ISSN:0975-9646

Rajesh Kumar Pathak / (IJCSIT) International Journal of Computer Science and Information Technologies, Vol. 5 (2) , 2014, 1181-1184

Forest Conservation Monitoring using E-Forest Clearance for Developmental Projects in the Perspective of E-Governance

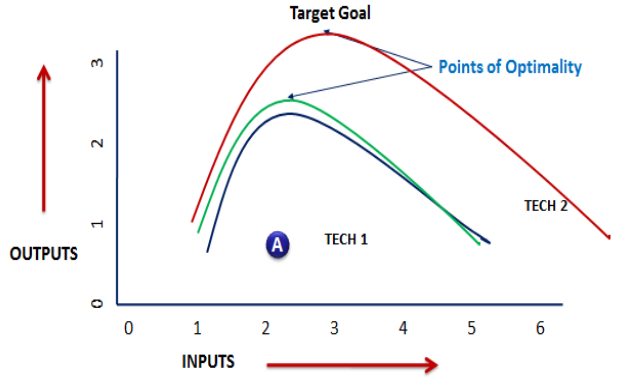
Rajesh Kumar Pathak

Forest Clearance System, National Informatics Centre
(Ministry of Communication & Information Technology),
New Delhi-110003, India

Abstract- Government of India has been taking prime initiatives and policy changes to accelerate the process of migrating from bureaucratic to citizen centric initiatives, from fragmented to integrated process, from authoritarian to service oriented participatory & democratic, from closed systems to transparent systems, manual operation to automated – in this direction e-filing of forest clearance is also a prime initiative to help release of forest clearances for developmental projects.

1. INTRODUCTION

"E-Government"[1] refers to the change management and transformation within Government to increase the optimality at which the outcomes are maximised per unit of input. Hence it refers to establishment of ideal government that is Inclusive, Integrated and Citizen Centric. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions.



The Ministry of Environment and Forest (MoEF) envisages implementing e-filing system for grant of forest clearance to transform the department into paper-less office. Few of the key features / objectives are as follows:

- Enhance efficiency, transparency & accountability
- Reduction in turnaround time per activity.
- Enhance responsiveness through workflow automation & availability of real time information.
- Enhance ease & convenience of citizens & businesses in accessing information and services.
- Achieve standardization in processes across state & regional level.

2. FOREST CLEARANCE [2]

Ministry of Environment and Forest mandates for forest clearance certificate for any developmental projects. The current clearance system involves the following manual process:

- Submission of proposal
  - Proposal submission by user agency to state forest department for seeking approval for diversion of forest land for non-forestry purposes.
- Scrutiny & processing
  - Proposal scrutiny conducted at various levels of state forest department and forest conservation division of MoEF
- Grant of in-principle (Stage-I) approval
  - Proposals are considered by REC/FAC and recommendation of FAC is sent to Hon'ble Minister for the approval. If approved, Stage-I approval is accorded by Central government.
- Funds transfer and Submission of compliance report
  - Funds transferred by user agency to Central government and Compliance to the conditions (stipulated in Stage-I approval) by user agency as required for final approval.
- Grant of Final Approval
  - Grant of approval by state/central government subject to compliance to conditions in Stage-I / in-principle approval.
- Issuance of diversion order
  - Issuance of diversion order by state government for forests land after final approval of Central Government.

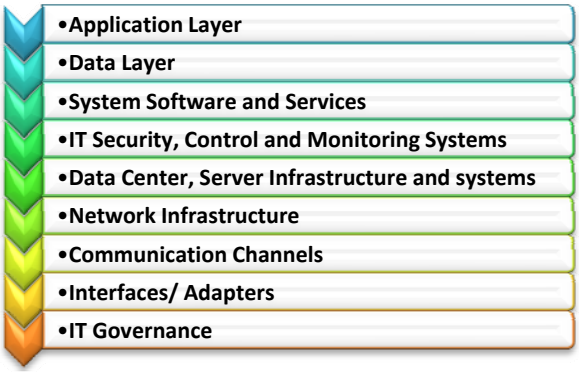
3. ISSUES IN CURRENT FOREST CLEARANCE SYSTEM

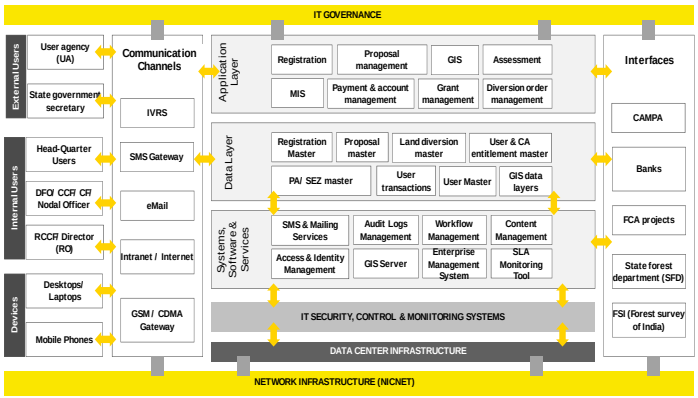
- Non-Availability of real-time information and transformation to a paper-less process.
- Long gestation period for applied applications for seeking prior approval of forest clearance for development projects.
- Manual process of forest clearance not allowing for integration with other associated process.

