



# From Successful Exploration to Developing a Mine (Selenge Iron Ore Project)

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- 2. Location and Infrastructure**
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## Highlights

### ***The Company's Selenge Iron Ore Project holds the largest internationally recognised JORC Code compliant Resource in Mongolia***

- About 20 percent of the total registered iron ore resources in the country
- Further potential exploration upside

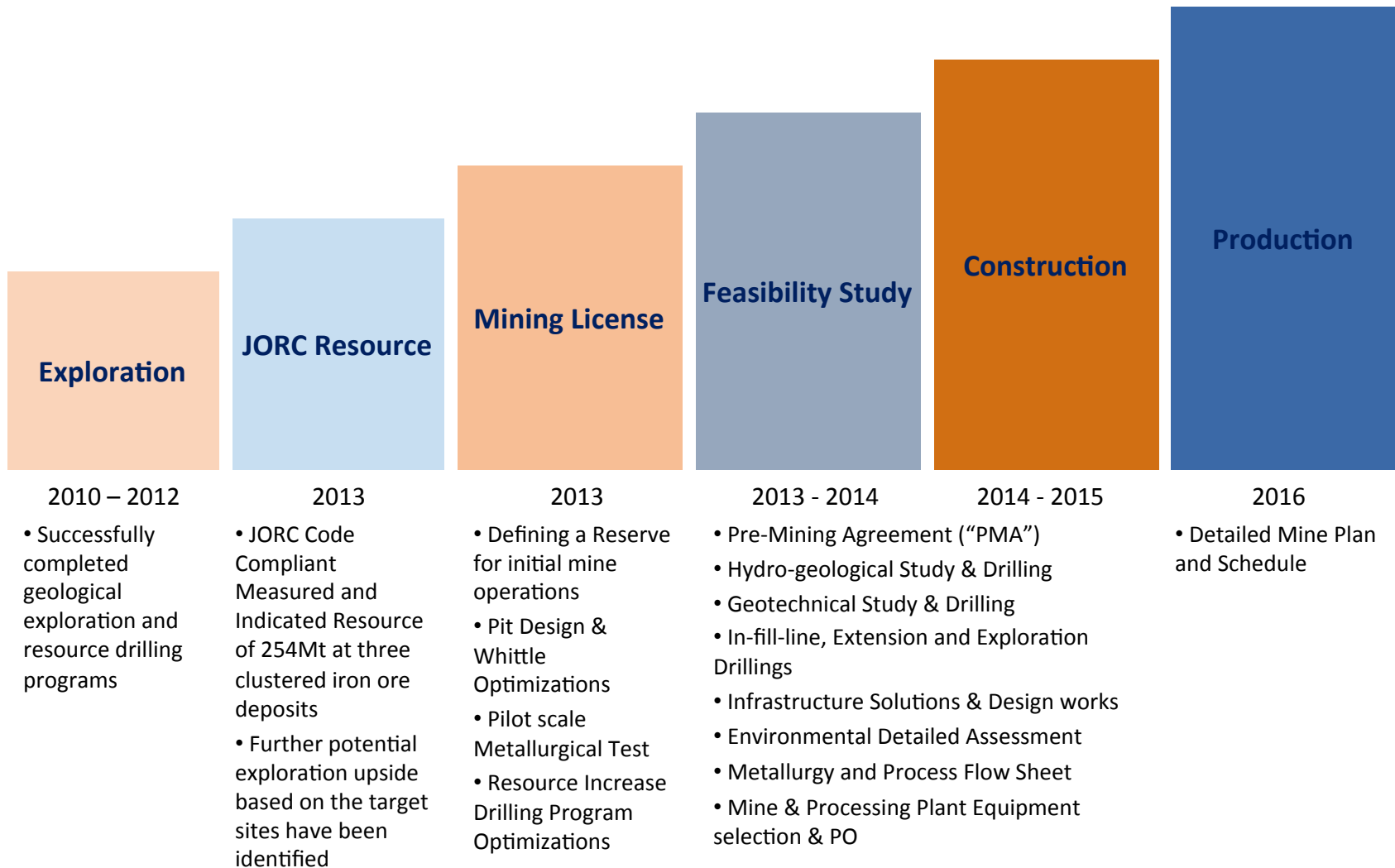
### ***The Project is ideally located in Mongolia***

- Right geological & structural zone
- Availability of key infrastructure such as Railroad, Electricity and Water supply
- Neighborhood of existing iron ore producing mines

