



Excellence in e-Governance

National e-Governance Award Winners of the Year 2019

**Department of Administrative Reforms & Public Grievances
Ministry of Personnel, Public Grievances & Pensions
Government of India**

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1. Digital Land (Comprehensive System of Land Management)

1.	Name of the State/Ministry	Government of Uttar Pradesh
2.	Name of the host/owner organisation	Board of Revenue, UP
3.	Status of the host/owner organisation	Board of Revenue
4.	Name of the Project	Digital Land (Comprehensive System of Land Management)
5.	Name of the Nodal Contact Person	Rajesh Kumar Tripathi
6.	Contact Address	Board of Revenue, UP, Kaisarbagh, Lucknow
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8. Project Summary:

Uttar Pradesh has 18 divisions, 75 districts and 350 tehsils spread across 2.35 crore hectare land area, divided into 1,08,848 revenue villages with 7.65 crore plots with 11.19 crore owners & 3.38 crore Khatas in Khatauni (RoR) & 2486 Revenue Courts with 11.24 Lakh Revenue Court Cases. Before the “Digital Land” initiative, all the disputes and their records were maintained manually, which gave rise to data manipulations, corruption, and led to lack of transparency in the process.

“Digital Land” is a project conceived and implemented by the Government of Uttar Pradesh for Digitization of Land Records, with technical support of NIC UP State Centre, presenting a model of a paradigm shift from department centric closed approach to citizen centric open approach. Another change was from process-oriented system to a service-oriented system. It is an integrated and interoperable solution for extending e-Services related to rural land of Uttar Pradesh. It comprises of online web applications of **Land Records**, **Revenue Court Cases**, **Bhu-Naksha** (Digitized Cadastral Maps), **Khasra** (Field book with Crop details), **Online Mutation** (for recording Succession or Varasat) and **Anti-Bhu-Mafia** Portal (for action against land grabbers). All these applications have been integrated on a single platform and further integrated with other departments like Registration (for sale/purchase of Land), Food and Civil Supplies (for Food grains Procurement), Agriculture (for Farmers' Loan Waiver Scheme, Soil Testing, Agriculture Survey and Pradhan Mantri Kisan Samman Nidhi Yojna), Forest (for creating Land Bank and Compensatory forestation), CM Office (for review of public grievances - Jan Sunwai), e-District (for issue of solvency, income, domicile and caste certificates) and Banks/Financial Institutions (for recording mortgage etc.) through web services/user-login.

The data generated in the applications of Digital Land project and the information based on this data is being made available online to the common public and other stakeholders through several points of online services including more than 85000 Common Service Centres and Lokvani Kendras. Apart

from bringing transparency in the system, reduction in corruption and harassment of public, the “Digital Land” project is generating revenue of crores of rupees for the service providers as well as the Department through the distribution of digitally signed Khatauni (Record of Rights or RoRs). About one crore users are being benefitted with this e-Gov initiative every day. The project indeed has not only modernized the management and upkeep of Land Records but also had significant impact on litigation, disputes and related crimes and violence emanating from these land disputes.

9. Date of launch of project: 09/03/2017

10. Coverage (Geographical):

The entire state of UP, including, 75 Districts, 350 Tehsils and 831 (all) blocks of UP are covered by the project. All the 12 Crores rural Land Owners, all revenue officials and staff of U.P. State, Advocates, Litigants, General public across the globe.

11. Beneficiary of the project:

(i) To organization:

- Provided perfect end-to-end IT solution for land records
- It has made the working process of Revenue department more efficient, fast and accurate
- Speedy process, 24 x 7, neatness, accurate dashboard-based MIS reporting mechanism
- Single click reports on providing requisite information
- Revenue of Crores of rupees is generated. Daily approx. 90000 RoRs are generated and each RoR costs Rs 15. It makes the project self-sustainable
- Approx. 5000 new cases are registered under RCCMS and approx. equal number of cases are disposed of daily

(ii) To citizen:

- Every information related to rural land is available on one click
- Digitally signed and QR code printed Record of Rights are easily available to the citizens through Common Service Centres, Lokwani Kendras, Tehsil Counters. One can view RoR online any time anywhere without any cost
- SMS is received as soon as mutation is done
- Dynamic search is provided, related to any land
- Tracking of ATR is easily visible
- Time and Cost is reduced for any activity/requirement
- Accuracy of information is very high

(iii) Other stakeholders:

- Many departments/institutions of State Government and GOI are making use of data/information generated through applications of Digital Land with the help of web services.

- Provided a convenient medium to all people involved in research and surveys on land related activities like Agriculture census, GIS etc.

12. Problem state or situation before the initiative:

(i) Manual Records: The manual management of records was prone to errors, both deliberate and otherwise, and their lack of transparency and accessibility resulted in harassment of farmers and common public. The management and upkeep of land records was slow, inefficient and error prone. It was almost impossible to correlate, reconcile, and interlink it with other databases due to its nature and sheer volume. Manual records were also prone to errors and manipulation by corrupt petty officials which lead to innumerable disputes and litigation. The manual data was also extremely difficult to sort or analyse and resulted in erroneous data analysis.

(ii) Lack of Transparency and Accountability: This increased scope of corruption, as Registry of lands, Mutation, and other paperwork was based on manual reports provided by various officers in the chain. If in the Record of Rights, a mutation of a disputed land was done, it could not be traced back as to whether any officer provided a wrong report or whether the data entry operator made an error in entering data or if any of the persons in this chain registered such incorrect mutation in collusion with the buyer or seller of that land.

(iii) Data entry and reconciliation of the data: Considering the size of the State like U.P. and the sheer volume and size of the data involved, the data entry and its reconciliation with the manual records was a huge challenge. It required a sustained push from the top, with motivated leadership at District and Tehsil level. Active involvement of the entire Revenue Administration in the State was required and they have to do this extra work in addition to their regular duties. It was also important to overcome the resistance and obstacles created by the vested interests, who used to exploit the old corruption prone manual system.

(iv) Registry and Documents: Courts throughout the State had to be convinced to accept the registry and mutation documents containing digital signature of the Revenue Inspector, as admissible evidence for cases.

(v) Lack of solutions to secure and validate data: Maintenance of data on different client servers caused mismatch and errors. The authenticity of data uploaded could not be verified. There were time-lags in integrating the data on different client servers.

(vi) Integration of resources: Shifting to online system meant huge pooling of resources in terms of digitally literate manpower, financial resources for creation of online databases for records of court cases, scanned maps, record of rights etc., setting up the infrastructure for back-end integration of all such databases, arrangement of enough cloud storage space, capacity-building of employed data entry operators to be able to work on the new digital portal and creation of thousands of digital signatures, etc.

13. Project Objectives:

The project indeed has modernized the management of Land Records, minimized the scope of land disputes, enhanced transparency in land records maintenance system. Brief summary and salient features of all the applications under this project are mentioned below:

Land Records (Bhu-Lekh), is a State Mission Mode Project of Government of Uttar Pradesh developed and implemented strictly as per the guidelines of DILRMP (*Digital India Land Records Modernization Program*) of GOI. It is one of the largest ever rolled out e-Governance Project of the State which is successfully running in entire Uttar Pradesh. There are 1,08,848 Revenue Villages having 7.65 Crores Revenue Plots and 3.38 crores record of Rights of approx. **12 Crores** Farmers in U.P. Land ownership detail of all the farmers and plots is maintained in this portal. The farmers now can get computerized copy of records (RoR) pertaining to Land title from tehsil counters established in all 375 tehsils after paying a fee of Rs 15. The RoR is also made available to public through CSCs and Internet. The Land Records Service (RoR Service) is one of the **highest revenue generating services in U.P. State**. Revenue of Rs. **41.40 Crores** has been generated by distribution of **2.76 Crores** of digitally signed Record of Rights through Tehsil Centres and CSC Centres making computerization plan Self Sustainable. Today, “BhuLekh” is one of the **shining stories** of e-Governance implementations as well as that of the process of **change management** in U.P. Some of the salient features are:

- ✓ Used Open Source Technology & hosted on Meghraj Cloud with DR facility.
- ✓ Anywhere anytime digitally signed RoR with QR Code printed on it (Tehsil centres, CSCs and NetBanking through PayGov)
- ✓ Integration with eDistrict, RCCMS, Land Registry, Revenue Administration, Paddy Procurement, Soil testing, anti bhu-mafia, Loan waiver scheme, Agriculture Census, banks etc.
- ✓ BhuNaksha (Integration of textual data with Spatial Data)
- ✓ SMS intimation to land owners for new mutation.
- ✓ Preservation of old fasli Khataunis in PDF, DB & eBook forms.
- ✓ Dashboards for BOR, State Govt. & District Revenue Officials.
- ✓ Replication of Data.
- ✓ Replicated in other states.
- ✓ Highest revenue generating online government service.
- ✓ Largest ever rolled out e-Gov Project of U.P. state.
- ✓ Each plot is assigned a unique code in the State.
- ✓ Codification of border pillars of revenue villages.
- ✓ Shareholding of Khatedars in one khata have been introduced in U.P.

RCCMS (Revenue Court Cases Monitoring System)

This application aims to ensure accuracy, transparency, accountability and efficiency in the functioning of the revenue courts of the state, thereby, strives to usher in good governance in the revenue judicial system of the state. It maintains details of all the revenue court cases starting from entry of a new cases to recording down all proceedings and final judgment. Salient features are:

- ✓ All the 2486 courts of U.P. State have been computerized and cases registered so far are approx.1.07 Crores. Judgments of approx. 90.16 lacs cases are uploaded on the server.
- ✓ It is integrated with the Bhulekh & Land Registry, Anti Bhu-Mafia, Paddy procurement etc.

- ✓ SMS are sent to Litigants and Advocates.
- ✓ Powerful dynamic search is provided.
- ✓ Dashboards for BOR, State Govt. & District Revenue Officials.

Digitization of Cadastral Maps

- ✓ The details of all the 90,000 out of 1.16 lacs digitized maps of revenue villages are available online.
- ✓ Integrated with RoR.
- ✓ There are 25 types of land of which the maps are digitized.
- ✓ Anybody can get details of plots through these maps.
- ✓ The surrounding plot details are also available.

Anti-Bhu Mafia

This portal is launched to facilitate registration of complaints and to monitor the action taken on complaints of illegal land grabbing by Bhu-Mafias. An aggrieved person can file his complaint on the portal after OTP based authentication and follow up the action taken in the matter. No reports required to be sent from the field. All reports to be generated online from information filled on the portal by the departments.

- ✓ Complaints registered - 244992
- ✓ Complaints disposed of - 242672
- ✓ Area vacated from Bhu Mafia - 51889 Hectares
- ✓ Number of Revenue Cases Registered- 21762
- ✓ Number FIRs- 3464

14. Project scope approach and methodology:

Board of Revenue has taken significant initiatives for digitisation of Land records. The “Digital Land” project of U.P. is unique because the concept of assigning a Unique 16-digit code for each and every field or Revenue plot (Gata) in the State. These Unique codes, which are like Aadhaar number of the plot, have been assigned to each and every Plot (about 7.65 Crore) in U.P. (except for villages under Consolidation or Survey).

The first 6 digits of this Unique code are the Revenue village code of the village where the plot is situated (same as allotted by the Registrar General of India for Census). The next 4 digits (7th to 10th) display the plot number, whereas the subsequent 4 digits (11th to 14th) display the status of its division etc. The last 2 digits (15th and 16th) display the category of the land.

Sixteen Digits of the Plot Code are as follows :-

XXXXXX	XXXX	XXXX	XX
(1-6) Village Code	(7-10) Plot number	(11-14) Division details	(15-16) Land category

जनपद: अयोध्या तहसील: सदर

जनपद चुने	तहसील चुने	ग्राम का नाम / ग्राम कोड चुने	ग्राम का पहला अक्षर चुनें
अमरोहा	बीकापुर	गणेशपुर बिसौरा (अमसिन)166572	अ आ इ ई उ
अमेठी	मिल्कीपुर	गद्दोपुर (हवेली अवध)166581	ऊ ए ऐ ओ औ
अम्बेदकरनगर	रुदौली	गद्दोपुर हरदासपुर (अमसिन)166570	क ख ग घ ङ
अयोध्या ✓	सदर ✓	गोकुलपुर (अमसिन)166488	च छ ज झ ञ
अलीगढ़	सोहावल	गोपालपुर (हवेली अवध)166349	ट ठ ड ढ ण
आगरा		गौरापट्टी (हवेली अवध)220758	त थ द ध न
आजमगढ़		गौहनिया (अमसिन)166517	प फ ब भ म
इटावा		गंगौली (हवेली अवध)166416	य र ल व श
उन्नाव		गंजा (हवेली अवध)166341	ष स ह क्ष त्र
एटा			ज ऋ श्र
औरैया			
कन्नौज			
कानपुर देहात			
कानपुर नगर			

Software Powered By: National Informatics Center, Uttar Pradesh State Unit, Lucknow.

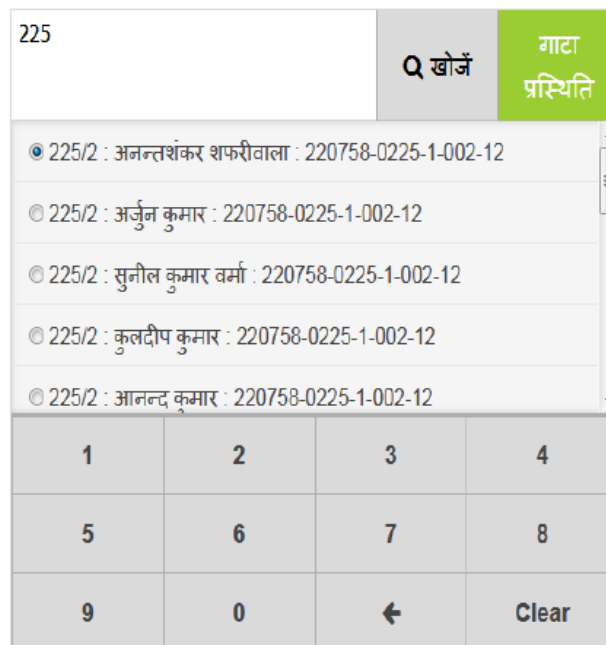
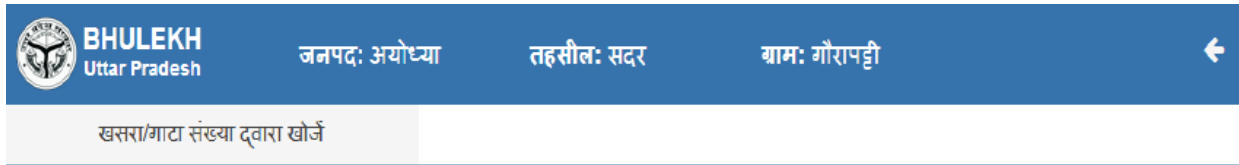
At present there are only 25 categories of land in U.P. but this list may be further expanded and also standardised to add more categories such as Defence land, Waqf Land, Evacuee property, Enemy property etc. Such categorisation and standardisation makes it possible to generate a list of all the lands belonging to a particular category that are situated in a designated revenue area. The simplicity of this concept makes it easy for other States too to replicate this concept and adopt it. If the categories are standardised at the national level, then by just one command it would be possible to search, sort and analyse the Land records data of not only U.P. but the entire country.

The Unique codes of the land plots involved in the disputes/Court cases pending before various Revenue courts have been successfully inserted in the RCCMS data base as a compulsory field. As a result, now any prospective Buyer/Entrepreneur who is interested in buying a plot of land can check

online, not only about the ownership of the plot, but whether or not the plot of land he proposes to buy is under litigation in any Revenue Court of U.P.

In order to bring about further transparency in respect of the Land Records, information about mortgage of land by Banks or Financial Institutions has also been put into public domain. As a result, any prospective buyer can find out whether or not the land he proposes to purchase is mortgaged or not.

As part of the “Digital Land” project, the village maps have also been digitised and linked with the Khatauni (Record of Rights). Thus, on one click of mouse, a person can see the exact location of any



plot, find out its shape, area, ownership, category of land as well as the details of the neighboring plot owners etc.

It has now been made mandatory to mention the unique code of the plot in the sale deed of the plot being sold or purchased. As the software of the Stamp and Registration department has been interlinked with the Bhulekh portal of “Digital Land”, it is now possible to block the fraudulent sale of lands belonging to non-transferable categories e.g. Gaon Sabha land, patta land, ponds, pasture land, forest land or other public utility lands at the sale-purchase level itself. This has not only secured the precious public land but also curtailed future litigation and disputes. Many a times there used to be cases where fraudsters used to sell the same plot of land to more than one person and run away, while the various purchasers used to fight and litigate endlessly. Now that the Registration software has been interlinked with Bhulekh portal under “Digital Land” project, it is now possible to check online

whether a particular plot of land has been sold/transferred previously and if so, then on which date, to whom and through which Registered document.

15. Result achieved:

The Digital Land application has had tremendous social and economic impact in the State by bringing in transparency, reducing corruption, reducing land disputes, Court cases and related crimes/violence and generating revenue for the Government, while providing income and employment to lakhs of people working in Common Service Centres and Cyber-cafes etc.

- (i) **Citizen:** Almost all the manual processes have been eliminated. All the records are now maintained in digital form so efforts in keeping the details of records on paper are no longer required. This has resulted in reduction of corruption as earlier farmers used to run after the Revenue officials to get the extract or copy of the Khatauni (RoR). Land registry, RCCMS and Land records have been successfully integrated. If any sale/purchase is done for a plot, then at the time of registry the sub Registrar is able to access all the relevant information of that rural land online, through this integration.

- (ii) **Efficiency:** On a daily basis, it has been recorded that approximately 90,000 digitally signed Khatauni (Records of Right) are issued. Digitization of the entire process has not only provided ease in coping up with lakhs of such transactions everyday but has also ensured transparency and safe record keeping. It has also reduced the time taken for processing of such transactions. Approximately 5,000 new cases are registered under RCCMS and details of approximately equal number of cases, which are disposed of daily, are made available on the RCCMS portal.

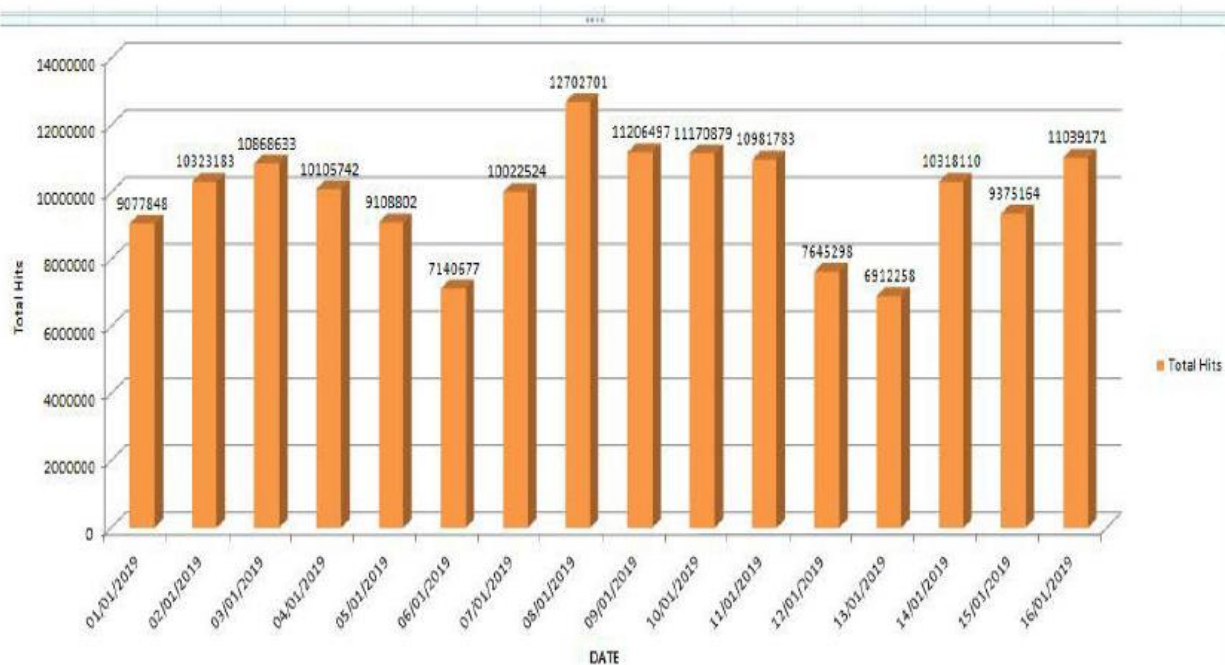
- (iii) **Cost Effectiveness:** The “Digital Land” project has been deployed on Meghraj Cloud free of cost and a major part of it has been developed on open source software, under administrative supervision of Board of Revenue, with the technical support of NIC UP State Centre. As such, the cost incurred on “Digital Land” project is nothing more than the cost of a few outsourced manpower. On the other hand, the revenue generated by the project is in crores of rupees. It is observed that daily approximately 90,000 digitally signed RoRs are issued at a cost of Rs 15/- per RoR, generating an average revenue (User charges) of Rs. 13-14 lakh per day. Thus, the project is not only self-sustainable as it is earning approximately 13 – 14 lakhs rupees a day through issue of digitally signed RoR, but is actually highly profit generating and revenue surplus. The amount of user charges so collected is kept in a fund at Tehsil level which is utilized for upkeep and modernization of records and for meeting various other expenses. “Digital Land” has so far generated a total revenue of Rs. 380.47 crores in the form of ‘User Charges’ since its inception, whereas the total expense for its implementation has been practically negligible.

The success of “Digital Land” project can best be assessed by the number of people accessing it and making use of it. Judging by that criteria, today “Digital Land” is undisputedly the biggest G2C (Government to Citizen) service being offered in India, which touches the lives of nearly 1 Crore (10 Million) citizens every day, as evident from the numbers of daily hits received.

Month Wise - Average Daily Hits Received	
Apr 2018	7322668
May 2018	8498535
Jun 2018	9028349
Jul 2018	8757914
Aug 2018	9263239
Sep 2018	9794549
Oct 2018	8932125
Nov 2018	8365361
Dec 2018	9119892
Jan 2019	11908290
Feb 2019	26130840
Mar 2019	11939344
Average Daily Hits during April 2018 to March 2019	10755092

The initiative has also made the processes environment friendly by reducing paper usage. As the land records data can be viewed online, it reduces usage of paper, making the project environment friendly.

Impacting the lives of millions



“Digital Land” has also made it possible to transfer various subsidies, relief funds and other benefits directly into the bank accounts (DBT) of actual beneficiaries as it is possible to identify, sort and filter genuine beneficiaries under any scheme depending on the size of their land holding. On 24th Feb 2019, under PM Kisan Samman Nidhi Yojana (PMKSNY) scheme, Rs. 2000/- each were transferred into the bank accounts of more than 1 crore beneficiaries in UP, by Hon'ble Prime Minister. This was made possible only because of successful implementation of "Digital Land" Project.

16. Future proofing of the Project:

All the applications under “Digital Land” project are already functional and hosted at Meghraj Cloud of Government of India after security audit. Applications are well designed and work effectively with minimum resources of client and servers. These applications are scalable in terms of technology and the services being offered.

“Digital Land” concepts can easily be replicated in other states in India. The Department of Land Resources, Ministry of Rural Development as well as NITI Aayog have acknowledged and appreciated the concept of Unique Code for fields and are taking initiatives to replicate it across the country. The project has the potential to be scaled up at national level and can be replicated in all states of India.

“Digital Land” project, with the help of technology, is transforming the lives of rural population in U.P. and realizing the dream of Digital India of Hon’ble Prime Minister. It has reduced the time taken in managing and maintaining records, increased accuracy and efficiency and enhanced safety of records maintained. It is also leading to reduction in corruption and inconvenience caused to public, thus

making it a perfect example for good governance. Aligned with the principle of Minimum Government and Maximum Governance, “Digital Land” is setting an example for other States in India to emulate this as base paradise.

2. Khanij Online

1.	Name of the State/Ministry	Govt. of Chhattisgarh
2.	Name of the host/owner organisation	Mineral Resources Department
3.	Status of the host/owner organisation	State Govt. Entity
4.	Name of the Project	Khanij Online
5.	Name of the Nodal Contact Person	Shri Subodh Kumar Singh, IAS Shri Anbalagan P., IAS
6.	Contact Address	Mantralaya, Mahanadi Bhawan, Nawa Raipur Atal Nagar, Chhattisgarh, India - 492002
7.	Telephone/Fax/e-mail	+91-771-2221977

8. Project Summary:

Mining sector contributes more than 9% to state GDP. Almost 1/3rd of the state's population is directly/indirectly engaged in mining activities. Few of the countries Navratna PSUs like NMDC, BSP, SECL and Private esteemed organizations in the mining sector including BALCO, HINDALCO, ACC, UltraTech, Ambuja, Lafarge etc. are carrying out their mining activities in the State. Mines and Minerals contribute approximately Rs. 6000 crores to state exchequer apart from contribution in DMF, NMET, TCS and Cess etc.

The socio-economic development of the State solely depends on the scientific exploration and judicious utilization of its vast mineral resources. Mineral Resources Department of the state works for survey and investigation of mineral resources and its development through judicious allocation, and over all Mineral Administration including regulation of mines and minerals, systematic and scientific mining through mining plan and environment clearance, transit pass, assessment and Collection of Revenue and vigilance over illegal mining and transportation.

The department is also committed for the sustainable development of people and area affected by mining. With the present level of production of major minerals like Iron Ore 35 MT, Coal 143 MT, Limestone 35 MT, to handle its daily transportation of nearly 1 lakh 25 thousand tonne, used to require more than 6000 transit passes issued from respective mining offices manually. Prior to issuance of transit passes the stakeholder had to pay royalty, DMF, NMET etc. through 7 different Challans under different heads/banks. Apart from this Submission of challan, monthly and yearly mineral production/dispatch and sale figures to IBM and State Government, maintenance of detailed Mines

Records, preparation and approval of Mining Scheme, Environment Clearance and Water/Air Pollution etc. were few of the other important dealings between a Lessee and Mining Office.

With the limited man power, resources and infrastructure, in the above said scenario the department was not only severely facing administrative and efficiency issue but above all there was a complete absence of transparency and trust worthy work culture between the department and stakeholder.

Issuance of physical Transit Passes in bulk quantity was impractical and complete waste of time, energy and resources, more over high possibility of its misuse. Similarly, Payment of Royalty, DMF etc. in 07 different heads/accounts was tedious and exhausting. Delay in assessment due to its repetitive verification and exhaustiveness was main hurdle for factual and timely collection of revenue to the State exchequer. Complete absence of Real Time Statistics etc. was few of the major bottlenecks, challenges, constraints.

To overcome the challenges and facilitate ease in doing business, Department firmed up to go for ICT intervention by developing **A Web based Integrated mines and minerals management system** called "**Khanij Online**".

Khanij Online being a web-based portal empowers each registered Stakeholders [lessee, licensee, traders, End use Plant, vehicle owners, and transporters] including regulatory Govt. officials to act as a center of delivery.

In the Khanij Online system, The Mining Department, Lessee/Licensee, Transporter, Vehicle Owner etc. all Stakeholders execute together on the same Platform.

- ✓ Online Auto-Approval for all daily discharges of the Mining Stakeholders using Digital Signature Certificate.
- ✓ Online control on mineral production and dispatch quantities, by auto-fetching Mining Plan and Environment Clearance figures.
- ✓ Single Click Online payment for Royalty, DMF, NMET, etc.
- ✓ Self-generation of bar-coded e-Transit Pass by Stakeholders
- ✓ Real-time Assessment with e-wallet facility
- ✓ Real-time Dispatch Figures
- ✓ e>Returns
- ✓ Online Registration for Truck/Transporter and End Use Plant
- ✓ Effective vigilance of Mineral Transportation by the virtue of e-Check post, Weighbridge Integration and IT equipment
- ✓ Control on Mineral Diversion allowing Full-fledged and multi-faceted all-inclusive management of Mines and Minerals aided by End-to-End Tracking
- ✓ Need Based Reports Facility.

9. Date of launch of project:

21st June 2017

10. Coverage (Geographical):

(i) Comprehensiveness of reach of delivery centre:

Each individual/company/organization as Lessee, Licensee, End Use Plant, Vehicle Owner or Transporter etc. whosoever is related, engaged or interested in any activity concerning mines and minerals in the state of Chhattisgarh, as well as the ones beyond borders, in other states, have been marked for assistance. In addition to that the regulatory Govt. bodies have also been included. As of now 369 number of lease holders, 711 Licence, 1678 End Users, 41,236 Vehicles are registered with the portal and successfully operationalising their activities.

(ii) Number of delivery centre:

Khanij Online being a web-based portal **empowers** each registered Stakeholder [lessee, licensee, traders, End use industry, vehicle owner, sand transporters] including regulatory Govt. officials to act as a center of delivery. For the smooth facilitation of the portal, 24x7 Help Desk Support with dedicated online grievance redressal system and Toll-Free number, Operational Support Unit of IT experts and IT Facility Management Services at district levels has been deployed.

(iii) Geographical:

(a) National level – No. of State covered: **01**

(b) State/UT level- No. of District covered: **All 27 Districts**

(c) District level- No. of Blocks covered: **All 146 Blocks**

11. Beneficiary of the Project:

Each individual/company/organization as Lessee, Licensee, End Use Plant, Vehicle Owner or Transporter etc., whoever is related, engaged or interested in any activity concerning mines and minerals in the state of Chhattisgarh, as well as the ones beyond borders, in other states, have been marked for assistance. In addition to that the regulatory Govt. bodies have also been included.

