

e-Governance in Forestry Sector: Strategy To Overcome Challenges

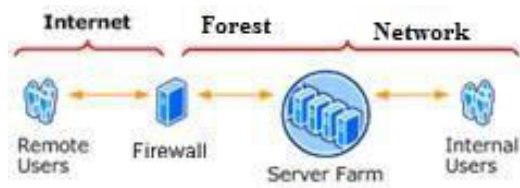
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1.0 Challenges in Forestry Sectors: Forest department due to its complex web of flora and fauna extending over 61979 sq. km, constituting nearly 20.13 % of the geographical area makes governance complex. Managing ecological balance, biodiversity conservation, climate change offset role alongside with maintaining natural resources system encompassing forest and wild life forms an arduous task. Dynamics of the ecosystem clubbed with geographically disadvantageous locations though fulfill aesthetic purpose makes management difficult.

1.1 Given the current thrust on high economic growth and development involving urbanization, industrialization, and development, pressure on precarious forest resource becomes critical. This necessitated need for constant vigil on forest resource in all its multifarious activities like Conservation, Production, Protection and Management.

1.2 To successfully achieve the mandate and for proper administration and management, the state has 14 Forest Circles constituting 61 Forest Divisions, 458 forest ranges, 1735 rounds, and 6514 beats. The administrative structure is manned by 180 IFS officers, 333 SFS officers, 936 Forest Rangers, 2792 Foresters, and 8505 Forest Guards and 10843 other employees. Thus total strength of the employees in the department at present is 23589. Gap between the limited physical infrastructure and aspiration of stakeholders for Sustainable Development needed to be bridged by 'ICT' in term of e-Governance.

2.0 Strategy: Realizing this State Government decided to undertake the project 'Integrated e-Governance', in March, 2011. The Core Activities included Forest Management, Forest Protection, Land Management, Production, Wild-life, Research & Extension, personnel management, payroll, diary dispatch, court cases management, employee accounting, meetings management etc. The department had following major business processes: Accounting and Budgeting Management System, Forest Management System, Production Management System, Protection Information Management System,



Human Resource Management System, Land Management System, Forest Plantation Management System, Research Information Management System, Protected Area Network Management System, Diary Dispatch Monitoring System, Employees Payroll System, Employees PF Monitoring System, Assembly Questions Monitoring System.

2.1 In order to overcome the challenges stated above and achieve the deliverables 3-phase strategy was contemplated.

- **Phase-I:** - LAN & WAN Connectivity to secure intranet communication,
- **Phase-II:** - Applications to be developed for in-house use, and
- **Phase-III:** Decision support system (DSS) by creating Command & Control System and GIS for Forest Monitoring and Research Development.

2.2 Currently department has completed **Phase I**, herein LAN & WAN Connectivity, Procurement of real time Data Collection Devices Like PDA/Smartphones, Creation of a Hardware and Software Infrastructure, Sharpening the ICT skills of the manpower has been secured. The project plans to use e-Governance framework to facilitate information accessibility and tracking of various Forest related activities cutting across the existing value chains, and also involving citizens, villagers and other stakeholders in the entire process. In this context, a Connected Architecture framework has been implemented for MFD with an objective to enable a single window access to information and services being provided by various functionaries.

2.3 In **Phase II**, Development of applications for in-house use is underway. The Current state assessment report reveals scope for computerization of aforementioned business processes which includes centralized repository of data for accessing through the web, digitization of forest maps, location based monitoring system, Need for Efficient Monitoring and Control of Funds, Requirement for Monitoring of Forestry and allied activities as well as communication and messaging using the IT infrastructure and the PDAs.

2.4 In **Phase III**, Decision Support System will focus on establishment of a Command & Control System with Video wall, Video Teleconferencing, Audio system for simultaneous real time interaction with field officials, National Remote Sensing Center (NRSC), Mantralaya as well as central agencies like Forest Survey of India (FSI), Maharashtra Remote Sensing Applications Centre (MRSAC), Institute of Wood Science and Technology (IWST), Indian Plywood Industries Research and Training Institute (IPIRTI), National Tiger Conservation Authority (NTCA) for quality decision making and dissemination thereof. Incidents like Forest /Wildlife offence /Forest Fire cases as well as Management issues may be dealt more effectively and on a real time basis.

2.5 The Department is also focused on an ambitious plan to implement GIS and Remote Sensing Technology across the state and utilize it to enhance and improve forestry activities in the state. Under the project MFD is developing a Web Based GIS portal with GIS dataset and interfaces for different departments. The main objective of the project is to prepare GIS data set with secured interfaces.

2.6 The geographical information, includes physical infrastructure, elevation, hydrology, or location of roads and infrastructure, to create a multi-layered representation of a site. Some proposed remote sensing methods that will be used in combination with GIS are satellite images, aerial videography and Thematic Mapper sensing.

2.7 The aforesaid project was estimated for Rupees 2507.20 Lakh vide Government Resolution dated 5th October 2011 of which Rupees 2335.71 Lakh stood spend. Submission for proposal for future strategy is underway.

3.0 Future Strategy: Forest land protection is imminent need. Regular monitoring, verification is possible by GIS and MIS data based applications on web and wherever possible on PDA/Smartphones. The following initiatives already have been taken in this regard.

(a) Digitization of Maps

(b) Procurement of 6411 PDAs/ Smartphones which is distributed to field Staff and officials to ensure data entry and real time instant messaging from the Field.

(c) Installation of VSAT at 49 remote areas.

3.1 MFD is further planning an urgent support of GIS to determine land use, land use, change in forestry (LULUCF) to understand extent of afforestation, disforestation and deforestation to get an idea of net change in forest area. This analysis by using remote sensing satellite photograph, being imperative under Intended National Determined Contribution under UNFCCC makes the task meaningful.

3.2 With this aforementioned strategy we foresee an active e-Governance GIS+MIS platform serving the diverse activities of forestry based on our understanding; with salient attributes as stated under

- Capturing the data at source of origin
- Reliability
- Easy to maintain
- Scalability to encompass information of all key stakeholders
- Secure access and rights based access to stakeholders
- Standardization and integration of applications & data
- Decision support system to analyze and decision making.