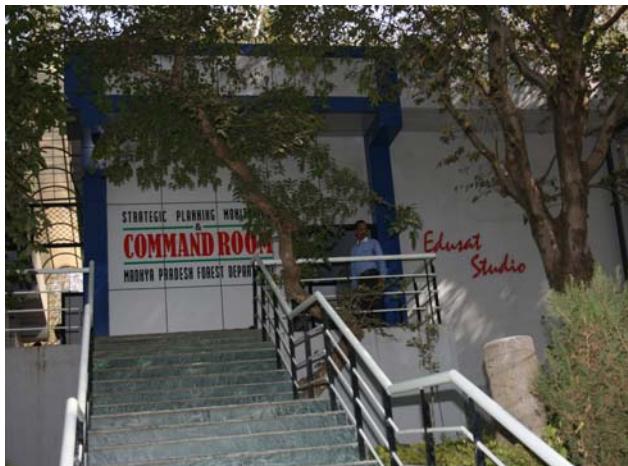




Madhya Pradesh Forest Department

O/o Principal Chief Conservator of Forests (Information Technology), Madhya Pradesh, Bhopal

m-Mantra for Good Governance



Documentation supported by
Department of Administrative Reforms and Public Grievances
Ministry of Personnel, Public Grievances and Pensions
Government of India

m-Mantra for Good Governance

Index

Chapter	Title	Page No.
	Index	2
1	Background	3
2	Project Initiative	4
3	Strategies adopted / Mode of transformation	7
4	Application development	10
5	Data Centre and Server Farm	36
6	Communication Network	38
7	Capacity Building	41
8	Impact	46
9	Highlights of Initiative	49
10	Awards and Recognition	53
11	Conclusion	54

Chapter 1: Background

Managing natural resources especially forest and wild life is a difficult proposition in present context not because they are living and dynamic components of the ecosystem but due to the fact that their extent is vast, they are in geographically disadvantageous locations and that they not only fulfill the aesthetic and survival needs of the human beings but are also the target of the human greed. Forest managers world over especially in under and developing economies are feeling the pinch to ensure their sustainable management. Situation in India and in the state of Madhya Pradesh in particular is no different.

Though the scientific management of the forests in the country dates back to 19th century, the structured information on forestry sector is lacking because not many initiatives were undertaken at national or state level to create forest related databases. Earlier forests were only looked upon as the source of revenue to the state exchequer. The need for the proper protection development and sustenance of forests was never a major issue with the planners. Therefore forestry sector always remained ignored which affected its development including technological innovations.

Chapter 2: Project Initiative

The magnitude and extent of forest and wild life management is large and complex and it involves multi stakeholders breaking all the geographical barriers.

Forest and wild life management involves vast geographically disadvantageous areas therefore it is administered by a huge establishment and a large work force. There is widespread public dealing especially with scheduled tribes and backward communities which mostly dwell in and around forests. Since rural life intimately revolves around forests, forestry sector assumes greater significance and sensitivity.

The silvicultural management involves large number of work sites in geographically disadvantageous locations. Management policies of many other line departments override silvicultural prescriptions therefore foresters have to manage good liaison to minimize risk of forest damage.

National Parks and wild life sanctuaries have different set of management prescriptions which are basically protection and conservation oriented therefore public wild life interface and conflict resolution is a demanding management intervention. Eco-tourism is adding new dimensions to it.

Nature and diversity of works executed by the forest department also speaks out the magnitude and complexities involved in the management therefore monitoring and decision making becomes very critical. The inadequate and age old information and communication infrastructure is challenging to manage and get the day to day activity report for monitoring and decision making. The inherent delays hamper the decision process required at a particular time thereby affecting the quality of output.

The general impression among all the stakeholders that forest department works in a tight compartment and in an isolated manner and its activities are inaccessible and they do not care for the civil society. The famous proverb “Jungle mein Mor nacha kisne dekha” is often quoted to malign department.

It is in this context also that ICT use was inevitable so that truth is brought before the society.

Project Period

Year 2008-09 to 2011-12.

Purpose

The main purpose of the ICT initiative in the department is to systematically organize planning implementation and monitoring of forestry and other related operations by systemic collection storage and retrieval of MIS and Geo-spatial data in an integrated manner through a computer based communication network so as to make the forestry information readily accessible to all stakeholders and to make forestry administration responsive transparent accountable and service oriented.

While planning ICT initiatives, the emerging issues of transparency in governance were also considered. The concurrent developments in Right to Information Act and its implementation helped department to take steps to meet needs of this Act in a manner so that all departmental processes not only become transparent but all the information becomes public by serving it online on the net so that people have direct access to information for their use. Department coined two mantras which ultimately became the icon of transparency in good governance.

The two mantras are:

- 1. Monitor all the key activities in real time both spatial and temporal.**
- 2. Readily serve this information to all stakeholders in an easy and visualized manner for social audit.**

Technology today can make this happen and this is precisely what MP Forest Department has done and shown to nation that technology is the key to create transparency. In fact if properly designed and deployed, technology can greatly push good governance which every government is striving for.

Priorities of the Initiative

To execute m-governance mantras following ICT initiatives were identified and prioritized:

- In order to collect real time information procurement of data collection devices and development of applications was the foremost priority
- For tele-transporting of the information, development of computer based communication network was next
- For storage and processing of the information creation of a Data Center / Server Farm was the third priority
- To efficiently use the whole system sharpening the ICT skills of the manpower was the most important aspect of the initiative. However this became the last priority as this could happen only after all the above mentioned activities were completed.

Chapter 3: Strategies Adopted / Mode of Transformation

The hard learning from the experience of World Bank Forestry Project (WBFP) forced department to think innovatively to achieve the objectives set for it. The WBFP had a big component of automating a few of our critical operations. The project was engineered by Ms Siemens for three long years and the outcome was very dismal and in the process department lost not only valuable time but also resources.

So picking clues from this WBFP, MPFD decided to adopt following strategy to achieve its mission objective:

Institutional Strategy

- The project would be implemented in-house without the services of consultants and vendors.
- All facilities be it hardware related or software and system related will be owned/executed in-house by the department so as to avoid dependency on third party.
- A Project Management Team will be constituted at HQ which will be responsible for overall steering of the project to its logical end. Man power for PMU would be identified from the department itself who were keen to volunteer their services for the project.
- While the project would be planned in a holistic manner however a modular approach would be followed for its development taking simpler steps first and then achieving complexities.

Financial Strategy

- No separate funds would be demanded from state. Efforts would be made to seek financial assistance from existing state and central schemes.
- As far as possible existing material resources which were procured during the WBFP and freely available technology tools and services will be utilized to be cost effective.

Technology Selection Strategy

- For ICT initiative such technology and tools would be selected which is cost effective and service and support for its use is readily available in the state of MP.
- There is ready accessibility of the manpower to use and maintain the selected technology.
- Priority to be given to all the technologies which were used in WBFP so as to harvest the maximum benefit and to be cost effective.
- Green power will be preferred to provide electricity in remote locations where power situation is not favorable.

Application Development Strategy

- All applications must be developed in-house.
- Application should be:
 - Web based.
 - Work flow oriented.
 - Simple and user friendly.
 - Time and efforts saving for the manpower
- Data must be captured at source.
- Applications must be capable of creating temporal and spatial databases therefore spatial database in digital format became the essential requirement.

Deployment Strategy

- Creation and deployment of spatial database infrastructure became the first requirement to implement the m-governance mantras.
- Lack of complete infrastructure will not be an obstacle to launch the initiative. Pooling or sharing of all types of the resources would be done to start with. As and when funds are available complete infrastructure would be developed.
- Applications would be launched one by one after the staff has understood and absorbed one application properly.

Capacity Development Strategy

- Create in – house state of art training facilities and master trainers to train the mammoth frontline staff and officers.
- Use best tools and techniques so that HR is capable to absorb and sustain the IT applications and automated environment in a natural way.
- The underlying principal is to provide them alternative working environment which lightens their work load and saves their time and energy and which also improves their performance.

Chapter 4

Application Development

The department has so far automated various core activities and started many services as given under:

1. Fire Alert Messaging System

Fire Alert and Messaging System (FAMS) is a small but very useful computer program which is combination of GIS and MIS technologies. FAMS uses processed remote sensing data of active fire locations and sends alerts to concerned field staff from Beat Guard to CF through Short Message Service (SMS) and e-mail. The system also maintains the database of fire locations which can be used to identify fire sensitive zones scientifically and management planning of fire control operations. The response module is designed to collect field status report of each fire location.

OBJECTIVE

Forest fires are major threat to the Natural Ecosystems. Fires cause not only loss of forest species regeneration but also burn fuel and fodder, increase run-off of the rain water, threaten biodiversity and pollute the air. In order to ensure effective fire management IT section of MP Forest Department has developed FAMS with following objectives;

- To create spatial and temporal data base of fire locations
- Instant Messaging of Fires to front line field Officers
- Identification and delineation of fire prone Forest areas
- To Monitor forest burnt area, loss of life and other property

The screenshot shows the FAMS application interface. At the top left is the logo of the Madhya Pradesh Forest Department. Next to it is the text "FAMS". The top center features a banner with the text "Forest Fire Alert Messaging System" over a background image of trees. The top right shows a "Welcome : Guest" message. Below the banner is a navigation menu with links: "Fire Incident Archive", "Feed Back Report", "Fire Sensitive Area", "Field FeedBack", "Home", and "Log In". A "Calender Reports" section is visible, showing a grid for May 2012. The grid contains dates and fire point counts for each day. A note at the bottom of the grid says "Click on date to view fire point list". On the left side of the main content area is a sidebar with a list of links: Home, Fire Incident Archive, Feed Back Report, Fire Sensitive Area, Field FeedBack, Locate Fire Camps, Year Wise Fire Points, Customized Query, and SMS Log.

May 2012						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1 67 Fire Points	2 43 Fire Points	3 60 Fire Points	4 6 Fire Points	5 9 Fire Points
6 19 Fire Points	7 2 Fire Points	8 10 Fire Points	9 6 Fire Points	10 7 Fire Points	11 9 Fire Points	12 6 Fire Points
13 8 Fire Points	14 15 Fire Points	15 4 Fire Points	16 5 Fire Points	17 7 Fire Points	18 8 Fire Points	19 9 Fire Points
20 11 Fire Points	21 2 Fire Points	22 7 Fire Points	23 5 Fire Points	24 41 Fire Points	25 11 Fire Points	26 20 Fire Points
27 18 Fire Points	28 19 Fire Points	29 19 Fire Points	30 31			

HOW DOES IT WORK?

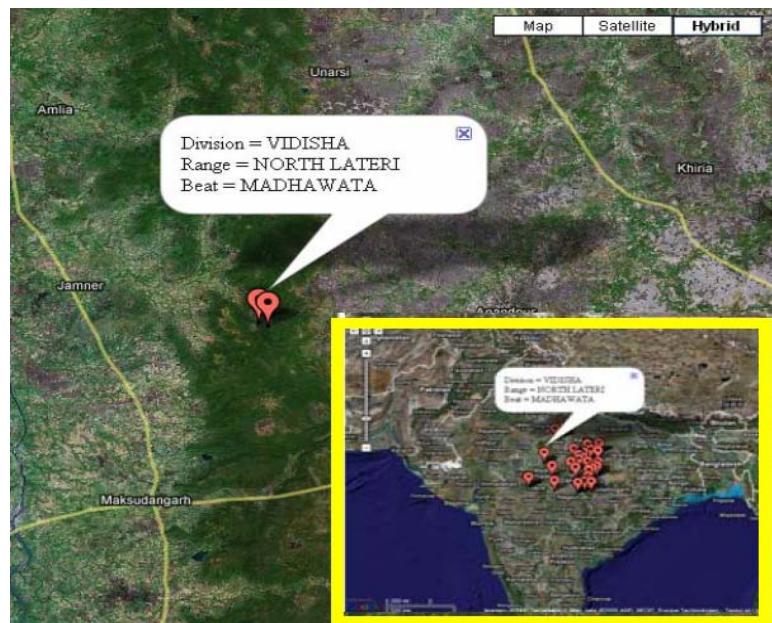
Fire Information Resource Management System (FIRMS) is developed and maintained by University of Maryland and NASA to provide various services regarding fire information and resource management.

FAMS – THE PROCESS

FIRMS update the active fire data on every 6 hours. The FAMS downloads this data and further process it using spatial query over digitized map of forests to identify concerned active fire locations and administrative unit. This system is designed in such a manner that it automatically sends SMS immediate to concerned front line field staff (Beat Guard, RA, Range Officer) and Monitoring authorities (SDO, DFO, CF and HOD). In order to plan fire control operations efficiently and to mobilize resources at fire locations, field officers can see the location of the fire on Google Maps on their computers. After taking control measures the field status report is uploaded by field staff through the computer of Range Office. Field officers are directed to provide full feedback online about the location and the action taken. This way prompt action and informed decision making is ensured across the different role players in the department.

