

e-dhaRani: A Comprehensive Registration Solution of Government of Odisha

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Abstract— The department of Revenue and Disaster Management, Govt. of Odisha appreciated the importance of e-Governance and has undertaken e-dhaRani, a comprehensive project of computerization of all 185 Registration offices across the state. A significant capacity in terms of physical and technology infrastructure has therefore been built to implement e-dhaRani in a competent manner, with a holistic perspective and with speed. The manual system of registration was cumbersome and prone to errors. The e-dhaRani system is intended to simplify the same, thereby reducing the time for registration of a deed. The e-dhaRani application software is intended to achieve IT enablement of complete workflow of a Sub Registrar Office in Odisha. The web based application is designed & developed to enhance the productivity of department by reducing inherent delays in registering a deed. Inspector General of Registration, Govt. of Odisha has successfully Implemented e-dhaRani project on PPP mode across 185 Registration Offices in the State of Odisha. The Project encompasses installation, commissioning and Operations & Management. The project was commissioned on January 04, 2010.

Index Terms— e-Governance, e-Registration, IGR Odisha, e-Governance initiatives in Odisha, Government of Odisha, Odisha e-Governance Services Ltd. (OeSL), Odisha Computer Application Centre (OCAC), IL&FS Technologies Ltd (ITL).

1 INTRODUCTION

Registration is a major public service delivered by the state government(s). Legal provisions of the country have made registration of certain documents and properties mandatory and registration of certain other documents optional. The Indian Registration Act, 1908 contains provisions regarding documents that are compulsorily registrable and also those that are exempted. All those documents that may create, extinguish, assign, declare, limit or restrict interest, right or title in property for the present or future-need compulsory registration. Some of the documents for which registration is optional are leases of immovable property for any term not exceeding one year, instruments which create, assign, limit or extinguish right or title of a value less than INR 100 in immovable property and wills etc.

any transaction affecting the property referred to in the document.

For governments, the more over motivation to shift from manual processes to IT-enabled processes may be increased efficiency in administration and service delivery, but this shift can be conceived as a worthwhile investment with potential for returns.

Thus, the main functions of the Registration Wing are registration of all types of instruments, administration of the duties related to stamp and stamp duty including court fees, registration of societies and partnership firms etc. The massive demand for the services among citizens is reflected in the fact that the Revenue & Disaster Management Department of Odisha holds the second position in revenue collection in the state.

In the year 2008, the government of Odisha decided to computerize all the registration offices in the State. The objective of the computerization project, known as e-dhaRani, was to make the registration process simple, transparent and fast and to ensure that stamp duty, registration fees and all other fees are collected as per the provisions of prevailing acts plugging the revenue leakages. Then, the registered deed would be delivered within 45 minutes that in the conventional manual system took 3 to 4 months' time.

The project was rolled out in the entire State on 04th of January 2010 by Hon'ble Chief Minister Shri Naveen Patnaik.



Fig.1 Conventional Registration Process

According to the provisions of the Indian Registration Act, the act of registration gives legitimacy to bond, contract and conveyance, related especially to properties. In case any document that is compulsorily registrable is not registered, the same does not convey a legally valid title to the transferee. Moreover, such documents are not admitted as evidence of

2 INNOVATION CONTEXT

Since the project is implemented on PPP mode so all components provided by the concessionaire. The Joint Venture of Odisha Computer Application Centre (OCAC), a Technical Directorate of Department of Information Technology, Govt.

of Odisha and IL&FS i.e. Odisha e-Governance Services Ltd (OeSL) was assigned with the responsibility of implementation of e-dhaRani Project. The project encompasses the upgrade of physical infrastructure, provisioning of necessary technology infrastructure, trainings and capacity building, digitization of legacy data, etc.

Key organizations involved in designing and implementing the project are the Registration Wing of Revenue & Disaster Management Department of the Government of Odisha, Department of Information Technology of Government of Odisha, OCAC, OeSL and IL&FS Technologies Ltd (ITL). The ITL has designed the e-dhaRani application and the Registration Wing is responsible for the operationalization of the project. The role of OeSL was to develop, implement and fulfil all the technical requirements of the project under the administrative direction of the Registration Wing and technical guidance of the OCAC. The ITL carried out the development of e-dhaRani application and implemented the same in all the Registration Offices of Odisha.

