



**EVOLUTION OF  
EVIDENCE OF MINERAL CONTENTS  
RULES-2015  
VIS A VIS  
UNFC & CRIRSCO**

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- **In Global Economy Uncertainties in the Mineral Deposits may inhibit or vanish the public confidence in the mineral industry.**
- **Financial Institutions, Stock Exchange houses, and Capital Markets also requires transparencies as well as public information regarding listed assets**
- **Government on the other hand requires to know how their mineral resources are managed as input for Public Financial decisions.**

The mineral industries have been conscious of the requirements from time ago. As a result, the need for international and aligned standards has been established.

CRIRSCO, (**Combined Reserves International Reporting Standards Committee**), which was formed in 1994 under the auspices of the Council of Mining and Metallurgical Institutes (CMMI), is a grouping of representatives of organisations that are responsible for developing mineral reporting codes and guidelines in Australasia (JORC), Brazil (CBRR), Canada (CIM), Chile (National Committee), Europe (PERC), Kazakhstan (KAZRCA), Mongolia (MPIGM), Russia (NAEN), South Africa (SAMREC) and the USA (SME).

**This has been the purpose of national organizations to prepare National Codes relative to inform and report mineral prospects, resources and reserves.**

- Standards and codes prepared by these national organizations for information and reporting are based on three fundamental principles:

**Transparency, Materiality, and Competence.**

- Transparency, this is to inform with a clear and fair description of the mineral assets. In other words, description without ambiguity.

- Materiality, this is to inform with concrete and concise information. In other words, description based on essential and fundamental facts, without double interpretations

- Competence, this is to inform with knowledge, expertise, and judgment. Reports must be prepared by mining professionals, technically competent and qualified, and ethically reliable. These professionals, accountable before their pairs and before regulators and justice, are called competent or qualified persons.

- Based on these principles each national organizations in the countries identified before has prepared Guidelines and codes on what issues to inform, and how to inform. Nevertheless, these guidelines are not the recipes. They respond to the Competent Persons Criteria

- Competent persons have the privileged right to inform but they are also responsible, accountable, and liable for the public information provided.
- Because of these principles competent personas are recognized by governments, stock exchanges houses, international entities and regulators.
- Information reported by Competent personas may include the whole value chain of a mine venture: from exploration to project feasibility; from a technical audit to the sale of a mine property.

## United Nations Framework Classification (UNFC)

For energy and mineral resources CRIRSCO Template is a universally applicable scheme for classifying /evaluating energy and mineral reserves /resources.

**It was adopted in 2004** by the United Nations Economic Commission of Europe (UNECE).

Adopted by the United Nations Economic and Social Council in 1997

The UNFC consists of a three dimensional system with the following three axes:

**G Axis:** Geological Assessment, which is more or less like the classification as adopted by GSI (**Manual of Exploration**) and other agencies in India.

The process of geological assessment is conducted in stages of increasing details.

The typical successive stages of geological investigation i.e. reconnaissance, prospecting, general exploration and detailed exploration, generate resource data with clearly defined degrees of geological assurance.

**F Axis:** Feasibility assessment studies form an essential part of the process of assessing a mining project.

The typical successive stages of feasibility assessment i.e. geological study as initial stage followed by prefeasibility study and feasibility study/mining report are well defined.

**E Axis:** The degree of economic viability (economic or potentially economic or intrinsically economic) is assessed in the course of prefeasibility and feasibility studies.

A prefeasibility study provides a preliminary assessment with a lower level of accuracy than that of a feasibility study, by which economic viability is assessed in detail



**The UNFC is, therefore, a three digit code based system:**

**First digit represent economic viability axis,**

**Second digit represent feasibility axis &**

**Third digit represent geologic axis.**

**Each of these axes has further codes in decreasing order.**

**The Economic viability has codes 1, 2 and 3 in decreasing order.**

**Similarly the feasibility assessment has codes 1, 2 and 3.**

**The geological assessment has 4 codes i.e.**

**1- Detailed Exploration**

**2- Regional Exploration**

**3- Prospecting &**

**4- Reconnaissance.**

**Thus the highest category of resources under UNFC system will have the code (111) and the lowest category will have the code (334).**