### ***The Company is transitioning into a Development stage from successful Exploration phase***

- The Pre-Mining Agreement ("PMA") with the Mineral Resource Authority of Mongolia is signed
- Important components such as a pilot scale Metallurgical test and Hydro-geological study of the Project Feasibility Study are underway
- DTR with progressive grind test work results demonstrated a high quality iron ore concentrate is achievable as a final saleable product
- The Mining License application process nears to completion; an Environmental Impact Detailed Assessment work is commenced
- An Independent Techno-Economic Initial Assessment is completed; a further detailed study for a start up mine operation to achieve early production and cash flow is in progress

## Selenge Development Path



## Resource and Growth Potential

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# JORC Resource and Exploration Summary

/Million tons; Cut-off = 12.5% Fe/

	MEASURED	INDICATED	
<b>Dund Bulag</b>	96.4	103.5	<b>199.9</b>
<b>Bayantsogt</b>	20.7	15.0	<b>35.7</b>
<b>Undur Ukhaa</b>	9.3	8.9	<b>18.2</b>
<b>TOTAL</b>	<b>126.4</b>	<b>127.4</b>	<b>253.8</b>

## Drilling Programs

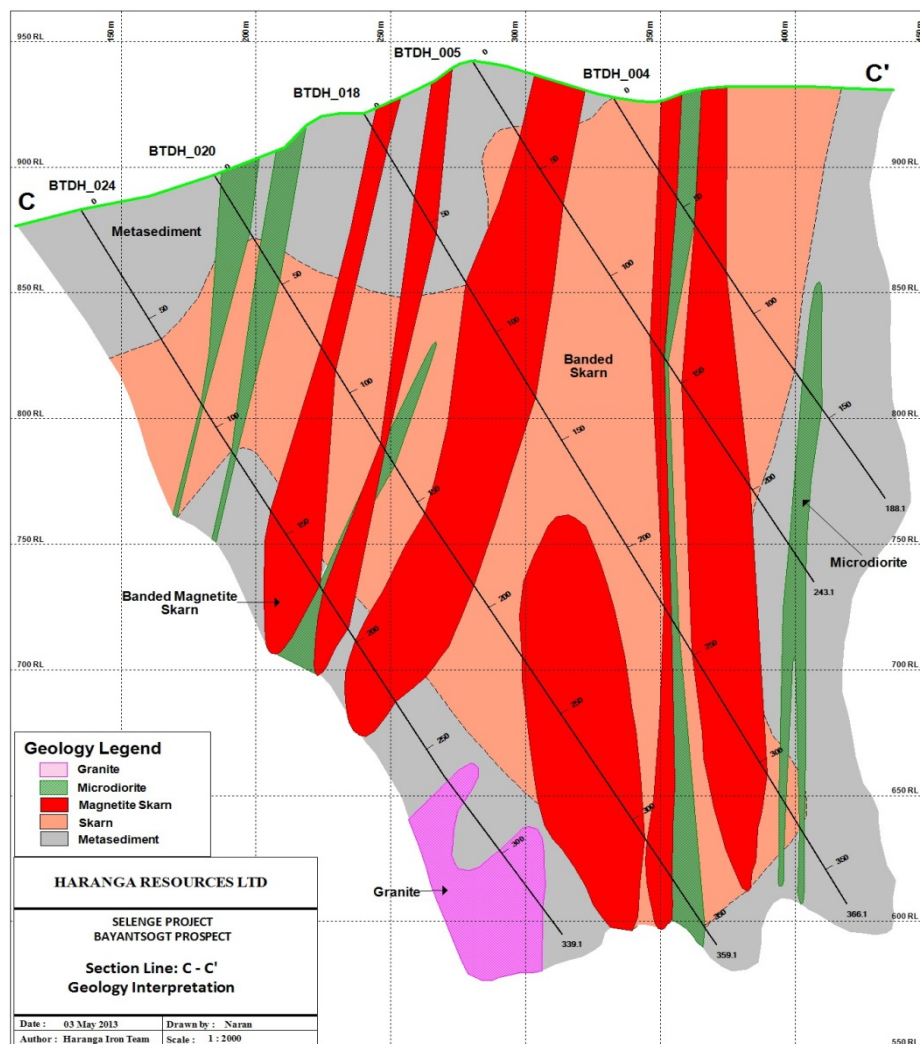
	TOTAL (2011-2012)
<b>Exploration &amp; Resource</b> (HQ, NQ - core), meters	45,986
<b>Geotechnical and Metallurgical</b> (PQ - bulk), meters	567
<b>Hydro-geological Study</b> (RC), meters	1,347
<b>Total Drilled Meters</b>	<b>47,900</b>