Under Section 69 of the Registration Act 1908, the Odisha Government has framed the Orissa Registration Rules 1988 that currently govern the entire current processes of registration in the State.

e-dhaRani has revolutionized service delivery in the Registration Wing by increasing efficiency and transparency at work, generation of employment opportunities for local youth as well as revenue collection of the department. The self-sustained and cost effective system of e-dhaRani makes it independent of State budget and a model with excellent potential for replication to new offices.

The prime utility of registration is to give legitimacy to a deed. The process guarantees genuineness of an instrument, safeguards it against fabrication of documents and checks fraud and forgery. Apart from these, registration acts as a record that helps a person, seeking to enter into property dealings, access and authentic information pertaining to the particular title.

The main function of the Registration Wing is to register documents under the Indian Registration Act 1908, under which compulsory registration is required for certain documents and optional registration is envisaged for certain other documents.

3 CONVENTIONAL SYSTEM OF REGISTRATION

Documents that fulfil the conditions and for which the required stamp duty and registration fees are paid are registered. A record of such registered documents is kept and extracts of documents affecting immovable property, in respect of which Record-of-Rights is maintained, are sent to the offices concerned for making mutations. Certified copies from the preserved records of registered documents are also issued to parties who apply for them.

This entire process used to take place manually in the reg-

istration offices prior to the introduction of e-governance in registry offices. The process of manual registration started with writing of deeds by deed writers in different offices, which took an hour for completion. Then the deed is presented before the concerned registering officer. After verification of stamp duty and revision of registration fee by the concerned office staff, the document is again placed before the registration officer by the executants to admit the execution. Further, the document with serial number and deed number is entered into different fee books and total collection is entered as receipt of the day in the cash book. The fee collected is deposited in the bank subsequently. After this process, the document is copied down in appropriate register books and indexed. On completion of this entire process, final endorsements are returned to the parties.

4 NEED FOR INNOVATION

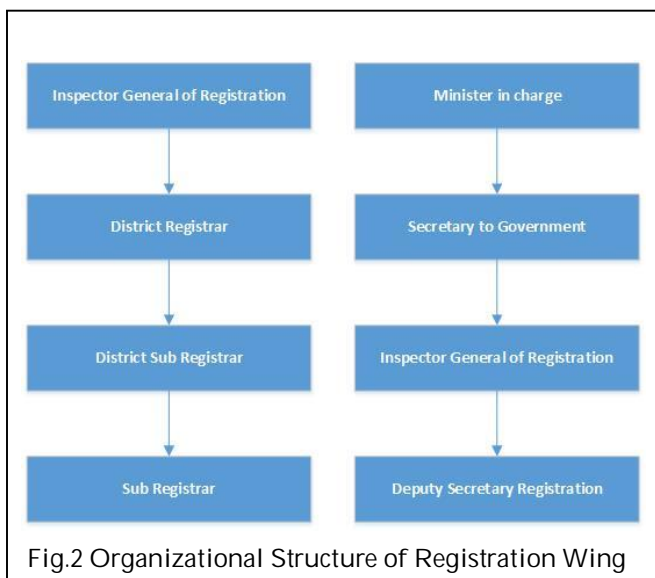
The process of manually writing deeds and entering those in the registers was extremely tedious and time consuming and this created a backlog of about 2-3 years in Odisha. All over the state, there was a plethora of documents that were to be copied. Apart from delaying service delivery, the manual process had made preservation of old records extremely difficult as some of the manually copied registers were as old as 100 to 150 years. Many of such register books were scarcely legible. The prevalence of fake stamps, lack of transparency, existence of middleman and endless delay to obtain the original documents, took around 3-4 months, this had propelled the need for innovation in the process of registration.

Technology driven governance or e—governance endeavours of the Government of India encouraged computerization of registration processes across states in India. Computerization was perceived as a solution to improve the speed and quality of service delivery, along with bringing in transparency in governance.