12. Problem statement or situation before the initiative:

The state encompasses almost 1/5th of major available resources of important industrial minerals like Coal, Iron Ore, Bauxite, Limestone, Dolomite etc. and contributes more than 14% in terms of value of mineral produced in the country standing 3rd. With the present level of production of major minerals like Iron Ore 35 MT, Coal 143 MT, Limestone 35 MT, to handle its daily transportation of nearly 1 lakh 25 thousand tonne, used to require more than 6000 transit passes issued from respective mining offices manually. Prior to issuance of transit passes the stakeholder had to pay royalty, DMF, NMET etc. through 7 different Challans under different heads/banks.

Apart from this Submission of challan, monthly and yearly mineral production/dispatch and sale figures to IBM and State Government, maintenance of detailed Mines Records, preparation and approval of Mining Scheme, Environment Clearance and Water/Air Pollution etc. were few of the other important dealings between a Lessee and Mining Office.

With the limited man power, resources and infrastructure, in the above said scenario the department was not only severely facing administrative and efficiency issue but above all there was a complete absence of transparency and trust worthy work culture between the department and stakeholder.

Issuance of physical Transit Passes in bulk quantity was impractical and complete waste of time, energy and resources, more over high possibility of its misuse. Similarly, Payment of Royalty, DMF etc in 07 different heads/accounts was tedious and exhausting. Delay in assessment due to its repetitive verification and exhaustiveness was main hurdle for factual and timely collection of revenue to the State exchequer. Complete absence of Real Time Statistics etc. were few of the major Bottlenecks, Challenges, constraints which triggered the department to ease the mining business in the state by developing a **Web based integrated mines and minerals management system (Khanij Online)**.

13. Project Objectives:

A web based Integrated Mines and Minerals Management System for effective administration and regulation of mineral resources in the state of Chhattisgarh.

1. Enact IT based Standard Operating Procedure
2. Simplify Mineral Administration
3. Ease of doing Business
4. End to End Tracking of Minerals
5. Effective realization of Revenue & curb leakages

14. Project scope, approach and methodology:

i. Scope

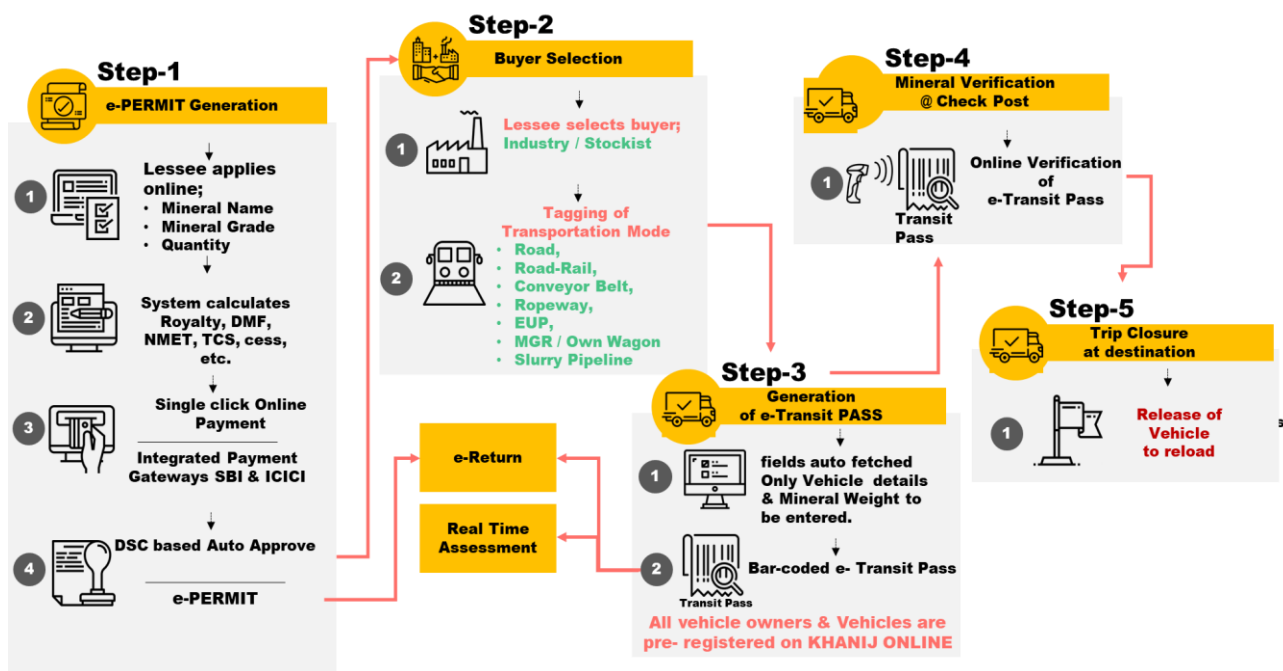
- a. Design, development and implementation of Web Based Integrated Mines & Minerals Management System Application software for Mineral Resources Department, Directorate (DGM Office) its 3 Regional Offices, 27 District Offices and 45 Check Post / Weigh Bridges in the State of Chhattisgarh.

STAGE-1

- ✓ Online application for mineral concession and workflow-based system as per departmental requirement
- ✓ Mineral Concession Information (including minor minerals) and regulation module with workflow
- ✓ Storage /Trading License/End use Information & Regulation
- ✓ Work flow-based e-permit and e-Transit Pass
- ✓ Statistics and check post module
- ✓ Payment gateway module
- ✓ Role and access based administrative module
- ✓ Master and Administrative module to regulate the grant and regulation of mineral concession based on prevailing Act / Rules / Policy

STAGE-2

- ✓ Check post and Weigh bridge module
- ✓ Truck Transportation Module
- ✓ Mineral administration & vigilance module
- ✓ Geology module
- ✓ Helpdesk support software monitoring module
- ✓ Deployment of necessary Hardware at project location sites.
- ✓ Deployment of Personnel for Facility Management System (FMS) at District level, Operational Support Unit (OSU), Operation and maintenance
- ✓ Help Desk Support
- ✓ Master data build up and Data Digitization of legacy data
- ✓ Training and Capacity Building



ii. Approach

➤ Details of base line study

At outset the challenges with the previous system was assessed and quantified and categorized at all levels. Vigorous consultancy with the different stake holders carried out and possible solutions were derived after thorough brain storming. The IT enablement of the process was found most effective and need of the hour. A team of senior officers visited different states to hone our proposed IT system. A system integrator was selected through QCBS on the basis of a detailed RFP drafted in-house. System Integrator visited Field mining offices, Directorate, done Several meetings/workshops with Central PSUs in Coal & Non Coal, Private Sector Lessees and Licensee (Coal & Non Coal), visited various Rail Heads, Check post, Storage Points and prepared the complete AS IS and SRS report. Process of application grant of leases, payment, transit pass, assessment and collection of revenue, checking illegal mining, MIS, areas of royalty pilferage, theft of illegal mining

➤ **Problems identified**

Absence of quality manpower having IT knowledge at stakeholder’s end. Unavailability of basic hardware, Internet connectivity. Reluctance towards innovation/IT by a few traditional practitioners of business.

➤ **Communication and dissemination strategy and approach used**

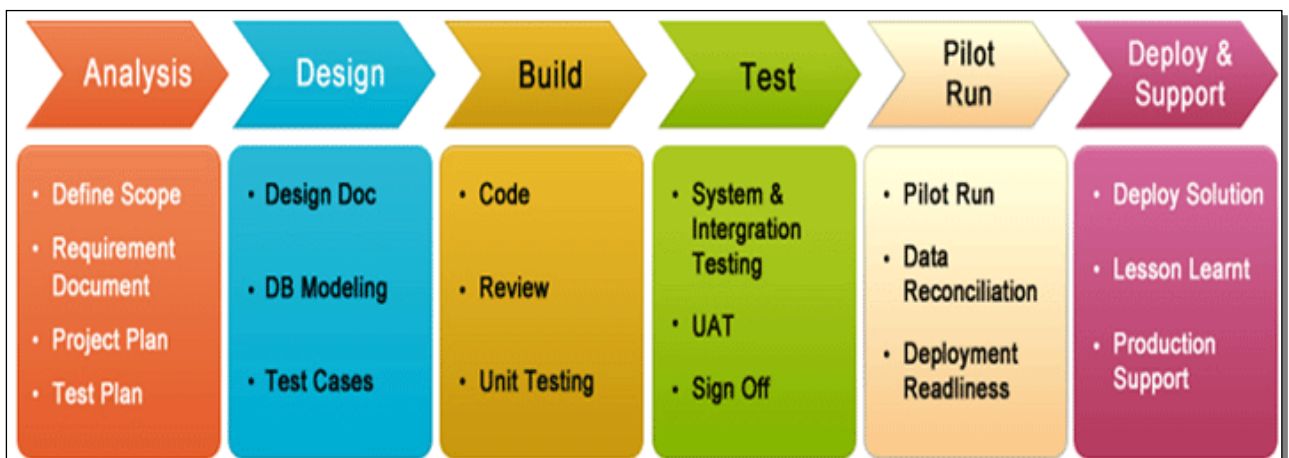
Exhaustive Counselling with major stakeholders/mining giants like SECL, NMDC, CMDC, BSP, HINDALCO, BALCO, Ambuja, ACC, UltraTech etc. Number of Conference/ trainings/ workshops at different levels. Use of social Media platforms like WhatsApp. Facilitated toll free number and dedicated e-mail. Deployment of IT personnel at grass root level, etc.

➤ **Business Process Engineering-**

In the Khanij Online system, the Mining Department, Lessee/Licensee, Transporter, Vehicle Owner etc. all Stakeholders execute together on the same Platform.

- ✓ Online Auto-Approval for all daily discharges of the Mining Stakeholders using Digital Signature Certificate.
- ✓ Online control on mineral production and dispatch quantities, by auto-fetching Mining Plan and Environment Clearance figures.
- ✓ Single Click Online payment for Royalty, DMF, NMET, etc.
- ✓ Self-generation of barcoded e-Transit Pass by Stakeholders.
- ✓ Real-time Assessment with e-wallet facility.
- ✓ Real-time Dispatch Figures, e>Returns.
- ✓ Online Registration for Truck/Transporter and End Use Plant.
- ✓ Effective vigilance of Mineral Transportation by the virtue of Weighbridge Integrated e-Check post and IT equipment.
- ✓ Control on Mineral Diversion allowing full-fledged and multi-faceted all-inclusive management of Mines and Minerals aided by End-to-End Tracking.
- ✓ Need Based Reports Facility.

iii. Methodology



15. Result achieved/value delivered to beneficiary of the project and other distinctive feature/accomplishments of the project:

(i) To Organization:

- Transparent and fair system and real time information intelligent realization/ flawless real time realization of revenue to the state exchequer
- Good initiative for making transparency in mining business
- End to end accountability of the Mineral Movement
- Simplify Mineral Administration using IT
- Reengineer & simplify the process of reports & returns online with strict adherence to the Acts & Rules
- Enhance revenue & curb leakages
- Interactive dashboard to view Mineral movement on Road Network
- Enact IT based standard operating procedure for all Govt. mining officials to avoid delay & favoritism
- Unique identification of lessee/licensee (Dealers)
- Enact IT based standard operating procedure
- Tracking the mineral movement & usage of Transit Passes
- Getting online monthly returns without human error on data posting
- Monitoring increase of traffic of mineral carrier movement.
- Monitoring district specific mineral dispatch and revenue collection.
- Monitoring transporters activity involved in mineral dispatch.
- Monitoring actual mineral stock quantity at the pit head and plant head.
- Getting mineral sale price statistics for each mineral of the State.

(ii) To Stakeholders

- Ease of doing business
- Sequential Data arrangement in user's portal.
- User friendly screens to update mining statutes time-to-time.
- Able to know current approval status of the application.
- Able to pay dues online with hassle free transactions.
- Time saving & Cost effective in terms of travelling to mining office.
- Tracking the mineral movement & usage of Transit Passes.

(iii) Other stakeholders

The transporters and End Users engaged in mineral related activities gets exhaustive and real time information of their interest to mobilize their resources and business activities optimally.

16. Future proofing/Longevity of the Project:

1. Mineral Vehicle Tracking System
2. Mobile Application for all Stakeholders
3. Integrated Command Control Centre
4. Enhancements and Integration with other Departments
5. Hosting the application over Cloud

3. IRCTC Rail Connect Mobile App

1.	Name of the State/Ministry	Ministry of Railways
2.	Name of the host/owner organisation	Indian Railway Catering and Tourism Corporation Limited
3.	Status of the host/owner organisation	Indian Railway Catering and Tourism Corporation (IRCTC) is “Mini Ratna” (Category– I) Public Sector Undertaking under Ministry of Railways and a fully owned subsidiary of Indian Railways.
4.	Name of the Project	IRCTC Rail Connect Mobile App
5.	Name of the Nodal Contact Person	Mr. Sunil Kumar (Group General Manager/IT)
6.	Contact Address	Indian Railway Catering and Tourism Corporation (IRCTC), IT Centre, IRCA Building, State Entry Road, Connaught Place, New Delhi – 110055
7.	Telephone/Fax/e-mail	011-23741116 ggmit@irctc.com

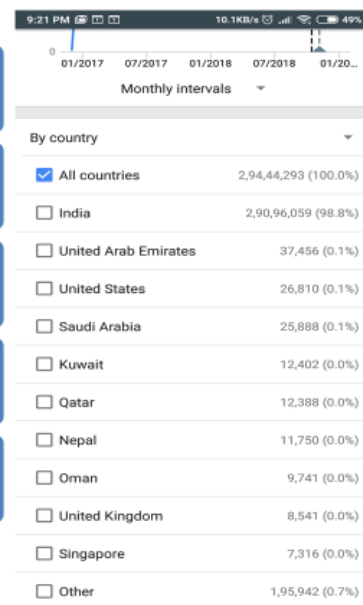
8. Project Summary

Indian Railway Catering and Tourism Corporation (IRCTC) re-engineered and re-launched a new mode of ticket booking through its own user-friendly official IRCTC Rail Connect Mobile Apps on Android platform w.e.f. 10.01.2017 for enabling booking of e-tickets on mobiles anytime-anywhere. This new app is available for download on the Google Play Store with a 4.3-star rating.

9. Date of launch of Project: 10-Jan-2017

10. Coverage (Geographical)

The reach of IRCTC Rail Connect App is worldwide and is accessible and available to all through network and Smart Phones. Mobile App can be downloaded from Play Store. There were total 27.83 million downloads up to Nov-2018. New Mobile App on Android Platform is directly benefitting to all the 27.83 Million Smart phone users and all the registered users of IRCTC having Smart Phone.



11. Beneficiary of the Project

100% Indian Population are beneficiary of IRCTC Rail Connect Mobile App for travelling using Indian Railway Reserved Ticket booking facility. Foreigners may also use Mobile App for Indian Railway Reserved Ticket booking. Booking of e-Tickets can be done from anywhere in the world by downloading the app from Google Play Store.

12. Problem statement or situation before the Initiative

IRCTC Rail Connect Mobile App is conceptualized, designed, developed & implemented with an objective to overcome the short falls of old Mobile App, enhance user convenience and to increase its reach and to provide new mode of Ticketing Service to all smart phone users of IRCTC.

Following features also implemented and incorporated in IRCTC Rail Connect Mobile App, which were not available on old mobile app, as a result, users preferred ticketing on website:

- "Flexible with date" option was not available in old Mobile app.
- Special Concession for Journalist and Divyangjan passengers was not available.
- Facility to add passengers from Master passenger list wasn't available.
- Managing master passenger list wasn't possible through app. It could be done only through main site.
- Fare breakup and train itinerary were not available.
- Booking through IRCTC e-wallet was not possible.
- Facility to change Boarding station was not available.
- Facility to check refund status of delta transactions (transactions against which amount has been debited from customer but not credited to IRCTC's A/c) was not available.
- Tracking the refund status of the cancelled PNRs and failed transactions was not possible in the old app
- VIKALP facility wherein wait listed passengers can opt for different train and complete the journey wasn't available.

- Ticket confirmation probability wasn't available.
- Vikalp Opting facility wasn't available for tickets booked over counters.
- PNR Enquiry facility for all type of tickets wasn't available.
- For foreign nationals, user registration and ticket booking facility was not available.

13. Project Objective:

The original objective of the eTicketing was "paperless tickets". IRCTC Rail Connect Mobile App gave another boost in achieving the objective of Paperless Tickets and its features ensures future sustainable engagement.

IRCTC Rail Connect Mobile App was re-engineered and re-launched with new features like self-assigned PIN, Confirmation Probability, support for Visually Impaired using Talk-Back, managing master passenger, Optional travel insurance service, booking syncing between IRCTC website & New Mobile App, Last transaction details, change Boarding station, booking through IRCTC e-wallet and VIKALP facility wherein wait listed passengers can opt for different train & complete the journey.

New Mobile app resolved Data syncing issues, Support for screen readers and integrated new payment options resulting drastic Improvement in booking Capacity, interoperability and User Convenience.

14. Project scope approach and methodology

In the first phase of complete re-development/ re-engineering process, Prototype & Feedback mechanism was adopted, Failure of Payment Gateways, new Payment Gateway methodologies were analysed and did Study of Customer Complaints and Expectation on Old Mobile App and from another mobile app.

The first phase was completed with all major quota-based booking, cancellations, User Registration through Mobile App and with proper data sync between IRCTC website and New Mobile App. Further, gaps in comparison to New Ticketing Mobile apps were gradually analysed. However, additional features of the system like Special Concession for Journalist and Divyangjan passengers, Payment through IRCTC eWallet, Tracking the refund status, complete Bookings History, Facility to change Boarding station, VIKALP, support for screen readers and Confirmation Probability were rolled out in a phased manner.



Major changes incorporated are:

-Changes in Payment Flow: In old mobile app, the Payment Gateways integrated were based on URL Redirection Methodology only. In this method, once the user selected the particular Payment Gateway for initiating payment, the user would be redirected to the web page of the selected payment gateway which would open within the app. Although this methodology was easy to integrate the transaction's success rate was low as it depended on the connectivity of the cellular operator and the uptime of the Payment Gateway.

New IRCTC Rail Connect Mobile app supports URL Redirection Methodology too but it has additional options viz. SDK based integration and API based integration. In SDK based integration, the Payment Gateway's application code is integrated within the app. In API based integration, the Payment Gateway's provide set of APIs (Application Program Interface) which is integrated within the standard webpage.

-Double Verification of Payment Flow to reduce Payment Based Frauds: Double verification of each transaction minimise the fraudulent activity to maintain data integrity and improves success rate, revenue of payment gateways and reduces transaction failures and escalations. Double Verification of IRCTC PG Transaction is applied only for Successful Transactions (depending on bank response at first time). Double Verification of Transaction will happen in back ground without the knowledge of end user.

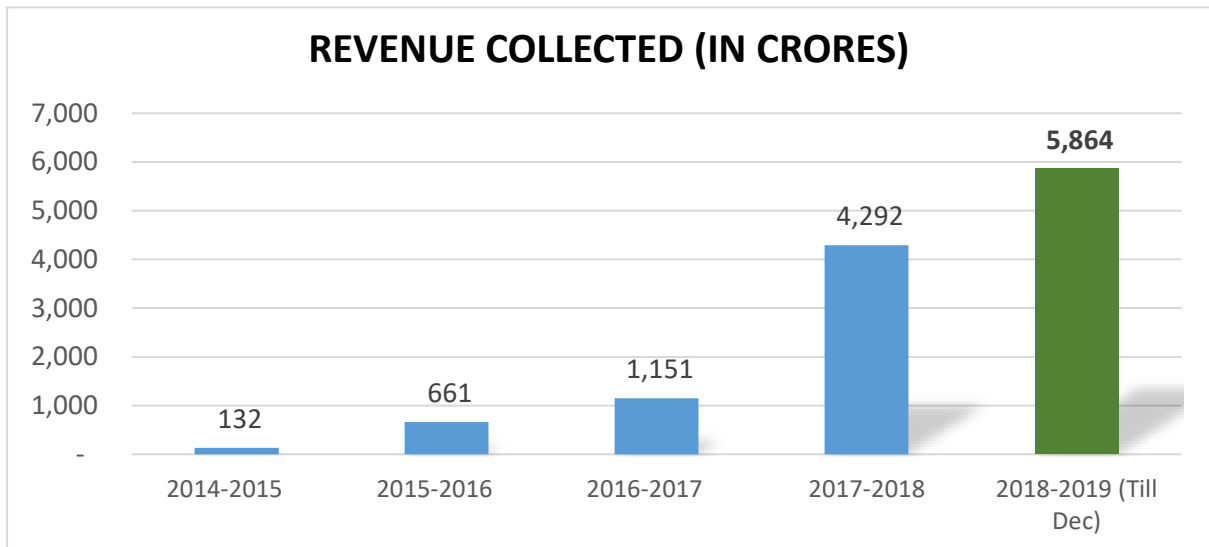
To mitigate the fund related risk, successfully implemented Pre-Funding Model for most of Payment Gateways.

-Design Change to support Screen Reader like Talk Back for Visually Impaired: Rail Connect App through Google's Talk-Back feature assists the visually impaired and people with low vision to book rail e-tickets. Talk-Back is the Google screen reader included on Android devices. It reads out the content displayed over the handset's screen so that application can be used without the need to look into the screen. This feature wasn't available in the old app due to which the visually impaired and persons with low vision couldn't book the e-tickets independently. They had either book tickets by standing in queue in railway counters or book through agents. For this we have enabled booking with OTP which was earlier being done using image CAPTCHA.

-Travel Insurance: Optional Travel Insurance to all the passengers booking confirmed and RAC Tickets is also available with low premium of 49 paisa on IRCTC Rail Connect Mobile App. Charges are same as website charges

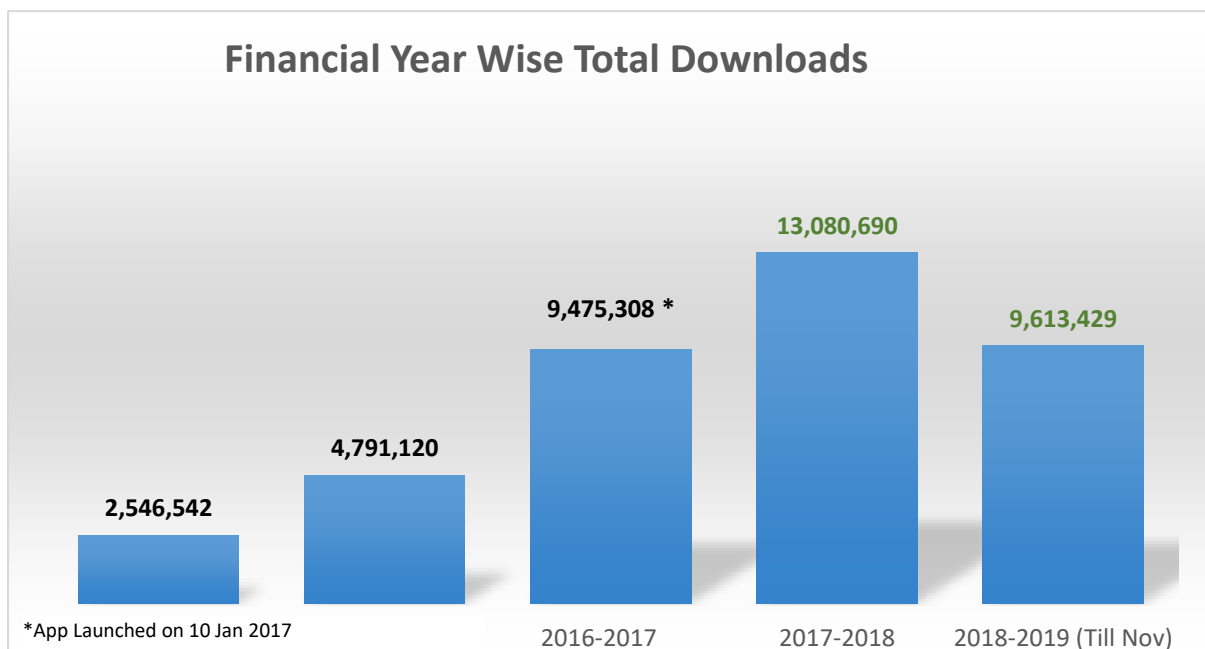
Soon, IRCTC is planning to launch IOS version of IRCTC Rail Connect Mobile App.

15. Result achieved/value delivered to beneficiary of the Project and other distinctive features/accomplishments of the project



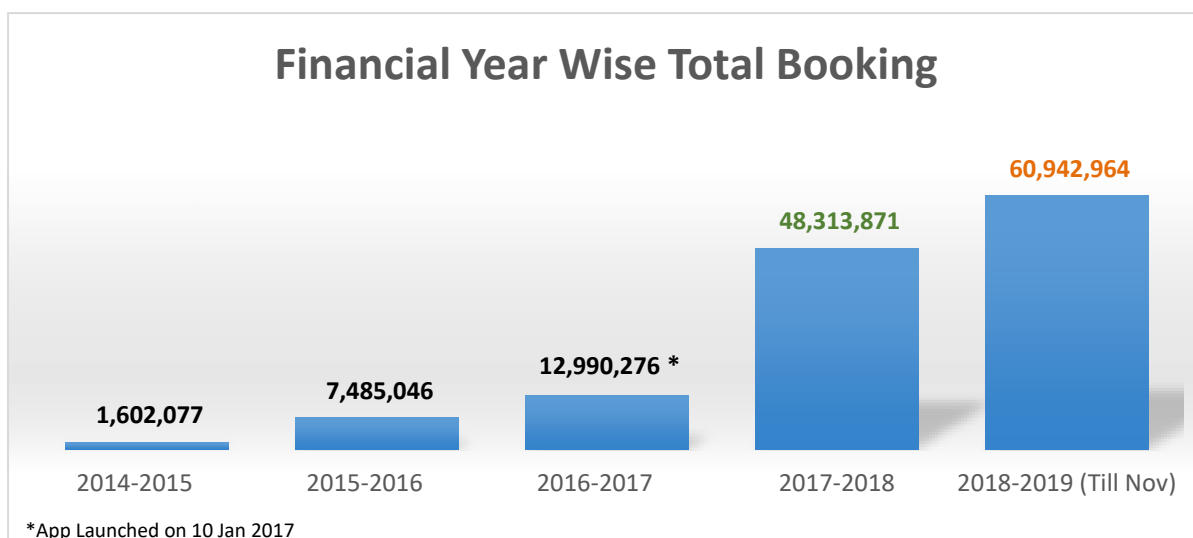
Feature of self-assigned PIN: New App supports features like advanced security of self-assigned PIN (Personal identification number) to login without entering username and password on each login.

Confirmation Probability: Check probability of confirmation for waiting list tickets before and after booking



Artificial Intelligence (AI) powered Chatbot– Ask Disha (Digital Interaction to Seek Help Anytime): It includes ability to quickly answer to customer queries, provide round-the-clock customer support and overall ability to provide customer with stress-free experience and overall customer satisfaction.

Feature for Visually Impaired: For the visually impaired persons, google Talkback feature was enabled on IRCTC Rail Connect Mobile App. IRCTC implemented OTP in place of CAPTCHA and Text against Images shown on Payment Page was also introduced on IRCTC Mobile App.



More accomplishments of project are:

- No longer have to carry physical tickets or ERS with them while travelling on trains.
- Users can book Current Reservation and tickets under Ladies, Senior Citizen, Tatkal, Premium-Tatkal, Divyangjan quota. User can also Change boarding point Station through IRCTC Rail Connect Mobile App.
- Optional Travel Insurance to all the passengers booking confirmed and RAC Tickets is also available on IRCTC Rail Connect Mobile App
- Now book meals on mobile app to be delivered directly on your seat/berth.
- Easy refund tracking using mobile app. Facility to keep amount in advance with IRCTC for booking of tickets using IRCTC e-wallet and multiple payment options are available for payment.

Financial Year	Total Booking of IRCTC Mobile App	% Growth
2014-2015	16,02,077	-
2015-2016	74,85,046	367%
2016-2017*	1,29,90,276	74%
2017-2018	4,83,13,871	272%
2018-2019 (Till Nov)	6,09,42,964	-

*App Launched on 10 Jan 2017

- Booking of e-Tickets can be done from anywhere in the world. Some figures are:
 - Average Daily Mobile Bookings : 3,07,696 (in Dec 2018)
 - Average Daily Downloads : 37,170 (in Dec 2018)

- Average Daily Logins : 40,86,084 (in Dec 2018)
- Highest Daily Bookings : 3,90,553 (09-Jan'19)
- Highest Per Minute Bookings : 8,701 (At 11:03 am on 01-Sep-2018)
- Total Booking : 12,37,22,092 tickets (in Dec 2018)
- Total Revenue Collected : 5,863.82 Crores (in Dec 2018)
- Total Downloads After reengineering : 2.89 Crores (in Dec 2018)

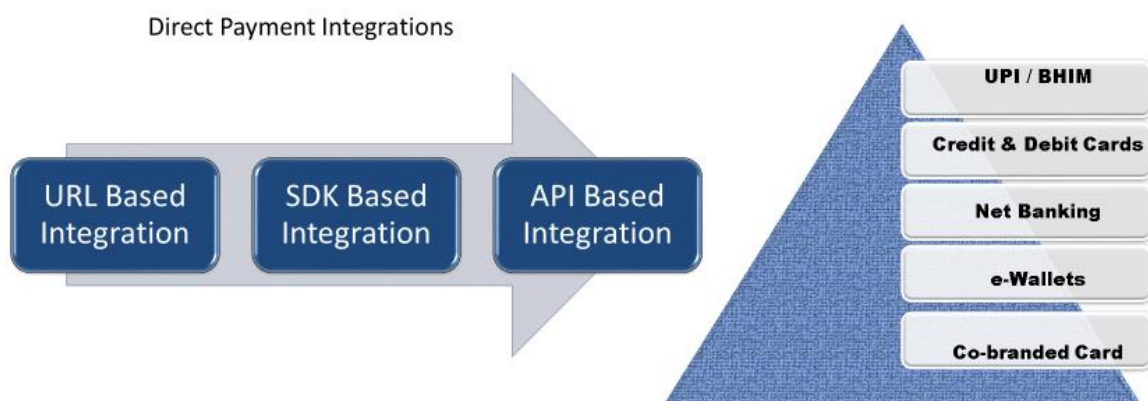
16. Future proofing/Longevity of the Project

With the use of Open Ended & robust technology, continued availability of competent and technically qualified work force and processes like status tracking, comparative study, impact analysis, timely testing and escalations, Monitoring, data reconciliation and fund reconciliation by various teams and departments, accountability is ensured.