4. National Regulatory Framework [3][4]

5. Functional Architecture

Based on the principles of the forest clearance process the following major components are envisaged:





These components form the basis for enabling the automation and process improvements.

Figure 1: Application Module Interaction to enable Automation

6. Key Application Design Principles [1]

These define the drivers to achieve the functional requirements of the system as defined. The current proposition has been arrived based on understanding of future technology state of MoEF.

- **Interoperability**: Software solutions and hardware infrastructure should conform to the defined industry standards that promote interoperability of data, applications and technology. Solution components should be standard based and adopt an open approach rather than support a specific technology or vendor.
- **N-tier model**: The logical design of components, subsystems, application systems and databases has been partitioned in the ICT blueprint. These partitions should have well-defined interfaces established. A change in a database or business rules can affect many large programs, if they are not partitioned. Logical boundaries are needed to separate components from each other. Modular design is more adaptive to changes in internal logic, platforms, and structures. It is the interfaces that allow partitioned components to interact well.
- **Extensibility & Scalability**: Applications must evolve to support new business requirements and make use of new technologies. The system shall be extensible and scalable to allow additional capacity/ bandwidth/ volume of users in future. Building scalability into the system up front, though it may involve larger initial cost, could save effort and time in the long run because there is less need to devote technical and management talent to upgrade systems on a more frequent basis. The infrastructure elements such as Data Center, Disaster Recovery infrastructure and network infrastructure have been designed keeping this principle in mind.
- **Parameterized application modules**: Application modules should be parameterized to adjust to local variations and record information as per the events not allowing manual data entry (where applicable). For instance, certain attributes may not be available for data capture - the application should allow transaction while recording the gap in audit trail for future analysis and initiate corrective governance measures.
- **Service oriented architecture**: The solution components must follow SOA principles to provide specific services using well defined interfaces. Identify opportunities for cross-functional components or subsystems and implement them in such a way that there is an opportunity for reuse.
- **Design for performance and reliability measurement**: Applications and technology components (processors, network, etc.) should be implemented in such a manner that Service levels required like a sub-second response to beneficiary authentication is complied with. The application must allow efficient utilization and performance of underlying compute, network and security infrastructure. The deployment architecture must allow for fault tolerance and load balancing, and enable horizontal scaling of servers and storage upgrades without affecting solution uptime.

- **Ease of management**: Ease-of-use is a positive incentive for use of applications. It encourages users to work within the integrated information environment instead of developing isolated systems to accomplish the task outside of the enterprise's integrated information environment. The knowledge required to operate one system will be similar to others if the look and feel of the applications are similar. By having ease-of-use principle, training can be kept to a minimum thereby aiding IT change management and the risk of using a system improperly can be minimized.

7. Deployment Architecture

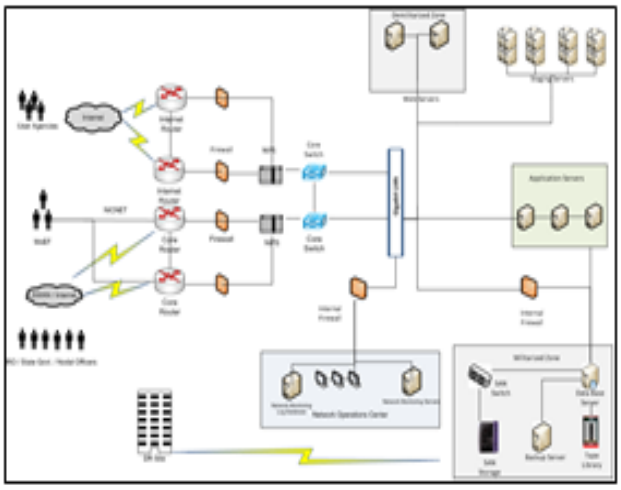


Figure 2: Deployment Architecture

8. Core Advantages

The project shall facilitate the following:

- Availability of real-time information and transformation to a paper-less process
- Reduction in turnaround time
- Integration of e-filing of forest clearance with other external applications

9. Conclusions

The design and implementation of e-filing project is a complex exercise under the current structure which involves formulation of detailed scope and project plan with necessary commonalties at the National level while allowing adequate scope for interplay of local variations, rules, procedures and implementation at the Central level. Some of the key issues that need to be addressed are:

Given the enormity and complexity of the project, the implementation of the same requires a robust and still flexible project governance and management structure. The objective of project management is ensuring the implementation of the project as per the defined requirements, timelines, deliverables and budget. It is proposed to have well defined governance structure at Centre. The below hierarchy is an example of the same.