## Other key exploration works

	TOTAL (2011-2012)
<b>Ground Magnetic &amp; Airborne Geophysical Survey</b> , hectares	98,101
<b>Total Sampling &amp; Lab Assay and DTR Test</b> , samples	20,704
<b>Topographical Survey</b> , hectares	3,865
<b>Preliminary Geotechnical Study</b> , meters	1,030

*The delineation of a Resource on the Measured & Indicated categories is sufficient to use as a basis for estimating Proven and Probable Ore Reserves for undertaking the Project Feasibility Study.*

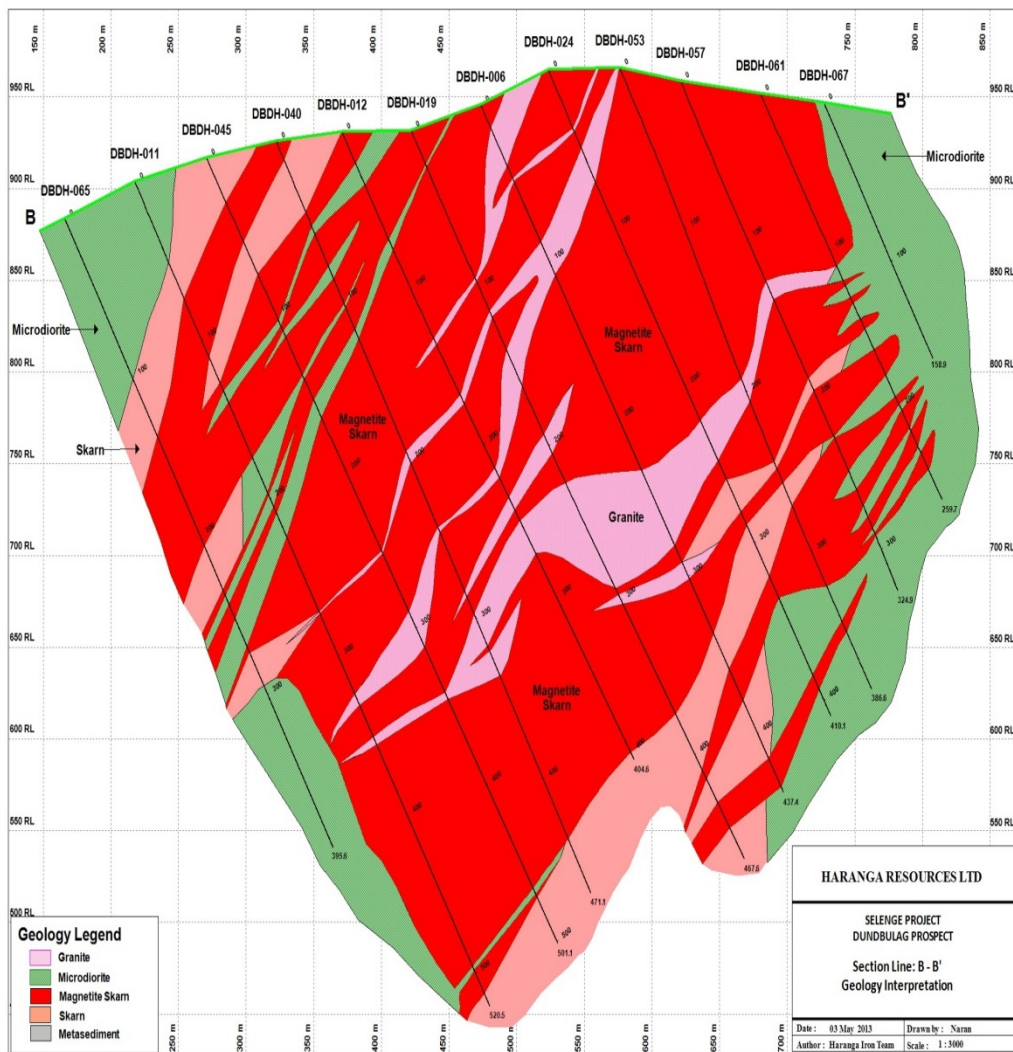
## Updated JORC Resource: Bayantsogt deposit



	Tonnage	Grade, Fe %	Metal Fe, (million tons)
Measured	20.7	23.0	4.76
Indicated	15.0	22.8	3.42
<b>Total</b>	<b>36.3</b>	<b>22.8</b>	<b>8.18</b>



