# FES

**FOUNDATION FOR ECOLOGICAL SECURITY**

# For the sake of our forests

## A Case Study on Integrated Forest Management Toolbox: IFMT

*The Foundation for Ecological Security has developed a comprehensive Integrated Forest Management Toolbox that helps state forest departments with data collection and analysis to prepare their working plans in accordance with the National Working Plan Code 2014.*

In a country like India which has a forest cover of over 700,000 square kilometres, that is equal to more than 21% of its total landmass, management of forests for a range of ecosystem functions and services is crucial. Keeping this and the challenges posed by a fast-changing environment in view, the central government in 2014 framed the (revised) National Working Plan Code (NWPC) for the scientific management of forests. Some of the basic objectives behind the NWPC were environmental stability, biodiversity monitoring and management, restoration of ecological balance of affected areas and preservation of forest resources.

To meet these objectives, foresters required insights based on accurate and actionable data. This led to the evolution of the Integrated Forest Management Toolbox or IFMT — a comprehensive forest management planning model. Developed by the Foundation for Ecological Security (FES), IFMT assists senior officers in state forest departments prepare working plans in accordance with NWPC.

## Background and significance

"*There has been a paradigm shift in the approach of the authorities regarding forest management. Earlier, it was majorly about utilisation of timber, but now it is about the environment, biodiversity and sustained delivery of socio-economic benefits to the communities dependent on forests*," explains Sham Davande, who is a Senior Program Manager with FES. The NWPC promotes the use of latest technology in forest data collection and analysis, including geographic information system (GIS) and remote sensing. "*IFMT is in a way a combination of several tools that together collect and collate geospatial and ground level data, identify potential management activities based on the flow of ecosystem services and assist in finalising working plan prescriptions,*" adds Davande.

Introduced in 2016, the toolbox has been successfully used to prepare the working plan for the Yadadri Forest Division in Telangana and is also being implemented in five forest divisions of Rajasthan (Udaipur, Udaipur North, Pratapgarh, Banswara and Chittorgarh) in collaboration with the State Forest Department. As of today, IFMT is being used by forest departments in six states.

## All in one

To meet the conditions laid out by NWPC, IFMT contains a mix of highly accurate and efficient tools that assist in both data collection and analysis. These include:

**Forest Resources Observatory (FRO):** As per NWPC guidelines, there are 41 indicative GIS layers of a forest, out of which some are mandatory and some optional. A data repository with geospatial digital datasets in

the form of tables and GIS layers such as forest administrative boundaries, infrastructure assets and exercises undertaken across plantations, wildlife census, records of fire events, etc. has been prepared. The datasets which are publicly available from open source data are also captured in the FRO for GIS analysis and reporting.

**Forest Data Kit (FDK):** This is an Android application that provides a digital platform for data collection which is paperless, minimises data entry errors and also supports faster processing and analysis to create geospatial layers for visualization.

**Composite Landscape Assessment and Restoration Tool (CLART):** This tool is used for classifying areas within a forest based on water recharge potential and soil health.

**Species Distribution Model (SDM):** This tool is essentially used for planning of suitable revegetation measures such as seeding or assisted natural regeneration as per the local agro-climatic and edaphic factors.

*"We have used FDK extensively in preparing our working plan. Apart from other things, it has significantly reduced the paperwork, which is both good for us and the environment. Yadadri Forest Division is spread across 12,000 hectares, with 38 blocks and 60 compartments. We have about seven working circles for these compartments based on which we prepare prescriptions for the long-term health of the forest,"* says Dr G Chandrashekar Reddy, Additional Principal Chief Conservator of Forests, Hyderabad Circle.

He adds that before IFMT was introduced, the forest department staff used to record and maintain data using books and papers, which would often get spoilt in the field due to dust or rain. *"But that's not the case now. Our data is both safe and easily accessible. Further, with the help of GPS in the toolbox, we can also track the field staff to find out whether they are actually out collecting data in the forest or are somewhere else."*

## Customised plans

The Forest Data Kit is customised for each forest division by adding a list of local plant species and administrative units. Primary ecological data from forest areas and socio-economic data from forest fringe villages is collected through FDK and analysed along with secondary data from the data platform, following which reports and maps are generated according to NWPC recommendations. These reports and maps form the basis of the working plan.

*"Earlier, barring a handful of senior officials, no one knew about the forest or the working plan. Thanks to IFMT and several new technologies, now, from the field staff to the senior-most officer, everyone is aware about what is happening and what is being done on the ground. The level of awareness and interest generated by this toolbox is quite remarkable,"* says R K Jain, Conservator of Forests and Working Plan Officer, Udaipur Forest Division.

Jain adds that with the help of IFMT, they have been able to identify at least 20 rare, threatened and endangered (RTE) species in their division.

## Preparing a working plan

The process of putting together a working plan by using IFMT involves preparation and data collection, mapping and analysis, and finalising actions. To start with, the forest department assigns roles and responsibilities to its staff and appoints a nodal person for coordinating with FES. Following this, the administrative boundaries of a division are sourced and digitised, and a list of local species is prepared. Once that is done, the forest guards and the range forest officials responsible for collecting information from the ground are trained by FES on using the Forest Data Kit, identifying species and conducting ecological and demographic surveys.

After the data is collected, FES assists the forest department in reviewing the information and summarising it. This is followed by creation of maps and reports, which are analysed as per NWPC. "*IFMT has made forest management a lot more scientific. Now, we don't go by beliefs and conventional wisdom alone, but take our decisions based on solid facts from a geospatial digital database. A working plan is valid for at least 10 years so it is always helpful to have access to a technology that can warn you about current and future challenges,*" says Jain. Currently, the FES staff analyses the data collected from the field and puts together findings in consultation with senior forest department officials.

IFMT can be accessed via http://ifmt.fes.org.in/ and the FDK mobile app (Android only) can be downloaded from here as well. "*The automation of IFMT, which will allow a user (forest department officials) to customise and download FDK, clean the collected data and download the analysed data, spatial layers, report and maps by just logging onto the portal, is an ongoing process,*" says Davande**.**

IFMT has been developed by India Observatory (IO), the technology arm of the Foundation for Ecological Security, which aims to enable end users take informed decisions by making available spatial and temporal data on India's social, ecological and economic parameters to restore degraded ecosystems and improve economic opportunities in rural areas.

By collaborating with various organisations and initiatives, India Observatory
• brings together data, analytics and tools,
• contextualizes them and lastly
• takes them to supplement the decision making of village people, NGOs and local government officials

India Observatory helps address the 'last mile deficit' and extends available spatial and temporal knowledge to ground level action. It also nudges end users to factor ecological considerations in their pursuit of economic progress.

At another level, India Observatory promotes a culture of data sharing and collaborative action to address pressing problems facing the planet and people.

IFMT contributes to Goal 15: Life on Land of the 17 Sustainable Development Goals (SDG)

*Case study authored by Geospatial Media and Communications Pvt Ltd for the Foundation for Ecological Security.*