DEVELOPMENT TOOLS USED:

- Microsoft Visual Basic
- ESRI MapObject
- ASP.NET
- Google Maps API
- Microsoft SQL Server



IMPACT

Incidence of fire is captured and transferred to the field enabling necessary actions immediately. In fire season Jan – June 2012, 2756 fire points have been reported and dealt with so far. Effective monitoring has resulted in correct reporting of fire incidents and quick response.

- All the field units and staff are networked resulting in effective use of resources.
- Reduced response time to control fires.
- More than 10,000 SMS sent.
- Effective monitoring has resulted in increased sensitivity to the forest fires Management at various levels is able to take informed decision by looking at the fire history of the area.

The FAMS was awarded National e-Governance Award in year 2009.

Forest Protection

2. Forest Offence Management System

OBJECTIVE -

Every year more than 70000 forest offences are registered in the state. Before the system monitoring and progress over forest offence cases was a difficult task for higher officers. Also, the compilation of registered cases is also difficult in a manual system. The application helps building database of different forest offences and offenders. It also outlines sensitive areas on digital maps.

How System Works –

The system works on workflows. Whenever the offence is registered, the complete details of case are fed into the system in Range Office. After it the details of case progress is entered online by the respective authorities. All monitoring reports like offence type wise registered cases, investigation status, compounding status, seized material; losses etc. are produced by the system through online system in a query manner. The data captured in such a way that can be integrated with spatial data later on.

The screenshot shows the 'FOREST OFFENCE MANAGEMENT SYSTEM' interface. At the top, there's a logo of the Madhya Pradesh Forest Department, user information ('User : Guest', 'Authority : (Guest)'), and a 'Log In' button. Below the header, a navigation bar includes 'Report', 'Search', 'Download', 'Change Password', and 'Help'. The main content area is titled 'Forest Offence Case Registration Status'. It features a search form with dropdowns for 'Circle' (set to '<ALLCircle>'), 'Period' (radio buttons for 'Calander Year' (selected) and 'Specified Period'), and date fields for 'From Date' (1 Jan 2011) and 'To Date' (1 Jan 2011). A 'Get Result' button is located below the search form. The bottom half of the screen displays a table with data for various forest circles. The table has 16 columns: Circle, Total Cases, Illicit Felling, Poaching & Wildlife, Encroachment, Illicit Transportation, Illicit Mining, Fire Cases, Illegal Entry, Illicit Grazing, MFP Related, Sawmill Related, Change in Boundary Lines, and Breaking of Munara. The data rows include entries for Balaghat, Betul, Bhopal, Chhatarpur, Chhindwara, Gwalior, Hoshangabad, Indore, Jabalpur, Khandwa, Rewa, Sagar, Seoni, Shahdol, Shivpuri, and Ujjain.

Circle	Total Cases	Illicit Felling	Poaching & Wildlife	Encroachment	Illicit Transportation	Illicit Mining	Fire Cases	Illegal Entry	Illicit Grazing	MFP Related	Sawmill Related	Change in Boundary Lines	Breaking of Munara
Balaghat	1892	1692	49	6	54	8	82	0	1	0	0	0	0
Betul	2423	1993	24	28	77	20	248	12	6	8	5	0	2
Bhopal	4175	3419	48	126	160	41	348	8	16	0	7	0	2
Chhatarpur	1945	1553	26	32	44	47	225	1	7	3	7	0	0
Chhindwara	3528	3298	18	10	16	8	155	0	23	0	0	0	0
Gwalior	1526	977	30	84	27	281	68	0	22	12	22	0	3
Hoshangabad	2084	1752	7	17	87	1	200	0	17	0	3	0	0
Indore	1198	937	5	135	34	11	29	4	35	0	6	1	1
Jabalpur	3471	3241	32	13	31	10	116	0	22	5	0	0	1
Khandwa	2021	1486	2	18	147	21	321	4	16	5	1	0	0
Rewa	1025	666	8	122	99	39	64	1	10	8	7	0	1
Sagar	2342	1885	11	62	116	20	232	1	10	4	1	0	0
Seoni	1568	1417	32	5	30	3	69	0	11	0	0	1	0
Shahdol	2668	2427	44	62	26	12	86	0	7	0	3	1	0
Shivpuri	1539	746	11	394	242	68	45	0	2	2	26	0	3
Ujjain	2249	1691	17	25	46	5	192	1	181	0	91	0	0

What data it captures –

The system captures following raw data from its original forms (POR case) which is recorded during the registration of offence –

1. Preliminary Offence Report contains data related to offence locations, POR issuing authority, related forest areas (compt, beat etc) and date of offence.
2. Violation of Act and Rules with section / sub section under the case is registered.
3. Offenders and witness.
4. Loss / damage of forest produce, material or wildlife.
5. Stump details in case of illicit felling.
6. Photographs related to offence.

All progressive data like investigation details, compounding or court challan details etc. are entered by the respective authorities online.



Salient Features

1. Captures Data From Original Forms – The application built in such a manner in which the data is captured through original forms (POR detail). All the compilation and calculation related works are done by the system itself.

2. Local Language Support – System is built using UTF-8 Unicode character sets to provide local language support to increase adoption at lower level field staff.
3. User Friendly – Application is so user friendly. Combo boxes, validations are put at most of places to eliminate manual errors and ease of data entry purposes.
4. Modular Approach – Development approach of the system is modular. Various modules are plug-in to the system in later on like spatial module will be plugged in after creation of seamless spatial database of whole forest areas. In this module one can see the thematic maps of offences.
5. Workflow Based – The application is completely workflow based in which every stakeholder of the system do his work online. It increases the accountability in the system.



3. Wild Life Management System

Management System is a GPS enabled PDA based application which uses combination of GIS and MIS technologies. The application captures wild life direct or indirect evidences related data electronically for their geo-coordinates, date, time and images. It also records the tracking path of patrolling parties. The application creates the temporal and spatial database of wildlife movements.

OBJECTIVES

Wildlife has a great ecological, social, and economic significance for survival of society. Wildlife managers needed a tool, which helps them to monitor analyze the wildlife movements, their relations with other animal population's vegetations. This data is also very useful for wildlife research and extension to study behavior of wild animals and Phyto-sociological association in wildlife habitat. In order to ensure wildlife management MP Forest Department developed WMS with objectives:-

- Monitoring of habitat status, population variance,
- Alert generation for untraced key species,
- Monitoring of patrol camps,
- Creation of temporal and spatial database of wildlife sightings and
- DSS for patrolling and habitat improvement.

Sr. No.	National Park	Total Camps	Total Patrols	Last Patrol Information
1	Bandhavgarh Tiger Reserve	15	434	Last Patrol On 25.09.2010, Real Sighting=1 , Evidences= 0
2	Kanha National Park (Core)	72	6884	Last Patrol On 15.09.2012, Real Sighting=8 , Evidences= 2
3	Satpuda Tiger Reserve	127	3271	Last Patrol On 20.09.2012, Real Sighting=5 , Evidences= 0
4	Mashav National Park	15	105	Last Patrol On 27.04.2011, Real Sighting=4 , Evidences= 0
5	Demo Division	2	20	Last Patrol On 16.09.2012, Real Sighting=0 , Evidences= 0
6	Sanjay Nation Park Sidhi	1	3	Last Patrol On 18.05.2012, Real Sighting=0 , Evidences= 0
7	Buffer Zone Kanha	34	1145	Last Patrol On 23.02.2011, Real Sighting=0 , Evidences= 0
8	Pench National Park	24	997	Last Patrol On 09.09.2012, Real Sighting=1 , Evidences= 4
Total:-		290	12859	

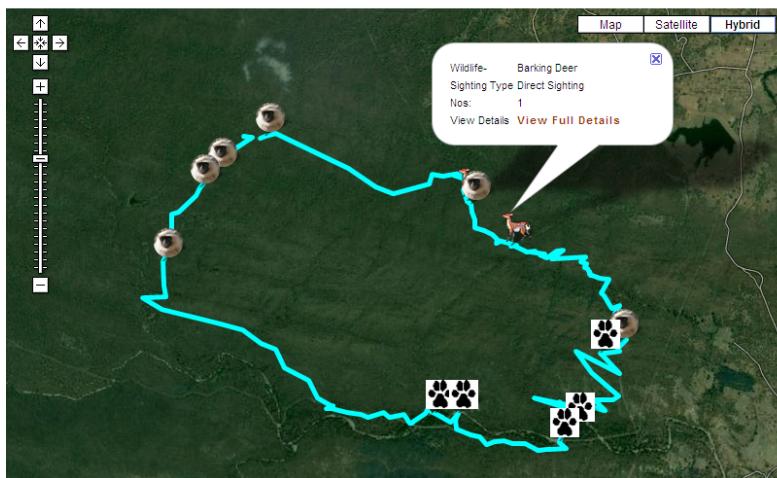
SYSTEM COMPONENTS

The system has three components Mobile, Desktop and Web. Mobile application is the core application which is used by the frontline staff (Patrol Parties) to key in the data in field itself. It is built-on Microsoft Compact Framework and runs on GPS enabled Windows CE based PDAs. The desktop application is used to configure PDAs and upload collected data to server. However, facility to upload data directly from PDA to server is also available in mobile application but due to limited bandwidth (~10-12 Kbps) of GPRS based transmission some time direct uploading is not feasible. The web application is built on WebGIS technology with inbuilt facilities to generate MIS reports and automatic e-mail based alerts/ reporting. The web GIS module which is built on Google Maps is used to monitor the patrolling paths, movements of wildlife, population variance on geographic platform.

HOW SYSTEM WORKS?

Patrol parties simply start the application when they start their patrol from base camp. The system records their track log automatically in background. Whenever parties see animal(s) or found evidences of wildlife they add sighting / evidence records through this application including the image of the animals or their evidences.

Evidences															
Sr. No.	Species Name	Sighting Date	Camp	Pagmark Adults	Male Pagmark	Female Pagmark	Young Pagmark	Unclassified Pagmark	Dung	Scratch	Sound	Feed	Urine	Kuredna	Nes
1	Tiger	Sep 20 2012 8:30:00:000AM	RO_Karmajhiri	0	1	0	0	0	X	X	X	X	X	X	X
2	Tiger	Sep 20 2012 8:33:00:000AM	RO_Karmajhiri	0	1	0	0	0	X	X	X	X	X	X	X
3	Tiger	Sep 20 2012 8:51:00:000AM	RO_Karmajhiri	0	1	0	0	0	X	X	X	X	X	X	X
4	Tiger	Sep 20 2012 8:54:00:000AM	RO_Karmajhiri	0	1	0	0	0	X	X	X	X	X	X	X
5	Wild Boar	Sep 20 2012 9:15:00:000AM	RO_Karmajhiri	0	0	0	0	0	X	X	X	X	X	✓	X



The application automatically picks up the geo-location of the sighting or evidence location with the date and time. The application also facilitates to open the digital map (in ESRI Shapefile format) as background layers. When the party finishes the patrol, the captured data is uploaded on to the server through data synchronization application.

IMPLEMENTATION STATUS

After the pilot implementation (which was done in Pench and Satpuda National parks during February 09 to Apr 09) the ver 1.0 of the WMS has been launched in Bandhavgarh, Kanha, Pench and Satpuda Tiger Reserves. Around 350 GPS enabled PDAs have been deployed in these tiger reserves for implementation of the application. As on 15-Dec-12(for the Finance Year 2012), data of 1641 patrols has been uploaded on to the server.

The WLMS was awarded m-Bilionth South Asia Award in year 2010.

4. FOREST DWELLERS SURVEY SYSTEM

ABOUT PROJECT

The project was conceptualized by forest department to capture the forest dwellers details with geo-location of their land holdings to update the forest land records and to analyze the patterns of land holdings as a database for effective planning and management. Area calculation, geo-mapping, forest dwellers details capturing and central server data processing are the basic requirement of the project. To accomplish this task MPFD has developed a mobile application which has inbuilt features of instant area calculation, geo-tagging of land and taking photographs of forest dwellers. This application run on a small and handy GPS enabled PDA. All these functions are also required in the implementation process of Forest Rights Act 2006 so the Madhya Pradesh Schedule Tribes and Schedule Caste Welfare Department who is the nodal agency for implementing the Forest Rights Act 2006, had made request to customize the application for their purposes.