All necessary Validations have also been built into the application for the benefit of Users, PRS system & IRCTC. Use of JAVA & Oracle has ensured ease of use & advantage of integrating with external systems. In IRCTC Rail Connect Mobile App, payment may be done digitally. New app supports URL redirection methodology, SDK & API based integration. Aadhaar Authentication can be done directly from mobile app. New technology for Mobile App development & Infrastructural enhancements were made regularly.

Major e-Wallets like MobiKwik, Jio Money, OLA Money, Airtel Money, Paytm and various Multiple Payment Providers (Aggregators) like PhonePe, RazorPay, PayU are also integrated.

PAYMENT OPTIONS



Others

- Application Delivery Controllers (ADC) with Web Application Firewall
- Web-services/ APIs were used to interact with back-end.

- Premium support for critical equipment (Equipment whose failure can result in total service failure) with 8 hours call to resolution: SAN Storage, SAN Switches, Database Servers, Cache servers, Mail Servers.
 - 24 by 7 support includes guaranteed delivery of servers/services, so as to meet the applicable SLAs.
 - Provision to log complaints/ open support cases directly with OEM. Updates of firmware software. Root Cause Analysis of all failures.
- New technology for Mobile App development and Infrastructural enhancements were made on regular basis.

4. UMANG (Unified Mobile Application for New-Age Governance)

1.	Name of the State/Ministry	Ministry of Electronics & Information Technology
2.	Name of the host/owner organisation	National e-Governance Division (NeGD), Digital India Corporation (DIC)
3.	Status of the host/owner organisation	NeGD is an Independent Business Division under DIC, Ministry of Electronics & Information Technology
4.	Name of the Project	UMANG (Unified Mobile Application for New-age Governance)
5.	Name of the Nodal Contact Person	Mr. Anil Agarwal, PC & Head UMANG PMU
6.	Contact Address	NeGD, 4th Floor, Electronics Niketan, 6 CGO Complex, Lodhi Road, New Delhi – 110003
7.	Telephone/Fax/e-mail	+912224303782, anil.agarwal@digitalindia.gov.in

8. Project Summary:

UMANG is one of its kind government service aggregation platforms delivering hundreds of services through single app on all major mobile platforms i.e. Android, iOS and Web. Currently, various government departments of Centre & States as well as the local bodies are the service providers to the end-users on UMANG. Backend applications of these service provider departments connect with UMANG through APIs provided by them or developed by UMANG for them. The applications of these departments are diverse in terms of implementation and technology stack used. UMANG supports federal structure through central & State tabs any of which can be made default landing page by the citizens/users.

UMANG app occupies mobile memory equivalent to just one mobile app, about ~18 MB. It provides power and convenience at the fingertips of citizens & supports 13 languages including Hindi and English. Consistent user interface/experience, powerful and intuitive search make UMANG highly user friendly.

UMANG solution involves three layers, a) UMANG Client Apps – Android, iOS, Web and KaiOS; b) UMANG Backend connected to Service Providers' (currently Government Departments) backend applications and c) Helpdesk Centre.

UMANG is centrally integrated with Aadhaar (authentication/ authorization service), Payment Gateway (payment for services), SMS/E mail gateway and Feedback Services facilitating quick

integration with all types of services. Salient features of UMANG are – a) open source-based stack, b) modular and loosely coupled architecture and c) hosted on cloud to cater on-demand scalability.

More than 500 services from 104 departments & 21 states are already integrated and more are in pipeline. There is also a provision to provide directory services for some important services. UMANG has reached to a level of ~17 Mn downloads and registered users while maintaining an average Play Store rating of ~4.4.

UMANG was made beta-live on May 28, 2017 (Android), on June 20, 2017 (iOS) and formally dedicated to the nation by Hon'ble Prime Minister on November 23, 2017.

9. **Date of launch of project:** Nov 23, 2017

10. **Coverage (Geographical):** All India

11. **Beneficiary of the Project:** Citizens of India, Departments for Mobile Governance

12. **Problem statement or situation before the initiative** (*This is elucidation of the specific problem that was sought to be solved or issue to be addressed through this initiative*):

Citizens/End-Users Perspective

Discovering of government services on Play Store (Android) and iOS becomes quite strenuous and challenging in the absence of awareness of the existence of mobile app, its exact name and invariable presence of many fake apps. Another hold-up comes from infrequent or irregular use/need of such government services, majority of which are either one-time use or sporadically used by citizens. Added reluctance comes from blocking of handset memory, every app needs 15-18 MB of space; time taken to register and get conversant with every new app before this can be used, a definite learning curve; and gaps in UI quality and user experience puts-off the user. Another reason for resorting to physical service delivery counters is the support for local language as majority of the mobile apps are at most bilingual and doesn't support local regional languages.



How is UMANG better than installing individual mobile apps?

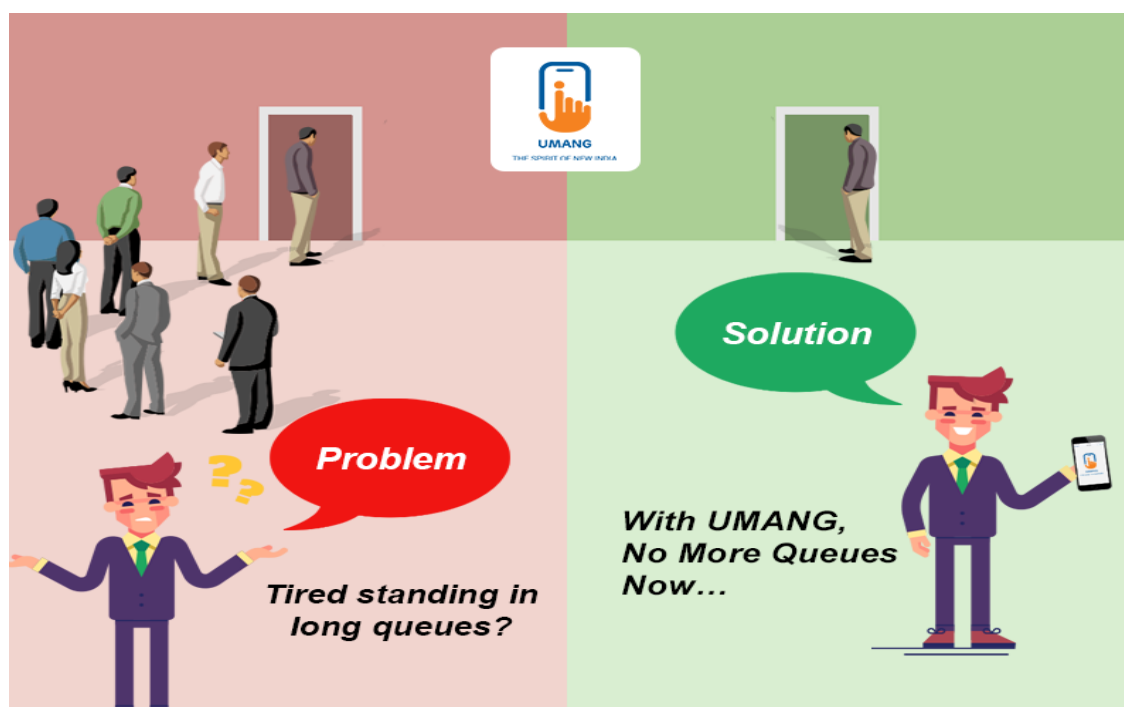
UMANG provides a uniform experience across major government services including payment-based transactions. Occupies memory space of just one mobile app (~18 MB). It has intuitive search & discovery and other user friendly features, viz. favorites, sort/filter etc.

Department's Perspective

Departments struggle to get their services online, particularly on mobile, because of the lack of volume and required IT skills. Their expertise lies in their core domain and to get their services on mobile app requires hiring experts (individual or organization), which requires preparation of 'DPR (Detailed Project Report), budget approval, fund allocation, RFP preparation & evaluation, vendor management etc. Ensuring quality, good UI/UX and implementation of best industry practice in such mobile apps becomes challenging for the department, being a non-core area for them. In addition, because of the one-off requirement and lack of volume the cost of implementation and maintenance also gets bloated. Biggest of these challenges is promotion to create awareness among the target users regarding availability for such mobile app.

13. Project Objectives *(should clearly spell what the initiative sought to achieve):*

In the context set in the above paragraphs and challenges being faced by different stakeholders, viz. citizens, the end user and the government departments, responsible for services delivery, UMANG was conceived with an objective to address major problems/ challenges in delivery & consumption of citizen centric services by way of unifying the major citizen centric services from various government departments of Centre, States and local bodies in a single unified mobile app wherein the integration with the back-ends of all such departments is done through UMANG Platform on APIs.



14. Project scope approach and methodology *(Describe in detail the activities that took place in order to achieve the desire results):*

Conception of UMANG was followed by 'Stakeholders Consultation', primarily the departments whose services were to be aggregated on UMANG; the Consultation Workshop was conducted in Oct 2015. Many central ministries were consulted covering domains such as PDS, Road & Highways, Social Benefits, Urban Governance etc. Even many States were consulted such as Assam, J&K, Manipur, Meghalaya, Mizoram, MP, Odisha, Tripura, Uttarakhand etc. regarding the relevance and utility of

such aggregated unified platform. Relevant suggestions from the stakeholders have been incorporated in the UMANG design such as Assam suggested for state's control in managing the services visibility/availability in UMANG which has been implemented through 'UMANG Self Care' for the on-boarded departments to manage their services. Similarly, MP wanted their existing channels to continue in addition to UMANG, which is indeed the case as UMANG is an additional channel over & above all existing and future independent channels of the departments/states. Barring such suggestions, all stakeholders, participated in consultation process, appreciated the concept of UMANG, Unified Mobile App for New Age Governance.

Scope of UMANG was primarily and generally restricted to citizen centric services of government, central as well as States and local bodies. The approach adopted to quickly establish is relevance and utility for the citizens was to focus, initially, on the widely used high volume services of central government departments followed by State departments because central services were relevant to all citizens across country.

As the objective was to aggregate services of central government departments as well as that of all State governments, Pareto Principle (also known as the **80/20 rule**, the law of the vital few, or the **principle** of factor sparsity) was adopted, which states that, for many events, roughly 80% of the effects come from 20% of the causes. Accordingly, citizen centric services, which are widely and heavily used and that together contributes to about 80% of the traffic/transactions volume were prioritized. This, of course, was constrained by many practical factors such as availability of services flow and related data/information in digital format, capacity of the backend infrastructure to support increased load and the concurrence/approval of the concerned departments. It was also kept in mind that we can serve all segments of Indian Society from the beginning, viz. Farmers, Students, Employees, Pensioners, Patients, Consumers etc.

15. Result achieved/ value delivered to beneficiary of the project and other distinctive features/ accomplishments of the Project (*Citizen Centricity and relevance, user convenience, cost to user, sustainability, number of users and services, appropriateness of context & localization of best practices, enhancement of efficiency, innovation, e- Inclusion etc.*):

UMANG addresses most of the key challenges faced by end-users and the government departments in a very structured manner.

Concept of UMANG, making it kind of a single stop solution to major government services, wherein, many high-impact and widely used government services are integrated on a single mobile app, is generally liked and appreciated by target users, the Indian citizens. This is evident in the fact that already about 1.7 crore users have downloaded and registered on UMANG and that it is maintaining average user rating of 4.4 (on the scale of 5) on 73K+ users' ratings on Android Play Store.

Salient solution aspects are briefed below:

I. Citizens/End-Users Perspective

- a) Single unified mobile app for hundreds of major citizen centric government services – already 500+ (as in Nov, 2019) integrated and further in progress

- b) One time and unified effort to promote UMANG for creating awareness among target users
- c) Easy to locate and identify UMANG on Play Store (Android), App Store (iOS) and Web; being a single mobile app, UMANG team can monitor for fake apps and remove these (as they appear) quickly
- d) Easy and intuitive search of services within UMANG through keywords (search bar), filter and categories, 'New & Updated', 'Trending' etc.
- e) Once discovered/identified or used, it can be marked as favorite by just clicking on the heart icon on services tab adding the relevant/preferred services in the 'Favorite Tab'; Last 5 services used are visible on the home page as 'Recently Viewed'
- f) Because of many widely used services of Centre and States, covering all major categories, it now offers huge motivation to download UMANG and retain it. Its aim is to become a 'Single Stop Solution' in the hands of citizens for major government services
- g) Because of the consistent and intuitive UI/UX across all integrated services on UMANG, learning curve is drastically shortened and it is one time only; after first use of any service rest services can be used in the same manner
- h) Simple registration with just mobile number and OTP. Other profile details are optional and can be furnished later as the user uses it over a period of time
- i) As UMANG is backed by 24x7 O&M support, it is always updated
- j) UMANG provides 8x7 (10 am to 6 pm, all days) customer support through toll-free IVR that can be connected to Customer Service Executive, in-app live chat and email for any kind of support a user may need
- k) UMANG is multilingual and supports 11 regional languages in addition to English and Hindi




II. Department's Perspective

1. No additional IT skills are required at the department end, who just need to have a properly sized back-end IT infrastructure with digitized data and service flow implemented
2. No requirement of any DPR, budget, fund, RFP or any vendor for departments to get their services on mobile app
3. All technical work (including API development, if required) to on-board/integrate department's services is done by UMANG partner without any cost to the department. UMANG is funded by MeitY, Govt. of India
4. No O&M by department for managing front-end, the mobile app on all major platforms i.e. Android, iOS & Web; done by UMANG
5. Department and State landing page are customizable to their requirements and persona within the overall design guidelines of UMANG
6. No cost to the departments for promotions and creating awareness for their services on-boarded/integrated on UMANG; While promoting UMANG on different print, electronic and social media platforms different services integrated on it are highlighted in rotation
7. New services get identified by users through 'New Updated' section on the landing page where latest 5 additions (services) and/or updates (in services) are presented; also, these can be discovered through powerful and intuitive search
8. New Services are also highlighted through specific banners on the landing page and notified through in-app notifications to the registered users
9. Integrated departments are provided with 'Self-Care' Portal with detailed user/rights management giving detailed insight into their services such as user complaints, MIS and usage statistics, technical performance on APIs, updates to service/department information, changes in the logo or banner, sending notifications to users etc.

III. Key Features

1. Native App: Developed for all platforms, viz. Android, iOS & Web, natively and it is not a container app
2. Minimal: Only required functionalities & content are pushed and displayed to user unlike a website, which has lots of additional resources
3. Mobile friendly: Especially designed multi-page forms, which have been optimized for mobile
4. Offline support: Forms can be filled in multiple sessions; filled data available until submitted
5. Autofill: Functionality to autofill forms using profile data & past usage data
6. API based integration of UMANG platform with department application back-end
7. Cloud hosted, open source stack with loosely coupled, configurable architecture
8. Self-Care Portal: Extended to departments for managing their services including user management, managing customer reported complaints, MIS/service statistics dashboard, API performance, keyword management, service availability & promotional in-app notifications etc.



What are the security measures used in UMANG?

UMANG uses latest industry standards as security measures such as MPIN and OTP.

Apart from MPIN, an additional layer of security in the form of security question ensures that your UMANG account details are never compromised. Security question is required when you forget your MPIN.

In addition, your profile details are saved in encrypted format in the system so that no one can read these details.

Further, you can manage the security settings in the app based on your device requirements. You can go to the **Navigation Drawer > Settings > Account Settings** to manage your Account settings.

16. Future Proofing/Longevity of Project *(Describe the future outlook of the project/ solution in terms of scalability, interoperability, platform independence & also explain on the risks envisaged and mitigation procedures in Place):*

UMANG shall virtualize the services delivery by detaching the service seekers from service providers i.e. the two entities will not know each other personally that shall help increase the transparency and accountability

UMANG touches all segments of society such as farmers, students, health, youth, employees, retired/pensioners etc. Support of 11-regional languages in addition to Hindi & English on UMANG enhances its reach accessibility further.

In financial terms also, it is adding huge value in the system and to the nation. Savings are accruing to the departments/states on account of cost-effective development/ integration of services on a unified platform (volumes), reduced needs of promotion at the individual department and service levels. Moreover, as UMANG gets known and becomes popular among the target users, incremental cost for promotion per department on UMANG also shall go down over the years.

Scaling

The hybrid architecture with API based integration and combination of native and web-services functionality helps achieve the high scalability. UMANG architecture is loosely coupled, modular and configurable. As this is cloud hosted, adding infrastructure resources is fast, convenient and dynamic. Open source stack adds lot of flexibility in achieving the high scalability.

Even today UMANG has been designed and configured for a very high capacity of 3500 TPS that has been successfully tested for about 5000+ TPS.

UMANG can be scaled vertically, which means adding more services to UMANG in its current instances so that all major (high-impact widely-used/ high-volume) citizen centric services of Central Government and all State/UT Governments including Local Bodies get covered. With this, UMANG can practically become single stop solution, a universal mobile app, for all major government services in India. This is already covered in the UMANG vision.

UMANG can be replicated as well, where further instances of UMANG can be created for other major categories of government services such as Government to Business, Government to Employees and Government to Government. This is also envisaged but shall be firmed up with concrete action plan once the current instance covers up its goal and vision.

Innovation

To increase the reach of UMANG beyond Smart Phones and enhance the accessibility to differentially abled (with poor or no vision) and to less educated or illiterate users, a 'AI enabled Voice Access' is being planned to be implemented on UMANG in a phased manner that shall evolve with the Technology advancements and maturity. Proof-of-Concept (PoC) with few capable and potential solution providers has already been completed successfully.

UMANG, potentially plays a pivotal role in driving Government Process Reengineering (GPR) by sharing best practices among departments and optimizing the mobile interfaces for capturing and presenting the services related parameters. Such GPR can be driven to achieve consistency in services delivery across States, optimizing the parameters required as inputs for services delivery by removing all redundant and unwanted parameters, presenting the forms in mobile friendly formats/ structure, leveraging DigiLocker for documents pull-push and seeking users' feedback through central Feedback System (Rapid Assessment System of MeitY).

5. MahaRERA

1.	Name of the State/Ministry	Maharashtra
2.	Name of the host/owner organisation	Maharashtra Real Estate Regulatory Authority (MahaRERA)
3.	Status of the host/owner organisation	Statutory Body
4.	Name of the Project	Technology Led Transformation of Real Estate Sector – MahaRERA
5.	Name of the Nodal Contact Person	Dr. Vasant Prabhu, Secretary, MahaRERA
6.	Contact Address	Maharashtra Real Estate Regulatory Authority 3rd Floor, A-Wing, Slum Rehabilitation Authority, Administrative Building, Anant Kanekar Marg, Bandra (E), Mumbai 400051
7.	Telephone/Fax/e-mail	Telephone: 022 68111600 Email: secy@maharera.mahaonline.gov.in

8. Project Summary:

Real Estate Sector in India has traditionally been plagued with numerous issues including opaque practices and information asymmetry. Real Estate Transactions were lopsided and heavily in favor of developers. Delays were rampant, and homebuyers usually did not have a reliable forum to address their grievances.

In order to overcome these challenges, Maharashtra Real Estate Regulatory Authority (MahaRERA) was established, which leveraged technology to change the face of Real Estate Sector. MahaRERA is a 100% Digital Platform transforming the real estate sector in the state, promoting transparency, accountability, financial discipline, customer centricity and compliance.

9. Date of launch of project: 1st May 2017

10. Coverage (Geographical): Entire state of Maharashtra

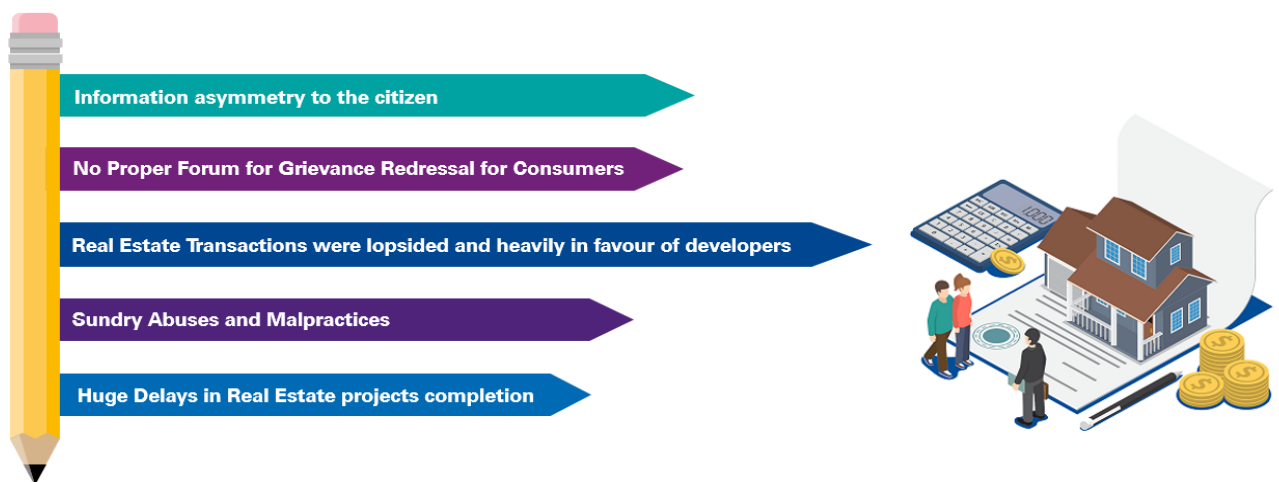
11. Beneficiary of Project

This project impacts the entire Real Estate Industry and beneficiaries include:

- Home Buyers / Allottees
 - Promoters / Developers
 - Real Estate Agents
 - Professionals in Real Estate Project like CA, Architects, Engineers etc.
 - Labour Workforce
 - Banks / Financial Institutions

12. Problem Statement

The Real Estate Sector in India is the second highest contributor to the Nation's GDP and a very important employment provider. Yet, it has traditionally been plagued with numerous issues, mainly with opaque practices and information asymmetry. Real Estate Transactions have usually been lopsided and heavily in favour of developers. Delays in completion of Real Estate Projects have been rampant and homebuyers, who have been at the receiving side, did not have a reliable forum to get their grievances redressed promptly. Below are the issues which were adversely impacting the sector:



- 1) **Information Asymmetry:** There was a lack of transparency in the sector. Flow of information was very restricted. Information provided was only in accordance with the whims and fancies of the developers. Basic information like the facilities and amenities in the real estate project, access to specifications of fixtures, project completion date etc. remained elusive to customers.
- 2) **Grievance Redressal:** Even though, statutes, which were meant to provide the grievance redressal mechanism to the customers of a real estate projects, did exist, customers were not clear, which forum to approach. The time taken for resolution of the grievances, led to further exasperation for the customers.

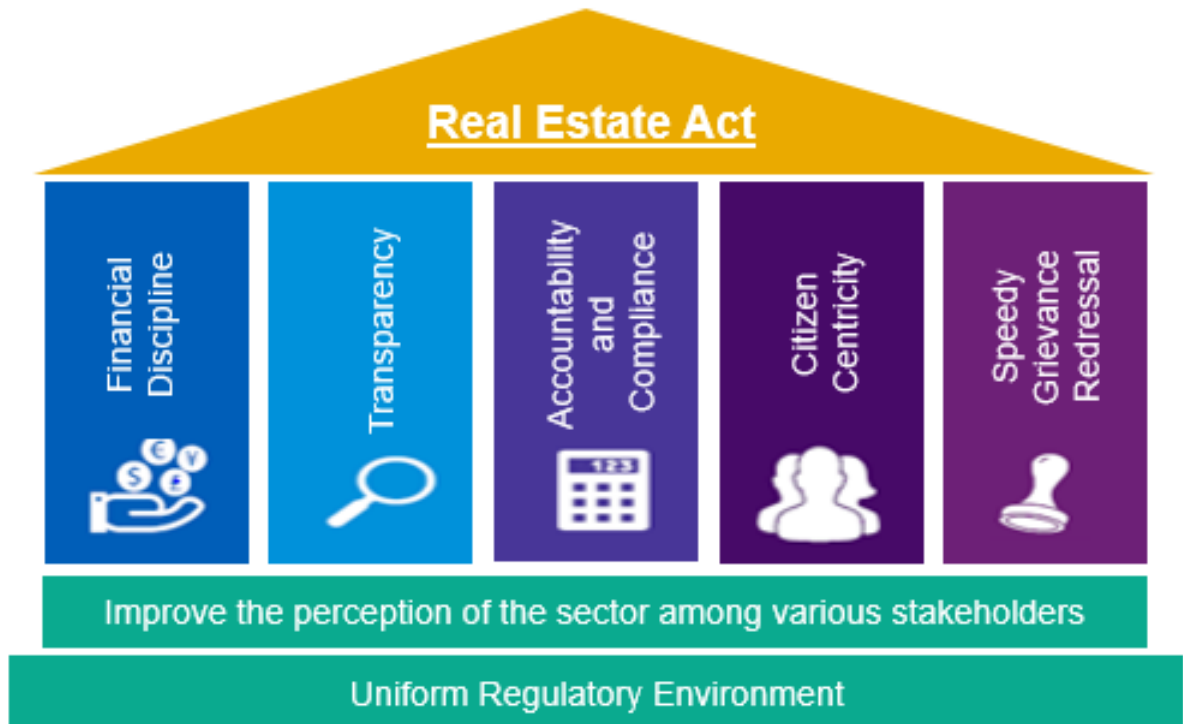
- 3) Lopsided Transactions:** The stakeholders were also suffering heavily from lopsided agreements and transactions. The documents were usually in the favour of the developers and the customers in most of the cases were made to sign on dotted lines.
- 4) Sundry Abuses and Malpractices:** Violation of rights of the customers was quite prevalent in the industry. There were malpractices including financial malpractices. The money collected for a project would be diverted for other purposes, delaying the completion of the project for which the money was collected. This further led to widening of the trust deficit between the home buyers and the developers.
- 5) Delays in Completion:** Due to reasons mentioned above and various other reasons, the projects languished in various stages of incompleteness. This not only caught the home buyers in a financial bind but also brought the developers into a financial stress along with reputational risks

13. Project Objectives

In order to overcome these challenges, the Central Government brought in the Real Estate (Regulation and Development) Act, 2016, (RERA Act) to be made fully operational with effect from May 1, 2017. Some sections of the Act were notified from 1st May 2016 and all the State Governments were given one year to formulate their own Rules and Regulations and set up the Authority, to implement the Act from 1st May 2017.

A one-member Interim Authority was appointed in Maharashtra, to take charge of Maharashtra RERA in November 2016. Though the Act gave a time frame of one year from 1st May 2017, to State Authorities to move over to a digital platform for a smooth implementation of the Act, the Government of Maharashtra tasked the MahaRERA Interim Authority to make available an online platform to its stakeholders from 1st May 2017 itself. The Interim MahaRERA took a note of the State's directive and on-boarded a knowledge partner and a system integrator to achieve the desired results.

In March 2017, Government of Maharashtra notified MahaRERA. Thereafter, MahaRERA, with its Digital Platform, dedicated itself to the task of transforming the Real Estate Sector in the State of Maharashtra, while implementing the Act in its letter and spirit, endeavouring to promote transparency, accountability, financial discipline, customer centricity and compliance.



The above mentioned 5 traits of MahaRERA functioning, now form the pillars for completing MahaRERA registered projects and bridging the trust gap between the home buyers and the developers that had become the unfortunate legacy of the sector.

As there was no such Authority in the country, benchmarking the process was the real challenge. The second challenge was to make a portal live with all the requisite forms available online for the developers, agents and citizens, in the time line set out by the State Government. The third was to interact with the stakeholders and provide inputs to the State Government for finalizing the Rules.