**These four stages are therefore used as geological assessment categories in the classification**

## **The International Reporting Template**

A Guideline for countries developing their own reporting standards and a benchmark for comparison with other international reporting system including the UNFC and the Society of Petroleum Engineers (SPE) Guidelines

### **Alignment with UN Framework Classification (UNFC)**

CRIRSCO is Committed with UN ECE to lead efforts to produce definitions based on the CRIRSCO Template that are compatible with the needs of the users of the UNFC. Work continues to draft a simpler, “umbrella reporting standard including CRIRSCO Template and the Petroleum Resource Management System (PRMS)

**In India Prior to UNFC a comprehensive scheme of classification ore and mineral reserves was followed. FIMI as a responsible industry organization impressed upon the GOI to adopt UNFC-1997 for reporting reserves and resources as per international standards by integrating the Indian Classification System into the UNFC.**

**Ministry of Mines gave its approval for implementation of UNFC and field guidelines for exploration were issued in May 2001. Indian Mining sector adopted UNFC in 2003**

**The following initiatives were taken :**

- Amendments were made in the Mineral Conservation and Development Rules, 1988 (MCDR) in the Year 2003 making it mandatory for all lessees to file returns in UNFC format.**
- National Mineral Inventory for the Year 2005 was brought for the first time as per UNFC system by IBM.**
- Specifying UNFC, as the common standard for assessment of exploration data for grant of Mineral Concession.**
  
- All exploration activity by RP and PL holders to conform to UNFC field guidelines.**
  
- Mine Plan and Scheme of Mining to be UNFC compliant**

GOI notified Minerals(Evidence of Mineral Contents) Rules'2015 on 17<sup>th</sup> April'2015 under MMDR Act'1957

Evidence of Mineral Contents means- the existence of mineral contents established as specified in Rule 4, Rule 5 or sub rule (2) of rule 7,as the case may be.

The definitions and codes used in Minerals(Evidence of Mineral Contents) Rules' 2015 are drawn mainly from the UNFC & CRIRSCO Template

**India quickly responded to these initiatives from time to time but the year 2015 witnessed radical policy changes:** several developments in the mineral sector, especially by way of judicial pronouncements, that have far reaching and wide ranging ramifications for the exploration sector also, Which finally resulted into Regulatory framework /Notification i.e.

- **Minerals (Evidence of Mineral Contents) Rules, 2015**
- **Mineral (Auction) Rules,2015 Mineral (NERP) Rules,2015**
- **National Mineral Exploration Trust Rules, 2015**
- **Mineral (Mining by Government Company) Rules, 2015**
- **National Mineral Exploration Policy 2015**

## EVIDENCE OF MINERAL CONTENTS RULES-2015

Existence of mineral content for auction of ML under sub-section – 3 of section 10(b) and sub-section – 2 of section 11 of the Act. The level of exploration is G2 to establish 332 mineral resources and a geological study report as per its schedule.

Existence of mineral content for auction to grant a composite license under sub-section – 2 of section 10(b) and sub-section – 3 of section 11 of the Act. The level of exploration is G3 to establish 333 mineral resources and a geological study report as per its schedule.

### **Schedules**

Part 1 – definitions,

Part 2 – Geological parameters for exploration,

Part 3 – Norms for different types of deposit,

Part 4A – for reporting mineral resources,

Part 4B- for estimation and reporting of diamonds and other gem stones,

Part 5 – content of pre-feasibility report for estimation and reporting of mineral reserve

# EVIDENCE OF MINERAL CONTENTS RULES-2015

## Stages of Exploration

- **Reconnaissance Survey (G-4)** – Identification of potential mineral bearing area based on geological, airborne and indirect methods, preliminary field inspection.
- **Preliminary Exploration (G-3)**- Narrowing down of promising mineral bearing area through outcrop identification, geological mapping, geo chemical or geo physical study, wide spread pitting and trenching.
- **General Exploration (G-2)** – Initial delineation of identified mineral deposits based on surface mapping and surveying to estimate quantity and quality along with size, shape, structure of deposit.
- **Detailed Exploration (G-1)** - Three dimensional delineation of known deposits by sampling, pitting, trenching and drilling with detailed closed sampling with high degree of accuracy

Type of License	Level of Exploration
for Mining Lease	G1
for Composite License	G2 or G3