OBJECTIVE

In the above context MPFD had customized the application to survey of forest dwellers. Following objectives are fixed up –

- o Survey the area of forest dwellers land holdings
- o Estimate the area of the land
- o Prepare digital map of the land
- o Auto print a Van Adhikar certificate showing map, photograph and other details of the forest dweller
- o Online publication of land holdings on Web GIS based application like Google Maps
- o Reports on progress of implementation of Forest Rights Act.

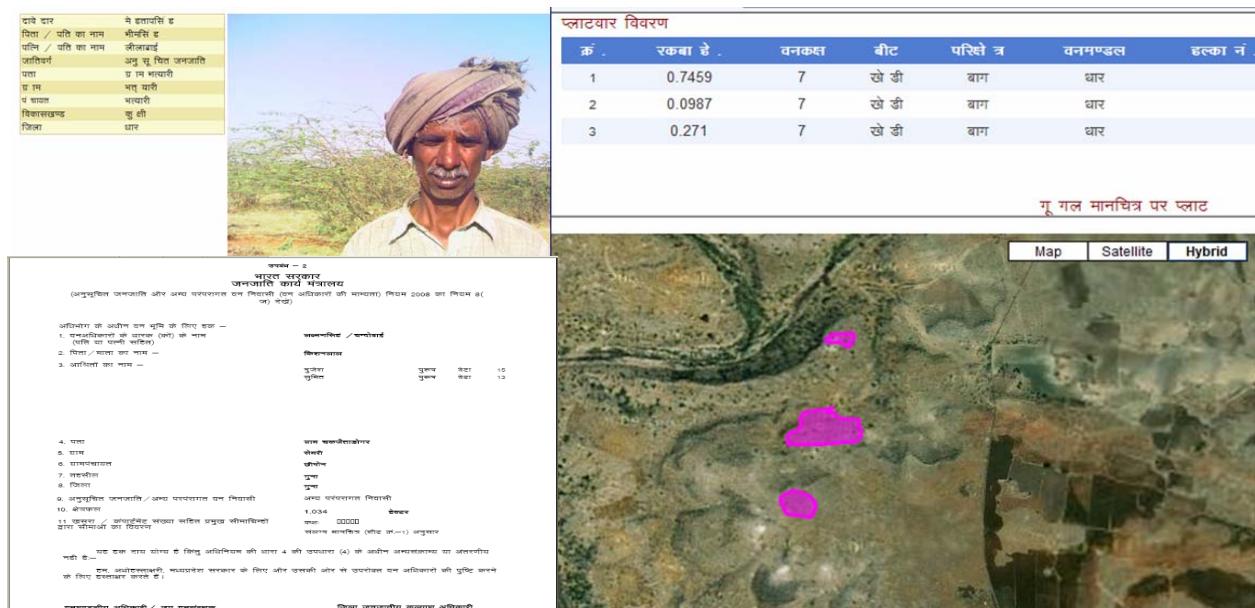
SIMPLICITY

This application is so simple that even the beneficiary (Forest dweller/villager) could do the land survey of his/her land holding by himself/herself, thereby making system more transparent. Entire process was completed in only five easily followed steps followed by preparation of digital maps and area calculation performed by machine itself without any manual interference.

Also, the land got geo-referenced automatically and survey result published on Google Satellite Imagery from where the land holder's details with his/her photographs and geo-location of the landholdings are available. All this brought credibility to the whole system and confidence in beneficiaries. Not a single complaint has been so far about the wrong survey or area calculation.

Extra Ordinary Outcomes

The outcomes of the application are very impressive in terms of time taken and database creation in implementation of Forest Rights Act in Madhya Pradesh. The extra ordinary outcomes are reflected by the progress of implementation of Forest Rights Act within a short period of one year. In 45 districts of Madhya Pradesh 97,345 hectares of forest land belonging to 55,449 forest dwellers were surveyed using the application in about a year. These surveys were conducted over 81,053 plots in 2,558 villages.



Transparency –

Project envisaged field survey by survey parties constituted involving personnel from revenue, tribal and forest departments. The survey parties were provided configured PDAs for providing village specific relevant data of the claimants

The survey party verifies the person and land holding during the field survey. Result of survey (area measured, location map etc.) is immediately captured by the PDA can be seen by the claimant, witnesses and survey parties on spot in real time. It brings about faith of claimant and people involved in the survey on the whole process of survey. The data collected through PDA is uploaded without any possibility of change or tampering and immediately published on internet. The system demonstrates high degree of transparency in survey, creation of map, preparation of title deeds, identity of land holders and keeping of land records.

FDSS was awarded National e-Governance Award in year 2010 and also Prime Minister Award of “Excellence in Public Administration” in year 2010.

5. Forest Financial Management System

Integrated Forest Financial and Works Management System (i-FFWMS)

Introduction

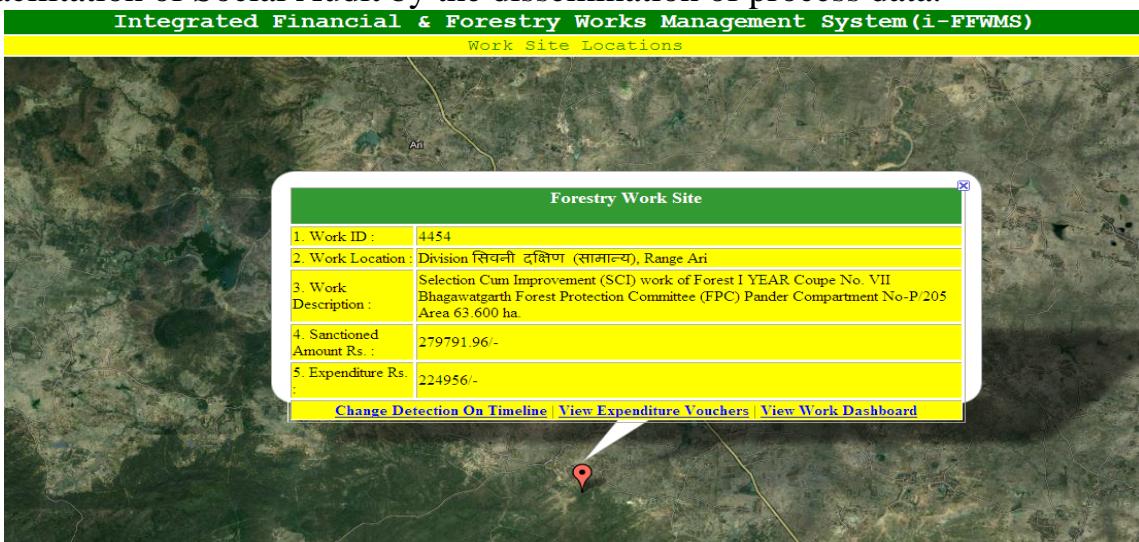
Forests are essential for survival and sustenance of life. They are source of many direct and indirect benefits and need to be managed in such a way that extraction of benefits does not deplete the resource. Madhya Pradesh Forest Department scientifically manages approx. 95000 sq. km. of the forest land which is 30.17% of the geographical area of the State and 12.44% of the forest area of the country. For proper administration and management, the state has 16 Forest Circles, 62 Territorial Divisions, 129 Territorial Subdivisions, 362 Territorial Forest Ranges, 1,354 Sub ranges and 7,056 Beats. Effective maintenance, management and monitoring of the funds and various works are key and challenging tasks of the department. All the activities of the department can easily be monitored and expedited by efficient handling of the accounts and related activities and various offices of the department spend sizeable time and efforts in these activities.

The screenshot shows the homepage of the i-FFWMS system. At the top, there is a green header bar with the text "Madhya Pradesh Forest Department" and "Integrated Forestry Works & Financial Management System(i~FW~FMS)". To the right of the header, it shows the date and time "20 Sep 2012, 18:04:11 IST" and a dropdown menu showing "09-10". On the left, there is a circular logo of the Madhya Pradesh Forest Department. Below the header, there is a welcome message: "Welcome to iFFWMS" followed by a detailed description of the project's unique features and its award-winning status. To the right of the message, there are two satellite imagery maps showing forest changes from 2002 to 2006. Further right is a "Please Login" form with fields for "User Name" and "Password" and a "Login" button. The main content area is divided into several sections: "Business Intelligence" (with a "Statistics" chart showing Expenditure and Revenue over time), "Social Audit of financial transactions as per the intentions of RTI Act, 2005" (with tabs for Revenue, Expenditure, CashBook, and Budgets, and a list of defaulters/usages), and "Registers" (with links to Circles of MP Forest Department (MPFD), DDOs of MPFD, Sub-DDOs of MPFD, Treasury mapped to DDOs, and List of Vehicles of MPFD).

Objective

In view of the above, Integrated Forest Financial and Works Management System has been designed and developed as a ICT based system for efficient handling, monitoring and management of the accounts, budget and works. The system facilitates online, effective, project (work)-wise, scheme-wise and head-wise monitoring and effective budget utilization at the lowest level of the department. The project has been conceived, designed, developed and implemented with the following objectives:-

- Design, development and implementation of an appropriate web based system to facilitate efficient management and monitoring of the funds and progress of various works/projects being carried out by various units of the department.
- Deployment of an integrated system to automate the routine and repetitive tasks and minimize the manual effort in the preparation and compilation of the accounts and creation and updation of related reports, books and registers.
- Facilitation of a common platform for all activities related to the forest department functions.
- Streamlining of the various processes involved to increase the efficiency and effectiveness of the system.
- Implementation of a comprehensive MIS for all stakeholders to facilitate the monitoring and analysis of works and fund.
- Introduction of transparency in operations and fixing of accountability at various levels.
- Facilitation of Social Audit by the dissemination of process data.



Features

- A unique and innovative project that seamlessly automates and integrates the core functions of the department and reveals on line position of budget receipt, allocation, expenditure, revenue, and physical progress of works.
- A web-based, work-flow designed, user-friendly, strategic, and integrated works monitoring and accounting information system that considerably curtails the time and efforts spent in preparation of accounts.
- Modular and scalable design to facilitate easy replication and implementation in any government department.
- System creates temporal and geo-spatial database of works and financial implications.
- Use of freely available resources for visualization of works to promote social audit. Physical progress of the works/activities can be monitored on screen using Google Earth and GIS Technologies.
- The software promotes and compels strict adherence to financial rules thereby improving financial discipline and minimizing the audit objections.
- The software facilitates online preparation and passing of the vouchers, online generation Cash-book and all related reports and abstracts for DDOs.
- Online and Automated generation and updating of registers related to works, assets, stocks and timber account.
- Business intelligence facility to facilitate effective management and optimal utilization of financial and other resources.



The i-FFWMS was awarded Map-IT & CSI Nihilent Award in year 2010.

6. Forest Geo-informatics

Project Overview

The purpose of the project is development of a Geomatics-based Forest Stock Mapping Inventory System. The scope of the project is:-

- Digitization of Forest Stock Maps
- Integration of attribute data with digital data
- Generation of the required thematic maps.
- Query based output in the form of derived maps
- Updation of spatial data using PDA device

Product Specifications

- Arc GIS Server
- Open Source (J2EE) based front end
- Apache Tomcat Web server
- Enterprise Geo-database
- High-end Servers
- Client with IE 6.0 or higher JavaScript enabled browser