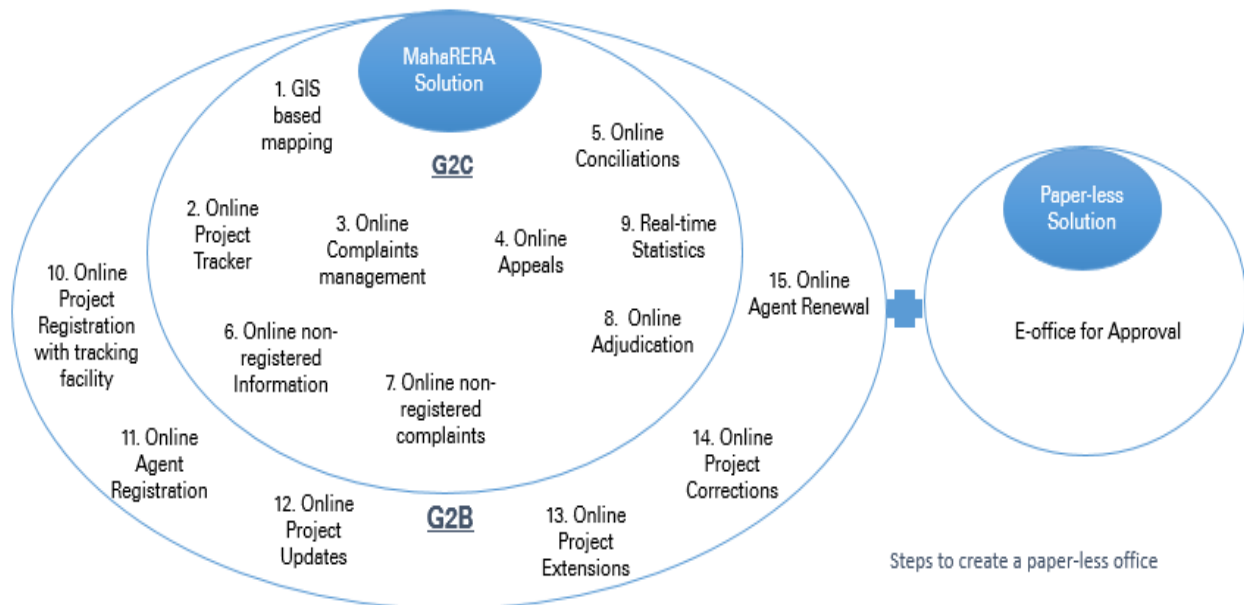
14. Project Scope, Approach and Methodology

- **Project Scope: 100% Digital Platform**

MahaRERA is a 100% Digital platform. All of its G2C and G2B services are completely online including:

- ✓ Online Project Registration with tracking facility,
- ✓ Online Agent Registration,
- ✓ Online Project Updates,
- ✓ Online Project Extensions,
- ✓ Online Project Corrections,
- ✓ Online Agent Renewal,
- ✓ GIS based mapping,
- ✓ Online Project Tracker,
- ✓ Online Complaints management,
- ✓ Online non-registered Information,
- ✓ Online non-registered complaints,

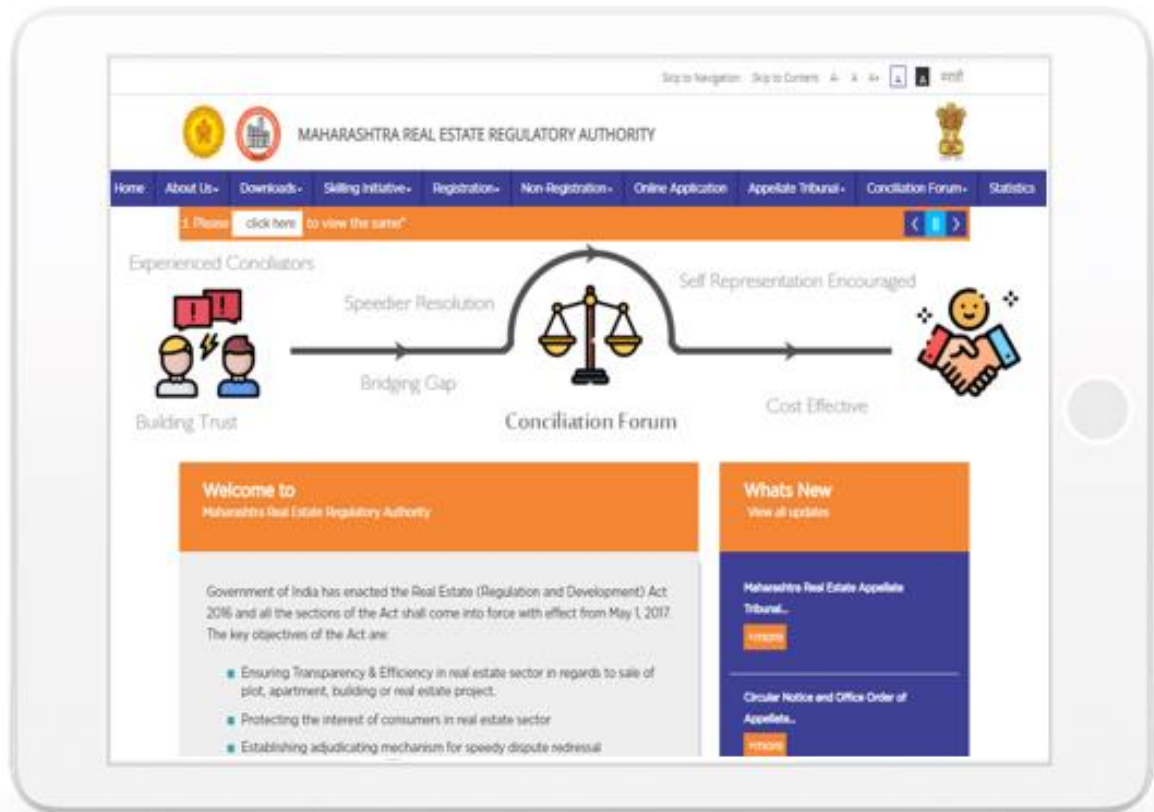
- ✓ Online Appeals,
- ✓ Online Adjudication,
- ✓ Real-time Statistics and
- ✓ Online Conciliations.



- **Project Approach and Methodology: Digital Governance: Zero Paper, Zero Footfalls**

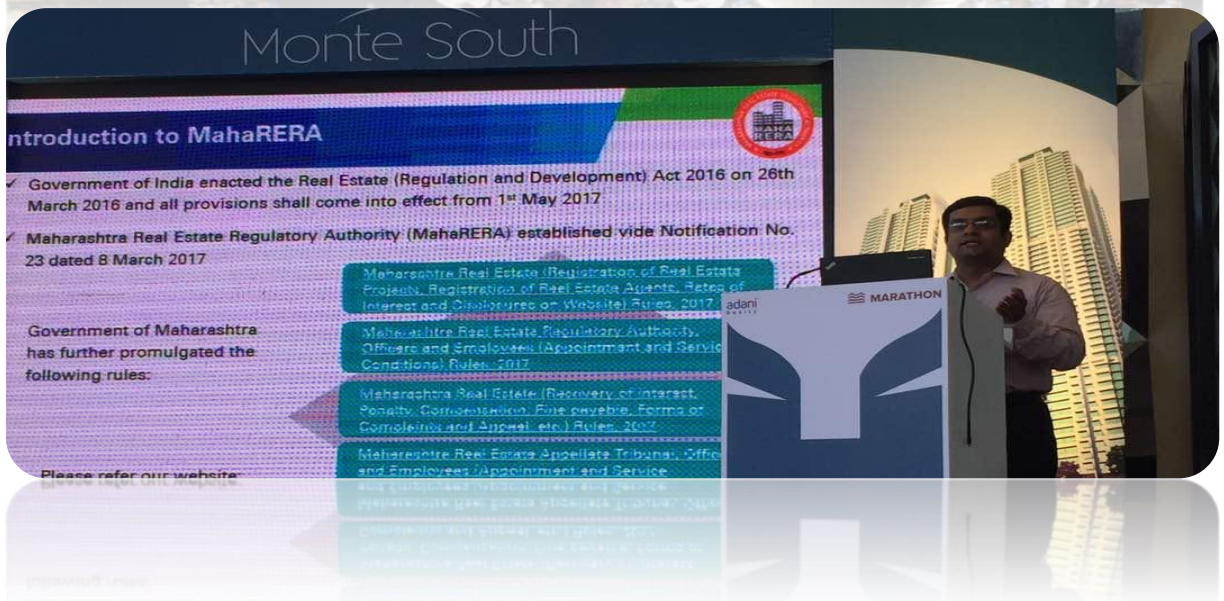
With the help of the knowledge partner, a complete Functional Requirement Study of the process was done within a period of one month, starting December 2016. This study included the developing of various forms, preparation of various work flows for the movement of applications for approvals, presentation of information to the officials and to the citizen on a special portal for providing information. A detailed report on the study was provided to the system integrator to prepare software and website.

The website was made available to the public on 24th of April 2017. The website had details about MahaRERA, downloadable copies of the Central RERA Act, the 5 Rules framed by the Government of Maharashtra, the 2 Regulations framed by MahaRERA and approved and notified by the State and over 200 FAQs for awareness creation. A MahaRERA jingle, in Hindi and Marathi, was composed in-house and uploaded on the website as a part of the awareness



creation campaign. The jingle presented MahaRERA as a friend of all its stakeholders. The website also informed the people about the portal which was to be made open for applications from the mid-night of 30th April 2017. The application portal was thoroughly checked by the system integrator and the knowledge partner for any gaps which needed urgent rectification.

The whole idea of a regulatory authority in the real estate sector was new and that too it's functioning on a fully digital platform. Therefore, it generated large number of concerns about the information accessibility of the website, operability of the portal and the procedure for making applications. Various knowledge transfer seminars were arranged for the stakeholders, at various places throughout the State of Maharashtra by MahaRERA team members. In these workshops, information about the Act, how to use the website, operation of the portal etc. was lucidly explained to large audiences through informative and interactive power point presentations.



Capacity Building Sessions

- **Project and Agent Registration**

Real Estate Projects and Agents Registration



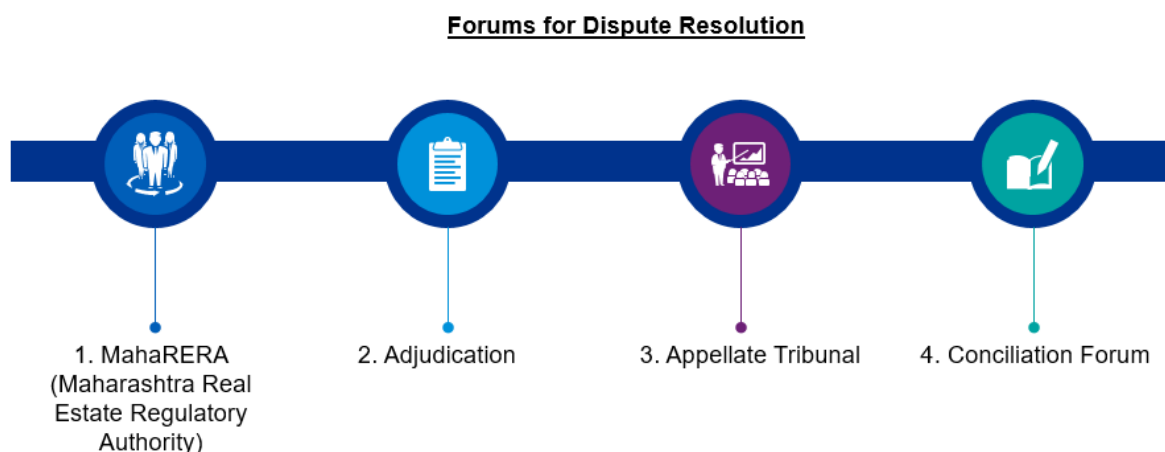
On the intervening night of 30th April and 1st May 2017, the application was made open for developers to register projects online. Maharashtra having 36 districts and 358 talukas, was the first state to provide an online portal and a live website for the implementation of RERA Act. The whole functioning of MahaRERA is managed by a team of only 40 members located across three locations at Mumbai, Pune and Nagpur. Two developers applied on the very first day for registration of their projects. As per the policy agreed upon, all the documents were to be uploaded online. No hardcopies of the same were asked to be submitted to the office for approval. Within the first three months of the online portal being made open, a total of 10,836 projects and 7,900 agents had registered themselves with MahaRERA. All the certificates generated were provided to the applicants online with digital signatures and no hardcopy was ever produced, making the office a Zero Footfall and Paperless office- a one of its kind in the entire nation. Till date over 22800 projects and 21800 agents across Maharashtra have registered with MahaRERA, without any physical or human interface in the process.

The approval of the applications is done by a team of experts, through online flow of application. Details of all the projects and agents are available to citizen at large via a portal which gives every bit of information. Also, the information about the progress of the project can be easily tracked on the portal. The website provides all the details of the project like Layout Approval, Building Plan Approval, Commencement Certificate (CC), Land Title Report, Encumbrance details, Litigations, if any, past credentials of the promoter, project completion date, amenities in the project, number of buildings, number of apartments, completion percentage of amenities, and current status of the project. All the information which, in the past, required lot of effort and hard work, on the part of the home-buyer to get, is now available on click of a button. The hapless home buyer is now an empowered citizen with all the required information at his finger tip, fully equipped to make informed choices.

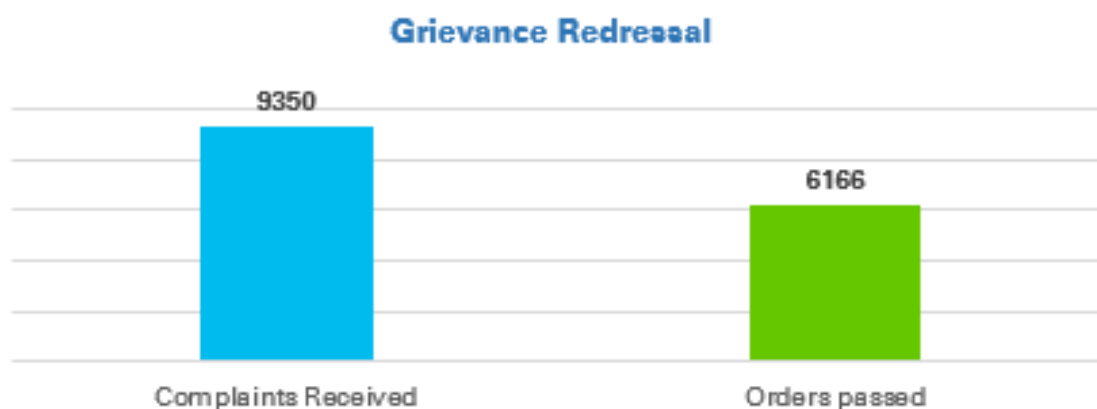
The disclosure of all the information made available in the public domain has removed information asymmetry, empowered citizens and has enabled them to make informed choices.

- **Grievance Redressal**

In the first year itself, MahaRERA initiated following forums for dispute resolution:



As per Section 31 of the Act, the complaint module went live in July 2017. This process of filing a complaint is also done online. All the documents relating to the complaints are filed and uploaded online. The complainant and the respondent need not bring hardcopy of any sort for the hearing, barring if they have any additional submission to make. There is also a provision to make these submissions in a softcopy form. MahaRERA has till date received around 9350 complaints, of which 6166 complaints have been disposed of. The orders are also made available on MahaRERA website, visible in the public domain



MahaRERA is also the first in the country to provide an Alternate Dispute Resolution Mechanism under Section 32(g) of the RERA Act. MahaRERA in collaboration with the Developers' Association and Consumer's Association has formed a Conciliation Forum. This forum provides for a system where grievances are resolved through mediation and dialogues between the aggrieved party and the respondent. Through this program, two trained conciliators, one each from developers' association and consumer's association form a bench and mediate to amicably resolve the grievance. The conciliation happens only through consent. Till now, it has been observed that close to 9 out of every 10 cases taken up for conciliation, have got successfully resolved with amicable settlements.

MahaRERA Circular No. 15/2018 available at:

<https://maharera.mahaonline.gov.in/Upload/PDF/Conciliation%20Circular%20No%2015.pdf>

15. Results achieved:

The impact of MahaRERA is as follows:

1. Citizens:

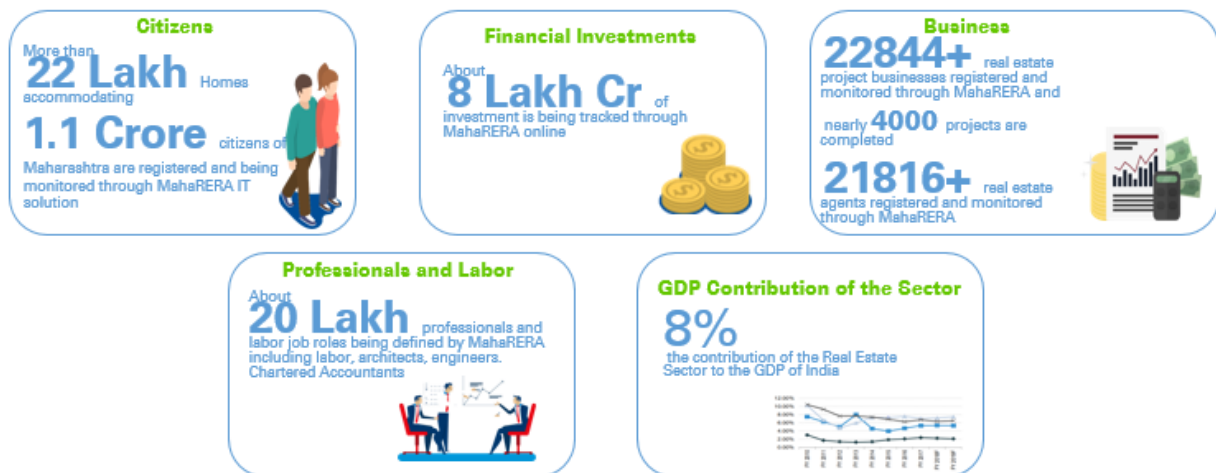
More than 22 Lakh Homes accommodating 1.1 Crore citizens of Maharashtra are registered and being monitored through MahaRERA IT solution. MahaRERA conciliation and dispute resolution forum, first-of-its-kind initiative wherein neutral conciliators from promoters and consumers association guide the parties towards amicable settlement, is gradually emerging as a successful, replicable model that can rebuild trust between promoters and home-buyers. (Circular can be accessed at <https://maharera.mahaonline.gov.in/Upload/PDF/Conciliation%20Circular%20No%2015.pdf>)

2. Financial Investments:

About 8 Lakh Cr of investment is being tracked through MahaRERA online.

3. Industry:

In MahaRERA, 22844 real estate projects have been registered and their progress is monitored. Out of the registered projects, around 4000 projects have been completed till date. Over 21816 real estate agents are also registered and their functioning is being monitored through MahaRERA. In order to ensure greater professionalism among promoters, bring a certain level of consistency in the practices of promoters, enforcement of code of conduct and to discourage fraudulent promoters, MahaRERA has recently introduced Self-Regulatory Organization (SRO) concept in the real estate sector in Maharashtra. (Order can be accessed at <https://maharera.mahaonline.gov.in/Upload/PDF/order%2010-1110219.pdf>)



4. Professional and Labour:

About 20 Lakh professionals' job roles are being defined by MahaRERA. These include labourers (skilled, semi-skilled and unskilled), Architects, Engineers and Chartered Accountants. By ensuring usage of quality input materials (MahaRERA Order No 5 / 2018 available at: <https://maharera.mahaonline.gov.in/Upload/PDF/Quality%20Assurance%20Certificate%20Form%20202A.pdf>) and quality workmanship, promoters shall be able to deliver good quality homes to the citizens. MahaRERA aims to train all the unskilled/semi-skilled/ skilled workers in the ongoing MahaRERA registered projects spread across Maharashtra. (Details can be accessed at <https://maharera.mahaonline.gov.in/Site/1109/About-the-Initiative>)

5. International and National Accolades:

MahaRERA has received numerous International and National accolades. Some of them include:



16. Future Proofing / Longevity of Project

MahaRERA Digital Solution can easily be replicated across the country. MahaRERA is often quoted by the Central Government as model RERA Implementer. MahaRERA is also a part of all the central government meetings and committees formed for implementation of RERA throughout India. Various States have visited Maharashtra to understand and follow the system.

MahaRERA, with the help of technology, is transforming the real estate sector in Maharashtra, leading it into an era of greater transparency and professionalism, wherein all stakeholders' interests are protected, and trust and confidence is established.

Aligned with the principle of Minimum Government and Maximum Governance, MahaRERA is setting an example for India to emulate.

6. National Scholarship Portal 2.0

1.	Name of the State/Ministry	National Informatics Centre, Ministry of Electronics and Information Technology, Government of India
2.	Name of the host/owner organisation	Ministry of Electronics and Information Technology, Government of India
3.	Status of the host/owner organisation	Main Ministry
4.	Name of the Project	National Scholarship Portal 2.0
5.	Name of the Nodal Contact Person	Shri S.B. Singh, Deputy Director General, NIC
6.	Contact Address	NIC HQ, 7th Floor, CGO Complex, Lodhi Road, New Delhi - 110003
7.	Telephone/Fax/e-mail	011-24305003 / sbsingh@nic.in

8. Project Summary:

NSP is one-stop solution through which various services starting from student application, application receipt, processing, sanction and disbursement of various scholarships to students are enabled. National Scholarships Portal is taken as Mission Mode Project (MMP) under National e-Governance Plan (NeGP). This initiative aims at providing a Simplified, Mission-oriented, Accountable, Responsive and Transparent 'SMART' System for faster and effective disposal of scholarship applications and delivery of funds directly into beneficiaries account through Direct Fund Transfer (DBT) without any leakages.

In AY 2018-19, NSP portal hosted total 59 scholarship schemes provided by 10 Central Ministries/Departments and 9 States. 1.5 Crore applications were received, out of which 69 Lakh students benefitted for approximately INR 2165 Crores.

9. Date of launch of project: 14th October 2016

10. Coverage (Geographical): NSP offers scholarships to the students of across India covering all 36 states of India

(a) National level – Number of State(s) covered

All 36

(b) State/UT level- Number of District(s) covered

All 719

(c) District level- Number of Blocks covered

All India

11. Beneficiary of the Project:

There are multiple direct and indirect beneficiaries of the NSP. Till date, NSP has on-boarded 60+ State and Central Schemes for the current Academic Year. The major beneficiaries are:

1. Students (G2C)

NSP 2.0 hosts the scholarship applications, wherein in Academic Years 16-17 & 17-18, more than 2.5 Crore students have applied for various scholarships, out of which approximately 1.2 Crore students have received INR 3600 Crores of scholarship amount. Earlier, the students were required to manually track various Central Sector and State Schemes on their own and apply separately for each scheme. The process of tracking Scheme application dates, studying scheme guidelines, preparation and submission of application along with the documents was very cumbersome and time-consuming process.

The application tracking by student, which was almost impossible earlier, is now available through student dashboard in NSP 2.0. The SMS updates are also sent to students at each level, thereby making it convenient for them to track the progress of their application.

2. Institutes/ Schools/ Colleges

NSP 2.0 has on-boarded more than 14 Lakh Institutions across the country. NSP provides facility of application verification by Institutes through the system in completely paper-less manner. NSP also provides facility of verification for all schemes under a single login.

Before NSP, the institutes were performing following activities:

- Receive applications manually in paper-based format
- Doing verification manually (in some-cases through stand-alone systems)
- Preparing the demand-note for scholarships and sending the same along with applications in hard-copies to District/State Nodal Officers
- Once the funds are received, disbursement to the students
- Reconciliation of scholarships disbursed and preparation of Utilization Certificate (UCs)

After NSP 2.0 is launched and implemented, it comes very easy for institutions as the process is just reduced to online verification of applications, thereby reducing the time & effort of institutes by approximately 80%.

3. District/ State Nodal Officers

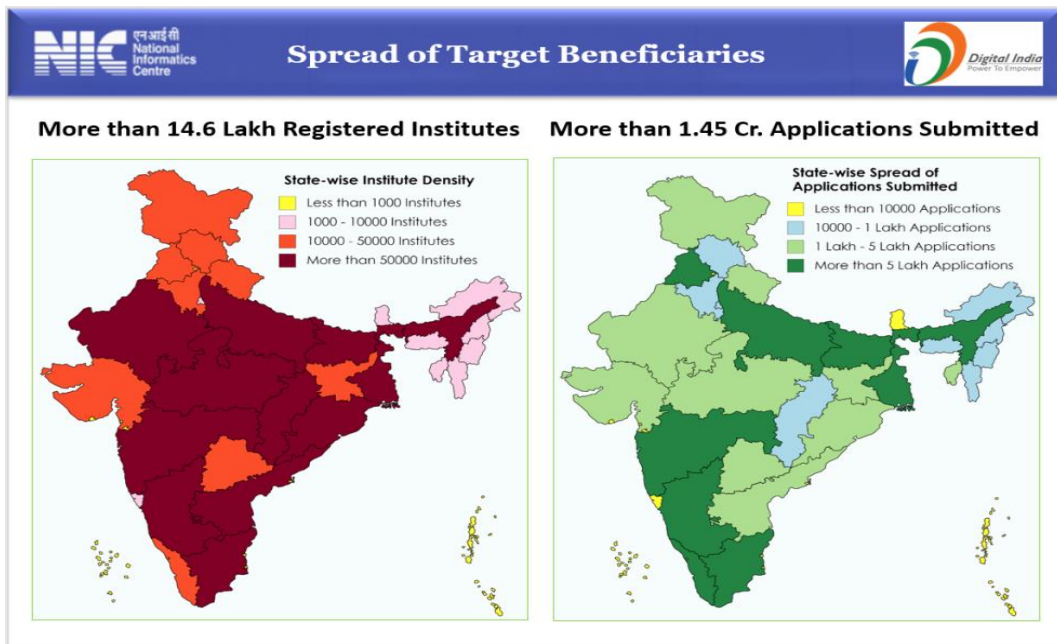
NSP 2.0 provides login credentials for District/State Nodal officers. The Nodal officers perform 2nd level verification, once the 1st Level verification is done at the institute level. They are also empowered to do several administrative activities such as addition of Institutes with valid AISHE/DISE codes.

Before implementation of NSP 2.0, the State/District Nodal officers were having huge burden of handling manual applications, verifying the applications, validating the demand raised by Institutes, getting the funds from State/Central Government to the Institutes, tracking the funds, validating the Utilization Certificates etc. The scale is huge, for example, Pre-Matric Scheme of Ministry of Minority Affairs alone handles more than 1 Crore Fresh and Renewal applications across the country, which means an average of approximately 14 thousand student applications per district coming from 2000 Institutes.

After NSP 2.0, the process is simplified to a huge extent, and the State/District Nodal officers electronically verify the student applications. The payment mechanism is also automated to a large extent, thereby removing the burden of demand validation, reconciliation exercise, and tracking disbursements to Institutes from the Nodal officers

4. State/Central Ministries/Departments

The State/Central Ministries/Departments are the owner of their respective Schemes, and accountable for end-to-end process of receiving the applications, application verification, budget sanctioning, funds disbursement, and reconciliation at State/ National level. NSP has made it fairly easy for the Government Ministries/Departments to administer the schemes, and provide the benefits to intended beneficiaries, within same Academic Year, which was earlier delayed by as much as 2-3 years in manual processes before NSP.



12. Problem Statement or Situation before the initiative:

Before NSP, multiple schemes offered by different Ministries/Departments were being handled in a manual and disintegrated way.

- Offline hard copy based very complex and cumbersome system

- Student didn't have comprehensive knowledge about the all schemes available by different Ministries/department. Student have to study different scheme guidelines manually
- No mechanism to duplication among different scholarship offered by Different Ministry/Department
- Very slow process management, high pendency. Normally more than two years of to process the scholarships
- Scholarship disbursed through Universities/colleges in place to directly into beneficiaries account. Which motivates wrongful activities
- No centralised database of scholarship statistics. No central control on information
- No methodical grievance management system in place
- Institutes must maintain multiple logins and system to work with different Schemes
- No alert SMS/email etc to beneficiaries

Application forms, processing mechanism, disbursement mechanism, tracking mechanism etc. were completely different, non-transparent and cumbersome.

For Central Schemes, there are multiple ministries and each of them are providing number of scholarship schemes (based on categories, demographics and several other factors). States are also providing scholarship schemes based on their criteria and other factors.

Broadly, the process of scholarship application to disbursement before NSP was as below:

Step-1: Prepare the budgetary estimates for the scholarships to be provided during the year,

Step-2: Prepare the Scheme Guidelines and circulate the same to all States, Districts, Blocks and Institute Level. The institutes then used to share the guidelines (including application form) with the students.

Step-3: The students will study the guidelines for each scholarship scheme to find out whether they are eligible, and then apply for scholarship to the institutes by submitting application form and documents in hard-copy.

Step-4: The institutes will accept the forms and will maintain the documents in hardcopies. The institutes will verify the forms and prepare a demand for scholarship indicating the amount of scholarship to be disbursed to eligible candidates. The demand, along with the application forms were then submitted to District/State Nodal officers.

Step-5: The District/State Nodal officers used to verify the applications again, perform the due diligence for the demand submitted by every Institute, and collate the information at their level.

Step-6: The process continues till the information is collated at National/State Level.

Step-7: The Finance Department of sponsoring Ministry/Department then approves the demand, and provide the funds either to State, District or Institutes, as per the structure of the scheme.

Step-8: The Institutes disburse the scholarship to students wither through Cheque or cash, and sends the utilization report to District/State Nodal officer, and the same is reconciled again.

The need was felt to streamline the process, leverage technology in order to provide better citizen centric service to the students using SMART principles, and with this NSP was

conceptualized by Hon'ble Prime Minister of India, as a key MMP under Digital India program, and envisioned as a one-stop solution for all scholarship schemes across India.

13. Project Objectives:

The aim of the National Scholarship Portal (NSP) is to create a unique, simplified and user-friendly platform for students to help them avail benefits of educational scholarships in an efficient and transparent manner. In addition, objective of National Scholarship Portal is also to provide Automation, Streamlining and Effective Management of processes related to Application receipt, Processing, Sanction and Disbursal of Centrally Sponsored Scholarship schemes to Students.

A scholarship is an award of financial aid for a student to further their education. Scholarships are awarded based upon various criteria, which usually reflect the values and purposes of the donor or founder of the award. Govt. of India and state Governments runs various scholarship schemes through their different Ministries/Departments

Vision:

National Scholarships Portal is one-stop solution through which various services starting from student application, application receipt, processing, sanction and disbursal of various scholarships to Students are enabled.

This initiative aims at providing a Simplified, Mission-oriented, Accountable, Responsive & Transparent 'SMART' System for faster & effective disposal of Scholarships applications and delivery of funds directly into beneficiaries account without any leakages.


Mission:

The Mission Mode Project (MMP) of National Scholarships Portal under the National e-Governance Plan aims at providing common electronic portal for implementing various Scholarships schemes launched by Union Government, State Government and Union Territories across the country.