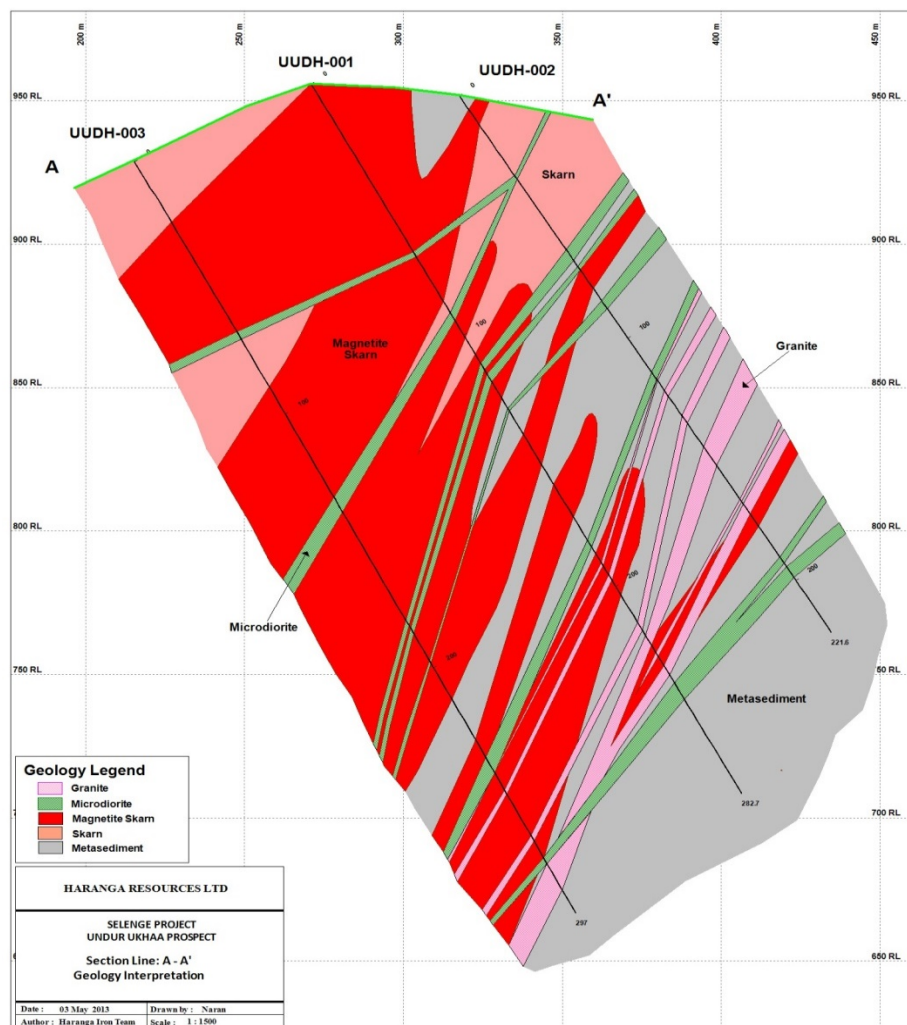
# Updated JORC Resource: Dund Bulag deposit



	Tonnage	Grade, Fe %	Metal Fe, (million tons)
Measured	96.4	16.6	16.0
Indicated	103.5	16.1	17.0
<b>Total</b>	<b>199.9</b>	<b>16.4</b>	<b>33.0</b>



## Updated JORC Resource: Undur Ukhaa deposit

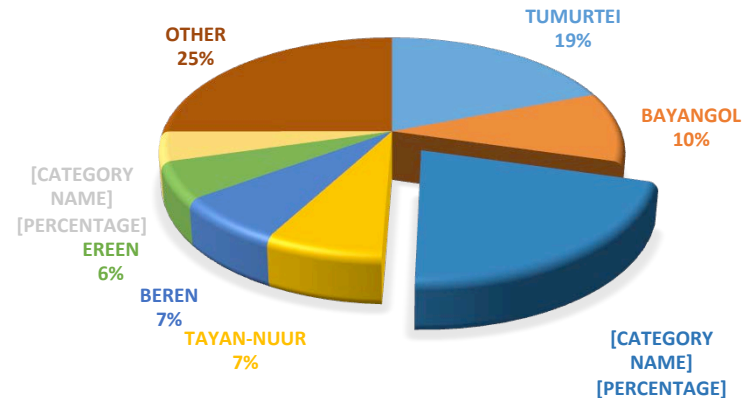


	Tonnage	Grade, Fe %	Metal Fe, (million tons)
Measured	9.3	15.8	1.47
Indicated	8.9	15.1	1.34
<b>Total</b>	<b>18.2</b>	<b>15.4</b>	<b>2.81</b>