Product Features

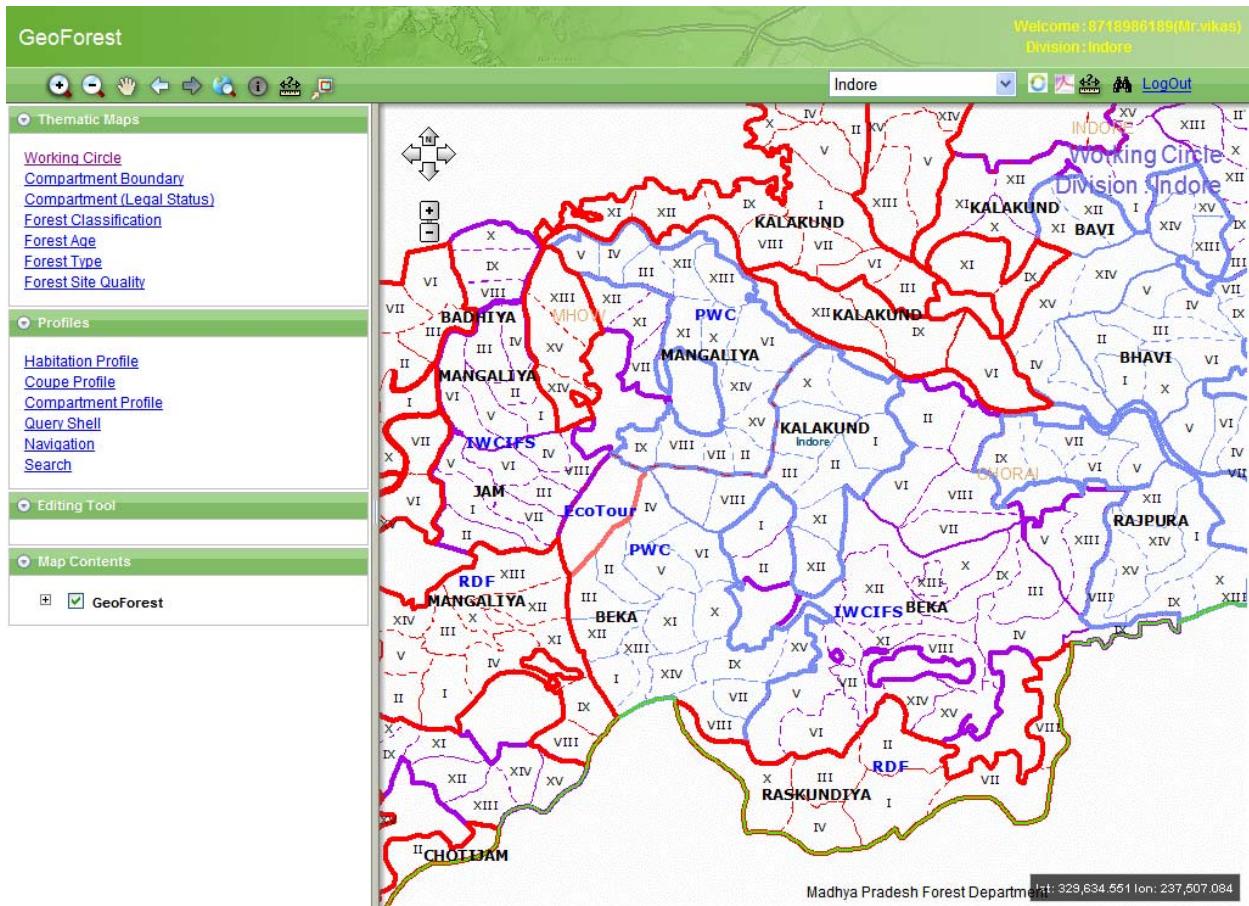
- Sector-specific compilation of thematic maps.
- Special tool bar for map viewing / editing.
- Support for zoom, pan and map composition.
- Built-in traverse-aid and distance computation.
- Query-based map output.
- MIS for Attribute Data Management/ Reports
- Printing of Maps

Salient Features

- Assessment of forest area including wild life sanctuaries/national parks
- Identification of potential forest planning and management areas
- Controlling Demarcation of Forests
- Analyze spread species on forest area
- Web enabled updation model for attribute data updation

Impact/Benefits

- Facilitates efficient and effective tool for planning rural road connectivity to habitations.
- Helps in better management of facilities
- Helps achieve transparency and easiness in planning and monitoring processes.
- Efficient updation of thematic maps
- Offers scientific approach to rural roads planning.



The snapshots of some other applications and services are given below:-

1. Forest Land Record Management System

Welcome to National Forest Land Management Portal. State Forest Departments can use the Portal to manage the records of their forest land in a efficient and effective manner. The functionality of the system is as under:

1. Master Data Management of Administrative Structure: Districts, Tehsils, Revenue Circles, Patwari Halkas & Villages, Khasra
2. Master Data Management of Departmental Structure: Forest Circles, Forest Divisions, Forest Blocks
3. Registration of Forest Blocks - Names, Area, Forest Block Type, Notification Status
4. History of formation of the Forest Blocks including the villages, khasras, gazet notification & all other related notifications
5. Centralized Repository of all Gazet Notifications related to the forest land for online dissemination.

For more details please click here to download the help document/user Manual

SNO	Gazette Number	Gazette Date	Issued By	Pages In English	Pages In Hindi	Upload Pages
1	003 ANUPUR PF 4035-3219-10-69	23/07/1969	Govt. of MP	0	7	View Upload
2	004 PF ANUPPUR 3690-10-69	23/07/1969	Govt. of MP	0	6	View Upload
3	005 PF 2481-1588-10-69	24/04/1969	Govt. of MP	0	6	View Upload
4	005PF Anuppur	28/11/1969	Govt. of MP	0	3	View Upload
5	006 Anuppur PF 40373224-10	23/07/1969	Govt. of MP	0	3	View Upload
6	006 RF Anuppur	29/11/1933	Rewa Riyasat	0	2	View Upload
7	007 Anupur PF 275-9976-10-68	10/01/1969	Govt. of MP	0	5	View Upload
8	007 RF Anuppur	29/11/1933	Gwalior Riyasat	0	2	View Upload
9	008 Anuppur PF 8449-3659-10-69	08/12/1969	Govt. of MP	0	6	View Upload
10	008 RF Anuppur	29/11/1933	Rewa Riyasat	0	2	View Upload
11	008-South Seoni	10/01/1969	Govt. of MP	0	0	View Upload
12	009 Anuppur PF 8333-10-2-70	29/11/1970	Govt. of MP	0	2	View Upload
13	009-South Seoni	28/08/1970	Govt. of MP	0	0	View Upload
14	010 Anuppur PF 532-10(2)71	09/02/1971	Govt. of MP	0	2	View Upload
15	010-South Seoni	04/07/1970	Govt. of MP	0	0	View Upload
16	011 Anuppur PF, F-5-48-87-10-3	13/10/1987	Govt. of MP	0	5	View Upload
17	011-South Seoni	30/12/1977	Govt. of MP	0	0	View Upload
18	012 Anuppur PF , F-5-4-81-10-3	18/03/1992	Govt. of MP	0	1	View Upload
19	013 Anuppur PF 5-83-94-10-3	30/11/1994	Govt. of MP	0	2	View Upload
20	014 Anuppur PF F-5-49-96-10-3	27/02/1996	Govt. of MP	0	2	View Upload
21	02	31/05/1974	Govt. of MP	0	8	View Upload
22	037 RF Anuppur	01/07/2011	Rewa Riyasat	0	2	View Upload
23	038 RF Anuppur	01/07/1940	Rewa Riyasat	0	3	View Upload
24	1	29/08/1985	Govt. of MP	8	8	View Upload
25	1-4-1988	01/04/1988	Govt. of MP	0	1	View Upload
26	10	09/03/2007	Govt. of MP	4	4	View Upload

2. Forest Working Plan Management System

 Madhya Pradesh Forest Department

Switch to: ...Select... Go
User: Guest Log Out

वन विभाग की कार्य आयोजनाएँ

Working Plan of M.P.Forest Department
मध्य प्रदेश विभाग की कार्य आयोजनाओं का विवरण

Circle : Bhopal

Sr No.	Circle Name	S.No.	Division Name	WPO Name	Plan Period From	Plan Period To	View Content	View Map
1	Bhopal	1	Bhopal	श्री पी. के. सिंह	2009-10	2019-20	Content	Map
		2	Raisen	श्री धी. पी. गुप्ता	2003-04	2017-18	Content	Map
		3	Raisen		2000-01	2014-15	Content	Map
		4	Raisen	श्री आगवत सिंह	2013-14	2021-22	Content	Map
		5	Obedullahganj	डॉ. हेमवती वर्मन	2006-07	2015-16	Content	Map
		6	Sehore	डॉ. हेमवती वर्मन	2006-07	2015-16	Content	Map
		7	Sehore		2010-11	2011-12	Content	Map
		8	Vidisha	श्री एस. डी. पटेंरिया	2008-09	2017-18	Content	Map
		9	Rajgarh	श्री विश्वनाथ एस. होतगी, श्री एन. के. दोहरे	2008-09	2017-18	Content	Map

 FOREST PLANNING & GEO MAPPING SYSTEM

- [Divisionwise WP & Maps](#)
- [Forest Boundaries](#)
- [Forest Stock Maps](#)
- [Remote Sensing \(FCC Maps\)](#)
- [Geo Spatial Query System](#)
- [Vegetation Monitoring System](#)
- [Integrated Geomapping & Works Monitoring System](#)
- [Bio-Diversity Characterization Map \(Courtesy IIRS, Dehradun\)](#)
- [Apollo Server](#)

3. Forest Land Diversion Management System

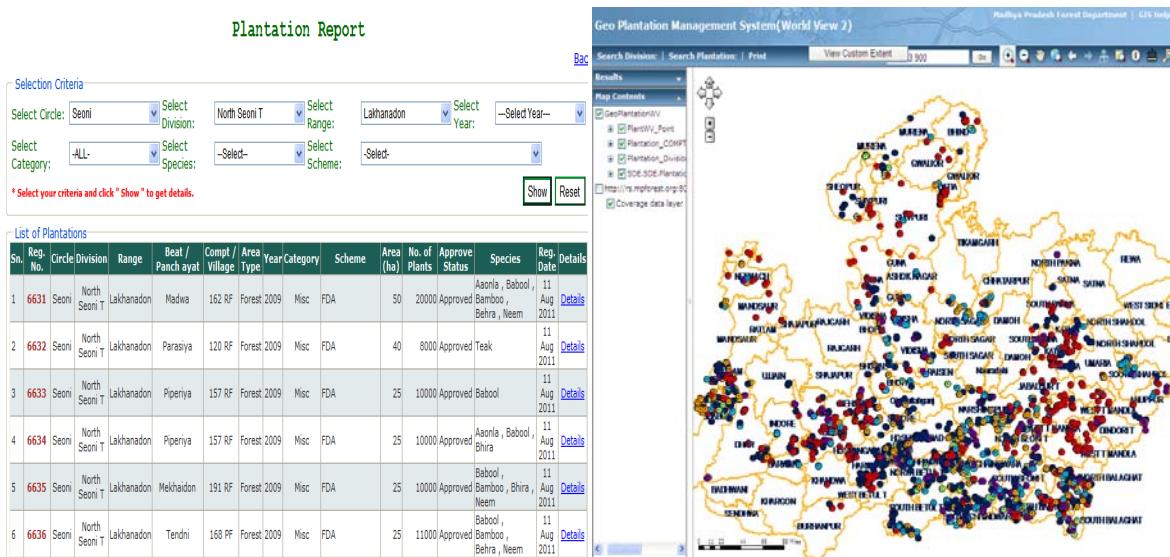
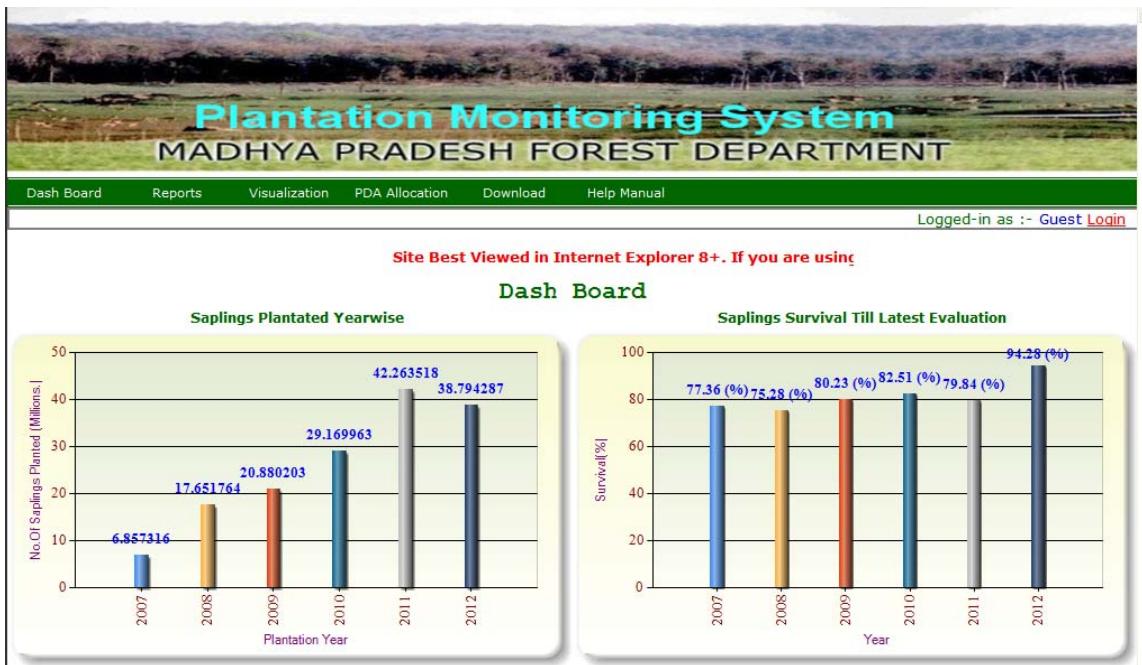
The screenshot shows the login interface for the Forest Land Diversion Management System. At the top, there is a blue header bar with the text "वनभूमि व्यपवर्तन प्रबंधन प्रणाली" (Forest Land Diversion Management System) in Hindi. Below the header is a logo of the Government of India. On the right side of the header, there are links for "New Member" and "Existing Member". A "USER HELP MANUAL" link is located at the top right of the main content area. The main form is titled "Login Here" and contains fields for "Name" (in Hindi and English), "Password" (in Hindi and English), and "Login" and "Forgot Password" buttons. The entire page has a light blue background.