Objectives:


- Ensure timely disbursement of Scholarships to the needy students
- Provide a common portal for various Scholarship schemes of Central and State Governments
- Create a transparent database of scholars
- Avoid duplication in processing, harmonisation of different Scholarships schemes & norms
- Application of Direct Benefit Transfer (DBT) in efficient and effective manner

Features:



एन आई सी
National
Informatics
Centre

Background



Digital India
Power to Empower

In order to align with goal of Government of India, there is a need to establish a single portal for all the scholarship schemes of central Government to cover various categories of economically weaker students those belonging to SC/ST/OBC/Minorities/other disadvantaged categories”

Vision

NSP is **single window system** for students covering all scholarship schemes (Central & States) for faster & **effective disposal** of Scholarships applications and **timely disbursement** directly into beneficiaries account without any leakages in a **transparent manner**.

Key Features

- **Single Portal** for all Schemes, ensuring **One Student One Scholarship**
- **Common Application form** for all Schemes
- **3-Channel Grievance Redressal System** – Website, Email and Telephonic Support
- **End to end Solution** – Student Registration, Scheme Information, Application Submission, Two-Level Verification, Merit-List Generation & Scholarship Disbursal
- Scholarship directly into student’s account through **Direct Benefit Transfer(DBT)**
- **Student’s Dashboard** – Provides tracking of application status, in addition to SMS updates
- Usage of Aadhaar or Bank Account as **Unique Identifier**.

- A Common application form for all students.
- One student, one application to increase the ambit of scholarship beneficiaries
- Autonomy to administer the scheme by Individual Ministries/states will continue to administer the Schemes.
- Serves as a decision support system (DSS) for Ministries and departments and states for real-time decision making.
- Unique login ID and Password will be made available for all stakeholders.
- Comprehensive MIS System to facilitate monitoring every stage of Scholarships distribution
- Provision for SMS/email alert at various process of implementation

14. Project Scope approach and methodology:

The Project has been monitored at Cabinet Secretary level and regular review and stakeholder consultation is an integral part of system improvisation.

Before inception following groups/Committee was formed:

1. CoS (Committee of Secretaries)
This committee was formed under the Chairmanship of Secretary (C&PG), Cabinet Secretary
2. GoS (Group of Secretaries)

This group was formed in the Chairmanship of Secretary MoMA, to harmonize the scholarship schemes and to bring following improvisation:

- a. Harmonization of Process of disbursement
- b. Bringing the discipline in disbursement cycle
- c. Drafting a common single page application form applicable for schemes covered under NSP umbrella

- d. Harmonizing the MEQ (Minimum Eligibility criteria's like (parental income, age etc.)
- e. Harmonize and working towards similar scholarship amount across different schemes offered by different ministries

3. GoO (Group of Officers)

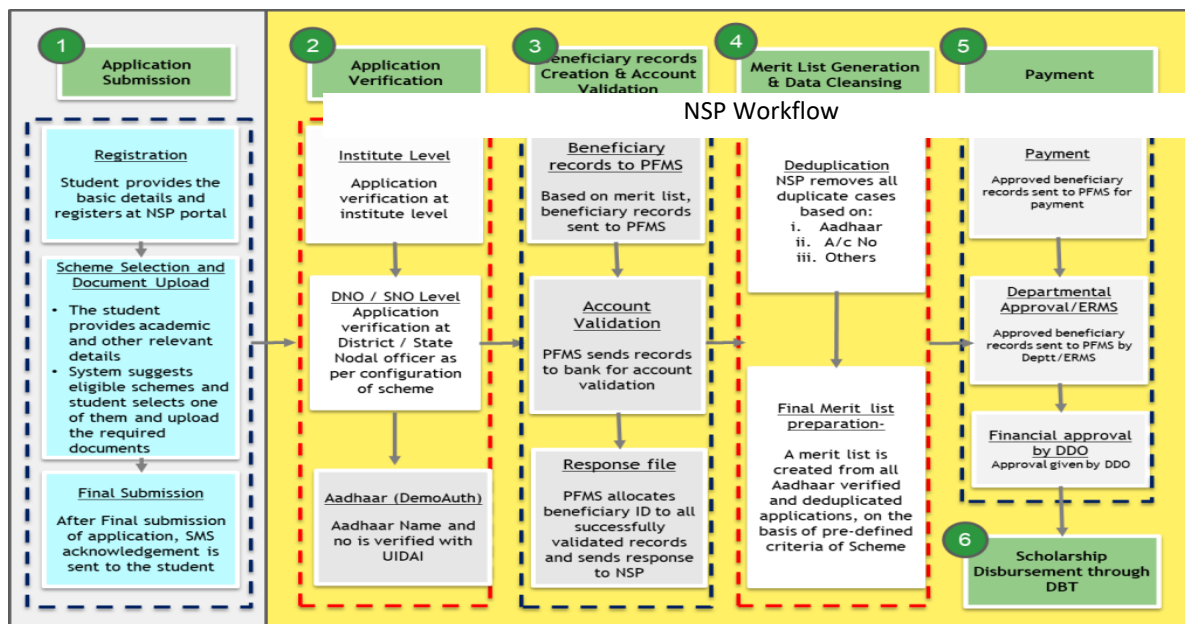
GoO has been formed to engage and work upon the operational issues of the project. The group are having officers at the level of Joint Secretaries

Multiple stakeholder consultations have been conducted through National workshops, State specific workshops, and through scheme specific workshops by engaging all stakeholders.

A group in the Chairmanship of Secretary, MOMA were formed. This GoS conducted various round of consultations, brainstorming exercises after taking inputs from ground and produced their recommendation to CoS for further discussion and approval. Focus was on outreach, correct identification of beneficiary and impact analysis.

In legacy system, following issues were identified:

- i. Offline hard copy based very complex and cumbersome system
- ii. Student didn't have comprehensive knowledge about the all schemes available by different Ministries/department. Student have to study different scheme guidelines manually
- iii. No mechanism for de-duplication among different scholarship offered by Different Ministry/Department

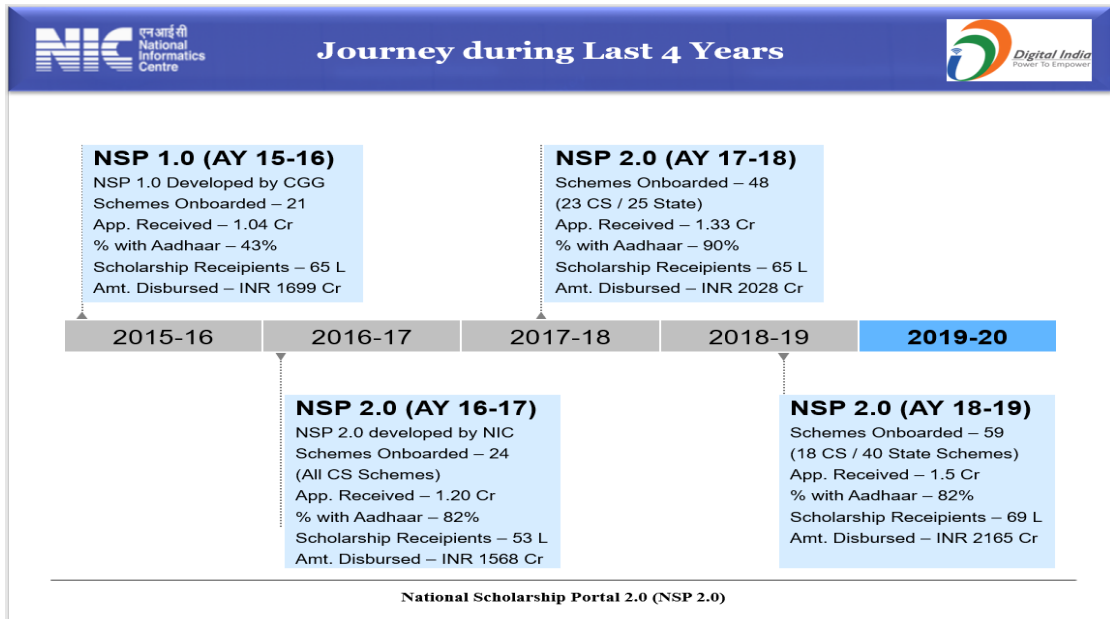


- iv. Very slow process management, high pendency. Normally more than two years of to process the scholarships
- v. Scholarship disbursed through Universities/colleges in place to directly into beneficiaries account. Which motivates wrongful activities

- vi. No centralized database of scholarship statistics. No central control on information
- vii. No methodical grievance management system in place

15. Result achieved/value delivered to beneficiary of the project and other distinctive features/accomplishments of the project:

- NSP receives more than 1 Crore student applications during each Academic Year. In the legacy system average scholarship disbursement time was approximately 18 months. In NSP same services are delivered in 6 months, thereby resulting in more than 300% efficiency
- Real-time transaction of services without any time delay, while end to end service delivery window is approximately 5-6 months, which earlier used to be 18 months approximately
- Aggregated scholarship schemes provided by as much as 10 Central Government Ministries/Departments, and multiple State Governments, in varied demographics including Urban, Rural and even most-remote places in the country, so that the needy students can continue their education through support of these scholarships is being instrumental for overall growth and development of the country
- Earlier system vs. Current System
 - a. Scattered information about Scholarship schemes earlier through various print and electronic media, which is now being aggregated at a single platform across the country,
 - b. Asymmetrical structure of scholarship schemes earlier, which is not being structured uniformly,
 - c. Lengthy, cumbersome and paper-based forms earlier, which is now uniform, friendly and available in digital format using computer/laptop and mobile formats,
 - d. Tracking of application was almost impossible earlier, whereas applicant is being informed as each stage now,
 - e. Average scholarship processing time of 18 months earlier has now been reduced to less than 6 months,
 - f. Transparency in the processes, elimination of duplicate applications, direct transfer of funds and payment reconciliation is now possible through the systems.
 - g. Huge amount of paper is saved, as the process is completely digital.



16. Future proofing/Longevity of the Project:

- NSP is highly scalable. The application has successfully handled more than 5 lacs application submission per-day in peak time. Annually more than 1.5 crores user access the services offered by NSP.
- The configuration customization features, cloud-based infrastructure ensures that NSP can be used by any Central or State Government agency/department/ministry to host their schemes on the portal.
- The Common application form, which was designed after much brainstorming by Group of Secretaries, captures all essential details required for processing scholarships distributed by any Central Government or State Government Agency/Department. The verification workflow, the matrices of course/ institutes providing the scholarships is fully customizable. Thus, NSP is fully adaptable to host any scholarship scheme within the country.

7. MDDA ERP

1.	Name of the State/Ministry	Uttarakhand
2.	Name of the host/owner organisation	Mussoorie Dehradun Development Authority, Dehradun
3.	Status of the host/owner organisation	Mussoorie Dehradun Development Authority
4.	Name of the Project	MDDA ERP
5.	Name of the Nodal Contact Person	Dr. Ashish Kumar Srivastava, IAS
6.	Contact Address	Vice Chairman, Mussoorie Dehradun Development Authority, Dehradun
7.	Telephone/Fax/e-mail	0135-6603102, info@mddaonline.in

8. Project Summary

The historical twin cities of Dehradun & Mussoorie have witnessed a multitude of eras, from once being bestowed with the honour of being great Guru Dronacharya's land of meditation to the "Dera" setup of Shri Guru Ram Rai to the Colonial Era of Summer Retreat. Since ages, these hills & foothills and the natural geography of these twin cities have been attracting communities and individuals, thereby eventually resulting in a large number of migrated populations. To strike a balanced development between the growing urbanization and the city's ecology, a regulatory body was formulated in the year 1984 and was henceforth named as Mussoorie Dehradun Development Authority with municipalities of Dehradun & Mussoorie with 185 adjoining villages. Today the entire Dehradun district is under the jurisdiction of MDDA.

9. **Date of launch of project:** 4th Jan 2017

10. **Beneficiary of the project:** All public of Uttarakhand, all institutes like banks, home buyers, architects, Government organizations, concerned department.

11. Problem state or situation before the initiative:

MDDA is a self-financed organization. Besides developmental activities, it has a few major tasks to perform:

- To approve building plans submitted to it as per the Master Plan and Building By-Laws.
- To control any unauthorised construction activity in the area under its jurisdiction.

Building Plan Approval - Any person who is willing to construct a building was required to purchase application form with the check list from the MDDA office. After this the applicant had to get a building

plan drawing prepared from an architect/draughtsman on paper in five copies duly pasted over clothes. Then along with other documents like ownership documents etc he had to submit the entire set of documents to MDDA for approval. The documents submitted by the applicant were scrutinised by the department officials at 5 to 6 levels and at each stage there might have arisen some objections. The objections were informed to the applicant through paper communication methods. After receiving the objections applicant was again required to correct his documents and resubmit all of them. In this process sometimes, the applicant had to submit the entire set of documents multiple times. After getting intimation for approval, the applicant was supposed to visit MDDA office and submit the approval changes at the MDDA's cash counter. This entire process for approval used to take 5 to 6 months for normal residential units and more than that for commercial buildings.

Unauthorised Construction Management – To control such activities, MDDA had its separate section. The junior engineer used to visit the area under their jurisdiction and checks all ongoing constructions. During the inspection if any of the construction was found to be done without approval or with deviation from the approved building plan then a challan was issued. This challan was then entered into the register at the MDDA office and further due notices were generated and duly signed by the officer concerned. The notices were hand/dak delivered to the offender. This entire activity used to take 3 to 4 days. After this a paper file was created for each such case. Since the process is quasi-judicial the hearing process took place. This process was totally dependent on the clerks of the given section. The cases are still pending there for years now due to improper filing & other corrupt practices.

Other regular official activities like HR, Finance, Salary, RTI, Public Grievances, Projects and Dak, Tendering, purchasing all were manual and paper oriented hence highly vulnerable to malpractice and manoeuvring.

There were no responsibilities of dealing hand for delay and lack of tracking of files was resulting in loss of credibility of department among the general public and ultimately revenue realization.

12. Project Objectives:

Its key objective was to regulate rapid urbanization and to stop unauthorized construction & formulate future development yet maintaining the eco-system with minimised threat to the flora-fauna for sustainable growth. Today more than 2 million citizens reside in the area under the jurisdiction of MDDA.

The prime function of MDDA is to issue construction permits to the citizens and provide completion certificate. In order to increase efficiency in various processes, MDDA not only created a conducive, transparent work environment by deploying CCTV camera, access control system, bio metric attendance system, capacity building, award for excellence in work, celebration of all festivals together but came up with Online Portal and improvised it into an Online, Ontime and Paperless System.

Earlier the building construction permit use to take about 60 days for approval due to lack of transparency and accountability but with the passage of time, the internal-external operations have grown into being flawless & bug-free. MDDA is now approving building plans within few hours in

comparison to weeks (some time months) taken earlier with complete accountability and transparency. This has contributed significantly in consolidating the ranking of Uttarakhand in terms of ease of doing business among other states of India.

13. Project scope approach and methodology:

Strategies Adopted

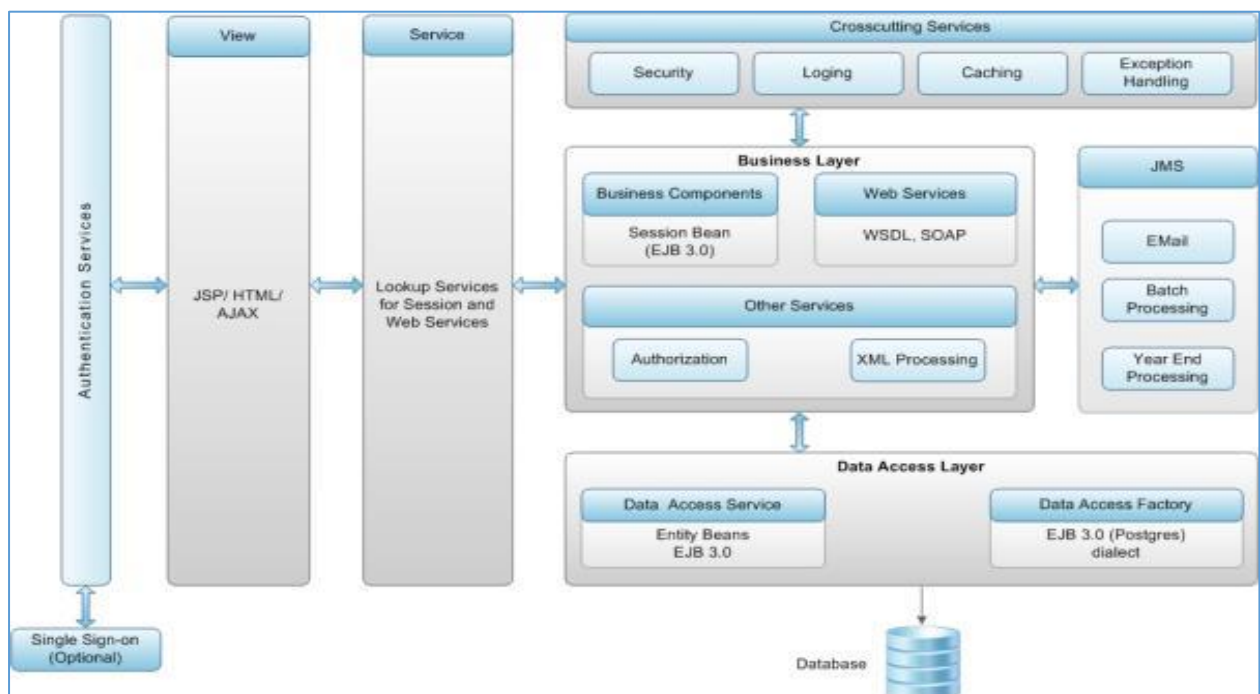
Problem Identification– A detailed study was done about the key service deliverables and problems faced by the organization and the citizens.

Use of Technologies– MDDA decided to put forth to use modern tools and technologies (Connected government through e-Governance to overcome the service delivery issues).

Empowering the Institution through capacity building- Computerization of all processes of MDDA was done with completely inter-related processes, so as to ensure no repetition of data.

Enabling conducive environment for employees- Provided on job training to employees. We ensured that the benefits of transformation were transferred to the employees as well. Created a healthy/work oriented/ target-oriented culture by devising tools to monitor their performance and letting them know that their performances are rewarded, and non-performances are penalized.

Innovation– Constant innovation of the processes is ensured in a cascade manner to realise the fruit of innovation in all process in a dynamic manner and once a certain level of competency is achieved, the cycle of striving to attain the next level of competence is put into action.



Technical Architecture of Solution

Business Process Re-Engineering

MDDA has re-engineered all the processes. First major change was to get rid of old manual/paper-based system and the use of integrated enterprise software for all the operations within the organization, specifically to deliver the services to the citizen in a time bound manner.

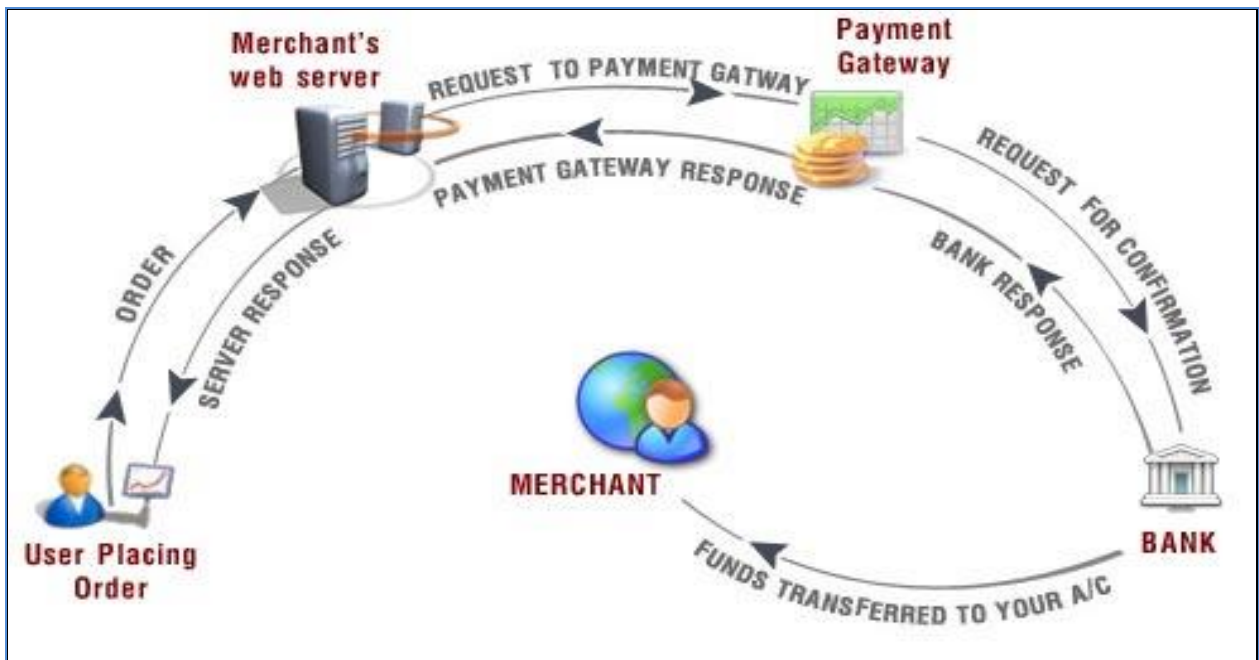
A side by side analysis of previous and current practices:

Earlier Manual Process	MDDA ERP
A. Building Plan Approval System	
Applicant visited the office and purchased the application form, etc.	System is online, Applicant has to register himself on the online portal and apply by submitting all the required documents in digital format.
Applicant submitted the building plan in blue print with other required documents in hard copy.	Submitted online in digital format.
Applicant used to get information through Dak service in 4 to 5 days, if and any changes were required in the proposal.	Applicant gets all information by SMS/MAIL/MDDA PORTAL instantly.
Applicant had to submit all documents again in the paper format, if objection was raised.	As drawings are always available on the computer, with further minor changes the digital documents can be re-submitted very quickly.
Applicant had to visit during the office hours, time and again for different payments/information.	All payments can be done online. User manuals are available online in the form of documents/videos.
There was no tracking of the file, it was a very cumbersome task to locate the file and get the status.	All files are available to senior officials/applicant on the click of a mouse – Total transparency.
No MIS was possible	All MIS with complete performance track is available online
Only 10 am to 5 pm working hours, also no possibility of work on holidays.	Now with the online system in place all related official files are available and accessible all the time over the internet connection. This created the time less / office less environment which resulted in improved capacity/efficiency.
Paper files were vulnerable to manipulation.	Manipulation is not possible.

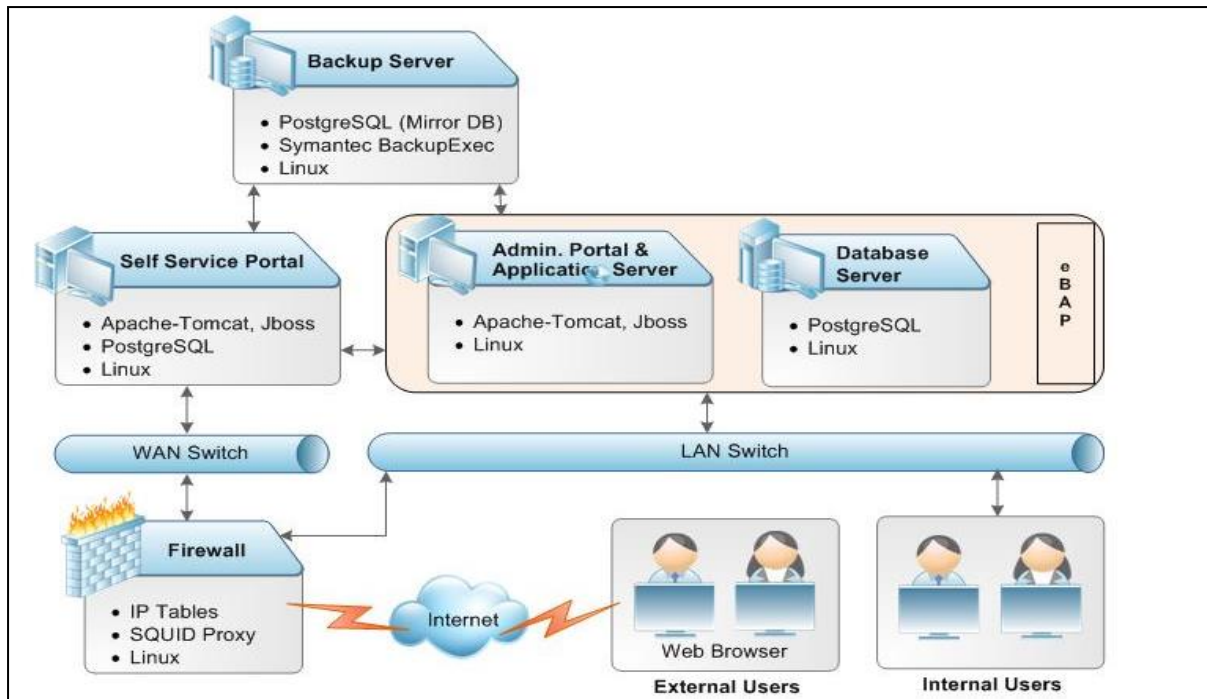
There was no time line for disposal of the file.	Now each file is tagged with different colors as per its disposal time. Green color if the files is within disposable time limit, Yellow color if the disposable time limit is about to get over and red color means the time line to dispose the file on a particular desk is over. All such red files are visible to the Vice Chairman (Highest Authority in the organization) on his dash board for any disciplinary action. This has reduced the time of disposal tremendously.
Average disposal time 60 Days.	Reduced to 15 Days.
B. HR and Salary Management	
Employee's files were managed manually.	Managed via the computer systems.
Leave records managed manually so manipulation was possible.	In the computerized system, leave applications are submitted online and allowed/disallowed online.
Files were not accessible easily due to lack of MIS.	MIS is available on a mouse click, all files are available online to the concerned officer.
Salaries were created / managed manually, very high chances of wrong calculations.	Computerized system is in place, no place for mistakes in arithmetic calculations
Salary creation used to take 5 to 6 days and required 4 employees of concerned sections.	One person employed in the process for a relatively low amount of time and without any error, creates the salary.
Employees were not able to see their salary charts	Each employee can see and check their salaries online at any time
CPF/GPF and other loan accounts were managed manually- Chances of errors were very high and frequent.	Everything managed through a computerized system with very low or almost nil probability of errors.
C. RTI (Right to Information)	
RTI being a time bound procedure, MDDA used to miss the time line in high frequency as there was no track of the applications due to manual system.	All applications can be tracked always, automatic alerts for time line exists. The time lines are missed rarely now.
D. Public Grievance Redress System	
There was no public grievance management system in place.	Now Computerized online public grievance management system is in place, all grievances filled at one place and marked to the concern officials on the system.

No tracking and MIS	All complaints/grievances with their status is made available online with proper MIS, reports on the type of complaints/grievances and pending details official wise are available.
E. Finance and Accounts	
Manual System	Computerised System
No real time information available	On click real time information available as all other modules are integrated within this system. Therefore, any transaction from any module is recorded in this module automatically.
Manual receipts	Cash less transactions, all payments received online, there is no cash counter at MDDA now.
All reports were to be prepared manually	All reports are available through the system, like ledger, trial and balance, balance sheets etc.
Very high chance of errors	Zero or no chance of errors
Manual reconciliation of accounts	Automated computerized reconciliation
F. Tendering Process	
Manual process was adopted	Online e-Tendering process adopted
	Process is linked to the finance and project module for further tracking of progress.
Rampant corruption.	Complete transparent system.
G. Purchasing	
Old manual procedures were adopted	Use of GeM portal brings transparency and lot of revenue savings to the organization
H. Other Management Initiatives	
Manual register- based attendance system	BIO Metric attendance system adopted, linked to the salary
No surveillance	CCTV Surveillance camera are placed all over the office
No control over outsiders visiting the office	Access Control System is placed in the office so that only employees can go to the certain places. Proper help desk is installed with all information available to the staff sitting there so that there is limitation of the general public visiting to the officials for information of small significance and thereby no wasteful consumption of their time
I. Interactive Web Portal and other Social Media Mediums	
There was no place to disseminate information or share useful information with the citizens.	Interactive web portal created for citizens to apply online building plans, RTI, Grievance, Property etc. Besides that, all useful information is available there. All information maintained and managed by MDDA itself.
	You tube channel created to place all related videos

	Face book page, Twitter handle created
	More than 34000 followers on the Facebook
	Mobile App “Mddaonline” is created to know status of building plan, RTI and grievance.
J. Other Initiatives	
-	<p>MDDA has initiated the GIS based master plan and Zonal plan.</p> <p>MDDA has further come up with the fellowship program in collaboration with leading universities/institutes in the city to catch the young talent, new thought process and new techniques in the field of Urban Planning. Focus is on Public Grievance, Urban Planning and Water Conservation.</p>



Payment Gateway Process



Network Architecture

14. Result achieved:

- Average time of disposal of the building plan permission reduced from 60 days to 15 days.
- The cost of work has been reduced greatly. Previously five junior engineers were able to clear 200 to 220 building plan permits in a month, now with the implementation of the new system only two junior engineers are able to dispose-off more than 300 such applications per month.
- By adopting proper vigilance and control over the processes, the revenue has also increased.
- Applicant response time is also reduced as all information is received through SMS/MAIL and PORTAL.
- Closed system is converted into a transparent system as all information and action of MDDA are available on the Web Portal.
- Complete cash less payment as there is no cash counter in the office.
- Accountability is induced in every task is time bound and performance of the employee is visible in the system through dash board.
- During this process MDDA’s efforts were acknowledged by different organizations and government and they came in the form of awards and certifications as follows –
- ISO 9001:2015 Certified Authority for Quality Management System
- ISO 14001:2015 Certificate for Environmental Management System
- OHSAS 18801: 2007 Occupational Health and Safety Management System.
- Chief Minister’s Award for Excellence in Governance.
- Skoch ‘Silver’ Award in EoDB Category.
- India Pride Award in State PSU Category
- PMAY Municipalika Award for best implementation of PMAY

8. Hello Doctor- 555

1.	Name of the State/Ministry	Uttarakhand
2.	Name of the host/owner organisation	District Magistrate Tehri Garhwal
3.	Status of the host/owner organisation	Chief Medical Officer
4.	Name of the Project	Hello Doctor 555
5.	Name of the Nodal Contact Person	Dr. Bhagirathi Jangpangi (Chief Medical Officer)
6.	Contact Address	CMO Office New Tehri, Tehri Garhwal Uttrakhand 249001
7.	Telephone/Fax/e-mail	cmotehri3@gmail.com, 01376232093

8. Project Summary

Tehri Garhwal district is located in Uttarakhand on the southern slopes of the mid Himalayas, which comprise of low line peaks. Major land area of the district is hilly. Agriculture is the main occupation of the people of this district. Tehri Garhwal is surrounded by Uttarkashi district in the north, Pauri Garhwal district in the south, Rudraprayag district in the east, and Dehradun district in the west.