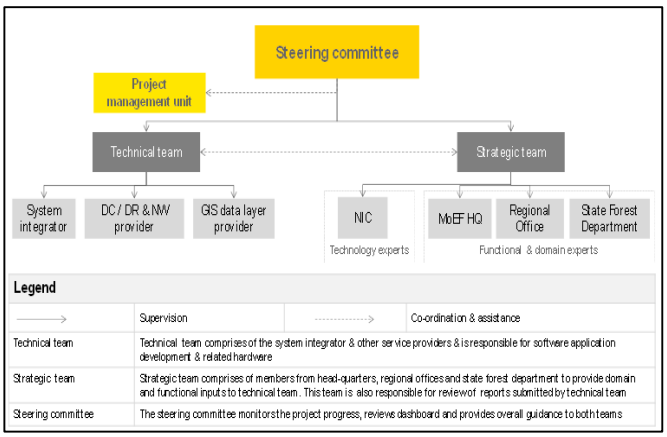


Figure 3: Proposed Governance Structure

Following are the proposed roles and responsibilities of the Steering Committee:

- Monitor the design, deliver and sustain phases of the pilot project and the state-wide roll out of the project.
- Approve all deliverables by various agencies and stakeholders like procurement of handheld devices by the external vendor, development of application by system integrator, approval of monitoring and evaluation plan prepared by PMU.
- Fund management of the project including regulation of capital and operational expenditure, release of funds are per timelines, regulation of administrative and overhead expenses.
- Devise strategies and collaborations for mitigation of foreseen risks
- Coordination with different stakeholders and agencies and ensuring common understanding of project objectives between stakeholders
- Appointment of PMU for pilot and state wide roll out
- Appointment of Third Party Auditor for independent assessment of the pilot project
- Development of strategies for issue resolution and escalation
- Devise strategy for new district assessment, modifications / changes in the project implementation structure, infrastructure requirement, technology modifications etc. for state wide roll out
- Appraisal of RFPs, DRP and project assessment reports
- Review and approve changes to Project activities
- Appraisal of exit management and knowledge transfer plan developed by PMU

The steering committee is proposed to appoint a project implementation and monitoring unit with representatives from various industrial domains relevant to the project implementation and monitoring. The PMU will comprise of

members from stakeholder agencies and external consultants. The roles and responsibilities of PMU will be as below:

- Providing the required inputs to the steering committee on regular basis
- Preparation of RFP for selection of system integrator in close coordination with the steering committee.
- Bid Process Management for the selection of the system integrator
- Resolve the issues raised by the bidders on the implementation process like scale, technology, and customization of core application as per domain and standards
- Coordinate and monitor the development of software application with SI
- Ensure submission and approval of exit management plan by SI
- Coordinate and monitor the procurement of handheld devices from the vendor
- Undertake periodic evaluation of the pilot project as per the pre-defined key performance indicators under the supervision of steering committee
- Ensuring the incorporation of open standards for interoperability, seamless data transfer between district and state in the recommended solutions as per guidelines and standards.
- Assist the steering committee in designing the MIS reporting & monitoring frameworks for the project
- Ensure capacity building and change management training for stakeholders as per the finalized action plan
- Document the assessment based on periodic project evaluation and submit them to the steering committee for appraisal.
- Execute and monitor implementation of capacity building and change management activities
- Development of Exit Management and Knowledge Transfer plan for PMU

REFERENCES

[1] Business Intelligence And E-Governance, Analytics & Modelling Division National Informatics Centre Department of Information Technology, Ministry of Communication & IT, New Delhi, India

[2]Forest (Conservation) Amendment Rules, 2004, G.S.R. 94(E) dated 30/03/2004, http://www.moef.nic.in/sites/default/files/Notificationfinal.pdf

[3] The legal and regulatory framework for environmental protection in India http://envfor.nic.in/divisions/ic/wssd/doc2/ch2.html.

[4]Divan S and Rosen Crianz A. 2001, Environmental law and policy in India, cases, materials and statutes, 2nd edition, New York: Oxford University Press: 837 pp

[5] Environmental Impact Assessment Notification-2009, S.O.195(E), [19/01/2009], http://www.moef.nic.in/downloads/rules-and-regulations/3067.pdf

Rajesh Kumar Pathak has obtained his Master of Computer Science & Applications (MCA) degree in 1988 from Aligarh Muslim University, Aligarh (UP), India and MBA from Indira Gandhi National Open University, New Delhi, India. His research interest is information technology and e-governance. Worked as Senior Technical Director in National Informatics Centre, Department of Information Technology, Ministry of Communication & Information Technology (Government of India). Recently he is doing research from Shri Venkateshwara University Gajraula, Amroha(UP)-226025, India