Application Designed and Developed By Madhya Pradesh Forest Department

4. Audit Management System

The screenshot shows the homepage of the Audit Management System. At the top, there is a banner with the text "Madhya Pradesh Forest Department" and the "Audit Management System". The banner also displays the user information: "User : Guest", "Authority : Guest", and a "Login" button. Below the banner, there are five icons representing different audit-related concepts: a graph with coins, a balance scale, a book, two people working on a laptop, and a calculator with coins. At the bottom of the page, there is a footer note: "Website Developed and Maintained by [Madhya Pradesh Forest Department](#) | Best Viewed in 1024 x 768 IE 8.0+".

5. Plantation Monitoring System



Consultancy



Madhya Pradesh Forest Department

[Home](#)



Collaboration

 Andhra Pradesh	 Kerala	 MPRLP Impact Data Collection System
 Gujurat	 Maharashtra	 IWMP
 Haryana	 Uttar Pradesh	 IWMS
 Jammu & Kashmir	 DCP	 NVDA
 Karnataka	 Mahatama Gandhi National Rural Employment Guarantee Act	 On-Line SPV Monitoring System
 Rajasthan	 Tripura	 EEAT Monitoring System for NGC

Vegetation and Land Use Monitoring System



Government of India

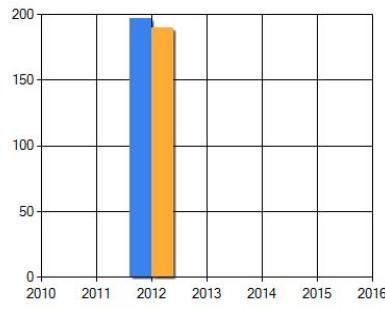
Ministry of Rural Development

Department of Land Resources

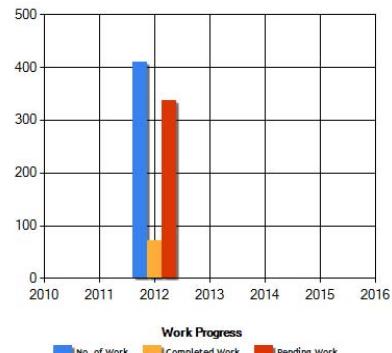
Integrated Watershed Management Programme

New Delhi, India

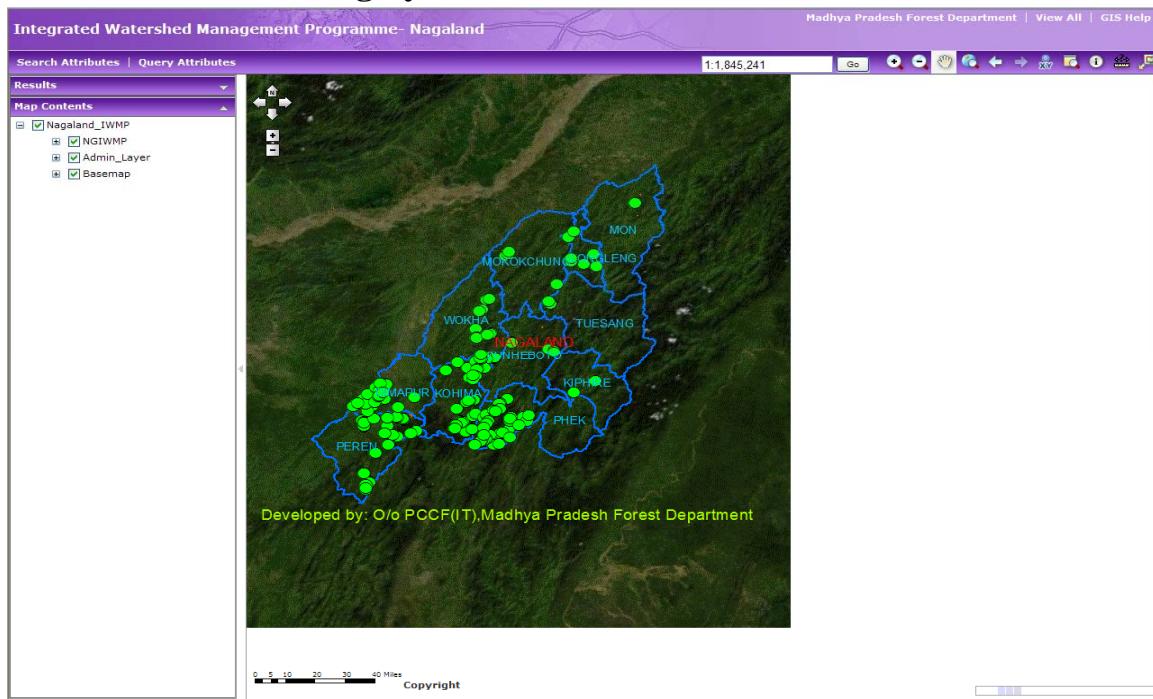
Financial Chart



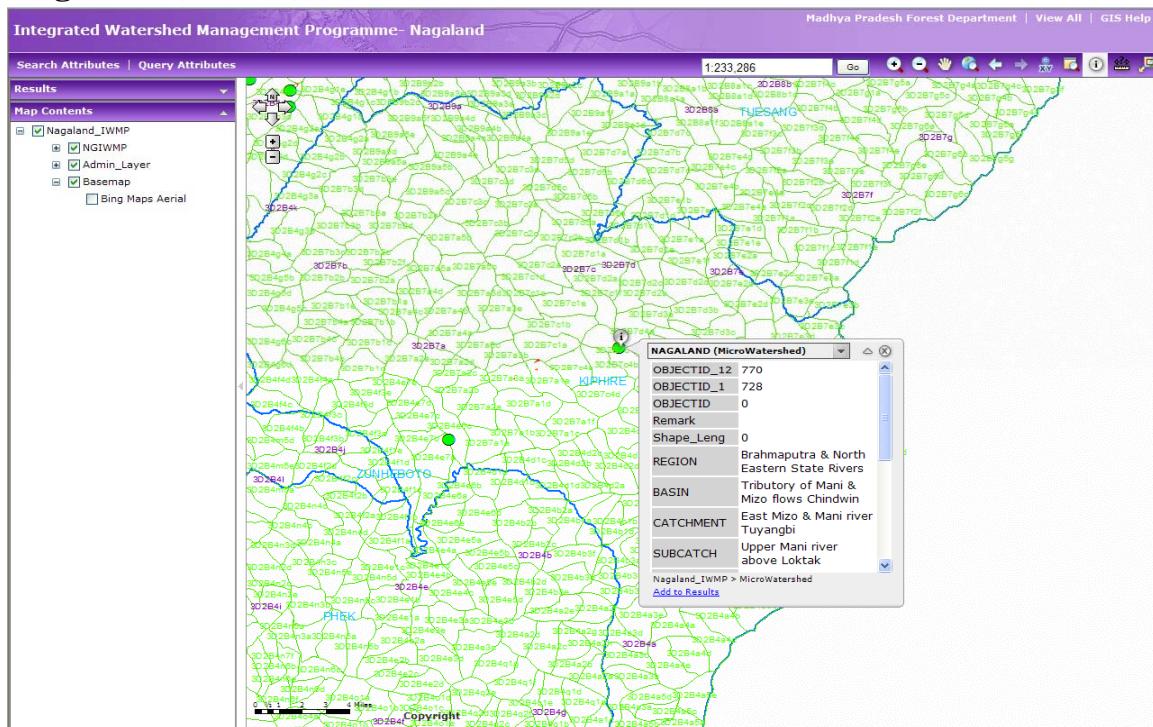
Geomapping Work Status



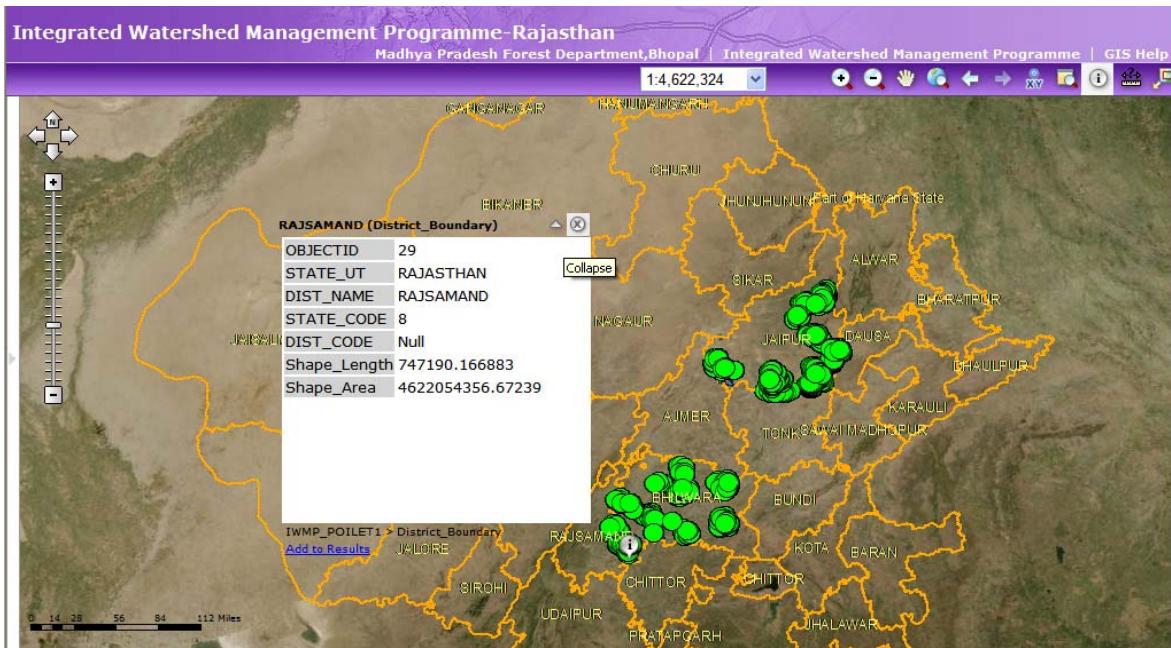
Watershed Monitoring System



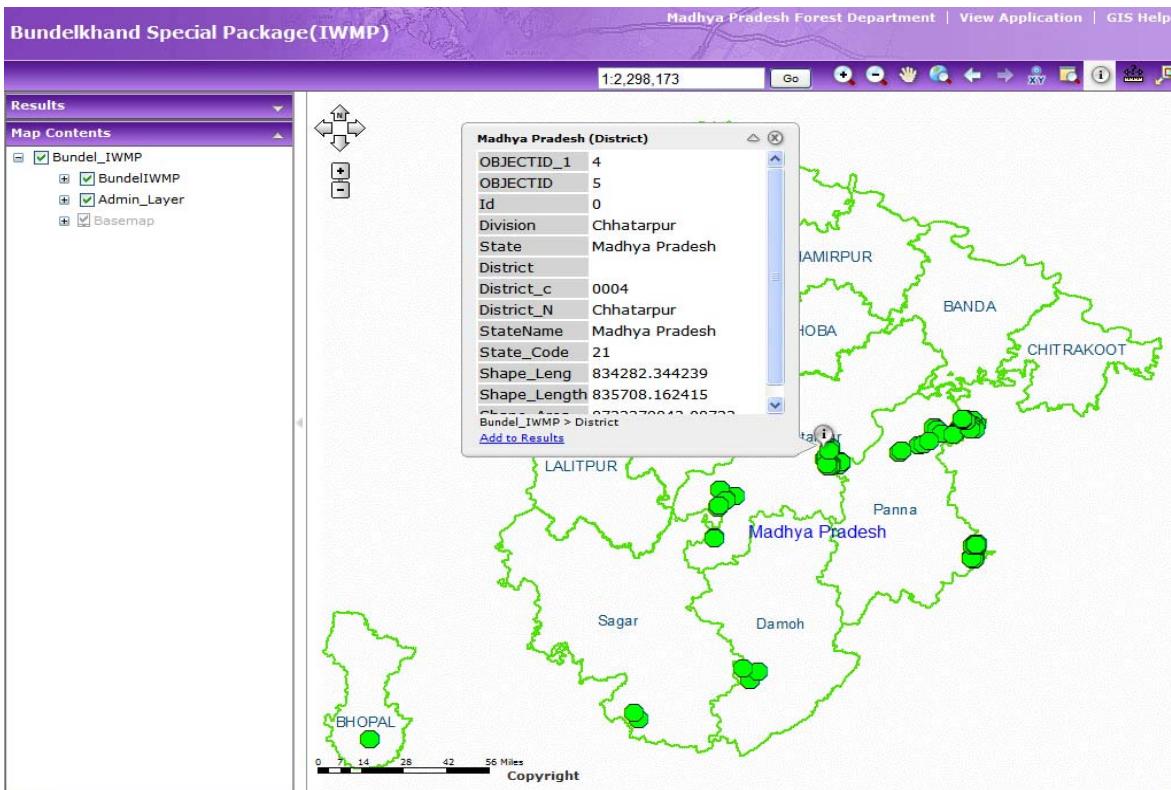
Nagaland (IWMP)