# EVIDENCE OF MINERAL CONTENTS RULES-2015

Type of deposit	G 4 Stage	G 3 Stage	G 2 Stage	G 1 Stage
Stratified / bedded / tabular e.g. Iron / Mn / Bauxite / LSt./ Chromite/ Potash and Salt beds	Scout drilling	Spacing 800 m BH for limestone / bauxite / potash and salt and 400 m spacing for irregular habit	For limestone / bauxite / potash and salt bed spacing of 400 m and 200 m for irregular habit	For limestone / bauxite / potash and salt bed spacing of 200 m and 100 m for irregular habit
Lenticular bodies. Cu- Zn- Pb, PGM, Ni	Scout drilling	Along strike BH spacing is 200 to 100 m	Along strike BH spacing is 100 to 50 m	Along strike BH spacing is 50 to 25 m
Gemstone and rare metal	Scout drilling	8 to 10 trenches / sq.km. BH at 200 m	Trenching at 50 m int.& BH 100 to 50 m spacing.	BH spacing closer to G2.
Float or placer deposit e.g. iron / Mn	Scout drilling	400 m along trend of the deposit and 200 m across	200 m. along trend & 100 m across	100 m along trend of the deposit and 50

### **8. Relaxation. –**

Depending upon the local geological setup, mode of occurrence and nature of mineralization, the State Government may, with the previous approval of the GOI, relax the exploration norms as specified in Part III of the Schedule, in whole or in part for any mineral or any area.

# EVIDENCE OF MINERAL CONTENTS RULES-2015

## STAGES OF EXPLORATION

1. Reconnaissance Survey (G4)
2. Preliminary Exploration (G3)
3. General Exploration(G2)
4. Detailed Exploration(G1)

## RESOURCE CATEGORY

Reconnaissance Mineral Resource (334)  
Inferred Mineral Resource (333)  
  
Indicated Mineral Resource (332)  
  
Measured Mineral Resource (331)

# EVIDENCE OF MINERAL CONTENTS RULES-2015

## FEASIBILITY STUDY

- Initial Evaluations-
- Geological Study (F3)
- Pre-Feasibility study- Evaluations for converting Resource to Reserve(F2)
- Feasibility study- Detailed comprehensive study of mineral project resulting in highest confidence level(F1)

## ECONOMIC POTENTIALITY

- Intrinsically Economic – as indicated by Geological study(E3)
- Potentially Economic- as indicated by Pre-Feasibility and Geological study(E2)
- Economic- as established by Geological and Feasibility study justifying extraction (E1)

It aims to make Mineral/ Mining sector as a strategic, critical component for nation's manufacturing growth, creating employment, preventing the drain of valuable forex, and propelling growth in some of the most backward states.

The main highlights are as under :-

- Baseline Geo-scientific data for mineral exploration
- Regional and detailed exploration
- Integration of geological and geo-chemical and geophysical data
- Creation of national responsibility
- Technology up-gradation and innovation in mineral exploration
- Data sharing and accessibility
- Forest and Environmental concerns
- Public and Private Investment in mineral exploration
- Capital market (Financial support for mineral exploration)
- Utilization of fund under NMET
- Human Resource Development in mineral exploration
- Vision for next 10 years
- **Under the policy, the mining ministry will auction 100 non-coal, non-fuel blocks to private explorers in the near future.**

A trust to be known as National Mineral Exploration Trust shall be set up by the Central Government in terms of Section 9C (1) of the Mines and Minerals (Development and Regulation) Act, 1957