District health infrastructure includes 1 district hospitals, 1 SDH, 3 female hospitals, 11 CHC, 27 PHC, 209 Sub Centre, 28 State Allopathic Dispensaries, 73 Ayurvedic Hospitals & Dispensaries, 12 Homeopathic Dispensaries, 1 blood banks and 1 TB clinics.

Population of Tehri is 6188931(2011 census). It is one of the three high priority districts in Uttarakhand and have a huge population of HIV+ (41) and Tuberculosis (728) patients. 88.67% of Tehri Garhwal population lives in rural area. Delivery of healthcare in the rural parts of mountain district is a challenging task. Given the constraints of terrain and topography and the small and scattered nature of the rural settlements, increasing access issues poses a major challenge. Inhabitants of hills have no access to systematic information of healthcare facilities available in the district, nearby districts or state. This lack of information compel patient to seek healthcare facilities from fake doctors or quacks. Also, the uncertainty of availability of doctors, staff, diagnostics and medicines in government hospitals demoralizes putative patient to seek healthcare facilities especially primary healthcare. Other reasons that discourage patients from seeking healthcare facility from organized sector are travelling cost along with high physical and emotional cost involved in the process. The challenge gets

amplified with the lack of health infrastructure, dearth of medical facilities, human resource and trained staff.

Moreover, "Digital Divide in Uttarakhand" is still very high. People living in rural area have little or no access to internet. This poses a major challenge in providing telemedicine facilities in remote villages through video. There are around twenty plus schemes under the umbrella of National Health Mission (NHM) and state government. There is a huge gap in awareness of these schemes in rural areas.

The opportunity lies in the fact that there is a significant increase in the mobile phone subscribers and landline connections. The way telecommunication sector is booming in India, this coverage will further grow in coming times. There is a significant opportunity in utilizing these phone connections for the healthcare service delivery. Also, with the onset of multiple telecommunication service providers there are chances of getting data connectivity of one service provider if not other.

This initiative was executed in two phases. In first phase, 555/18001804112 a toll free number was established that provides and connects beneficiaries to all the services that are mentioned in twenty plus schemes of NHM and state government on a call. Second Phase is the extension of first phase with the facility of video call, patient sitting at the remotest point gets health services like Consultancy, Prescription and Medicine, Pathology and Diagnostics.

This initiative has catered to three basic gaps in health care: Awareness, Accessibility and Affordability. This has given individuals a direction and a point where they can submit their grievances, feedback and get all the health services.

Prior to this initiative there was no District Health Planning. This initiative has helped in establishing proper planning, execution, monitoring and feedback mechanism at district level. By analysing the requirements of calls and feedback of patients and subsequently putting them before District Health Society (DHS) for solutions has impacted immensely in the way health services are delivered and consumed in the district. Also, to have a concrete district health plan, Village Health Sanitation and Nutrition Committees are strengthened with the special focus on capacity building of ANM and pharmacists.

Though the objective of departments like Health, Ayurvedic and Homeopathic, Education, Rural Development, Women and Child Development, Swajal/Jal Sansthan, Disaster Management is primarily well-being of individuals, but they never sit together and plan for it. This initiative has solved this problem of departments working in silos thereby reducing the cost of implementation of schemes and policy practice gaps.

This initiative was piloted in Chamba block in June 2017 later rolled out in all the nine blocks for telemedicine (audio calling). Video calling in ten remotest sub-centres was initiated in December 2017. Now it is extended to another 30 remotest sub-centres of the district.

9. Date of Launch of Project- June 2017

10. Coverage:

Total 40 sub-centres of all the 9 blocks are functioning, through which around 170 villages are being covered.

11. Problem statement or situation before the Initiative:

Tehri is the only High priority district of hills in state. Lack of infrastructure and staff prohibits people from getting quality services. Villages are located far from road heads and sometimes patients don't even get the opportunity to reach nearest primary health center in emergency. Lack of awareness of schemes in service consumers (patients) and providers (stakeholders) resulted in a major policy practice gap.

No place in district where a beneficiary can register complaints, give feedback or get information. No data analysis, planning or monitoring mechanism.

No community participation in health (in terms of fund or inputs). Functioning and formation of VHNSC was on paper and there was no source of revenue generation by them for self-reliance.

Keeping the difficulties of hills in mind, a user centric technological intervention called "555" and later "Hello Doctor" was established. Simplest version of telemedicine where two healthcare experts discuss a patient over phone (complete district) or video call (ten centres). It's a toll-free number that connects to a physical space where patient can call and get access to clinical health care in no time and no cost. It's a user centric call center that provides healthcare services according to the needs of the user and an assembly point for entire healthcare ecosystem of a district.

It has created a repository of all the healthcare schemes and high-quality data consisting of availability and locations of doctors, Ayush Doctors, hospitals, pharmacist, pharmacies, community health workers, Ambulances, Diagnostics etc in government or private sector.

12. Project scope approach and Methodology:

This initiative was executed in 2 phases:

First Phase:

555/18001804112: a toll-free number connecting citizens to all the 20+ schemes of NHM and state government on a call. Plus 8 other services: Doctor and Medicine on audio call*, appointments and referral, consultancy, counselling, ambulance, aid to disabled and chronically ill patients, unused medicine collection center, planning & monitoring and grievance redressal.

*Medicine on audio call: Home delivery of medicines.

This toll-free number is established in DH equipped with IVR system and conferencing system.

Second Phase:

10 Subcentres/SAD are selected in remotest blocks (Ghansali and Pratapnagar) manned with pharmacists. Studio was established at the District Hospital (DH) manned with doctors and specialist on demand. Sub-centres connect with district hospital on video call and subsequently a patient sitting at the remotest point gets three services namely; Consultancy, Prescription and Medicine (allopathic, ayurvedic and homeopathic), Pathology* and Diagnostics*.

*Pathology: samples collected from sub-centres and reports uploaded in software.

*Diagnostics: Devices like android based ECG machine, foetal heart rate monitor, glucometer, pulse oximeter etc are provided for diagnosis and readings are uploaded in the software for further action. Reports are maintained in the software and data is uploaded on cloud for further analysis and planning.

For both stages dedicated software is there that serves the purpose of authenticating prescriptions and creation of database for analysis and planning.

In Pangarkhal village, on pilot basis data for health conditions of all 500 villagers is collected, so that it can be analysed for developing a village health plan. This village health plan dash board also includes details of existing infrastructure, water and sanitation facilities.

In DH, patient health management system (PHMS) established for the purpose of monitoring and planning.

Community participation in health services plays an important role in service delivery/consumption as well as monitoring. With the help of Sathi Sehat (NGO), conducted a community health service delivery and monitoring workshop which was attended by female pradhans/ward members, ASHA AND ANM of Chamba block. Thereby, training Village Health and Sanitation Committees (VHNSC) in preparing village health plans. Due to lack of funds VHNSCs were practically defunct. With the service of medicine on call (555), a source of income is generated (30 Rs /home delivery of medicine deposited in VHNSC account) making them self-reliant and functional.

NHM provide services across all ages and illness under different schemes. In order to improve the service delivery, the capacity building programs of all the stakeholders was organized. At the same time, there was a need to fill gaps in the processes of service delivery.

For example:

Under RBSK, there are fifteen teams in the district covering all the Aanganwadis and schools once a year. This system fills two gaps: serving kids who are left unattended and a proper follow up system to the referred kids so that the final objective of the scheme is achieved.

Under ICDS, district has around 81 malnourished children, this system fills the gap of monitoring and follow up of those children, also serving their nutritional needs.

Under RSKS, the kids who have inhibitions in sharing their issues, this system enables them to talk freely about their issues.

On similar lines this initiative has analyzed gaps and developed SOP for gap filling of all schemes related to health. At the same time generated a system to help people in need by directing them to right sources.

Public service delivery systems are responsive and transparent when monitored properly. To monitor health staff, biometrics and online CCTV cameras were installed in DH/SDH and other facilities. This has helped in rationalizing the unutilized staff as well as making them accountable for their performances.

Daily monitoring of IPD/OPD/Referrals is done on WhatsApp group. This has tremendously reduced unwanted referrals especially in case of deliveries in government hospitals breaking the nexus of private-government doctors. Movement of 108/KKS/other ambulances are tracked through GPS.

With the constant analysis of IDSP data, it was found that quality of water in local tanks and springs needs attention to deal with water borne diseases. Department of water supplies has developed a GSM based device that can be installed in local tanks to monitor quality and discharge of water online.

These centres are not just for delivery of health services, but also for generating awareness among villagers on different government programs. A television with speaker is provided to centres for spreading awareness through presentations and videos. Since disasters are common in hilly districts these centres also serve as a warehouse of disaster management equipment. At present looking in to the success of this initiative total 40 sub centres are functioning under this programme. We have also signed a MOU with AIIMS Rishikesh for taking consultation to the patients of severely ill.

13. Result achieved/value delivered to the beneficiary:

- Received 24,595 Audio/Video calls till date. (60% calls from women)
- Delivered medicines to 1343 at their doorsteps
- Called 937 pregnant women as per their Expected Date of Delivery (EDD), tracking and preparing them for safe delivery
- 361 calls for tracking 81 malnourished children
- Average out of pocket expenditure reduction is Rs. 500-700

- Significant 12% increase in Institutional deliveries
- 27 children treated under RBSK and 63 were provided emergency ambulance
- Opened 2 Jan Aushadhi Kendra at district headquarter. And 3 in Narendarnagar SDH, remotest PHC Pilkhi and CHC Beleshwar
- Collected and distributed, medicines worth 80,000 Rs from the medicine collection boxes located in five Nagarpalikas and cloths worth 10,00000 Rs in winters
- Crowdfunded around 80 lakhs from various sources and Crowdsourced health services within and outside government sector
- With community participation, activated 1742 VHNSC all over district and developed village health plan for 199 VHNSC in Chamba
- Center is also a center for monitoring & planning and grievance redressal for health services. Based on the experiences and learning District Health department has also started.
- Five new delivery points for safe deliveries and strengthened existing delivery points
- Water quality analysis project to reduce diarrheal cases
- Project for Adolescent girls with special focus on menstrual hygiene and anemia
- Mobile App for the field staff especially supervisors and ANM
- Extension of video calling services to 73 sub-centres

14. Future proofing and longevity of the project:

Planning to extend this programme to all the sub-centres, remotest SAD's, APHC's and few PHC's. Planning to do an agreement with the big hospitals of state/ outside the state to seek consultation for severely ill patients.

9. Punarvas

1.	Name of the State/Ministry	Andhra Pradesh
2.	Name of the host/owner organisation	Sri. KVN Chakradhara Babu IAS
3.	Status of the host/owner organisation	Joint Collector & Addl. DM, Srikakulam
4.	Name of the Project	PUNARVAS
5.	Name of the Nodal Contact Person	Sri. KVN Chakradhara Babu IAS
6.	Contact Address	Collector's Office, Srikakulam
7.	Telephone/Fax/e-mail	9704560809

8. Project Summary:

For any development, land acquisition forms the primordial activity and it's proved by the fact that, since 1990, almost 35 Lakh acres of lands are acquired across the country for various projects taken up under 'public purpose' till date under Land Acquisition Act. Land intensive sectors like irrigation projects, mining, power, SEZs, ports /airports /other public infrastructural projects etc are the primary growth engines to usher in economic activity.

Experience also shows that, these mighty Land acquisition projects usually involve massive Rehabilitation and Resettlement (R&R) and by the virtue of the scale of economics, many middlemen and vested interests crop in the implementation of LARR provisions.

Hence, it is felt that, there is need to cut the Discretions, Delays and Data asymmetry [the 3Ds which generally plague the LARR processes]. With the change in legislation, in the form of RFLARR Act 2013, it is even more imperative to automate things and steer Accountability, Transparency and Responsibility.

A Geographic Information System (GIS) is a computerized database management system for capture, storage, retrieval, manipulation, analysis and display of spatial (i.e. locationally defined) data

- ❖ GIS is composed of layers of spatial information
- ❖ Can be different types of data
- ❖ Everything is referenced to a coordinate system
e.g. latitude / longitude

The main objective of the software designed to implement LARR provisions in the Srikakulam district is to computerise all the important activities under land acquisition, R&R process and integrating the geo spatial data of the project affected area on designated dates [like the PN, DD etc]. Thereby, it provides the flexibility for data storage, retrieval and decision support systems. It also provides the biometric authentication of beneficiaries and GIS data of the assets being acquired.

It provides to enumerate the list of all project affected people and project displaced families with individual profiles covering the entitlements extensively. The compensation paid to each beneficiary is also enumerated and disbursed in a transparent manner. Web application is developed for Creation of users like Enumerators & Officers, Data Entry, Payment to the Beneficiaries etc., URL for this Web Portal is <http://punarvas.ap.gov.in/NPP>.

Present Energy/Electricity Scenario in the Asian Region:

The energy/electricity consumption patterns vary across the Asian region depending on the spectrum of economy and the models specific to each of the country. The current policies, demographic pattern as well as industrial and agriculture base also impacts the electricity consumption pattern. While the electricity consumption in developed nations of the region, such as Japan (8475 kWh) and Korea (8502 kWh), is high, being close to European countries, it is quite low in the range of 80 to 700 kWh in countries of South Asia. About 22% of the population (900 million people of the 4121 million) in the region does not have access to electricity. Of these, the majority, about 700 million are located in South Asia. The graphs below show the range of per capita energy and electricity consumption in some of the Asian countries:

The other significant feature of the energy supply pattern in the countries of the region is a large contribution of non-commercial energy – in the form of firewood, agricultural and farm residue, etc. The main sources of commercial energy in the region are coal (41%) and Oil (28%).

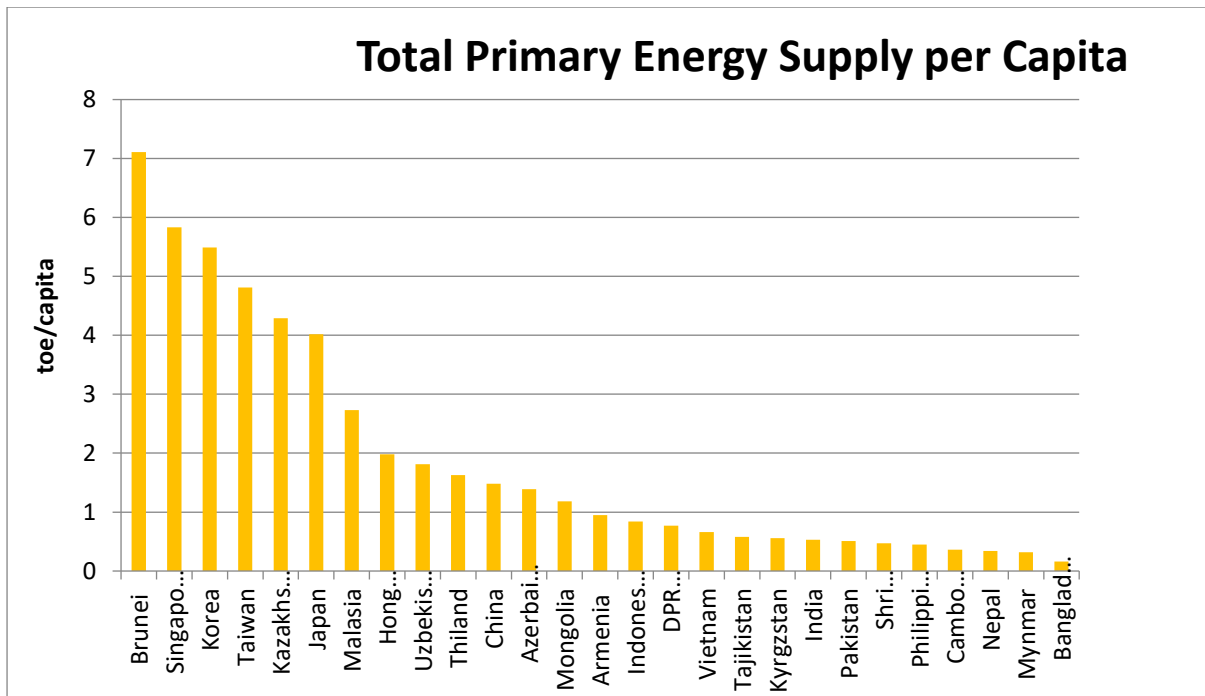


Fig. 1 Per Capita Primary Energy Supply

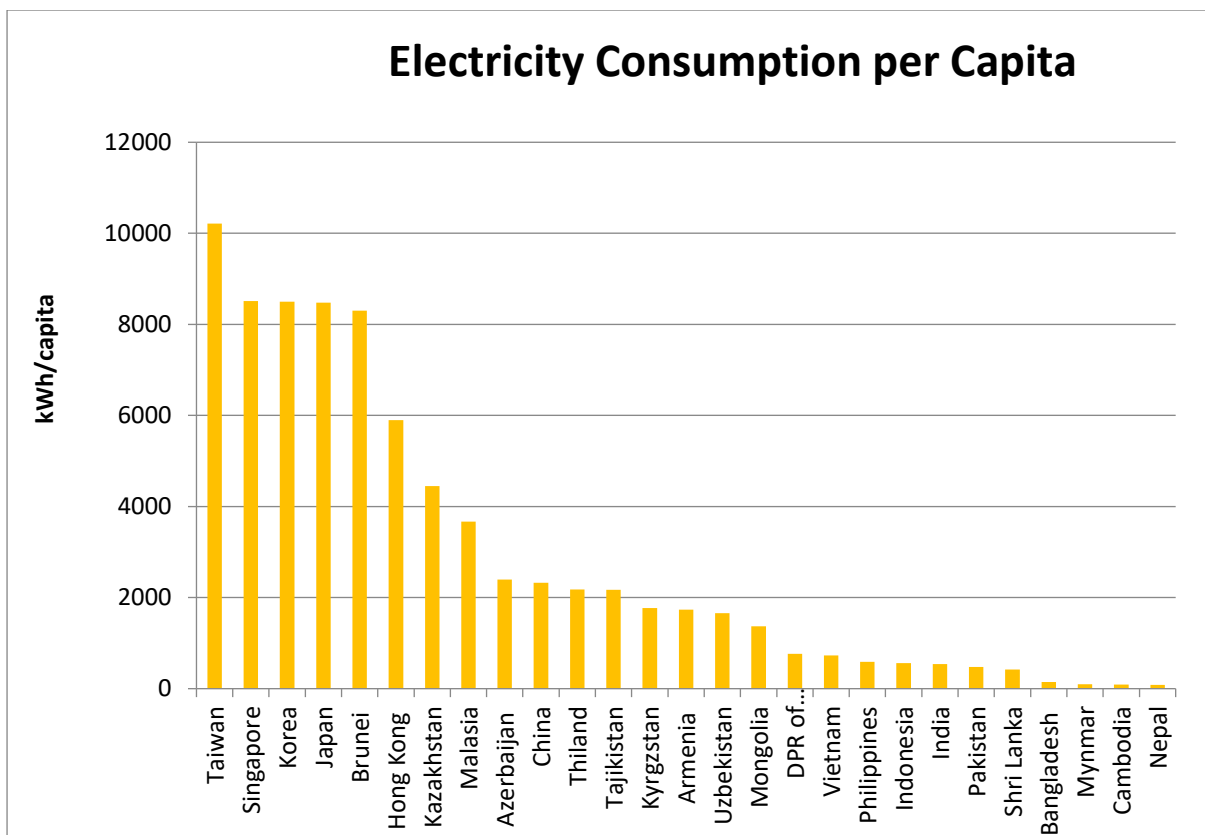


Fig. 2. Per Capita Primary Electricity Consumption

The overall import dependency of the region is significant, particularly for oil, at about 57% (2005). The dependency on imports for oil in India is about 75%. Energy security in the region is one of the concerns in the region and there is an imminent need to address this, which could be achieved by deploying sustainable sources of energy. This has resulted in nuclear power getting serious attention and consideration as one of the preferred options among the other energy sources in the region.

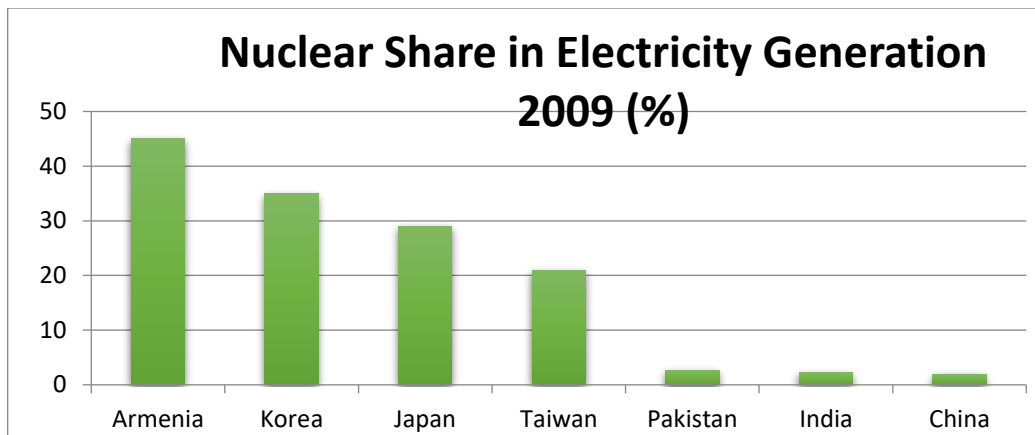


Fig. 7 Nuclear Share in countries of Asian Region

9. Date of launch of Project: 01-01-2017

10. Coverage (Geographical)

- ❖ Exgratia compensation to Poor people who have encroached on the govt lands for their livelihood [50% of the value as per section 2 of the act]
- ❖ Land compensation to the Poor who were issued D-Pattas [on the lands assigned] by the government and the same is being resumed for the project
- ❖ Land compensation to the Private land owners whose lands are now being acquired through 11(1) notification issued under the act
- ❖ Structure compensation to all the 1872 structures falling under the project
- ❖ Trees compensation to all the forest and horticulture species existing as on the date of notification
- ❖ R&R benefits to each of the 2000 odd PDFs and equal number of PAFs as specified in the 2nd and 3rd schedule of the Act
 - ✓ House site and constructed house allotment with all the individual and community facilities in the new R&R colony
- ❖ In NPP Kovvada project, LA and R&R benefits were distributed using GIS based verification of compensations and Aadhar based biometric authentication of beneficiaries [2000 odd PDFs]
- ❖ Under BRR Vamsadhara irrigation Project, R&R benefits were distributed using Aadhar based biometric authentication to approximately 6500 PDFs

- ❖ For Mahendratanya irrigation project in the district, R&R compensation is being distributed using the Aadhar based biometric authentication of each beneficiary [2000 odd PDFs]
 - ✓ Same software is also being used for R&R of Gandikota irrigation project in the YSR Kadapa district in the state of AP [7500 PDFs]
 - ✓ 100% of the Project displaced families (PDFs) and the Project Affected families (PAFs) are covered in all the 4 above massive public projects

GIS Technology is used to freeze the physical features on the project affected area vis-a-vis the date and time of the Notification issued under section 11(1) of the RFCTLARR Act 2013

This was necessitated to arrest the erection of new structures and encroachments on Govt. lands etc., only to claim undue compensations in the LA and RR components of the 'Nuclear Power Park at Kovvada' Project

With the help of NRSC and APSAC, Cartosat-2 was programmed to cover the coordinates of the entire 2073 acres of the project site on the 12th May 2017 and this geo spatial data is used to freeze the structures in all 6 village sites and cropping patterns in the entire project site

GIS mapped Drones were flown on 18th May 2017 on the site with the satellite feed as base polygon to add more depth to the satellite imagery and with this; it is made possible to get the area computation of each structure with exact LBD measurements with GPS coordinates of each point of the structure.

This is used to deliver the LA and RR compensations by exactly computing the true value of the land, trees and structures etc over it. Ground teams formed with engineers from various departments were given tabs and GPS coordinated maps to verify and confirm this spatial data for each Project displaced family.

11. Beneficiary of the Project

The citizen got his compensation as per his actual losses due to land acquisition.

- ❖ The reduced number of litigations means the reduction of time in land acquisition.
- ❖ The compensation payment is direct, and payment is completed to the total number of structures.
- ❖ The biometric authentication means the correct person is paid the compensation.
- ❖ Data is available online. Officers have access to cross check the details provided in online

12. Problem statement or situation before the initiative

- ❖ NPP Kovvada project is on the slates from the year 1991 and couldn't take off owing to many agitations from the public with alleged apprehensions on safety and usage of nuclear power Indo – US nuclear pact 2008 gave impetus to safe, uninterrupted supply of technology and financial assistance but the local conditions did not allow any progress in land acquisition
- ❖ With this delay, the land records especially the encroachments [objectionable and unobjectionable] on government lands [approx. 1400acres] were not maintained properly making the acquisition tricky and complicated
- ❖ In this vacuum and confusion, many vested elements tried to subvert the project by playing the innocent people against each other and the organisation NPCIL had to eagerly wait for transfer of land
- ❖ Notifications issued under the Old Act ended up in court litigations and counter claims and objections coupled with outbursts of public agitations
- ❖ New act came into force w.e.f 1-1-14 and till all these bottlenecks were resolved using technology-based solutions to the problems and multiple stake holder consultations on the field in the form of SIA, EIA, Gramasabhas, SES surveys and studies; the LARR process couldn't commence till May 2017
- ❖ Cartosat-2 imagery and GIS mapped drones were used to identify individual holdings and to freeze their values as on crucial date of the 11(1) notification
- ❖ The challenges like convincing the public for fair compensation, ushering in transparency and accountability in LA and R&R were tackled effectively in the form of this web-based application
- ❖ Aadhar based biometric authentication is introduced to identify each beneficiary and to weed out extraneous elements and middlemen.
- ❖ Bank accounts, ration cards were also seeded with Aadhaar to create individual based profile in the project
- ❖ Programmed logic was used to put the cap on the 5-acre holdings to each beneficiary with respect to Govt. land encroachments [as per the state act, land less poor is a family whose total holding is less than or equal to 5 acres of dry land or 2.5 acres of wet land]
- ❖ NEFT based digital transactions are made part of the project to face the challenges like demonetisation, non-availability of cash, middlemen in distribution, corruption and other vices in the society

Strategy/Methodology Adopted:

13. Project Objectives:

Assessment of different structures/houses using fine resolution images from UAV/Drone Remote Sensing technology in Kovvada village for rehabilitation & resettlements (R&R) purpose.

Methodology:

The mapping of structures/houses of the study area using satellite / drone based remote sensing.

- Area is prioritized by the assessment of Cartosat -2satellite data (April 30th and May 5th, 2017)
- Data collection by using UAV / Drone and GCP collections (18th May, 2017)
- Data processing
- Feature extraction by using visual image interpretation techniques
- Geospatial database development and analysis
- Customization of application

To operate the system, the system does not need much training. Any person with computer knowledge will be able to operate with half day training.

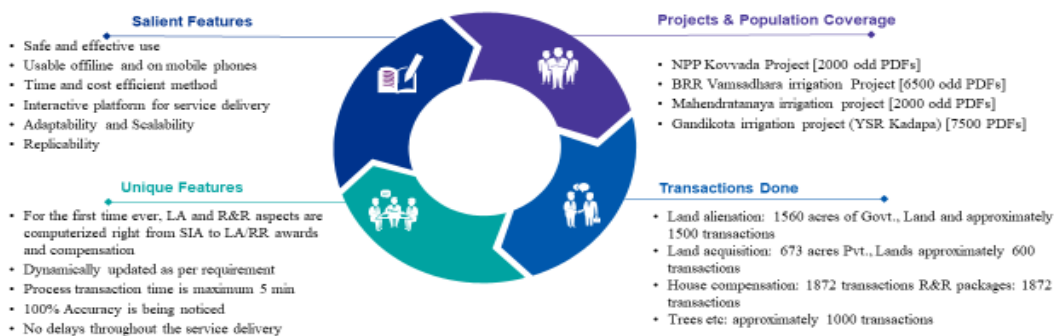
14. Project Scope Approach and Methodology:

The mapping of structures/houses of the study area using satellite / drone based remote sensing.