Rajasthan (IWMP)



Bundelkhand Special Package (IWMP)

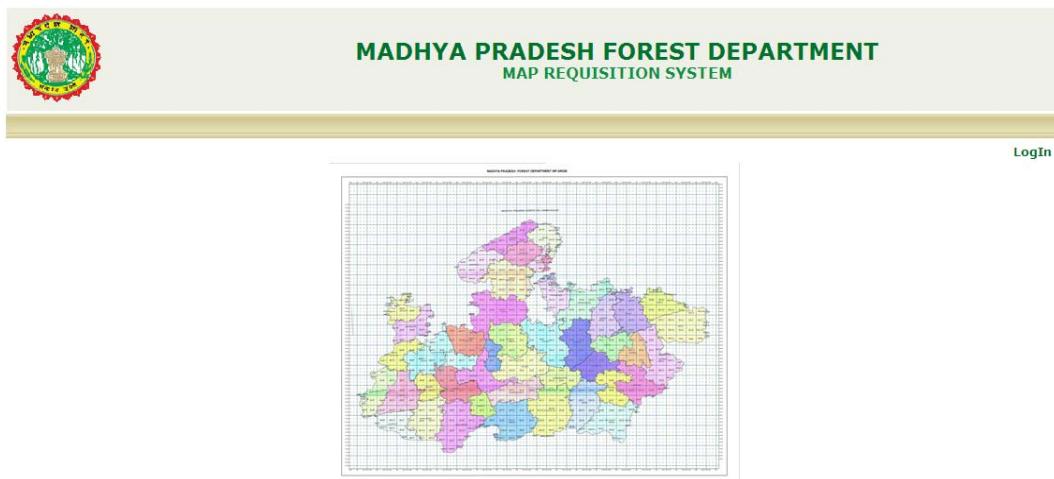


Forest Services

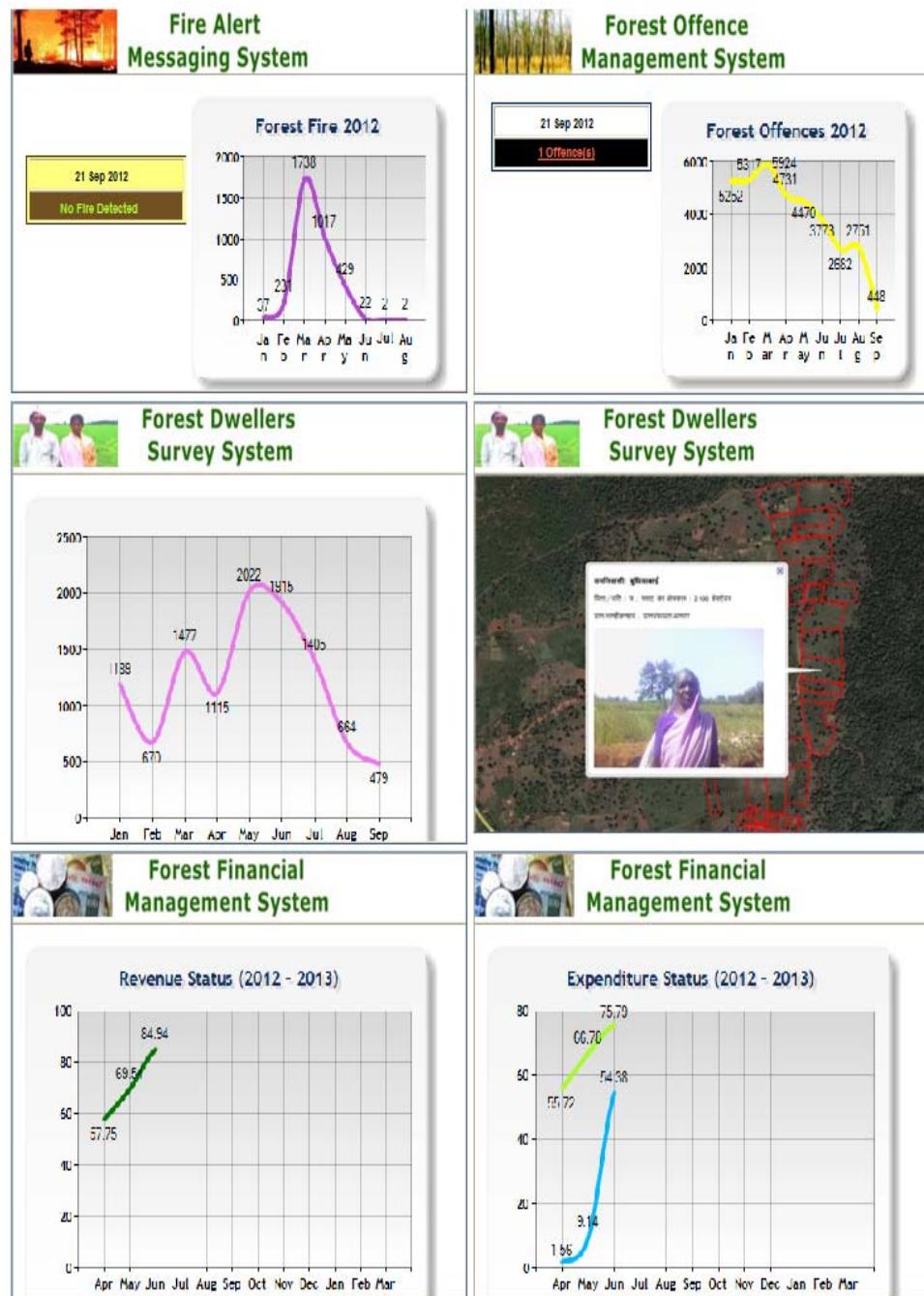
- **Forest Mail Service**



- **Digital Map Delivery System**



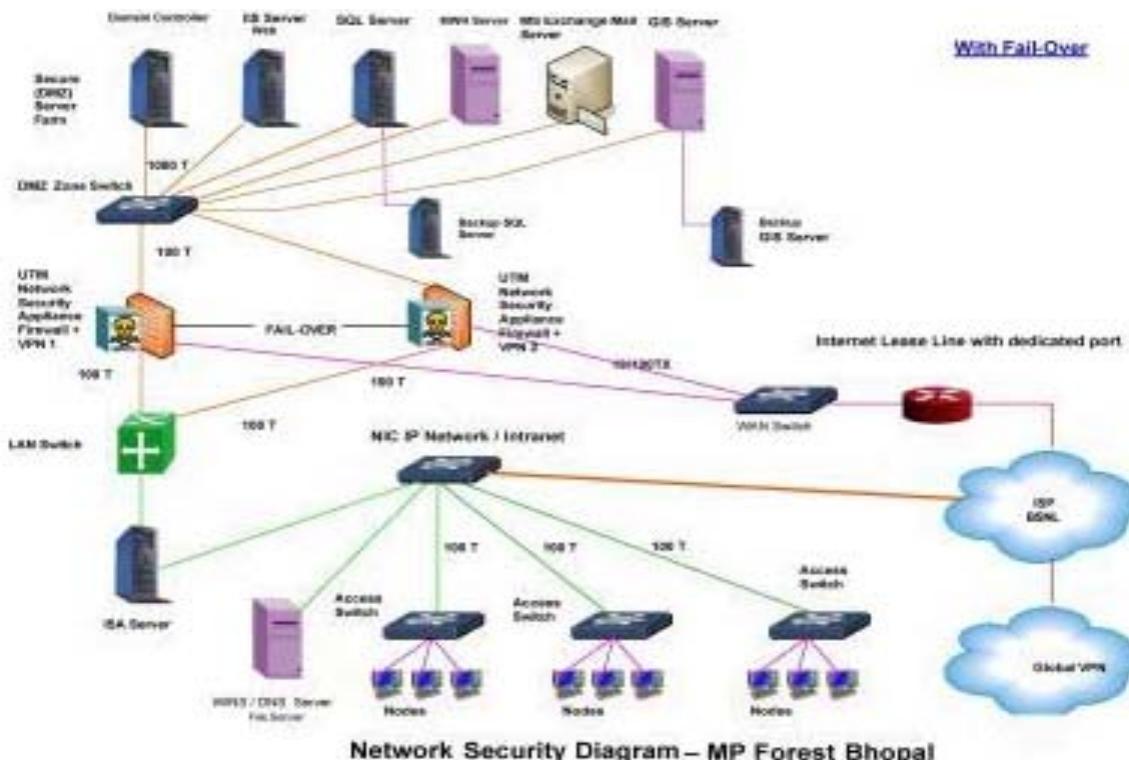
- Dash Board Services



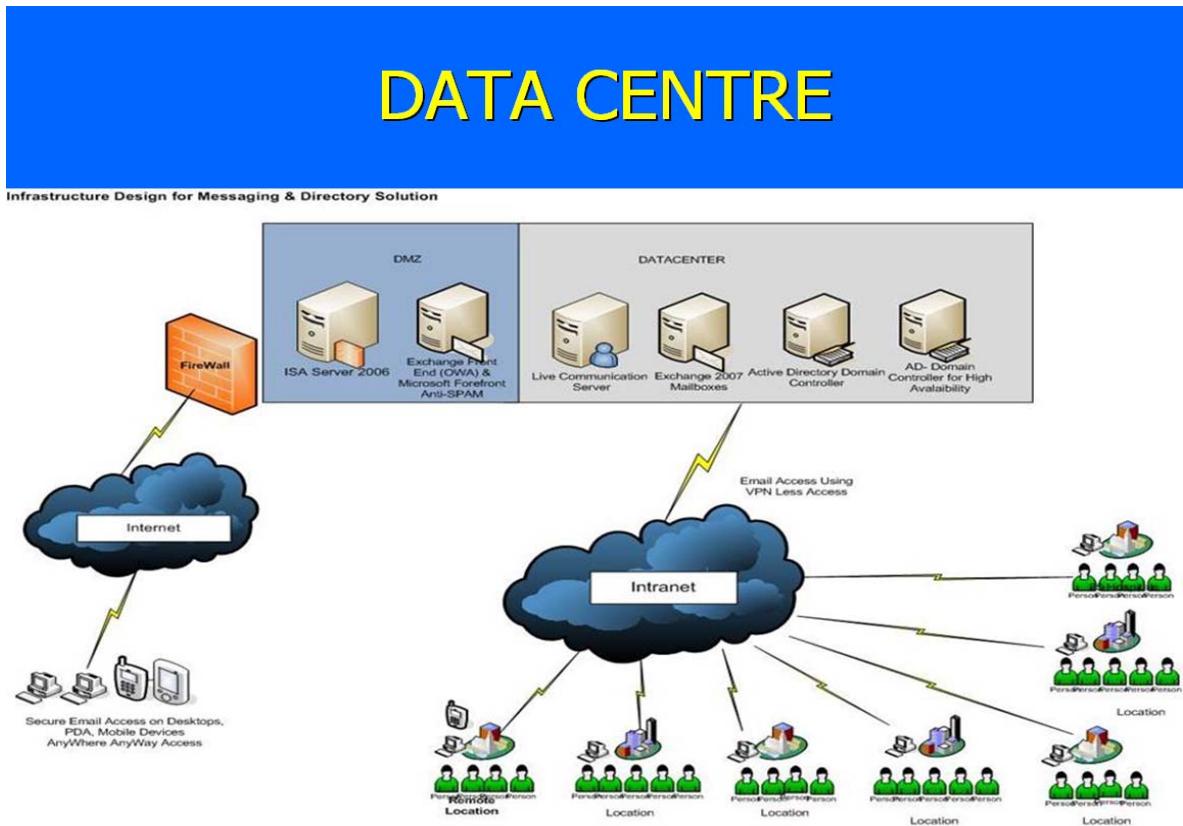
Chapter 5: Data Center/Server Farm

MPFD uses various technologies therefore these have to be integrated in such a manner that they work in tandem and provide a seamless environment which is secure and is easy to operate and maintain. The best solution that works well in such a scenario is largely focused on creating web based applications framework which will suit the state government's broad vision of information at a mouse click for the stakeholders.

