Background on Mining in Jharkhand per Jharkhand website:

<https://portal.jharkhandminerals.gov.in/aboutJIMMS.aspx>

About JIMMS

Jharkhand is endowed with about one third of the estimated national mineral resources. International and domestic demand for minerals has grown steeply in the past decade. This was preceded by a slump in the global mineral industry lasting well over a decade. Particularly, for iron ore the demand and consequently its prices increased sharply triggering a series of issues and challenges for the government. Streamlining the mining operations including tracking of end to end mineral transaction has been an issue of deep concern for the Government since last five years.

On the above backdrop, implementation of a comprehensive Information Technology based e-Governance initiative by the Department of Steel & Mines has been underway in multiple stages and phases since early 2010. It has successfully met key objectives for which it was set up, and elicited wide scale appreciation from various stakeholders including the mining and mineral based industries. Admittedly, as with any process of introduction of IT in administration there has been a phase of stabilization. The initiative was meant to address the circumstances, particularly those arising out of the absence of a qualitative information on the public domain on the functioning of mineral stakeholders and Government which was a matter of deep concern for the Government during the latter part of 2009 and 2010. It is now an admitted fact that the initiative has met its objectives to a satisfactory level and is being improvised further.

As such mineral regulations are in tandem with multiple department/agencies that play important role in permitting & regulating. The system has been designed to automate all processes as per the Central Acts and State Rules, it also shares data in real time with Ports, Railways, Commercial Tax, Income tax, Treasury &Surface transport database etc. Also the system facilitates multiple departments to play their respective part in updating valuable information that helps in curbing down any illegality/irregularity.

Government has also realized that the complex mining process needs to be simplified to cater to any IT intervention if planned to be grounded. Over the time too many duplicity have been created on the Monthly/Annual progress reports, reports & returns filled by lessee, licensee and the Government wished to identify and remove duplicity. The revenue earned by the Government from Mining (Royalty, seizure, dead rent, etc.) were to be paid online and the assessment made quarterly to be made in real time for increasing efficiency at the Government.

The goal was to have an ERP system for Government where in all the associated Government Departments /Agencies will have a single access to information pertaining to mining in the State of Jharkhand. Since the demand was to tightly monitor so as to prevent illegal mining, many statutory and non-statutory checks were required to be done by the usages of IT. This would help the decision making at the highest level to formulate required policies to curb pilferages. One of the vital transactions at Government is the issuance of the Transit Permit & Pass. This activity is connected to the amount produced, dispatched and stacked. Further with many laws governing multiple activities the chances of committing mistake by the Govt. officers are high, hence e-permit and Pass need to be issued under tight guidance and must be interconnected with all the reports & returns complying the laws laid down by the Central & State Govt. Considering all the aspects, Steel & Mines Department, Government of Jharkhand has implemented the IT Based mineral administration through a robust software application named Integrated Mines and Mineral Management System or "JIMMS".

**Analysis of existing institutional Setup**

Minerals are valuable natural resources being finite and non-renewable. They constitute the vital raw materials for many basic industries and are a major resource for development. Mining sector is an important segment of the Indian economy. India produces as many as 87 minerals, which include 4fuel, 10 metallic, 47 non-metallic, 3 atomic and 23 minor minerals (including building and other materials) 11 States, namely Gujarat, Andhra Pradesh, Jharkhand, Madhya Pradesh, Rajasthan, Karnataka, Odisha, Tamil Nadu, Maharashtra, Chhattisgarh and West Bengal together accounted for 91.97% of total number of mines in the country. In the federal structure of India, the State Governments are the owners of minerals located within the boundary of the State concerned. The Central Government is the owner of the minerals underlying the ocean within the territorial waters. The State Governments grant the mineral concessions with the permission of the Central Government. The role played by the Central and State Governments for mining has been extensively dealt in the Mines and Minerals (Development and Regulation) Act, 1957 and Rules made under the Act by the Central Government and the State Governments in their respective domains. Besides, mining activities have to be carried out as per the provisions of the Forest Conservation Act, 1980, Environment Protection Act, 1986 and Air and Water Acts. The core functions of the State in mining are to facilitate and regulate exploration and mining activities of investors and entrepreneurs, provision of infrastructure and tax collection. In Jharkhand the Government in Department of Mines & Geology, does systematic survey and assessment of the mineral deposits and their exploitation, administration & formulation of appropriate environmental control measures including research for meeting the needs of mineral based industries in the State and Country. The Department has two administrative heads as Directorates of Mines and Directorate of Geology headquartered at Bhubaneswar. They in turn carry out the administrative functions through 6 circle mining offices and 24 district mining offices located in different parts of the State. These field offices, process mineral concession applications, collect mineral revenue, prevent & control illegal mining, enforce all statutory provisions for exploration of minerals & peripheral development of mining areas etc. Companies/firms who are in the business of Mineral in Jharkhand have to be either registered as Lessee or Licensee. Lessees are the Mining Lease holders and the Licensees are the one who carry out transaction of Mineral as Raw Material for Industries. Activities of Lessee are governed by Central Acts &State Rules. The Lessee can operate on the basis of the Mining Plan which defines the amount of produce per year. This mining plan also consists of the details of the lease hold area (forest & non forest). The lessees are also required to have the valid forest, environment clearance to operate. The head of District Mining Office, i.e. District Mining Officer needs to undertake physical & documentary verifications from time to time. There are a number of Laws in the country with provisions relating to the Environment protection. Mining of Mineral Other than Coal & Petroleum is regulated under the MMDR Act, 1957, amended in 1994; Mineral Concession rules, 1960; and the Mineral Concession and Development Rules, 1988. These Acts and Rules have provisions for ensuring environmental preservation and protection during mining operations.