## The largest JORC compliant Resource in Mongolia

RESERVES	Million ton
TUMURTEI	229
BAYANGOL	124
<b>BAYANTSOGT (HARANGA)</b>	<b>254</b>
TAYAN-NUUR	88
BEREN	84
ERREEN	67
DARTSAGT	53
OTHER	330
<b>TOTAL</b>	<b>1.2 Billion Tons</b>



Haranga currently holds about **20%** of the total registered iron ore resource in Mongolia.

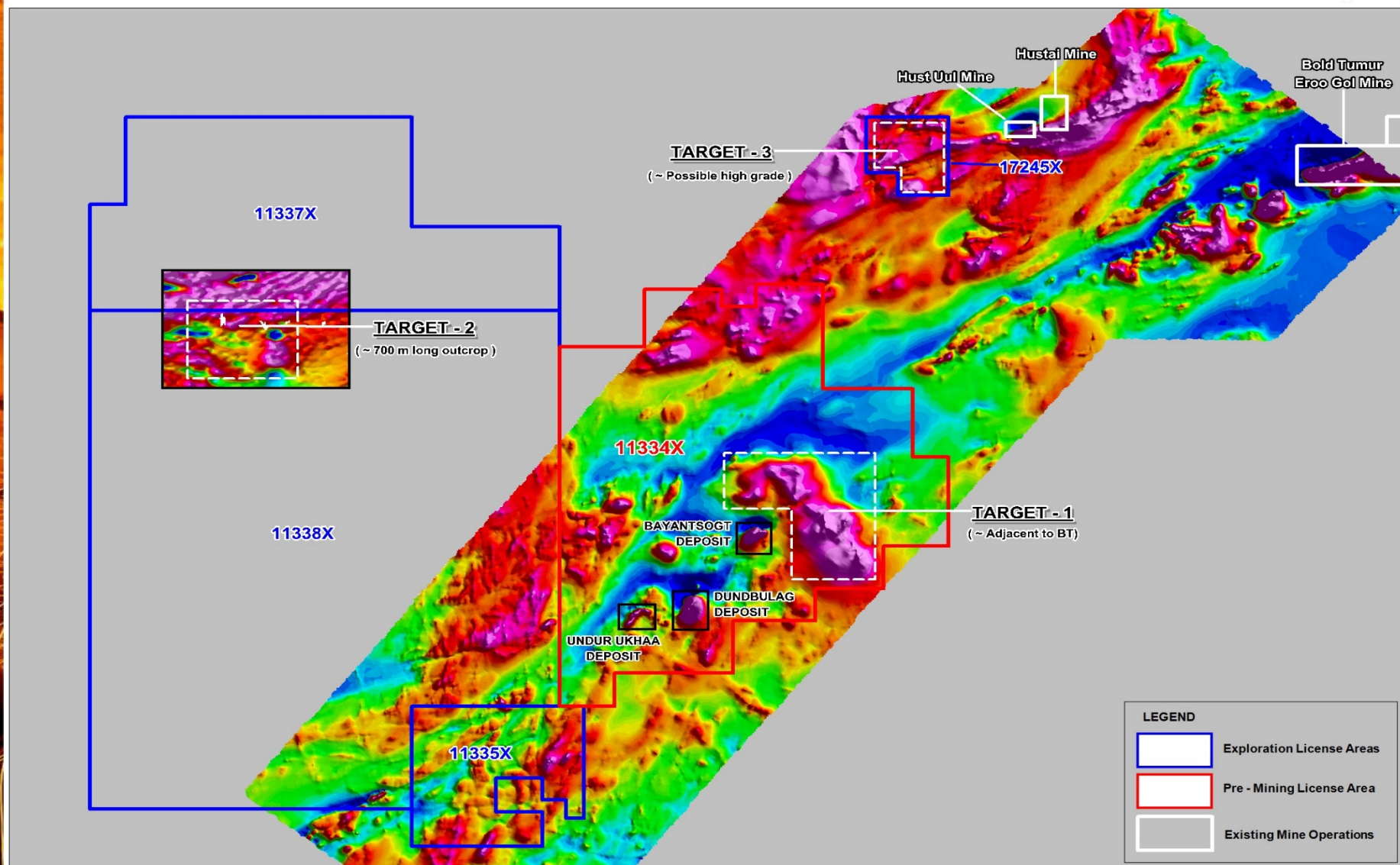
- The extension and in-fill line drilling over the known resource areas;
- Additional exploration drilling over the identified new target sites;
- Potential acquisition opportunities ...