### Objective of NMET

Utilise funds accumulated in NMET fund for regional and detailed exploration

Trust shall give priority to strategic and critical minerals

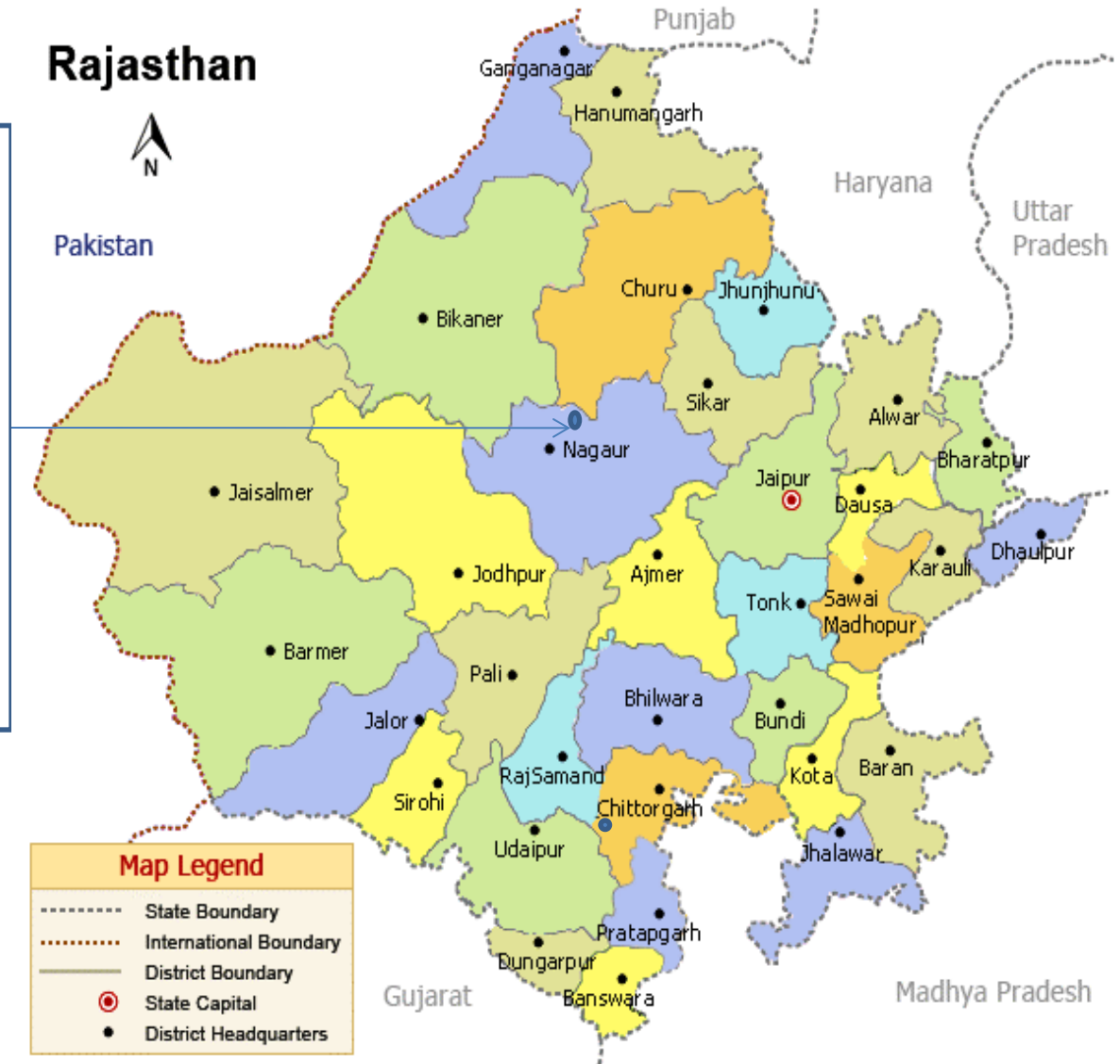
Will undertake exploration activities up to a level where the grant of minerals is possible through the procedures as per the Act

Every holder of mining lease, or a prospecting-cum-mining lease which is in the stage of production through mining, shall pay a sum equivalent to **2% of the royalty** paid in terms of the Second Schedule along with the periodical payments of royalty to the concerned State Governments. 26 crores already collected in Rajasthan till date.

# LOCATION MAP OF BLOCK AUCTIONED BY RAJASTHAN



**Mineral** –Limestone  
**Block Name** - Nagaur 3B1-b Deh  
**Block Area** – 2.47Sq.Km  
**Resources** - 168.84 MT  
**Quality of Limestone** -  
CaO - 47.47%, SiO<sub>2</sub> -4.90% ,  
MgO - 3.74%



# SUCCESSFUL BLOCK AUCTIONED BY STATE OF RAJASTHAN



- NIT was issued on 2<sup>nd</sup> July, 2016 and e-auction for Nagaur 3B1 (b) Deh limestone block was held on 22<sup>nd</sup> September, 2016.
- M/s Emami Cement Ltd. submitted the highest final price offer of 60.09%.
- The expected revenue earnings to the Govt. of Rajasthan is estimated to be around 6,565 Crores over a lease period of 50 years.
- The State Govt. will receive premium equal to 3.74 times of Royalty as result of successful auctioning.