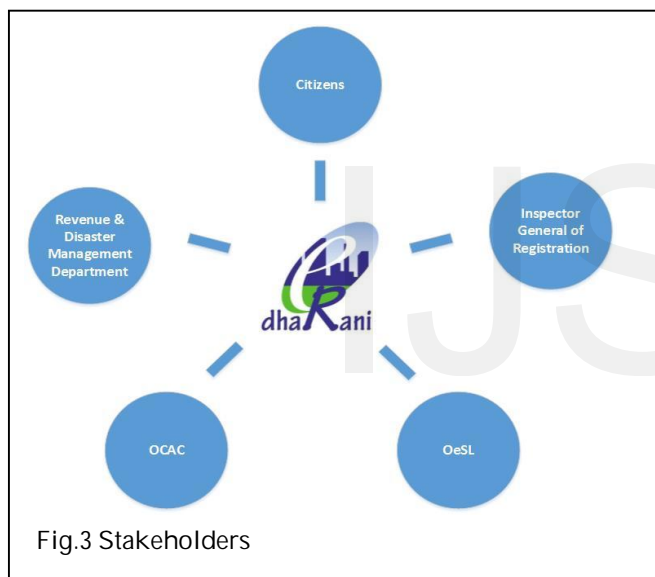
Inspired by the computerized registration system in other States, the Revenue & Disaster Management Department of the Government of Odisha planned to initiate e-governance project in the Department. The vision was to computerize entire working of the registration offices to eventually make them paper less, to provide efficient G2C services and to digitize the record archives in all the registration offices in Odisha.

5 ORGANIZATIONAL STRUCTURE

At a political level, the Revenue & Disaster Management Department is headed by a Minister, at the bureaucratic level by a Secretary and the Registration Wing is headed by Inspector General of Registration at Board of Revenue, Cuttack.



Key Stakeholders



6 NEW APPROACH

Objectives of the e-dhaRani Project

The Revenue & Disaster Management Department of Odisha envisioned an Information and Communication Technology (ICT) solution to improve Government to Citizen (G2C) services by making registration less time consuming, hassle free and transparent.

To enhance the speed of service delivery: The Department commenced the computerization drive by halting manual registration for all instruments. The rationale here was to adhere to citizen's right to obtain public services within a reasonable time frame and to mitigate the issue of man power shortage in the registration offices to carry out the cumbersome process of manual registration of deeds and documents. While in the manual system of registration the entire process of registration and returning of original registered deeds on many accounts took 3 to 4 months, the computerized system aimed a quick

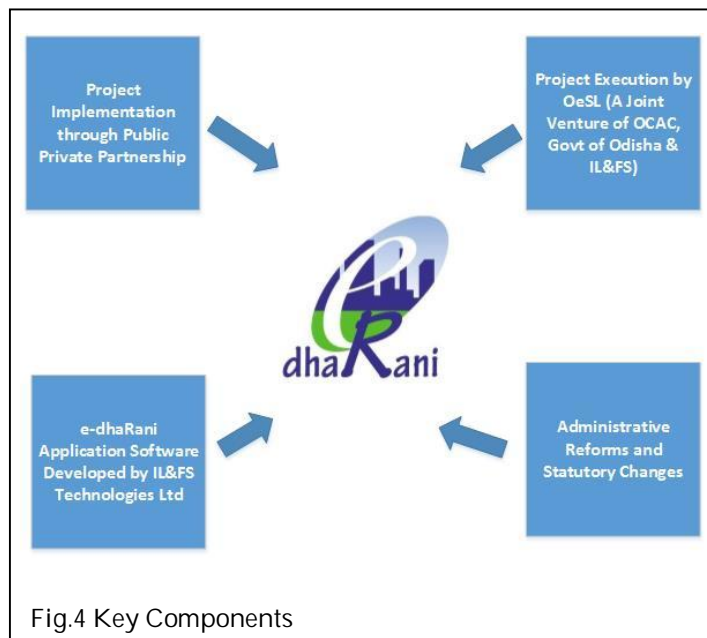
service delivery that is within a time period of 45 minutes.

To enhance efficiency and transparency in the process : A software solution was planned to automate the entire process of calculation of stamp duties, additional stamp duties, registration fees and assessment and valuation of property depending upon the location, land type, benchmark valuation applicable and various others criteria that determine the market value of properties. Use of ICT in this regard makes the process faster. Apart from enhancing efficiency, the automated process guarantees removal of human discretion from the entire process, thereby mitigating the challenge of corrupt practices in registration processes.

To deal with shortage of human resources : Complete back end computerization was a crucial need of the registration offices to meet the human resource shortage for performing elaborative functions like maintaining book wise index registers- index I, Index II, Index III and Index IV, photo and fingerprint registers, MIS reports etc. Computerization of back office was envisioned to reduce the number of manpower required to perform the registration functions, and also to enhance durability and safety of records.

To digitize the archives: Preservation of old records also emerged as a major issue to be tackled through digitization of archives. In Odisha district headquarters, some of the manually copied registers are as old as 100 to 150 years and are losing their legibility. Thus, to prevent the decaying of public utility documents, the Revenue & Disaster Management Department of Odisha planned transferring of manual records into digital form and preserving them in storage at State Data Centre to ensure conservation of precious public documents.