- ❖ Area is prioritized by the assessment of Cartosat -2satellite data (April 30th and May 5th, 2017)
- ❖ Data collection by using UAV / Drone and GCP collections (18th May 2017)
- ❖ Data processing
- ❖ Feature extraction by using visual image interpretation techniques
- ❖ Geospatial database development and analysis
- ❖ Customization of application

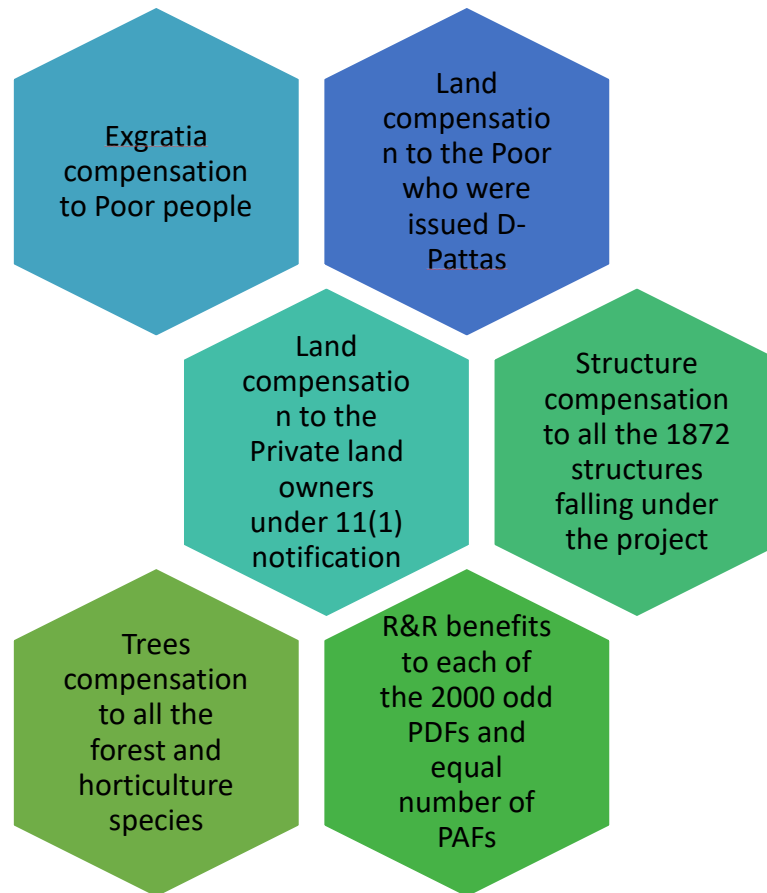
PROJECT PUNARVAS IN NUTSHELL

First end-to-end web based application for implementing the LA and R&R provisions of RFCTLARR Act 2013 - with built in technologies for Aadhar based biometric authentication, GIS mapping, drones and satellite imagery.

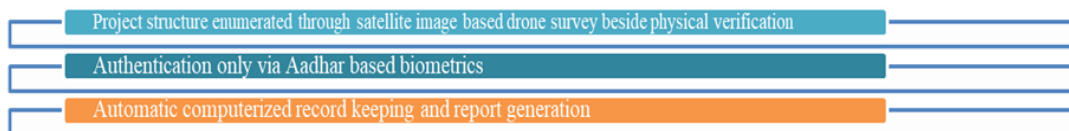


Project Director of Land Acquisition and Resettlement & Rehabilitation

Payment Deliveries of ICT Initiatives



Innovative Use of Technology



Usage of ICT Technology

- Cartosat-2 and GIS mapped drones from NRSC/ APSAC to freeze the spatial and geographic data with date and time stamps
- Aadhar based biometric authentication through USB 2.0 based Finger print devices
- NEFT based digital CBS banking transactions
- LARR processes were designed right from SIA to LA/ R&R awards and integrated into single application
- Aadhar based biometric authentication of the beneficiaries and individualist profiling of entitlements and compensation
- Logic to limit the extents and payment particulars and to enforce the entitlements as per state acts
- Tab / Mobile version of the software for conducting surveys/ door to door evaluation and to capture various details from the field
- District level initiative immediately adopted to other projects in the state

15. Results achieved/value delivered to beneficiary of the project and other distinctive features accomplishments of the project:

To Organization:

- ❖ The reduced number of litigations means the reduction of time in land acquisition.
- ❖ The compensation payment is direct, and payment is completed to the total number of structures.
- ❖ The biometric authentication means the correct person is paid the compensation.

To Citizen:

- ❖ The citizen got his compensation as per his actual losses due to land acquisition.

To Other Stakeholders:

- ❖ Data is available online. Officers have access to cross check the details provided in online.

16. Future Proofing / Longevity of the project:

Open source tools and interoperable J2EE/Java platform with web-based application has added to the adaptability and scalability of the software. Because of these features and applicability, the software is readily implemented by other big projects in the state like Gandikota irrigation project at YSR Kadapa district and it is added to the same portal

10. Wind Power Forecasting Services for the Whole State of Tamil Nadu

1.	Name of the State/Ministry	Ministry of New and Renewable Energy, Government of India
2.	Name of the host/owner organisation	National Institute of Wind Energy, Chennai
3.	Status of the host/owner organisation	Autonomous R&D institution by the Ministry of New and Renewable Energy (MNRE), Government of India
4.	Name of the Project	Wind Power Forecasting services for the Whole State of Tamil Nadu
5.	Name of the Nodal Contact Person	Mr.K.Boopathi, R&D RDAF and SRRA, NIWE
6.	Contact Address	National Institute of Wind Energy (Formerly known as " Centre for Wind Energy Technology " under the Ministry of New and Renewable Energy), Government of India Velachery - Tambaram Main Road Pallikaranai, Chennai - 600 100
7.	Telephone/Fax/e-mail	91-44-22463993 / 9445798004

8. Project Summary

As a specialized point of entire spectrum of Indian Wind Industry, NIWE started venture different methodologies to foresee the wind power production for the whole state of Tamil Nadu. In this regard, NIWE carried out a pilot wind power forecasting project for a particular wind farm viz., Kandamanur in the state of Tamil Nadu.

Initially, the wind power forecasting undertaking was taken up on a commercial venture since June 2015 by using European Centre for Medium-Range Weather Forecasts (ECMRWF) Numerical Weather Prediction (NWP) datasets with the support of a Spanish based company viz., M/s Vortex. In the year 2017, NIWE developed an Indigenous Wind Power Forecasting model with the help of Indian NWP datasets viz., National Centre for Medium Range Weather Forecasting (NCMRWF), The Indian Space Research Organisation Space Applications Centre (ISRO SAC) and Indian Institute Tropical Meteorology (IITM) in order to forecast wind power generation on Intraday and Day ahead basis. The Indigenous model (Figure 1) makes use of both physical and statistical approach to predict the wind power generation. In the ensuing years, the experience gained from the Tamil Nadu forecasting project help to initiate wind power forecasting services on pilot basis to various other RE rich states like Gujarat, Karnataka and so on.

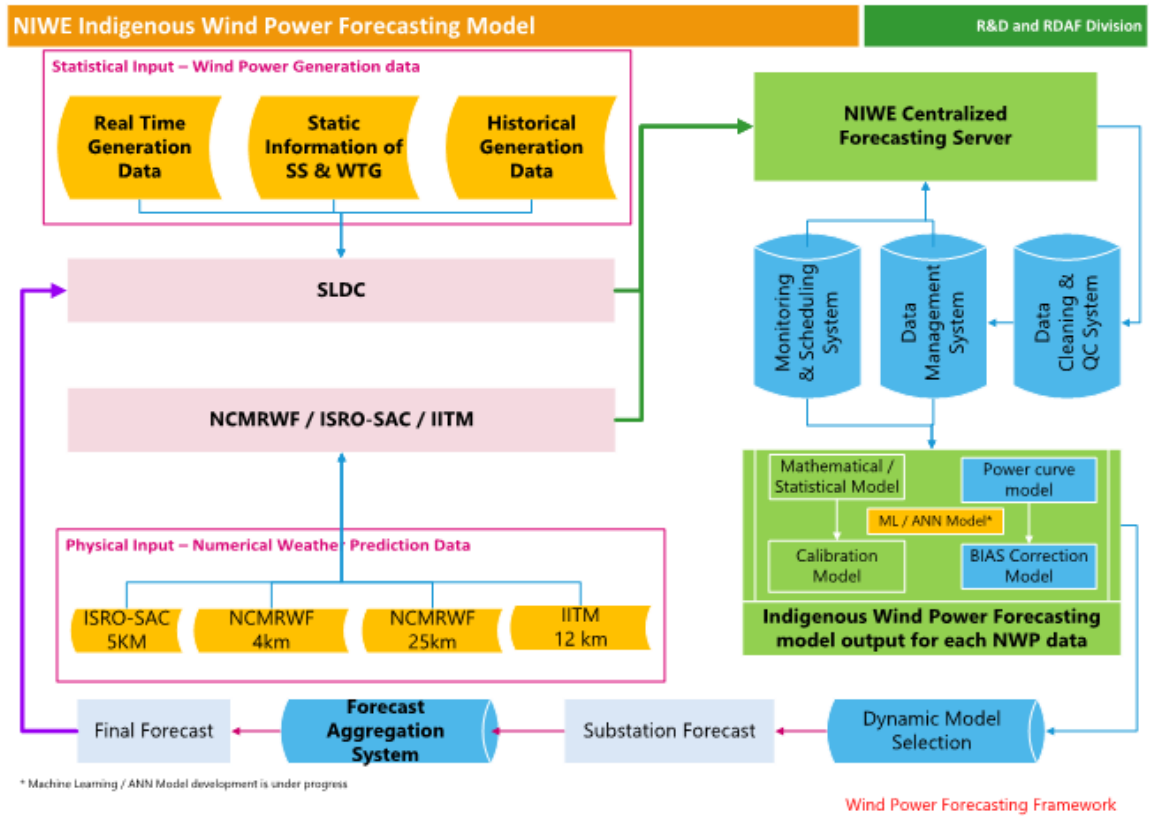


Figure 1: NIWE's Indigenous Forecast System

9. Date of launch of Project: June 2015

10. Coverage (Geographical):



Figure 2: Coverage in Tamil Nadu

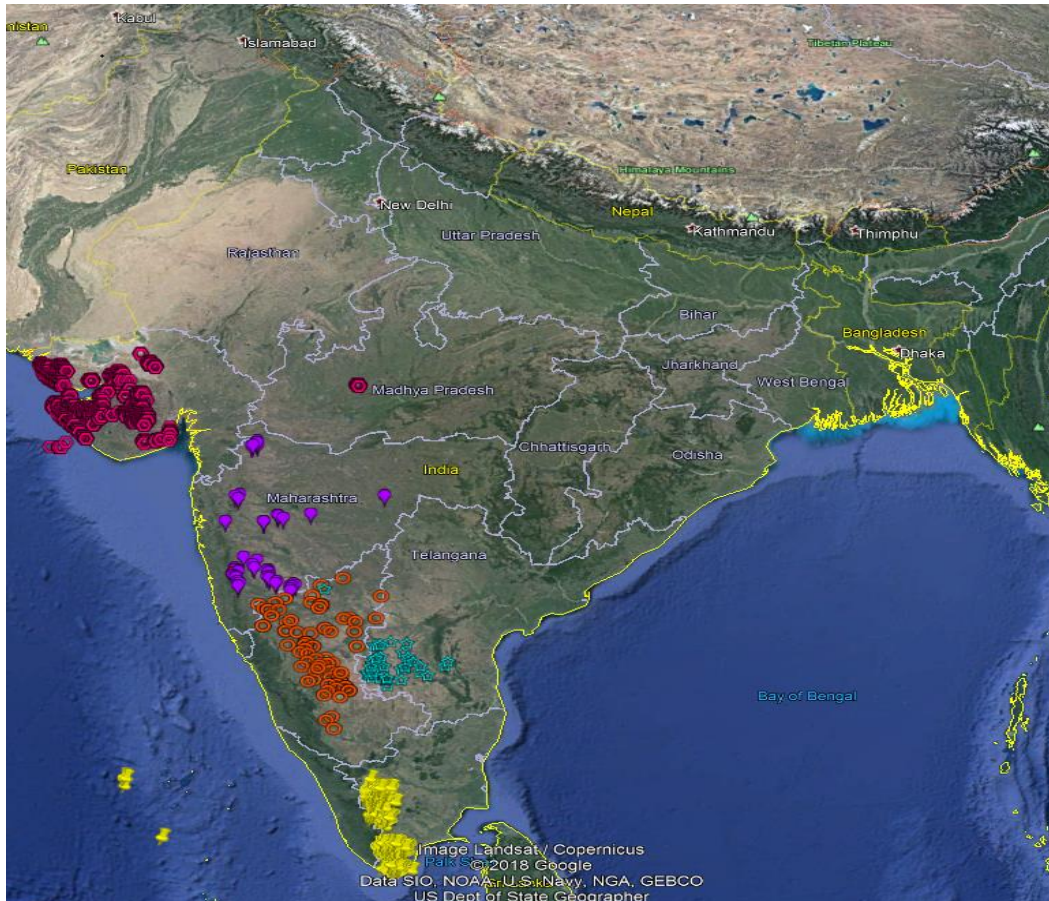


Figure 3: Coverage throughout India

The experience gained from the Tamil Nadu forecasting project NIWE has Established Centre of Excellence in VG (Variable Generation) Power forecasting to extend wind power forecasting services to other rich states such as Gujarat, Karnataka, Maharashtra, Andhra Pradesh and so on. NIWE has signed a MoU with Gujarat Energy Transmission Corporation Limited (GETCO) on 21st June,2017, Karnataka Power Transmission Corporation Limited (KPTCL) on 7th May,2018, Transmission Corporation of Andhra Pradesh (APTRANSCO) on 27th April,2018, Southern Regional Load Dispatch Centre on 14th September,2018, Maharashtra State Load Dispatch Centre (MSLDC) on 12th December,2018. As per signed MoU, NIWE has fine-tuned various configuration of Indigenous wind power forecasting model with the real-time data being received from the various substations. The pilot operational Wind power forecasting services are being delivered to GETCO since April 2018, KPTCL since October 2018 and MH since May 2019. NIWE is providing pilot wind and solar forecasting services to SRLDC since November 2018. NIWE is also started using the same indigenous wind power-forecasting model in a commercial project to IWPA. The geographical coverage in Tamil Nadu and India is depicted in the figures above, Figure 2 and Figure 3)

- National Level – Number of States covered – 5
- Substation Level – Number of substations covered - 364

NIWE has signed MoU and initiated pilot wind power and Solar power forecasting for SRLDC. NIWE proposes to sign MoU to initiate Wind/solar power forecasting services to all the RE rich states of India.

11. Beneficiary of the Project: Million units' evacuation

In Tamil Nadu, due to NIWE's forecast, wind power Evacuation has been improved from 80 Million Units to 100+ Million Units in a day and this shall increase the usage of renewable energy resources more optimally and sustain a secure energy policy for India. In addition, NIWE's Wind power forecasts improved the reliability and stability of power systems by reducing the uncertainty and thus improving evacuation of wind energy into the power system. From the Figure 4, states that the MU generated in Tamil Nadu has increased over the years with the help of forecasting.

In addition, the forecast increases the penetration and assimilation of wind power generation. It further facilitates meeting the electricity demand from green energy by consumers in Renewable Energy rich states and this also would mitigate the impacts of pollution by conventional power plants burning fossil fuels. The service has improved the evacuation of wind energy in the state grid and hence sufficient green electrical energy is made available for the people, which has tangible effects on improving the productivity of the citizens.

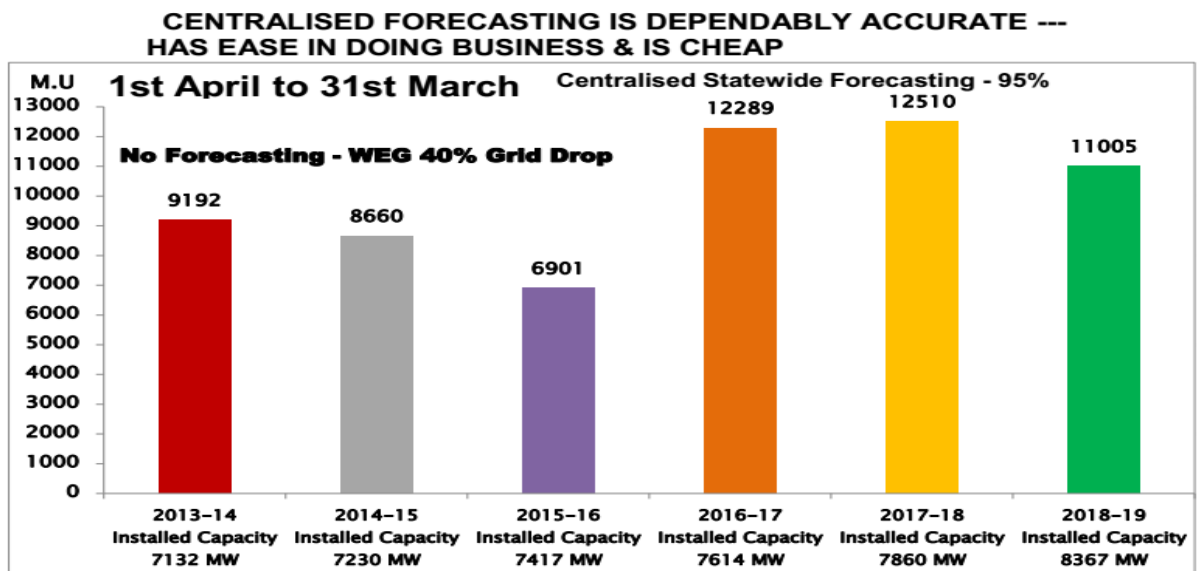


Figure 4: Year wise MU generated in Tamil Nadu

The benefits of forecasting were discussed in various forums such as Deccan Chronicle and Times of India (Figure 5 and Figure 6 respectively). The use of wind power forecasting system has helped to increase wind power evacuation by 20 per cent on a daily basis Wind power being amongst the cheapest sources of power, it helps TNEB financially to use all the wind power being generated. NIWE is helping SLDC to turn down or stop fossil fuels and other power plants to reduce the overall financial burden of the DISCOMS.

Forecasts, schedules help tap more wind power in Tamil Nadu

DECCAN CHRONICLE. | G JAGANNATH (/byline/g-jagannath)
 Published Jul 4, 2016, 7:17 am IST
 Updated Jul 4, 2016, 7:17 am IST

A senior Tangedco official said that they were evacuating as much wind energy they could accommodate in the grid.

Figure 5: Article in Deccan Chronicle

Printed from
THE TIMES OF INDIA

In a first, forecasting helps TNEB make most of wind power

TNN | Jul 24, 2015, 12.31 AM IST

In a first, the use of wind forecasting techniques has helped to increase wind power evacuation by 20% on a daily basis. Wind power being among the cheapest sources of power – at Rs 3.50 per unit – it would help TNEB financially to use all the wind power being generated. Without forecasting of a fluctuating source of power, however, other power plants will have to be kept running for the sake of continuous supply of power and some power will have to be drawn from them.

A 10-member group from the India Wind Power Association has been supplying five-day forecast of wind power to TNEB for the last 25 days. This has been helping the board to turn down or stop coal and other power plants for whose power it pays nearly Rs 5.50 and take in cheap wind power instead.

While in 2014, TNEB, on an average evacuated around 68 million units every day, this season, the average evacuation per day has gone up to 81million units. Overall evacuation is now slightly more than 93% of wind power being generated.

The 10-member team includes engineers, data experts as well as wind power companies. The industry group has stepped in even as the National Institute of Wind Energy (NIWE) recently entered into an agreement with a Spanish company for real-time forecasting. The NIWE project is yet to go onstream. "Every late night, the team sends us the forecast for the next five days," said a Tangedco official. The accuracy of the forecasting is around 60% and the industry group hopes to improve that in the coming months, said the official.

Figure 6: Article from the Times of India

12. Problem Statement or situation before the initiative

Variability of wind is a major drawback in deploying large scale wind energy source into the power grid. The penetration of wind generation is increasing day by day on interconnected power systems, hence system operators are facing issues in maintaining the reliability and balance of the power grid. This calls for reliable estimation of wind generation on day ahead and intra-day basis with reliability tools/latest technology/methodology to ensure sustainable and continued operation of the grid. The Indian Wind industry faced several hurdles in transmission and scheduling of wind power due to lack of adequate wind power forecasting which resulted in backing of wind generation from the grid. Indian Wind Power Association (IWPA) quoted during 2013-14, in various forums that compared to 2012, 2013 and 2014 was evacuation losses of around 3 billion units of wind energy in Tamil Nadu, resulting in annual loss of Rs.1000 Crores to wind generators (Figure 7) and around 3000 crores for utility. The main problem faced by grid operators is the non-availability of real time wind generation and wind power forecast data. With these made available to them, SLDC would schedule wind power in better way and evacuation losses could be avoided.

13. Project Objectives

- To provide reliable intraday and day-ahead (upto 7days ahead) wind power forecasting services
- To provide Wind power and Solar power forecasting for all the RE rich states of India.
- To provide Regional Level wind power and solar power forecasting in India.
- To provide long term and medium-term wind power Forecasting.
- Development of In-house Data management system, Indigenous wind power forecasting model, monitoring system and forecasting simulation tools.

14. Project Methodology

NIWE Indigenous model require three major input data viz., Static details of the turbines, generation data and Numerical weather prediction data. NIWE is obtaining real time generation data and static details from respective SLDCs to a centralized forecasting server. NIWE is receiving various Indian NWP

datasets viz., 25km (Global model) and 4km (Regional Model) horizontal resolution NWP data with 50 m, 10 m and 3 Geopotential heights from NCMRWF. Presently, NCMRWF is providing hourly wind speed forecast up to 7 days ahead. In addition, NIWE is also receiving 5km (Regional Model) horizontal resolution NWP data for whole country from ISRO-SAC. As a first step, NIWE established an automated system for data quality check and cleaning algorithm, which helps to detect and remove outliers. The cleaned generation data and NWP is stored and fed to the Indigenous wind power forecast system.

NIWE Indigenous wind power forecast system is operating in 2 modes viz.,

- Training mode and
- Operational Mode.

Training Mode

During the training mode, NIWE is carrying out data cleaning and calibration of the NWP data with one-year historical generation data. Using Statistical and Mathematical models, NIWE is fitting the equations for co-relations of the data set with different statistical approaches and identifying the best fit which can be used in the operational mode to correct the NWP data.

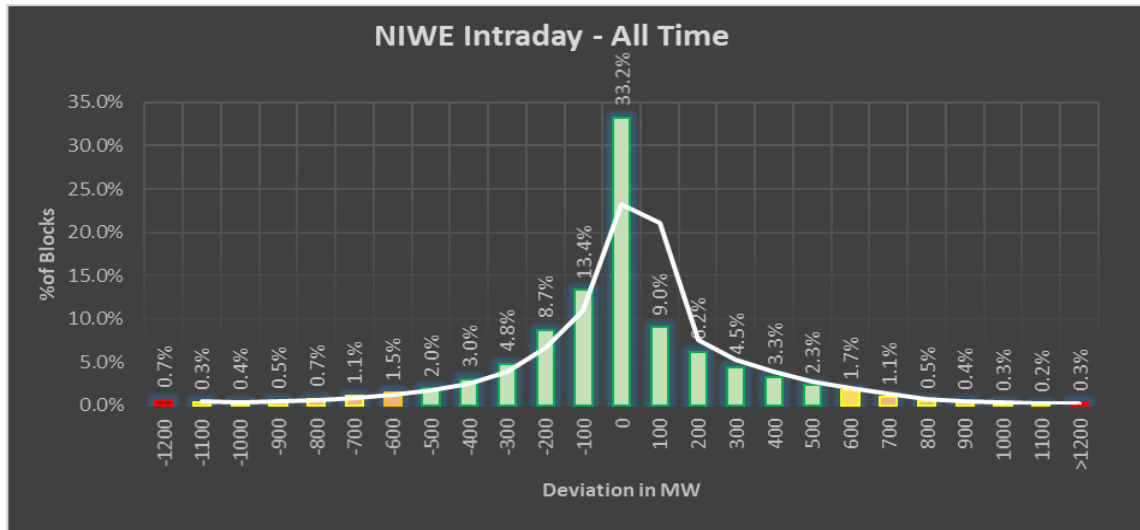
Operational Mode

In the operational mode, after applying necessary correction in the input data, the forecast power is predicted using various models developed by NIWE. The best model output will be selected for each pooling substation with the help of a dynamic model selection algorithm developed by the forecasting department of NIWE. The aggregation system is used to calculate the aggregated forecast and the forecast result will be delivered to the respective SLDC at the prescribed time and format.

By using the said model, NIWE established a system to predict the wind power up to 7 days ahead so as to support all the State Load Dispatch Centre (SLDC) in the country to evacuate wind power / manage the grid efficiently.

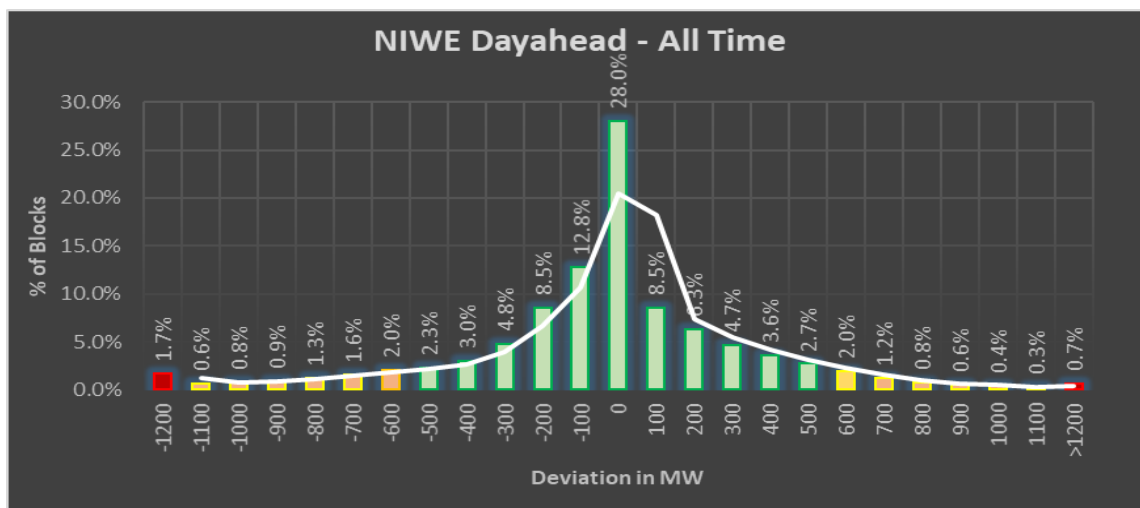
15. Results

NIWE has trained the model with 2015 and 2016 data and has identified the best model by carrying various analysis and simulation processes. As per the state-owned transmission utility norms the acceptable deviation from schedule is $\pm 600\text{MW}$. In order to assess the performance of the model, error analysis for the forecast is provided from January 2017 to December 2018 is shown below.



Intra Day - 92% and 99% accuracy level within 600MW and 1200MW respectively

As indicated above, 92% of the blocks, the intraday forecast deviation is within 600 MW and 99% of blocks, intraday deviation is within 1200 MW.



Day ahead - 85% and 99% accuracy level within 600MW and 1200MW respectively

As indicated above, 85% of the blocks, the day ahead forecast deviation is within 600 MW and 99% of blocks, day ahead deviation is within 1200 MW.

16. Future Proofing/Longevity of Project To provide solar/wind power forecasting to all the RE rich states of India

- a) To initiate regional level wind and solar power forecasting services
- b) Research and model development of long- and medium-term wind speed and wind power forecasting
- c) NIWE is actively carrying out various steps to develop competence in Advanced Statistical / ANN methods and dynamic downscaling techniques.
- d) Development of a system to assess Wake effect / distribution of wind farm accurately and the same needs to be incorporated into our existing system

11. Targeted Intervention to Expand and Strengthen TB Control Among the Tribal Populations under RNTCP, India

1.	Name of the State/Ministry	Indian Council of Medical Research (ICMR), Department of Health Research, Ministry of Health & Family Welfare (MoH&FW), Government of India
2.	Name of the host/owner organisation	ICMR-National JALMA Institute for Leprosy and Other Mycobacterial Diseases, Tajganj, Agra
3.	Status of the host/owner organisation	Active
4.	Name of the Project	Targeted Intervention to Expand and Strengthen TB Control among the Tribal Population under RNTCP, India (TIE-TB Project)
5.	Name of the Nodal Contact Person	Dr. Avi Kumar Bansal, Scientist E
6.	Contact Address	ICMR-National JALMA Institute for Leprosy and Other Mycobacterial Diseases, Miyazaki Marg, Tajganj, Agra- 282004
7.	Telephone/Fax/e-mail	Mob: 9012175175; e-mail: bansalavikumar@gmail.com

8. Project Summary

The Indian Council of Medical Research (ICMR) under the Department of Health Research/Ministry of Health & Family Welfare/Government of India, in collaboration with Central Tuberculosis Division (CTD)/ Department of Health & Family Welfare/ MOHFW/GOI has undertaken the TIE-TB project in certain unaccessible, tribal areas spread over the central and western parts of India of improve the convenience of TB services for the tribal population. This project has been funded by the Global Fund for AIDS, TB & Malaria.

The most significant aspect of the project is the deployment of the 35 Mobile TB Diagnostic Van (MTDV) equipped with X-ray facilities and Sputum Microscopy facilities which are offering diagnostic services for Tuberculosis at the doorstep of the patient's home in difficult to reach areas of the tribal populations.

The project has been implemented in 5 States (Madhya Pradesh, Gujarat, Chhattisgarh, Rajasthan and Jharkhand) and 17 districts covering a total population of approximately 17.65 million. This intervention was initiated to improve the 'Standard of Care' among these extremely deprived populations. The outcomes envisioned were to improve early seeking of care, reduction in out of pocket expenditure of individual patients and curbing of the individual patients from being directed to multiple providers for treatment which results in huge economic burden to the patient and his family.