# LOCATION MAP OF BLOCKS PROPOSED FOR RE-AUCTION

## Limestone

Mineral –Limestone  
 Block Name - Nagaur3B1-a Deh  
 Block Area – 2.67 Sq.Km  
 Resources - 126.95 MT

Mineral –Limestone  
 Block Name Sindwari-Ramakhera-Satkhanda Block A  
 Block Area – 9.35 Sq.Km  
 Total Resources - 143.34 MT with 40% CaO Cutoff

Mineral –Limestone  
 Block Name - Sindwari-Ramakhera-Satkhanda Block B  
 Block Area – 4.74 Sq.Km  
 Total Resources - 174.45 MT

## Copper

Mineral –Copper  
 Block Name – Srinagar-Mohanpura-Pharkiya  
 Block Area – 8.31 Sq.Km  
 Resources – 1.12 MT



## DETAILS OF BLOCKS PROPOSED FOR RE-AUCTION



Mineral(S)	Block(S)	Level of Exploration	ML/CL	Reserves (MT)	Area (sq km)	Remarks
<b>Limestone</b>	Nagaur 3B1-a Deh	G3	ML	126.95	2.67	Block was notified on 2 <sup>nd</sup> July, 2016 but on bid due date & time two bidders submitted his offer. So this block is to be re-auctioned (2 <sup>nd</sup> Time).  Relaxation under Rule 8 of Mineral (Evidence of Mineral Contents) Rules, 2015 received vide letter no. 7/48/2015-MIV by mail on 16-10-2015.
<b>Limestone</b>	Sindwari-Ramakhera-Satkhandra Block A Chittorgarh	G3	ML	Total Resources – 143.34 M.T with 40% CaO Cutoff CaO >44% - 12.11 M.T CaO - 42 to 44% - 98.73 M.T CaO - 40 to 42% - 32.50 M.T	9.35	Tender for ML uploaded on 16-11-2015 and 2-07-2016 but on bid due date & time only one bidder submitted his offer. So this block is to be re-auctioned (3 <sup>rd</sup> time).  Relaxation under Rule 8 of Mineral (Evidence of Mineral Contents) Rules, 2015 received vide letter no. 7/48/2015-MIV by mail on 16-10-2015.
<b>Limestone</b>	Sindwari-Ramakhera-Satkhandra Block B Chittorgarh	G3	ML	Total - 174.45 M.T CaO > 44% - 5.86 M.T CaO - 42 to 44% - 45.95 M.T CaO - 40 to 42% - 48.87 M.T CaO < 40% - 48.95 Charagah – 24.82 M.T	4.74	Tender for ML uploaded on 16-11-2015 and 2-07-2016 but on bid due date & time only one bidder submitted his offer. So this block is to be re-auctioned (3 <sup>rd</sup> time).  Relaxation under Rule 8 of Mineral (Evidence of Mineral Contents) Rules, 2015 received vide letter no. 7/48/2015-MIV by mail on 16-10-2015.
<b>Copper</b>	Mohanpura-Pharkiya-Ajmer	G3	CL	1.12 M.T with average 0.64% Cu & 0.31% Cu cutoff	8.31	Block was notified on 2 <sup>nd</sup> July, 2016 but on bid due date & time only one bidder submitted his offer. So this block is to be re-auctioned (2 <sup>nd</sup> Time).