Key Components of the Project



Design of the Project

In order to achieve the targeted goals mentioned above, the System of Computerized Registration or e-dhaRani designed an implementation strategy, the basic components of which are development of the e-dhaRani software, hardware requirement, establishment of data centre for the project. When e-dhaRani was launched in 2010, the project was implemented on a Build-Own-Operate-Transfer (BOOT) basis. This model has proven to be extremely cost effective for the Department and emerged as a major reason for the project's success and sustainability.

Once the implementing model was in place, software development emerged as the crucial need for the project. ITL developed the user friendly e-dhaRani software that made the entire process of registration an efficient and time effective one with a host of automated features pertaining to the process. The e-dhaRani system facilitated computerized registration of deeds, automatic calculation of property valuation, sound record keeping, search and copy, capturing of photographs and fingerprints through biometric devices, allotment of unique document number and book wise deed number for registered documents, generation of registers, reports, encumbrance certificates etc. In order to ensure continuous enhancements in the standard of service delivery and to bridge the existing gaps in the system, ITL ensured continuous upgradation in the e-dhaRani software.

In a bid to ensure smooth functioning of the project, the basic function of the OeSL was to make policy related decisions and to ensure proper working and upgradation of the software.

The process flow listed below details the steps taken in completing entire process of registration under e-dhaRani.

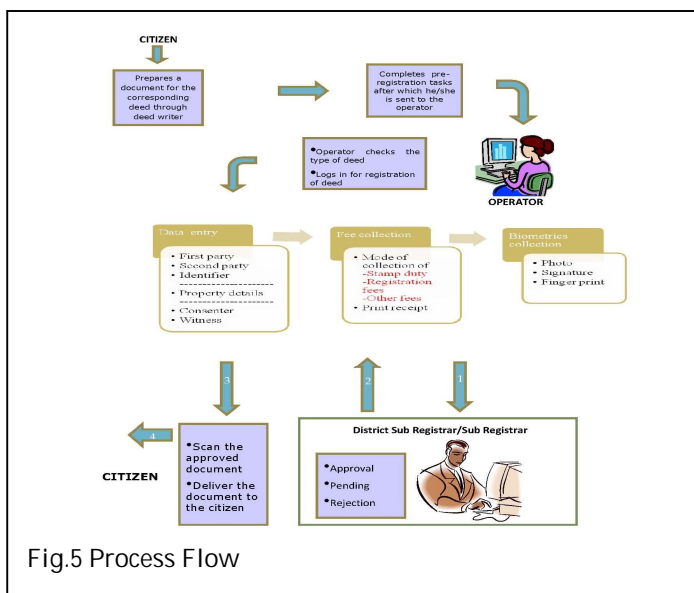


Fig.5 Process Flow

The e-dhaRani project also initiated a range of administrative and statutory reforms to facilitate smooth functioning of the project. Along with initiating the process of computerized

registration of deeds, the e-dhaRani project aimed to digitize the data archives by scanning the manual data and storing them in storage at Data Centre.

The e-dhaRani project had initiated a centralized data centre for hosting of web based application accessible to all the registration offices of the state. The digitized data from the archives was stored in the data centre. The centralized data centre had made the process of data and trend analysis easier, efficient and up to date.

7 IMPLEMENTATION STRATEGY

Implementing Model of e-dhaRani

The Revenue & Disaster Management Department of Odisha commenced a computerized registration (e-dhaRani) in 2010. e-dhaRani was designed and developed by OeSL through ITL, to provide one stop online registration for improving the experience of obtaining public services and for enhancing organizational efficiency and transparency and implemented on a Build-Own-Operate-Transfer (BOOT) basis.

The Build-Own-Operate-Transfer (BOOT) model of OeSL

OeSL initiated the project according to the proposal submitted to the state government. OeSL provided physical infrastructure, hardware components consists of computers, finger print scanner, signature pad, web camera, UPS, Inverter, Gen-set along with trained operators and VPN network connectivity for implementation of e-dhaRani. The dry run was done for 6 months before the operationalization of the project allowed manual registration as well and thus averted any functional dislocation during the transitional period. After operationalization of project from 04th January 2010, the manual system was stopped completely to speed up computerization.

8 INNOVATIVE FEATURES OF E-DHARANI

Creation of implementing bodies

In order to ensure smooth functioning of the project and sustainable management, an innovative idea of project team formation was adopted. A state level Project Management Office at Cuttack, three Divisional Offices at Bhadrak, Ganjam and Sambalpur to keep track of project activities and better coordination with government.