Web based applications are generally made in client server architecture. The remote client logs on to a server in a data center through internet, intranet or VPN and do his/her business on workflows. In case of MPFD all circle level divisional level and range level offices are remote clients while server is at HQs. The group of servers in the HQs constitutes the Data Center. There are more than 900 remote clients of the rank of Range Officers and above who use the various applications and workflows in order to carry out their function.



In view of the above, the **Connected Architecture** framework has been used for the MPFD Data Center with an objective to enable a single window access to information and services being provided by various functionaries of the department and to establish a collaborated environment within the department. Existing employees and other stakeholders are now able to find updated information i.e. guidelines, procedures, policies and contacts etc. A server farm has been created connecting various role based servers (GIS, Web, Application, Database, and Mail Messaging, Workflow etc) to provide integrated accessibility to the departmental users.

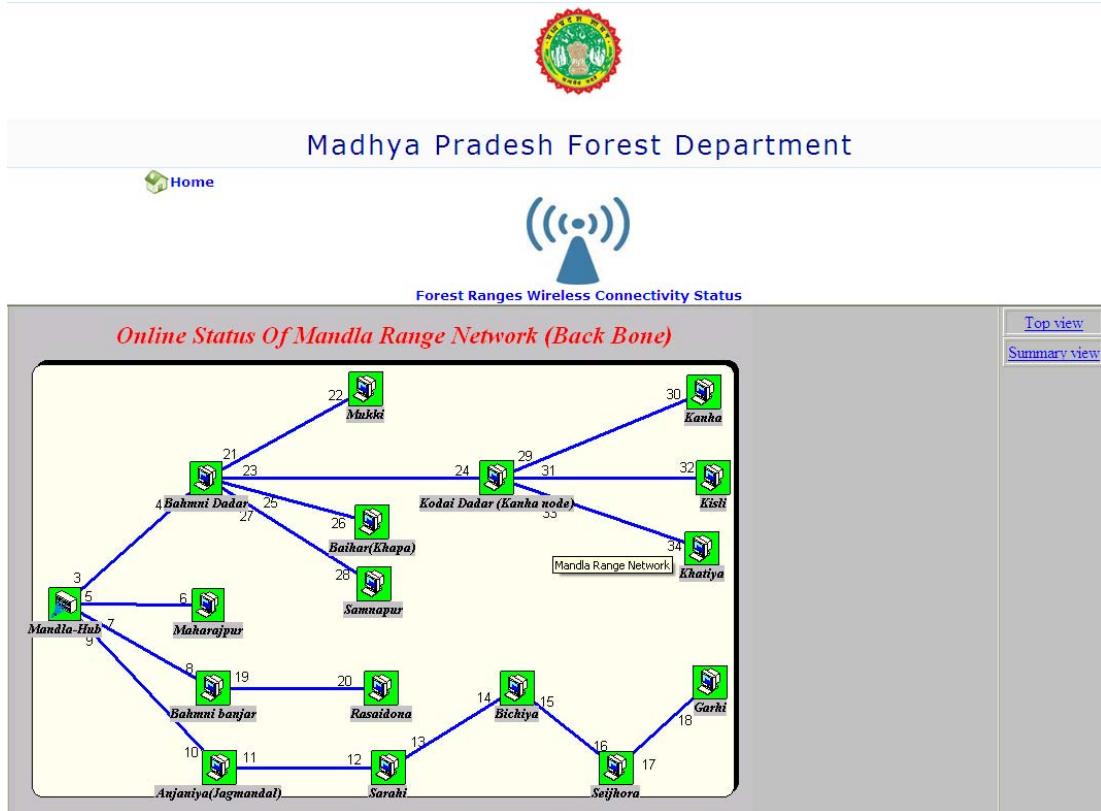


Chapter 6: Communication Network

In the wake of the decision that MPFD will adopt client server architecture to operate its web based applications and also that data should be captured where it originates, it is essential that all the remote users i.e. all the functionaries have computers/ hand held devices or must have access to a computer which is connected to Data Center. The choice with the MPFD was to either build its own VPN i.e. virtual private network or use the existing services of an ISP. MPFD chose the second option as first one is not only very expensive but would also take long time to become operational. However the option selected by MPFD had some limitations as no ISP provides complete connectivity in forest areas. A quick survey was conducted and it was found that BSNL provides connectivity in almost 60% of the villages in forests and due to the policy of the central government they are spreading their network very fast and have prospective plan to cover the entire Madhya Pradesh in a year.



Therefore a conscious decision was taken to establish a computer based communication network using BSNL's services. It was also decided to go in for different kind of technology to provide connectivity in such remote locations where there is no chance of any ISP to provide connectivity in future. Consequently MPFD signed a MoU with BSNL for connectivity at a highly concessional rate. Also Canopy Technology of Motorola was selected to provide last mile connectivity in the left over areas.

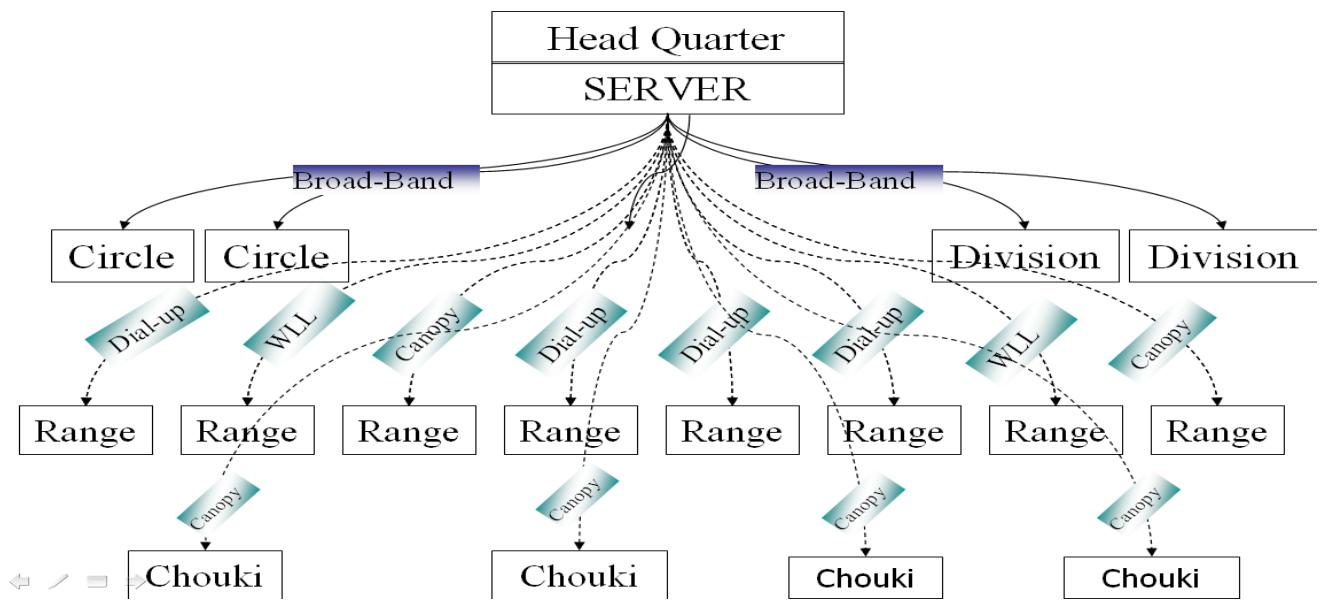


In all there are 43 CF level 94 Dy.CF level 157 ACF level and 602 Range levels of offices of MPFD spread all over the state. To establish a complete communication network from these offices with HQs (through State Data Center) every office requires a computer a telephone line and internet connectivity. This is a stupendous job and required cabinet sanction and huge money. Therefore the implementation was phased out.

In first phase all territorial and wild life offices which cover almost 80% of the MPFD offices were covered in the financial year 2008-09 while the rest were covered in next financial year after due sanction.

MPFD has many offices of different levels mostly at district HQ. To establish a network among these offices and to provide connectivity in these offices, MPFD innovatively used non-exchange lines of BSNL which are also called dead copper lines which were available at down to earth prices. NIC provided the basic internet and Nic-Net facility free of cost therefore the whole communication network was ready in a short span of time and at a cost which no one could imagine.

Computer Based Virtual Private Network (VPN)



Chapter 7: Capacity Building

MPFD undertook a big ICT initiative to automate all its processes. In order to attempt and succeed such a mammoth task, which involves more than 27000 employees, it is necessary to build in-house capacities to improve the skills of the manpower.

The in-house capacity building strategy was designed in such a manner so that it was easy to implement using best tools and techniques, and that HR is capable to absorb and sustain the IT applications and automated environment in a natural way. **The underlying principal was to provide them alternative working environment which lightens their work load and saves them time and energy and which also improves their performance.**

For such a stupendous exercise, the training need analysis was done.

Training needs for various categories of the HR were identified based upon the type of the work and the role assigned to them in ICT initiatives.



The following groups were formed:

- Personals of IT Cell
- Master Trainers to act as mentors for staff
- Planning Monitoring and Supervisory staff
- Executive and Ministerial staff



TRAINING FACILITY

Following training facilities were created for various groups of HR:

- IT Lab at HQ for training of personals of IT Cell and Master Trainers. IT Lab was set up using latest state of art technology and is fully equipped to accommodate 30 trainees.
- 16 Regional Centers for Monitoring and Supervisory Staff. Training in these centers is given from HQ directly and in live interactive environment through the Video Conference System (VCS) which has been specifically designed and implemented for the purpose. The VCS can accommodate up to 480 officers in a single batch of training.
- 54 Satellite Interactive Terminals (SITs) at Divisional level were established. These centers were established using EDUSAT facility of Indian Space Research Organisation (ISRO). Teaching in these SITs is also centralised from HQ for the purpose of uniformity and utilisation of best resource. Training through these SITs is live and interactive. All front line executive and ministerial staff receives training in these SITs. The EDUSAT facility can accommodate up to 5000 staff in one batch. This ensured quick ICT capacity building of the huge number of staff.

INFORMATION TECHNOLOGY LAB

In IT Lab IT professionals from industry and various institutions have already imparted suitable training especially to staff of the IT Cell and master trainers on the following to enable them to take care of various technical requirements of Forest Department:

- Programming best practices under .NET with mobile functionality
- SQL Server Databases and its tools
- Project Management
- Network Maintenance
- Geographical Information System

Similarly training on use of hardware and data collection devices i.e. GPS facilitated PDAs to front line staff and roll out training on operationalisation of various applications to executive and ministerial staff is imparted. Skill improvement programs are a regular affair as and when applications are ready either for testing or for operationalisation.

Details of role of various stakeholders:

There were a number of players and stakeholders involved that needed to be taken along. The following were probably right on the core:

- Forest Field Staff
- Middle level Managers.
- Policy Makers.
- Media and Press.
- Joint Forest Management Committees (JFMCs)
- Public.



The content and service delivery to these target groups is as follows:

1. Forest Field Staff: Ease in reporting, saving of time, on the spot data entry, electronically tagged follow-up, increase in efficiency, better access to data and better understanding of their works and responsibilities. Training in use of modern technology even in remote areas.
2. Middle Level Managers: Quick on the desk access to live data, better tools for objective and informed decision making, electronically tagged follow-up, quicker data updation and analysis.
3. Policy Makers: Holistic view of live data at finger tips on live dash boards, on the fly reporting, comprehensive access to structured data base for in-depth analysis.
4. JFMC and Public: Training in use of modern technology in remote areas, products like digital maps, free access to data on web.
5. Media and Press: Live data availability with dynamic web content with structured presentation. This is being widely used by media to voice environmental concerns which in turn helps department to consolidate its stand for greater attention of policy and decision makers.

All these stakeholders had different functions, different roles and above all different perspective towards use of technology. So there was bound to be resistance and there was bound to be some reluctance. It was natural.

The resistance was basically the discomfort of leaving the tried and tested traditional methods and moving on to new and innovative ones that needed the travails of going through a certain learning curve in the successful adoption of these new technologies. Then there was reluctance to even try the new techniques and make way for a new work culture. There were various issues – some were purely egoistic while others were based on genuine concerns. Concerns, that the ‘sound’ system of forest management that had evolved after a painful march through the pre and post independence era may suddenly be lost to the new ways and suddenly the forest manager may be left facing irreversible harm. There was also the question of finances – the adoption of new technologies was always going to be top-heavy when it came to cost and a lot of conviction is required where money has a role. This was restricted not only to resistance and reluctance within the department and but even outside from a number of forces inside the government.