Mineral	Block	District	Level of Exploration	M/CL	Remarks
<b>Limestone</b>	Nagaur 3B2 (a)	Nagaur	G3	ML	Block under preparation Relaxation under Rule 8 of Mineral (Evidence of Mineral Contents) Rules, 2015 received vide letter no. 7/48/2015-MIV by mail on 16-10-2015.
<b>Limestone</b>	Nagaur 3B2 (b)	Nagaur	G3	ML	Block under preparation. Relaxation under Rule 8 of Mineral (Evidence of Mineral Contents) Rules, 2015 received vide letter no. 7/48/2015-MIV by mail on 16-10-2015.
<b>Limestone</b>	Harima-Pithasar 3D	Nagaur	G2	ML	Block under preparation
<b>Limestone</b>	Tadas G1	Nagaur	G2	ML	
<b>Limestone</b>	Tadas G2	Nagaur	G2	ML	
<b>Limestone</b>	Parewar B	Jaisalmer	G2	ML	Tender document prepared. After permission from State Govt. regarding auctioning of SMS grade limestone, NIT will be published
<b>Limestone</b>	Rata Mandha-I	Jaisalmer	G2	ML	Block under preparation To be splitted in two blocks each (under process).
<b>Limestone</b>	Khinya II	Jaisalmer	G2	ML	After permission from State Govt. regarding auctioning of SMS grade limestone, NIT wil b published.

# PROPOSED MAJOR MINERAL BLOCK (LIMESTONE) FOR AUCTION JAISALMER DISTRICT



Block Name - Parewar B  
 Block Area – 5.15 Sq.Km  
 Resources (MT)  
 SMS grade - 7.68  
 Cement grade - 159.90  
 Total – 167.58

❖ Block Name -Rata Mandha I  
 Block Area – 9.40 Sq.Km  
 Resources (MT)  
 SMS grade -14.00  
 Cement grade - 383.33  
 Total – 397.33

❖ Block Name - Khinya - II  
 Block Area – 7.00 Sq.Km  
 Resources (MT)  
 SMS grade - 3.00  
 Cement grade - 300.00  
 Total – 303.00



\* These blocks will be splitted into two each.

**PROPOSED MAJOR MINERAL BLOCK (LIMESTONE) FOR AUCTION  
JAISALMER DISTRICT**



Mineral	Block	Level of Exploration	ML/CL	Reserves (MT)	Area (sq km)	Remarks
<b>Limestone</b>	<b>Parewar B Jaisalmer</b>	<b>G2</b>	<b>ML</b>	<b>SMS grade – 7.68 Cement Grade-159.97 Total – 167.65</b>	<b>5.15</b>	<b>Tender document prepared. After permission from State Govt. regarding auctioning of SMS grade limestone, NIT will be published.</b>
<b>Limestone</b>	<b>Rata Mandha-I Jaisalmer</b>	<b>G2</b>	<b>ML</b>	<b>SMS grade – 14.00 Cement Grade-383.33 Total – 397.33</b>	<b>9.40</b>	<b>Area free for ML</b>
<b>Limestone</b>	<b>Khinya II Jaisalmer</b>	<b>G2</b>	<b>ML</b>	<b>SMS grade – 3.00 Cement Grade- 300.00 Total – 303.00</b>	<b>7.00</b>	