Statutory measures undertaken

In order to support introduction of innovative processes to improve service delivery, a host of administrative and statutory measures were also undertaken by the Revenue & Disaster Management Department.

These includes:

Amendment to Stamp Act (section 47-A)

The amendment provides for referring the documents undervalued after registering them.

Amendment to Odisha Stamp Rules

The amendment was made in order to introduce minimum value register for property structures. There is a

provision of auto calculation of valuation of property. The parties are to volunteer the information and the calculation of valuation on that basis has been made acceptable.

Amendment to Registration Act (Section 78)

The amendment was made in order to impose the deed wise user fee to recover the investment made under the project.

Amendment to Registration Act (Section 69)

Capture of photographs, signatures along with thumb impression of the executant(s) to the endorsement of the admission of execution on the document shall be made through electronic device.

Digitization of Legacy Data

The project initiated a drive to digitize data of 14 years, from 1995 to 2009, the year of e-dhaRani implementation. The main objective of Digitization was to make an online archive of Registration Records and to provide a transparent system to the public as the data is being uploaded on the central server. It was initiated to ensure that different services offered by Revenue & Disaster Management Department, such as issuing encumbrance certificate and search & certified copy etc. can be issued as these services can require data of up to 14 years. The department visualized digitization process and establishment of Data Centre for the online archival of data and access of that data by the public via web interface. At present, out of the crowd that assembles in Registry Offices, only 20-25 percent gather for registration of document while the rest visit there for the services such as issuing encumbrance certificate and search and certified copy etc. Digitisation of data has made the existing system transparent.

9 E-DHARANI SOFTWARE

The main objective of e-dhaRani software was to completely replace the manual process of registration with the software solution in all the 185 registration offices of Odisha. e-dhaRani facilitated quick registration and delivery of deeds supported by complete business process re-engineering. Its back office computerization modules have made the task of maintaining records easier and efficient. e-dhaRani has also introduced an online helpdesk that helps citizens with information pertaining to required stamp duty, registration fees, and requisite enclosures.

e-dhaRani has been designed on web based centralized architecture. The database is developed on ORACLE 10g and the front end application is on ASP.NET.

Although the centralized architecture of e-dhaRani had advantages of great compatibility between the data centre and client along with ease of setting up and maintenance, the system was designed in such a way to secure data through restricting access to the system using adequate authentication process and strengthening input control and validation checks for making the database complete, accurate and reliable.

TABLE 1
TECHNICAL COMPONENTS OF E-DHARANI

Component	Technology
Front end	ASP.NET 2008 (Framework 3.5)
Back end	Oracle 10g
Architecture	Three Tier Web Architecture
Platform	Server – Windows Server 2008 and above Client – Windows XP/7 and above
Hardware Compatibility	Extended

e-dhaRani uses latest available technologies and can be implemented on any latest operating system and processors. It has a three tier architecture consisting of user interface, business access layer and data access layer. This architecture enables easy implementation of complex application rules in the server.

The application server implemented for e-dhaRani is programmed to cater to the specific requirements of the system. Implementation of application server guarantees storage of correct data. It has also enabled efficient and fast retrieval of data. The design of the application server was based on the consideration that its implementation should allow fast and correct storage of data.

The technology has remarkably improved the biometric interface to capture photo, signature and thumb impression.

Key features of e-dhaRani

1. Benchmark Valuation Configuration of more than 5 Crore Plots & Automated Property Valuation
2. Maintain all records in compressed and encrypted form in a central repository
3. SMS Intimation
4. Capacity Building for Govt Employees, Deed writers and stamp vendors
5. Legacy Records Digitization of last 15 Years Registered Deeds
6. Digital Photo and Biometric Fingerprints capture of parties (executants & Claimants) and identifier
7. Integration with Scanner, Signature Pad and Biometric Device
8. 1:1 and 1:N Finger Printing Matching for critical deeds and reports
9. Biometric based login and Audit Trail
10. STQC Certification for Security
11. Three level of authentication vis User ID, Biometrics and Computer MAC address
12. Automatic Asset Management & Reconciliation System
13. Remote Printer, Scanner and PC Management System
14. Personnel Management System

15. Central Help Desk & Call Management System
16. Digital Photo and Biometric Fingerprints capture of parties (executants & Claimants) and identifier
17. Integration with Web Cam, Signature Pad and Biometric Device

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