The state finance department and the general administration department were two of the most important departments that needed to be taken along as without the active support of both these departments it wasn't going to be possible to inch ahead. And obviously there was going to be the central government. A lot of coaxing and coercing based on sound reasoning and sporadic results carved out of meager and threadbare resources laid the basic foundation to the trust that eventually rose on the horizon like the sun does every morning even after the darkest of the nights.



Then there was also the resistance to change and to adoption of new technology – and that was overcome by making applications simple which saves time and energy of user and extensive interactive trainings provided to forest personnel at all levels. For this different methods were used – trainings at different centres at the state and district level apart from on-the-spot training through EDUSAT and video conferencing.

Chapter 8: Impact

Internal Impact

Apart from saving a lot of time, effort and resources that have largely gone undocumented, there have been a lot of tangible benefits as well that have resulted from these initiatives.

Informed Decisions

The biggest impact of these impacts has been quite subtle – in fact only the more sensitive inside the department have been able to feel it – as one top officer voiced these feelings when he said ‘now we are able to take more informed decisions’ resulting in a lot of cost, effort and time saving.

Enhanced Transparency and Accountability

Most of the core business processes have been automated and made online therefore these processes have become transparent. The element of capturing the data at source by the responsible executive has introduced accountability. The introduction of satellite based monitoring of works using HRSI readily explains the quality and quantity of works thereby compelling the functionaries to perform well. It has also helped superiors to evaluate performance of the executive. Now no one can deny the factual situation. Those who ventured have been penalized. So the element of fear is creating a behavioral metamorphosis in the work force.

Efficient Delivery

There has been a marked improvement in the delivery mechanism which has now become service and people oriented. Whether it is forest fire alerts to the forest dwellers or delivery of title deeds to tribal under the Forest Right Act or digital map delivery to public or management alerts to front line staff or Tiger alerts in critical wild life habitats or visual dash board services on forestry affairs to public and media all have transformed forestry sector from a closed and compartmentalized into a completely open and mainframe development department which is caring and sharing peoples concern on forests, environment and climate change.

Paradigm Shift in Working Culture

Most of the users are frontline departmental staffs who work in remote forest areas with very few facilities in very harsh conditions. The ICT initiatives not only has increased efficiency, saves time , provides clean environment, improves their health ,keeps them cheerful, encourages them to take initiatives and informed decisions but also provides them with free time which they can now use more productively. The interactions of the staff with higher officers of different levels have increased to a level where they can feel comfortable and communicate official and personal issues easily to the higher ups without a gap. The work force now readily acts as a team.

Convergence of Departments and Resources

The project has created a new workforce structure and brought judicious redeployment of man power and other vital resources. It has generated a new inter and intra departmental relationship paving the way for lateral integration for convergence of departmental resources. Departments have a tendency to work in isolation and hesitate to share their resources. However this project facilitated the pooling of the resources to extend different services to all the stakeholders. Thus a greater fraternity and bonding with in the departments has been seen.

The governance as a whole has become participatory, interactive, transparent, responsive, and accountable and service oriented thereby beginning of a new era in realm of Good Governance.

External Impact

There has been clear external impact too – impact which compelled many ministries of the Govt. of India and other states of the country to follow the suite on the lines of MPFD. Many central government departments of various ministries (like the MoEF, MoRD, MNRE) and many states like Gujarat, Kerala, Maharashtra, Jharkhand, Uttar Pradesh, Jammu and Kashmir Haryana and Himachal Pradesh showed keen interest and MPFD is doing their projects and providing them assistance to develop their own system. Tribal Welfare Department, Mining Department, Rural Livelihood Mission, MPSREGC and Rajeev Gandhi watershed mission also approached MPFD with requests for help in the use of these technologies. What is more, MPFD is now perceived as a kind of leader amongst government departments so far as the use of modern technology for

good governance is concerned because the project has greatly enhanced the accountability of management in delivery of important public service.

MPFD is being called by leading institutions both in public and private sector to share its experience with them. Such institutions include IGNFA IIFM TERI WIPRO INFOSYS and many state government institutes. MPFD team leader on invitation gave presentations to few chief secretaries, cabinet secretary ministers of many states and also to Mr. Sam Pitroda Advisor to PM who showed keen interest to include MPFD ICT initiatives in the Knowledge Network.

DoPT has funded MP School of Good Governance to document the best practices adopted by MPFD. Even National Institute of Smart Governance has started studying MPFD initiatives as a case study.

Chapter 9: Highlights of the Initiative

In House Endeavour

The ICT initiative for good governance is totally an in house effort which makes it different from other such initiatives which are consultant and vendor driven. The endeavor is need driven and a unique example of innovative and original use of technology. It is a case of departmental passion to adopt technology for bringing efficiency in governing style of a living and dynamic resource such as forests and wild life which has assumed greater significance in present context due to the ever spreading impact of global warming.

Integration of various technologies:

Only the prevailing best practices of the IT industry have been adopted in the project which innovatively integrates various technologies. The project represents a unique style of monitoring systems for good governance. Following technologies have been integrated into a single frame to serve data in a visualization mode to make monitoring an effective tool even for a lay man.

- Space Technology
- GIS
- GPS
- Image Processing
- Mobile Computing
- Communication Technology



GPS enabled PDAs (Personal Digital Assistant)

Probably the best ever tool which has been introduced for governance in the country is GPS enabled PDAs. And MPFD is the first department to introduce it in the year 2008 itself. PDA is a smart phone, can host applications, takes pictures and videos, assists in navigation, can capture real time data with geo-spatial and attribute details, and can track staff and work locations and many more functions which are very essential for good governance. In fact PDAs have set the

environment for mobile governance which today has become a most sought after system of governance after e-governance.

Real Time Monitoring

Introduction of the most spectacular technological intervention is the digital wall laden “**The Strategic Planning Implementation Monitoring and Command Room**” which acts as an eye in the sky. This intervention facilitates surveillance of key works and activities of the frontline staff engaged in important assignments. In Command Room all the land based activities can be watched and periodically monitored. The facility can even detect and monitor construction of a small well on the ground on a time line using change detection technique of image processing using satellite imageries. This has created a new dimension in governance as it has brought the element of fear among the various stake holders that they themselves and their activities are being watched from the sky. They now appreciate the divine ordain that “an eye in the sky never lies” and are compelled to do their task in right perspective.

PDA based Applications

Most of the applications developed in house are PDA based. PDA based applications capture real time data which may be served on line in real time itself. This eliminates the human discretion to manipulate data. Input forms of all the applications are in Unicode therefore it facilitates easy comprehension by the staff anywhere in the country.

Web-based Workflows

Core activities of the department have been reformed in shape of workflow automation. Most of the practices are based on web based workflows. It has brought about accountability, transparency and efficiency of individuals for management and monitoring.

Spatial Database

All the maps of forest areas have been digitized geo-referenced and seamless integrated into the geo-spatial database which has been hosted on centralized GIS Server. The spatial data is published on web using GIS Map Services. A geo-spatial query system has been developed for querying this data to facilitate informed decision making and effective planning and management of forests and wildlife. **Only MPFD among all the forest departments in the country has accomplished this job which involves many technical complexities.**

Forest Network

MPFD is the only department not only in the MP but in the whole country where even its block level offices have been networked with head quarter through a hybrid VPN involving last mile connectivity using wireless broadband of 8mbps. This is important from the fact that Forest VPN came much before MPSWAN which is yet not fully functional in the state. **This speaks of the technical capabilities of the department.** All this could be achieved with the help of NIC and indigenous knowledge of the departmental officers.

Green Energy

MPFD is pursuing the policy of pollution less environment. Therefore it has introduced the use of solar energy to run its computers and communication network i.e. for radio towers raised in forests. MNRE had been kind enough to provide MPFD a hefty subsidy to help us in our endeavor. **MPFD developed another innovative IT tool which monitors live the status of solar systems in remote areas. This tool has been adopted by MNRE in its fresh guidelines.**

Social Audit

Central repository of data served in a visualization mode has augmented social audit. People now appreciate and acknowledge the fact that MPFD can now boast of state level centralized common databases of extremely important figures that is not only available online but is live as well with on-the-spot data entry of newly generated data. The information is displayed in visual form so that even a common man can also access and understand it. The decision support systems and query systems based on these databases and available online on-the-fly real time

informed decision making coupled with feedback mechanism has made people interaction possible. This has enhanced transparent monitoring an every day activity to all the stakeholders.

Cost Effective

Applications are designed, developed, implemented and maintained by in-house capacity. The existing infrastructure and resources are used in development and implementation of various applications. MPFD has used free resources of various National and International agencies like NIC, ISRO, NRSC, University of Maryland (USA), Google Maps etc. thereby making the whole effort cost effective. Even the operationalisation and maintenance is cost effective as all is being done in house. The automation and business process engineering has automated the key processes of the department thereby saving precious material and financial resources. The ICT initiatives have facilitated the department to deploy its financial and manpower resources more judiciously and in a cost effective manner.

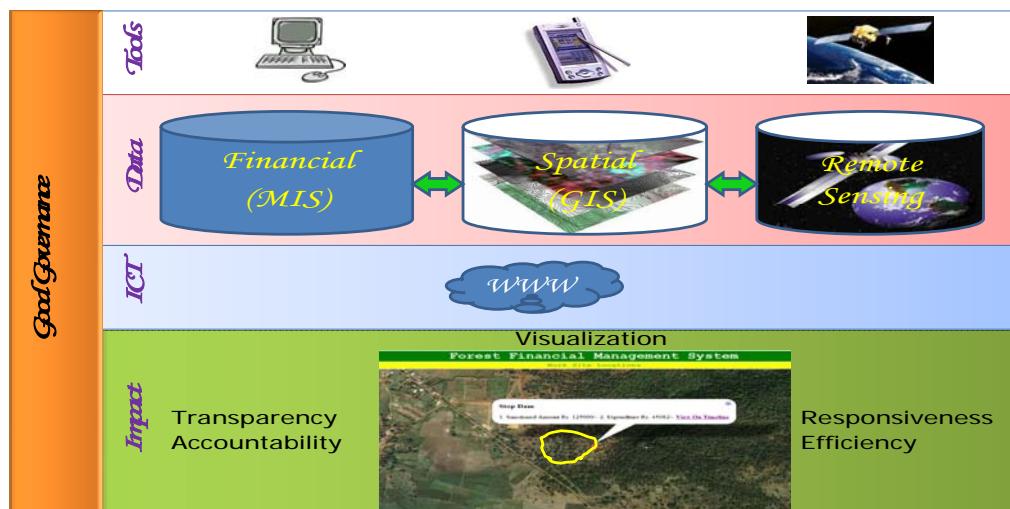
Chapter 10: Awards and Recognition

The different components of the initiative have bagged a number of awards as detailed below:

Application	Year	Award
GIS & RS based Decentralised Planning & Monitoring System	2013	Geo Spatial World Award
Geo Forest	2012	Map-IT Award (Madhya Pradesh Government)
Integrated works and financial management System	2010	CSI Nihilent Award
m-Mantra for Forest and Wild Life Management	2010	UN GAID World Summit Award
Forest Dwellers Survey System	2010	Prime Minister award of Excellence in Administration
Forest Dwellers Survey System	2010	National e-Governance Award (Gold)
Integrated works and financial management System	2010	Map-IT Award (Madhya Pradesh Government)
m-Mantra for Forest and Wild Life Management	2010	Indian Innovation Award Gold Trophy
m-Mantra for Forest and Wild Life Management	2010	m-Billionth South Asia Award
m-Mantra for Forest and Wild Life Management	2009	NIC Web Ratna Award Gold
Forest Fire Alert Messaging System	2009	National e-Governance Award (Silver)
m-Mantra for Forest and Wild Life Management	2009	Manthan South Asia Award
Excellent work in E-Governance	2008	DataQuest e- champion Award
Forest Fire Alert Messaging System	2008	Map-IT Award (MP Government)

Chapter 11: Conclusion

What started as a small humble innovative and standalone effort in year 2008 in the form of an application named Fire Alert and Messaging System, today the initiative has risen step by step into a distinctly unique monitoring system from **m-Mantra for Forest and Wild Life Management to m-Mantra for Good Governance**. This unique concept of real time temporal and spatial monitoring system has attracted the national attention. Though the journey initially had been arduous and full of uncertainty however the sheer passion and perseverance of the lead team paid rich dividends in the end. The outcome has been so spectacular and significant that it is creating waves all around, be it IT industry or various state or central departments across the country. The concept of Good Governance is depicted below:-



MPFD has clearly emerged as pioneer and leader in developing and implementing ICT applications for good governance. The ICT application model developed by the MPFD has great potential for replication in other States. The nation is going to be benefited from these initiatives immensely as the management of the goods and services will become easier and efficient and also accessible to user groups which will bring transparency accountability and efficiency in public delivery.