**To be splitted in two blocks each (under process).**

**After permission from State Govt. regarding auctioning of SMS grade limestone, NIT will be published.**

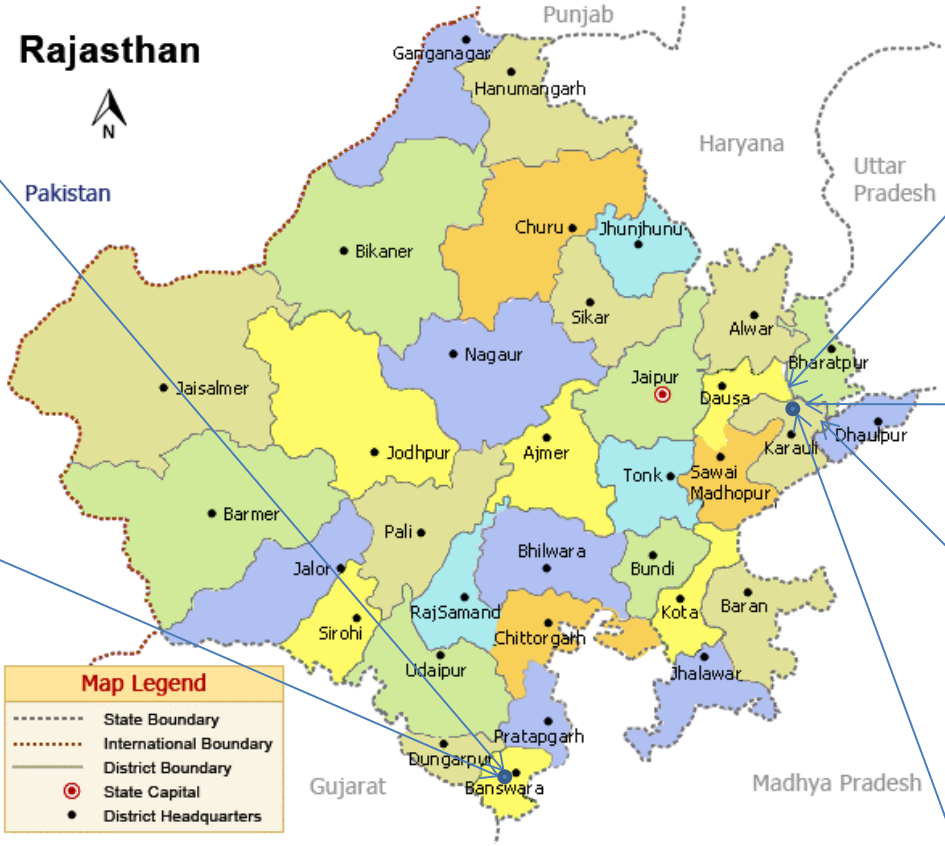


# PROPOSED MAJOR MINERAL BLOCK FOR AUCTION IN KARAULI (IRON ORE) & BANSWARA (MANGANESE) DISTRICT

## Manganese

Mineral –Manganese  
Block Name - Tambesara  
Block Area – 1.15 Sq.Km  
Total Resources - 3.64 MT

Mineral –Manganese  
Block Name - Kalakhunta  
Block Area – 5.17 Sq.Km  
Total Resources - 10.94 MT



## Iron Ore

Mineral –Iron Ore  
Block Name - Dedrauli  
Block Area – 7.434636 Sq.Km  
Hematite resources – 436.0521 MT  
Magnetite resources – 73.0743 MT  
Total Resources - 509.1264 MT

Mineral –Iron Ore  
Block Name – Todupura  
Block Area – 2.607108 Sq.Km  
Hematite resources – 9.18 MT  
Magnetite resources – 161.8744 MT  
Total Resources - 171.0544 MT

Mineral –Iron Ore  
Block Name - Khora  
Block Area – 4.622987 Sq.Km  
Hematite resources – 301.8 MT  
Magnetite resources – 252.4123 MT  
Total Resources - 554.2123 MT

Mineral –Iron Ore  
Block Name - Liloti  
Block Area – 4.109435 Sq.Km  
Hematite resources – 1.9 MT  
Total Resources - 1.9 MT

Mineral	Block	Ex p. Level	Lease	Quality	Resource (million ton)	Area (sq km)	Remarks
<b>Iron Ore</b>	Dedrauli-Karauli	G4	CL	Fe content in Hematite varies from 30 to 45% & Magnetite it is 25 to 40%	Total - 509.1264 Hématite ressources - 436.0521 Magnétite ressources - 73.0743	7.434	DGPS and total station survey completed. Revenue record procured and digitization is in progress.
<b>Iron Ore</b>	Todupura, Karauli	G4	CL	Fe in hematite 30 to 45% & in Magnetite up to <= 35%	Total - 171.0544 Hématite ressource - 9.18 Magnétite Resource - 161.8744	2.60	GR is revised. Mutation of forest land has not been done in revenue record, matter is pending with Forest Department .
<b>Iron Ore</b>	Khora Karauli	G4	CL	Fe content in Hematite varies from 30 to 45% & in Magnetite up to <= 40%	Total - 554.2123 Hématite Resource - 301.8 Magnétite ressource - 252.4123	4.62	
<b>Iron Ore</b>	Liloti, Karauli	G4	CL	Fe content in Hematite varies from 30 to 45%	Hematite resource - 1.9	4.1	
<b>Manganese</b>	Tambesara-Banswara	G4	CL	Grade of Mn 22 to 48%	3.64	1.15	DGPS completed. Revenue data procured.
<b>Manganese</b>	Kalakhunta-Banswara	G4	CL	Grade of Mn 22 to 48%	10.94	5.17	Digitization is completed. GR Prepared.





*Thank you*