9. Date of launch of project: 20 April 2017

10. Coverage (Geographical) & Beneficiary of the Project:

Project has been implemented in 5 States (Madhya Pradesh, Gujarat, Chhattisgarh, Rajasthan and Jharkhand) and 17 districts covering a total population of approximately 17.65 million and catering to Tribal Population and Health Care providers for addressing the problem of Tuberculosis

11. Problem statement or situation before the initiative

The extreme remoteness, intense deprivation from even a day's square meal and the harsh and isolated living environments primarily contribute to high vulnerability of and poor access to healthcare by these populations. As such, provision of TB services to the tribal population is not simply an issue of reducing the burden of TB in numbers but is a 'Standard of Care' issue.

12. Project Objectives

Strengthening TB Control in Tribal Populations: -

- a) Strengthen access to RNTCP services in the tribal population
- b) Promote early case detection and treatment adherence in the tribal population and overall improvement in the quality of the services
- c) Improve awareness on TB and RNTCP services through community based ACSM activities

13. Project scope approach and methodology

Suitable Vans which could traverse the tribal regions and yet had the capacity to carry sufficient weight were equipped with digital X-ray and sputum microscopy facilities and deployed in 17 districts across 5 states (Mobile TB Diagnostic Van, MTDV). These vans visited remote places in the tribal populations. These remote places were defined as not having a sub center within a radius of 2 Km and/or lack of a convenient transportation (defined as availability of at least one to and fro transportation service per day). The lists of the villages were decided upon by the programme managers and a monthly schedule was prepared every month for the visit of each of the MTDV. The schedule was shared with the respective PHCs. Each of the PHC would ensure adequate preparation for the visit of the van through its peripheral health staff such as mobilizing the presumptive TB patients and ensuring that information is spread around in the village about the visit of the MTDV. The sputum results and the film of the Chest X-ray were shared with the patients on the spot. Additionally, the results of the patients who tested positive on sputum microscopy were shared with the STS and the DTOs for initiating the patients on treatment. The soft/hard copy of the Chest X-ray films were brought to the DTC in the evening which were read by the DTO and further needful was done.

Under the project, real-time data was collected on TB Life Cycle for more than 4000 Tuberculosis patients who enabled planning of services from Mobile TB Diagnostic Van and community awareness, private practitioner sensitization and other such activities. Additionally, the software helped in ensuring treatment of patients diagnosed from the Mobile TB Diagnostic Van.

14. Result achieved/value delivered to beneficiary of the project and other distinctive features/accomplishments of the project

The results were primarily measured in terms of the case notification achieved from the vans. 35 MTDVs were functional for a period of 9-11 months in 17 districts spread across 5 States. The percentage contribution of the vans to the case notification of the respective districts of operation was 16%, on a cumulative basis. A few districts reported as high as 40% contribution to their case notification. During the period 1st October 2017 to 30th June 2018, in the 3 districts of operation in Rajasthan, a total of 6884 cases were notified of which 1038 (15%) were notified from the vans. Similarly, in the 4 districts of Madhya Pradesh, 3507 cases were notified of which 850 were reported from the MTDVs. In Chhattisgarh, from the 3 districts of operation, 1912 cases were notified of which 486 (25%) were notified from the MTDVs. In Jharkhand 5068 cases were notified of which 234 (4%) were notified from MTDV. In Gujarat, 6672 cases were notified of which 1208 (18%) were notified from the MTDV.

The Out of Pocket Expenditure experienced by the patients was measured as the most important indicator through a baseline and end line survey undertaken. The baseline data revealed that the average expenditure borne by the patients when they sought treatment from RNTCP was Rs. 1163, while it was as high as Rs. 6897 when the health care provider (HCP) was from private sector. More than 47% of the patients experienced huge costs, above Rs. 10,000 when they sought treatment in the private sector. Only 1% of patients with RNTCP reported costs of treatment above Rs. 10,000. The Out-of-pocket (OOP) for patients serviced by the MTDV was drastically reduced with a mean of Rs. 255, as observed from the end line survey data. More than 44% of patients reported 'nil' expenses when serviced by MTDV. A few patients (20%) reported expenses from Rs. 300 to 1000, when serviced by MTDV, which was majorly due to ancillary expenses.

The loss of man days for seeking consultation was an average of 5.4 days when sought treatment from RNTCP and 4.3 when sought treatment from private sector. The same was 3.6 when serviced from MTDV.

The results herein show that the MTDV is a cost-effective intervention for the vulnerable populations and that it vastly improves the standard and convenience of services for the remotely located populations. The decrease in the Out- of-pocket (OOP) of the patients is highly significant and saves the families from going into abject poverty for seeking treatment for Tuberculosis.

15. Future proofing/ Longevity of the Project

The project activities have now been absorbed as routine activities under the Revised National Tuberculosis Control Programme.

12. www.chemicals4construction.com

1.	Name of the State/Ministry	Start-Up
2.	Name of the host/owner organisation	Giribala Creative Ventures Pvt. Ltd.
3.	Status of the host/owner organisation	Active
4.	Name of the Project	www.chemicals4construction.com
5.	Name of the Nodal Contact Person	Nayak Sunil (Director)
6.	Contact Address	Giribala Creative Ventures Pvt Ltd 319 Shayona Arcade, Opp dinesh Chamber Bapunagar-380024 Ahmedabad- Gujarat
7.	Telephone/Fax/e-mail	Contact No:9376928224 Email chemicals4construction@gmail.com Id:

8. Project Summary & Objective:

www.chemicals4construction.com powered and promoted by Giribala Creative Ventures Private Limited. www.chemicals4construction.com is an exclusive B2B platform which fulfills the present requirement of a Construction Industries,

We are now a Startup recognized by the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, Government of India. -(Certificates No- DIPP20539)

We are the only startup awarded the prestigious Government award National e-Governance Award - 2018-2019 (Category V-Innovative Use of ICT in E-Governance Solutions by Startups)

www.chemicals4construction.com provide a crucial link between the Construction Industry and the Chemical Industry which fulfills the present requirement of a Construction Industries,

Our motive behind this concept is a correct use of construction chemicals and reduce 30-40% products price and customer get the right products. Cost-effective durable waterproofing solution is our other objective behind this solution.

Construction chemicals Manufacturers, Suppliers registered with us and specified their products on Government & Private authority and selling their product's.

Waterproofing applicator registered with us and provide unique waterproofing solutions to the customer.

Buyer can easily buy a multi-brand product with a single click.

Buyer has multiple options for payment like Online payment, Cash on delivery and makes payment through Paytm, PayPal, CC Avenue.

We are raising the awareness to practically cover the entire construction industry, we are creating awareness about the right usage of Construction Chemicals & Waterproofing Products and Share Knowledge, it will help to Smart City Project and Green Building Project, Road & Infra Project, MES, CPWD and Government Project & Private Project etc.,

Startup Solve the specific Construction & Real Estate problem,

- Efflorescence
- Dampness
- Bad Aesthetic
- Leakage
- Seepage
- Corrosion
- Fungus
- Suffocation
- Ageing
- Crack
- Pothole
- Crack
- Structure Fault
- Corrosion

Membership Benefit

We are high profile entrepreneurs, Professional and through leader from B2B Construction Chemicals Portals, Currently, there are 5000+ members likes Construction Chemicals Manufacturer, Paints Manufacturer, Cement Manufacturer, Grout Manufacturer, Tile Adhesive Manufacturer, Distributor, Dealer, Applicator, Architects, Contractor, Project Manager, Builders & Developers, PMC, RMC Plant, EPC, Project Manager, Contract Head, Specifiers, Civil Engineer, Students and Associates to Construction Industries.

1) Global Benefits:

International and national networking with existing member base. (Member Listing)

Sharing of knowledge and experience about industries. (Business Communication)

2) Business & Grow:

Publish 100 Business lead on Every Month (Buy Lead, Work Contract, Tender, Ongoing Project) fulfill all need of the customer.

Increase Business opportunities through. (Business Support Services)

Active communication is maintained between sellers and buyers to keep the transparency of business dealings. (Customer Relationship Management)

3) Stay Updated:

To provide updates about the recent developments and trends. (Market Watch, Market Report)

Exposure to new technologies in the sector. (Events, Exhibition, Article, News)

4) Showcase:

The better understanding of construction chemicals and its applications (Products Details).

Develop your Business Profile and Publish your Unlimited Products. (Website & Apps)

5) Organization Benefits:

Opportunity to connect with Construction Chemicals Manufacturers, Construction Chemicals Suppliers, Construction Chemicals Wholesalers, Construction Chemicals Channel Partner, Associates, Buyers, Service providers, Construction Chemicals Applicators, Construction Chemicals Exporters, Architects, Consultants, Engineer, Contractors, Builders and Developers, RMC Plant and many more at one place and the relevant contact details. (Directory)

Our Service Modal (BIKE)

- Business Platform.
- Information.
- Knowledge.
- Employment.

9. Date of launch of project: 25/04/2017

10. Coverage Geographically: Gujarat

11. Beneficiary of the Project: -

- A. Manufacturer of Construction Chemicals.
- B. Raw materials manufacturer
- C. Supplier

- D. Distributor/ Dealer/ Applicator
- E. Builder
- F. Developer
- G. MES
- H. CPWD
- I. Road & Highway Authority
- J. Airport Authority
- K. Infrastructure Company
- L. PMC
- M. Architect
- N. Engineer
- O. Students

12. Problem Statement

Indian construction chemicals market is highly cost-conscious. The customers demand the best quality at very low prices. However, they are still not fully aware of the benefits of various construction chemicals and hence tend to use low cost substitutes. Decisions are taken based on immediate cost not on overall cost of ownership (life-cycle cost) basis.

The practice of employing unskilled workers in construction activity is still hampering the growth of the sector, as construction chemicals are sensitive products and their use requires basic technical expertise and training.

As far as government projects are concerned, most of the specifications are outdated. We do not have BIS standards for all these materials and hence there is resistance in government sector to use these materials in bulk. This can be improved by introducing BIS codes for commonly used construction chemicals. Government can also adopt international codes of practice like ASTM/EN etc. to hasten process.

Construction Industries is unorganized the right usage of Construction Chemicals thus help increase the entire life cycle of Structures, Building, Road Highway, Infrastructure,

In initial stage the cost of Construction Chemicals is 5-10% but we are not using the correct construction chemicals the Repair Rehabilitation and Maintenance cost is 35 % higher.

Government spend around 20-25% on Repair & maintenance of Infrastructure Building Road and Highway.

Repair and Maintenance & Rehabilitation cost is slow down the Infrastructure Growth.

13. Project Scope

The Manufacturer and Supplier are publishing end number of products through registration.

In our project customer and vendor can easily join the platform through Website & Apps, Buyer can see and access the vendor list and products details and easily buy multi brand product on different payment option like cash on delivery, Credit Card, Debit Card, Internet Banking etc.

Improve the Buying Pattern

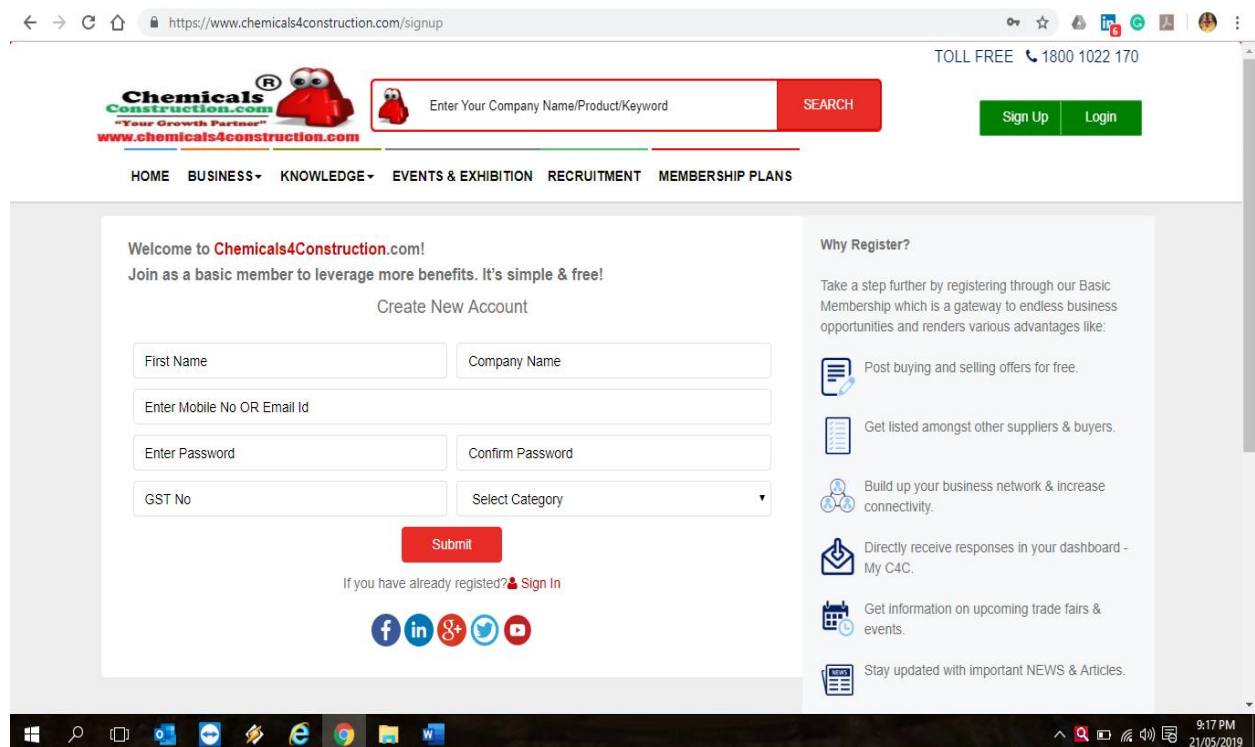
Vendor listed Products / services ↓

Select multi brand products ↓

Use Online payment option ↓

Buy Products on Single Click

Registration through website



Vendor Registration through Apps



☎ Mobile No

🔒 Password

LOGIN

👉 Forgot password

SIGN UP

❖ **Adaptability Sustainability**

The vendor are easily adapted our concept and vendor buy multibrand product within single click and customer easily track the order through our system.

Increasing global competition demands that products have better functionality, higher quality, lower cost, shorter delivery lead time, and increased environmental friendliness. In the past several decades, many advanced technologie adaptability is to be understood here as the ability of a system (e.g. Website & Apps) to adapt itself efficiently and fast to changed circumstances.

The objective of adaptable process is to effectively and efficiently maintain, improve, or change the functionality of a services by enhancing its adaptability. Compared with the traditional approach for bringing the functionality of services to a predefined level through logistic and supply and order booking.

14. Result Achieved/ Value delivery to the beneficiary of project

We have associated 80 ++ Manufacturer and more than there are 5000+ members like Distributor, Dealer, Applicator, Architects, Contractor, Project Manager, Builders & Developers, PMC, RMC Plant, EPC, Project Manager, Contract Head, Specifiers, Civil Engineer, Students are associated with us.

Our reach to market is raising the awareness among users to practically cover the entire construction industry. We are creating awareness about right usage of Construction Chemicals & Waterproofing Products and Share Knowledge. Our App will be helpful for Smart City Project and Green Building Project, Road & Infra Project, MES, CPWD and Government Project & Private Project etc.,

Our model has inbuilt features:

- A. chemicals4construction.com, (Appoint 1 Sales & 1 Support staff on city wise and generating employment.
- B. Placement of Vendor company (Manufacturer, Supplier, Distributor, Applicator)
- C. Train and educate people and appoint the Applicator on Tier 1 & Tier 2 and Tier 3 area and generate self-employment.

Our Achievements:

Work as media partner in International events.

1) The 8th China (Guangzhou International Roof, Facade, Waterproofing Exhibition 2018

Venue: Poly World Trade Center Expo (PWTC Expo). Guangzhou, China

Products Services Focus:

Bituminous waterproofing membrane, Roofing System, Wall Materials, Waterproof Paint, Sealing material, Metal Roof System, Waterproofing construction equipment & application technology and so on.

2) Batimat Egypt 2018

Batimat Egypt is leading construction show in the region. Its second edition will be held from 1 to 4 March 2018 at the New Cairo Exhibition Center. Batimat Egypt is the place to be to meet the biggest network of the key players of the Construction Field, get in touch with the latest innovation and showcase your products and services to the largest audience.

The trade show displays a wide array of sectors making it the one stop for all who are part of the Building Industry.



Exhibitor Profiles:

- Building Materials & Equipment
- Interiors and Finishing Materials
- PMV (Plant Machinery Vehicles)
- Power & Electricity
- Lighting
- HVAC
- Solar Power

15. Future Proofing/ Longevity of Project

We are web-based service provider and we have not any geography limitation. We are high profile entrepreneurs, Professional and leader from B2B Construction Chemicals and Waterproofing, we are planning to 100000+ members likes Construction Chemicals Manufacturer, Paints Manufacturer, Cement Manufacturer, Grout Manufacturer, Tile Adhesive Manufacturer, Distributor, Dealer, Applicator, Architects, Contractor, Project Manager, Builders & Developers, PMC, RMC Plant, EPC, Project Manager, Contract Head, Specifiers, Civil Engineer, Students will join our platform within one year.

13. Ultra-Resolution UAV based Geo-ICT enabled Property Tax Management System for Municipal Area of Bhiwani

1.	Name of the State/Ministry	Haryana
2.	Name of the host/owner organisation	District Administration, Bhiwani
3.	Status of the host/owner organisation	District Administration
4.	Name of the Project	Ultra-resolution UAV based Geo-ICT enabled Property Tax management system for Municipal area of Bhiwani
5.	Name of the Nodal Contact Person	Dr. Sultan Singh
6.	Contact Address	Principal Scientist (NRDMS) HARSAC Node Gurugram, GIS Lab 3 rd Floor, Mini Secretariat, Gurugram,122001
7.	Telephone/Fax/e-mail	9416243824

8. Project Summary

Municipal Council of Bhiwani (MCB) for its municipal area of 70 square kilometer and 60,000 (approximate) properties was struggling with the property tax assessment and creation of a tax-based revenue model. Although few attempts were made by them in past years, but all gone in vein since the public was not lacking awareness in this survey. The rate of filing of property tax returns were very low and inaccurate, resulting in high accumulation of arrears. The citizens were not penalized adequately for not filing their tax returns. There were a large number of unassessed properties which were not under the Tax net, causing a huge revenue loss to the MCB. The taxation principles followed by the MCB were not in accordance to the Act. Given the lack of uniform procedure of taxation, properties were wrongly assessed, and the details maintained by the MCB were inaccurate and inconsistent. The records maintained in manual registers were also prone to tampering. There was a delay in preparing the defaulters list and notices that timely collection of property tax was not possible. To better track and manage all property tax related information Deputy Commissioner of Bhiwani who the chief administrative and revenue officer of the district is loomed a modern techno-innovative approach based on geospatial techniques. The MCB implemented a new GIS enabled property tax system developed by the Haryana Space Applications Centre, Department of Science and Technology. The proposal constituted the Unmanned Aerial Vehicle (UAV)/ Drone based aerial mapping for the Municipal area of Bhiwani and utilizing the feature extracted output as the base for the fresh property tax survey. The Geo-ICT enabled system was designed to allow officials to more easily determine whether tax had been paid for a property, to better monitor overall progress in property tax collection across each ward and the MCB as a whole, to allow for taxes to be paid via alternate channels such as at citizen centric service, and to aid in the process of generating accounting statements for the MCB as a whole.

9. Date of launch of Project: July 2017

10. Coverage:

Municipal Council Bhiwani which covers an area of 70 Sq. Kilometers with 60,000 (approximately) properties

11. Beneficiary of the Project: Municipal Council Bhiwani

12. Problem Statement or situation before the initiative:

Bhiwani town measures 70 square kilometers with approximately 60,000 (approximate) properties and is governed by Municipal Council of Bhiwani (MCB). There was hardly any legacy data regarding properties and its dimensions. A judicious property tax assessment is critical for sustaining the revenue mobilization and subsequently improving urban amenities in the municipal area. Few attempts for survey had failed miserably with rampant corruption and rent seeking during the survey. Faulty assessment leads to non-filing and accumulation of arrears for last few years. On account of faulty arrears, municipal council could not even penalize the defaulting property owners. A large portion of properties stood unassessed for property tax. The circumstances lead to a large revenue loss to the civic body. A fresh approach for judicious assessment of property tax in accordance with municipal regulations was imperative. There was a need to do away with manual preparation of demand notices, bills and property description. Manipulation of records, tampering and commissions & omissions in sending demand notices were evident. Calculation errors and clerical mistakes added to the chaos.

13. Project Objective:

- The Geo-ICT enabled system was designed to allow officials to more easily determine whether tax had been paid for a property,
- To better monitor overall progress in property tax collection across each ward and the MCB as a whole,
- To allow for taxes to be paid via alternate channels such as at citizen centric service, and
- To aid in the process of generating accounting statements for the MCB as a whole.
- Creation of an online grievance redressal system

14. Project Scope approach and methodology:

An Unmanned Aerial Vehicle (UAV) driven images were captured for the entire area under the jurisdiction of the civic body. These images were geo-referenced to convert image into map of the entire civic body. The digitization of this map with a very high resolution of 5 cm enabled automated assessment of dimension of the area of each and every property within municipal area. Further, these maps and other data sets were placed in public domain for self-assessment and validation of demand notices/property tax bills. A smartphone-based application was used to verify the assessments made using UAV based maps. This Geo-enabled system equipped MCB officials to assess property taxes, monitor defaults, authenticate the information and finally, to redress grievances. Alternate channels for property tax payments/ collection like online payments and payments at citizen service centres were created. Online generation of bills/ demand notices and generation of digital accounting registers are two important achievements of this effort.

15. Result Achieved/Value delivered to beneficiary of the project and other distinctives features/accomplishments of the project

Collation of information collected through smart phones and reconciliation on UAV created digitized data on an on-line platform which is accessible to all stakeholders removes any apprehension of asymmetry of data. Complete transparency is taken care of by way of allowing citizens to validate the assessment made by civic body staff. The generation of demand notice, online payment and grievance redressal facilitates the residents/ property owners further. Being paperless system and ease of operation makes it citizen centric. The user can access the system anytime as it is operational 24*7 and 365 days in a year.. The user can view their property details, register any changes in their data through online portal. He can even view the progress of their grievance redressal file online along with the officer's details who is handling the file at that moment.

16. Future Proofing/Longevity of the Project

Currently the project is handled by skilled staff of the Haryana Space Applications Centre. HARSAC is the notified agency for all GIS/UAV based work in the state of Haryana. This is a major effort to build capacity in state agencies and hence, HARSAC will develop the application, hand it over to the agency after building capacity and stay as mentor organization at arm length distance after stabilizing. The system design is adaptable to any future changes desired by the stakeholders and is scalable also since the current property holders in Bhiwani are 60,000 (approximately) but the system has practically no limitation even if the property tax payers increase in the future. This is a end to end package which can be used by any municipal / civic body across the country. The system design can be replicated at any place in Haryana/ India since the tax rates for council, committee and corporation within Haryana are universal and can be implemented with ease. Minor tweaking in may be needed for civic bodies outside the state.

14. iStart Rajasthan

1.	Name of the State/Ministry	Government of Rajasthan
2.	Name of the host/owner organisation	Department of Information Technology & Communication
3.	Status of the host/owner organisation	Department of Government of Rajasthan
4.	Name of the Project	iStart Rajasthan
5.	Name of the Nodal Contact Person	Mr. Suneel Chhabra
6.	Contact Address	IT Building, Yojana Bhawan, C- Scheme, Tilak Marg, Jaipur, Rajasthan
7.	Telephone/Fax/e-mail	chhabrasuneel@rajasthan.gov.in +91 9413387333

8. Project Summary

iStart Rajasthan (hereunder also referred to as 'iStart') is Department of Information Technology & Communication, Government of Rajasthan's ('DoIT&C') flagship program for implementation of Rajasthan Startup Policy 2015 ('the Policy'). iStart is implemented through one of its kind single online platform www.istart.rajasthan.gov.in. It eliminates the need of any physical visit by any stakeholder of the Policy to avail any incentive as envisaged in the Policy and/or get connected with the program at large.

In addition, iStart also facilitates:

- Completely online mechanism for funding and incubation
- Connect to mentors, partners, participation in national events, etc.
- Grievance redressal

iStart is also equipped with unique State Government initiative such as **QRate**. QRate is startup assessment and rating mechanism enabling every eligible startup to obtain necessary support with respect to pitch deck preparation, basis financial valuation, participate in bootcamps and get opportunities to interact with investors. QRate provides a detailed report on the startup's potential and investment worthiness. The online scorecard and assessment report provide startup founders actionable insights to help them strengthen their business plan and improve their chances of getting funded.

In span of just 2 years, over 1600 startups have registered with iStart and the State Government has facilitated direct support to over 250 startups under its various policy incentives digitally

through iStart. iStart Rajasthan has played a pivotal role in developing state's holistic startup ecosystem which led to acknowledgement of Rajasthan as "Top Performer" in Department for Promotion of Industry and Internal Trade, Government of India's States'/UT Startup Ranking 2018.

Furthermore, iStart has built an outstanding partnership backbone with both Indian and international conglomerates such as Reliance Jio, Microsoft, Google, Amazon, HDFC Bank, Axis Bank to name a few. It has become one single hub of all stakeholders working in the sector for the common objective of propelling Rajasthani startup ecosystem to global standards.

9. Date of Launch of Project: August 2017

10. Coverage (Geographical): Pan Rajasthan

11. Beneficiary of the Project

iStart has been the one-stop platform for facilitating all the benefits as laid down under the Rajasthan Startup Policy 2015. The beneficiaries of iStart are as under (and it is pertinent to mention that this progress has been achieved in matter of less than 1.5 years of iStart's activation).

- Over 1600 startups have registered with iStart and are connect to the ecosystem at large.
- iStart has been visited by over 13.65 visitors which is amongst the highest for a state government portal in Rajasthan
- Over 150 startups have applied and availed incubation facilities at state run incubators in Jaipur, Udaipur and Kota
- Close to 600 startups have been QRated
- There are over 20 dedicated mentors providing mentorship to startups through iStart
- Hundreds of applications have been assessed for various financial incentives as laid down under the Policy and over 85 startups have been sanctioned and disbursed with direct funding support from the government.
- Number of partners and investors have been connected to the startups through iStart
- Over 150 outreach activities have been undertaken, not just in Rajasthan but pan India through various partnerships, to promote iStart
- Enabling international organizations such as Microsoft, Google and Amazon access high rated and high potential startups from Rajasthan and hand holding them to become global

12. Problem statement or situation before the initiative

Rajasthan was amongst the frontrunners in coming out with a startup policy way back in the year 2015. During that period the state startup ecosystem was very naïve, fragmented with limited stakeholders and opportunities to network. Most of the startups at that time were navigating through their life cycle on their own and learning from their own mistakes with little access to professional mentorship and infrastructure. In addition to this most of the ecosystem was operating in silos with no formal mechanism of sharing knowledge and information. Furthermore, the ease of starting up and compliances were in the same basket for startups as they were for any other business.

Realising the need and importance of having a reformist approach for the startup ecosystem, the State Government operationalized iStart as an umbrella program to execute the Policy. To start with, iStart quickly became the single window for startups to apply for Policy benefits and today it has evolved

into a comprehensive ecosystem in itself with startups, incubators, mentors, investors, partners, government officials, etc. collaborating and partnering with each other.

13. Project Objectives

The iStart portal was developed and implemented with the sole aim of providing an integrated single window resource platform for all stakeholders in the startup ecosystem enabling ease of doing business, easy access to knowledge exchange, mentorship and access to funding thereby enabling acceleration. The portal has been able to execute transparency and efficiency pertaining to all the processes related to startup ecosystem development.

14. Project scope approach and methodology

The scope of the iStart Portal involved in establishing an online system that would work as a single point of contact for all the stakeholders in the eco-system and providing an engagement mechanism and benefits under the provisions of the Rajasthan Startup Policy 2015.

In addition to this portal also established an online mechanism enabling the nodal department DoIT&C in monitoring the progress of all the startups that have availed various benefits under the program and report real time progress of the program to competent authorities.

15. Result achieved/value delivered to beneficiary of the Project and other distinctive features/accomplishments of the project

The project has been able to achieve the following milestones till date:

- NCeG2019 Silver Award for best initiative for Emerging Technology.
- Ranked as top performed in DPIIT's State/ UT Startup Ranking 2018.
- 4th BW Business World Digital India Summit and Awards 2018.
- CSI Nihilente Governance Awards 2018.

16. Future proofing / Longevity of the Project

iStart portal has been designed, developed and deployed entirely by a dedicated in-house development team, making the portal independent of third-party liability. The portal is constantly evolving as per the global standards. The portal has provided transparency, increased efficiency in the various processes that involve registration, submission of relevant documents and pitch decks, updating startup profiles, application status and processing of all benefits.

iStart has enabled an end-to-end technology platform, wherein processes such as funds sanctioning to fund disbursement has been facilitated via the platform. In addition to this it aspires to extend one-to-one and one-to-many virtual initiatives including mentoring, incubation and acceleration programs.

In terms of operational scalability, it has and will continue to provide a platform for all universities, e-cells, incubators (both private and public) that will facilitate infrastructure (both hard as well as soft) fungibility, wherein iStart registered startups would be able to leverage various benefits and facilities from the ecosystem at large.

**Department of Administrative Reforms & Public Grievances
Ministry of Personnel, Public Grievances & Pensions
Government of India**