ and for adaptive management of forests. Forest-PLUS has developed two novel models for optical and radar-based remote sensing, a mobile application for forest inventory data collection, and a Forest Data Management System (fDMS) to analyze and report on that data.



PLANS FOR REDD+ IMPLEMENTATION (PROJECT DESIGNS)

Forest-PLUS has co-developed REDD+ project designs at the Circle (Shivamogga, Karnataka) District (Harda and Hoshangabad, Madhya Pradesh), and State level (Sikkim). These are robust plans that meet both international standards for REDD+ and results-based payment, and the considerations of forest management in locations where they were developed. All the project designs were the outcome of extensive multi-party stakeholder consultations, and were developed using the Forest-PLUS forest inventory management toolbox.

TOOLS FOR PLANNING FOREST MANAGEMENT

Forest-PLUS has developed an Integrated Forest Management Toolbox (IFMT), a forest management planning model that can assist senior and mid-level officers in India's state forest departments to develop working plans in accordance to the National Working Plan Code, 2014 (hereafter NWPC). The NWPC calls for management of forests for a range of ecosystem services. The Integrated Forest Management Toolbox includes:

- a mobile application for data collection
- geospatial tools that can suggest optimized locations for implementing forest management activities,
- a consultation model to facilitate decision-making based on trade-offs between ecosystem services
- a user manual that describes the functioning of the Toolbox.

TO IMPROVE FOREST HEALTH

Appropriate technologies and innovations for conditions on the ground

FUEL-SAVING TECHNOLOGIES

To reduce demand for fuelwood, Forest-PLUS has developed or introduced a suite of fuel-saving technologies in pilot locations. For household use, these include:

- solar water heaters and space heaters, which have been shown by Forest-PLUS to reduce household fuelwood consumption by 50% (Rampur);
- smokeless bio-briquettes, which can be quickly and cheaply made from plant residues, including agricultural waste or invasive species and reduce indoor air pollution (Sikkim)
- improved dryers for large cardamom (Sikkim) and *Garcinia gummi-gutta* (Shivamogga)

SILVICULTURE METHODS

In Rampur, Forest-PLUS has contextualized and refined techniques for direct seeding of oak species, and is experimenting with 12 more. There, community labor has also been successfully used in strip grass cutting, as a tool to control fire in forest. In Karnataka and encourage the growth of natural regeneration. In Karnataka, the program is developing a silviculture technique to use acacia as a nurse crop in degraded lands. In Sikkim, assisted natural regeneration in cooperation with FRI has been recommended for use.

SUSTAINABLE MANAGEMENT OF NON-TIMBER FOREST PRODUCTS (NTFPS)

Forest-PLUS has developed improved, sustainable harvesting and management techniques for the following species:

1. Karnataka
 - a. *Cinnamomum malabattrum*
 - b. *Sapindus emarginatus*
 - c. *Ailanthus triphysa*
2. Himachal Pradesh
 - a. *Aconitum heterophyllum*
 - b. *Angelica glauca*
 - c. *Picrorhiza Kurooa*
 - d. *Paris polyphylla*
 - e. *Trillium govanianum*
3. Madhya Pradesh
 - a. *Buchanania lanzan*
 - b. *Madhuca longifolia*

GRAZING TECHNIQUES

Forest-PLUS has developed a community-led silvipastoral system and a maize silage stall feeding system in Rampur, both of which have been shown to improve livelihoods and the health of cattle as well as the nearby forest. In Madhya Pradesh, the program is currently developing recommendations on fodder species that could improve outcomes for stall feeding; in Karnataka, the program is demonstrating a method to make fodder with palm fronds and sheaths.

TO IMPROVE THE ENABLING ENVIRONMENT

Improving the desire and the capacity to maintain forest health

INSTITUTIONAL DEVELOPMENT AND GOVERNANCE

Forest-PLUS has initiated action-learning pilot programs in each of its four landscapes, where it is working on the ground with local communities and State Forest Department staff members to identify policy and institutional constraints as well as solutions. In Madhya Pradesh, the focus is on 'trees outside forests' and inputs have been provided for the state's new agroforestry policy. In Himachal Pradesh, bottom-up planning has been undertaken in several pilot JFMCs to address sustainable forest management issues such as forest fires and over-harvesting. Forest-PLUS organized an interactive state-level workshop on JFM in Himachal Pradesh that resulted in several suggestions for improvement in the program, including proposed amendments in the state's Participatory Forest Management Rules, 2001.

Forest-PLUS has actively contributed to the process of review and revision of India's National Forest Policy by (i) organizing 25% of the village-level consultations and (ii) staff contribution to the document drafting process. A field-based study on the status and impact of JFM program was carried out in all Forest-PLUS landscapes. A 25% stratified random sample of the JFMCs was selected and the fieldwork for the study was carried in 83 JFM Committees. The study provided valuable insights about the functioning of JFM Committees.

CAPACITY BUILDING

Forest-PLUS has developed a large volume of training materials and curricula on topics within its core mandate. It uses them to train Forest Department officers and communities, building understanding and capacity on sustainable forest management as a result. Almost ten thousand persons have been trained on these topics to date as a result of Forest-PLUS.

Moreover, the program has developed an electronic learning management system (LMS) to host its training materials. Based on an open-source learning software, the LMS is a flexible online system for professionals and students interested in the forest sector. It contains courses focused on forestry in India and can be customized for the needs of the institution and instructor. In addition, it connects to an online virtual laboratory for carbon inventory, the Forest Data Management System, and a mobile app for data collection, mForest.

COMMUNICATIONS

Forest-PLUS has reached more than one million persons with its communications programs and campaigns, which focus on increasing awareness and understanding on climate change, improved forest management and REDD+. Notably, Forest Departments and local media outlets are using many of these materials in their ongoing efforts to reach the public.

PARTNERSHIPS LEVERAGED

Forest-PLUS has leveraged more than 3.5 million USD from public and private partners to scale up its activities. These include partners in state government, and private sector partners such as Pangea, Mahindra Sanyo, and JCDcaux.

For example, Forest-PLUS facilitated a partnership in between local groups, government agencies, and private sector organizations in the Harda district of Madhya Pradesh. Nearly 3,000 farmers were involved in this initiative and over 350,000 saplings were planted in 2016. The partnership is continuing and a similar number of saplings are likely to be planted this year as well.

FOREST-PLUS PILOT STATES





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