**Problems Identified :**

Effective governance must ensure that business operate in conformity with applicable laws. In the case of finite natural resources such as minerals, ensuring it’s just and equitable use is a prime responsibility of the government. The Department og Mines & Geology of the Government of Jharkhand is the arm of the government to achieve these objectives. It is mandated to develop, administer and regulate the mineral resources of the state. The key motivator for JIMMS was to further the mandate and objectives of the Department.

The core functions of the State in mining are to facilitate and regulate exploration and mining activities of investors and entrepreneurs, provision of infrastructure and tax collection. Thus, the Government wished to have a system that will have an end to end accountability of the Mineral Ore Movement originating from the State of Jharkhand and Jhanrkhand Integrated Mines and Minerals Management System (JIMMS) was taken up as a pilot phase of IT intervention under Department Mines & Geology.

**Technology and Architecture Used :**

The first step was to ensure transparency and en-route doing this, the Government asked all stakeholders such as all Miners, Industries, Traders, and Stockiest & crusher units to get registered via on-line portal disclosing 10 point information. It asked to upload the scanned copy of the document of grant, mining plan and amount of excavation permitted year wise as approved by Indian Bureau of Mines (IBM), consent of approval etc. This was done in a set time line and served as master data which was verified by the field officers. This master data was put in the public domain as Mineral Transparency Portal of Jharkhand by the Honorable Minister of Mines & Geology, Jharkhand. Apart from field visits, numerous Video Conferencing was done with the field officers and workshops were conducted involving different mining lease holders. The technology is deployed and designed on three-tier architecture. In this software engineering, multi-tier architecture is client server architecture in which presentation, application processing, and data management functions are logically separated.

**Roll out/Implementation**

The project was initiated during 2013. The Phase-I Pilot was implemented for MIS Module in the month of October 2015 for all the district mining offices. In this module the statutory details like Grant of Lease / License, Mining Plan approval, Forest Clearance, Environment Clearance, Surface Right Grant data of mines were collected. After data collection the same were verified and validated by the concerned Mining Officer. Then the Pilot of Dues Clearance Certificate and Dealer Registration will be implemented.

**Key result areas ( KRA) and Key performances indicators (KPI) of the system :**

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| **SL#** | **EARLIER PROCESS** | **EXISTING JIMMS PROCESS** |
| A) | Mines statutory clearance data was referred from their individual hard file | It is auto checked from MIS database for any type of transaction |
| B) | Representative of Lessee/Dealers was submitted transit permit request in hard copy at the local mines office and doing follow-up every day | Lessee/Dealers can apply online Transit Permit from their own office and gets the application status online from the application |
|  | Mining office checks all statutory clearances from the files, which is a cumbersome process and delay | At the time of application submission online system checks all required statutes from MIS database automatically. |
| C) | Mining dues application fees and royalty paid through manual challan at the local Treasury office after endorsement/recommendation by local mining office in the challan form | Lessee/Dealers can pay application fee, required royalty through online payment from any of their bank account without any hassle. |
| D) | Delay in the manual file movement, if the designated officer is in leave for some days | System has the facility to delegate power and re-assign job for faster delivery of the Transit Permit |
| E) | No accountability in delay file movement and approval process | Officers are accountable for delay in approval process |
| F) | Less No. of Permit was issued due to time constraint in finding eligibility for getting Permits | As the regulatory system is automated, system allows to issue permits without delay and as a result efficiency in issuing transit permits has improved a lot. |
| G) | After issuance of Permit, authorized user needs to collect the required Transit Pass Book from the mining office | After issuance of permit, System will calculate the required Transit Passes and allow to the mines to start dispatch |
| H) | Anybody can forge the manual TP and misuse the Passes for illegal transportation | 1D , 2 D barcode is introduced, where the barcode can store all information of the mineral dispatched |
| I) | Difficult to authenticate the real Transit pass issued at the mines, in case of mobile squad checking or at the Govt. Check gate | By reading the 1D, 2 D barcode or by using mobile technology the transit Passes can be authenticated at any place |
| J) | No facility to have a second level authentication process, unless physically verified the transit Pass book from the Mines end | Call center facility has been introduced to checked any transit pass from any place by using a specific Toll free Number |
| K) | Difficult to trace the actual quantity dispatched to destination, unless until it is physically reported at the mining office | Easy to trace the actual dispatch at any point of time from the System |
| L) | In case of Rail Transport, lessee/dealers needs to take a permission in shape of Forwarding from mining office then submit it to the Station Master for Rake indent | As the Mine Portal (JIMMS) is integrated with Indian Railway System (FOIS), once the Permit issued, mines portal pushed the permit information to FOIS and Rake Indent made on this basis |
| M) | Monthly return on mineral dispatch needs to be done manually | Mineral dispatch report auto generated by the system and asked for confirmation before final submission |
| N) | No facility and difficult to get the actual quantity exported through Ports and the destination | As Mines Portal is integrated with all Ports and it is very easy to track the actual export figure through individual Ports. |

**The benefits**

* Good initiative for making transparency in mining business.
* Sequential Data arrangement for the Citizen in mines portal.
* RTI compliance reports on issuance of Mineral production and dispatch.
* Interactive dashboard to view Mineral movement on Road Network.
* User friendly screens to update mining statutes time-to-time.
* Able to apply Transit Permit online & forwarded for Govt. approval.
* Able to know current approval status of the application.
* Able to pay Royalty online with hassle free transactions.
* Online Transit Permit Approval time is lesser than manual.
* Time saving & Cost effective in terms of travelling to mining office.
* 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.