**1/3 of the Total  
Registered Iron  
Ore Resource**

***Haranga is aiming to become one of the strategic players  
in iron ore export operations in Mongolia***

## Potential Resource Upside: Identified Exploration Drill Targets

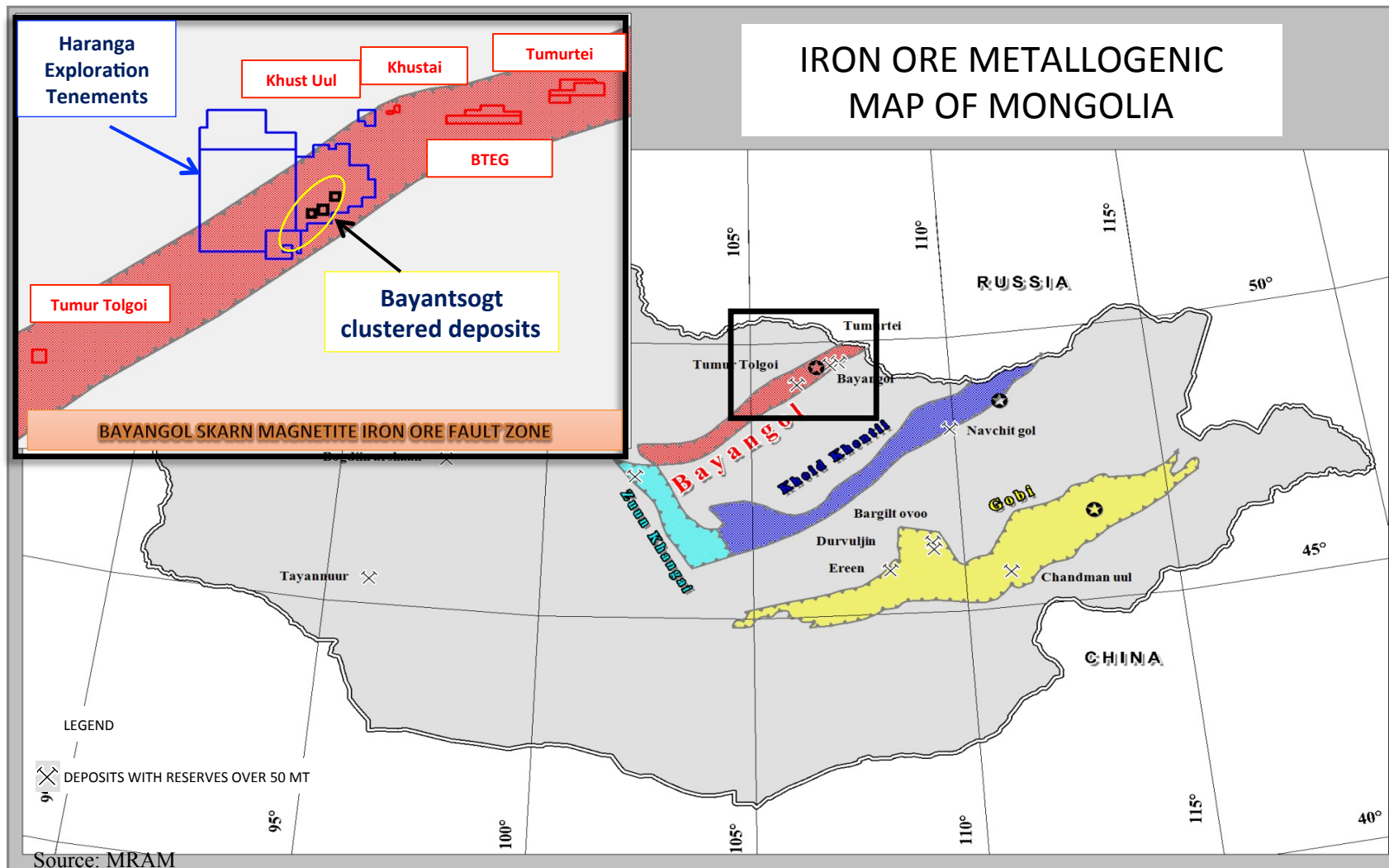


## Location and Infrastructure

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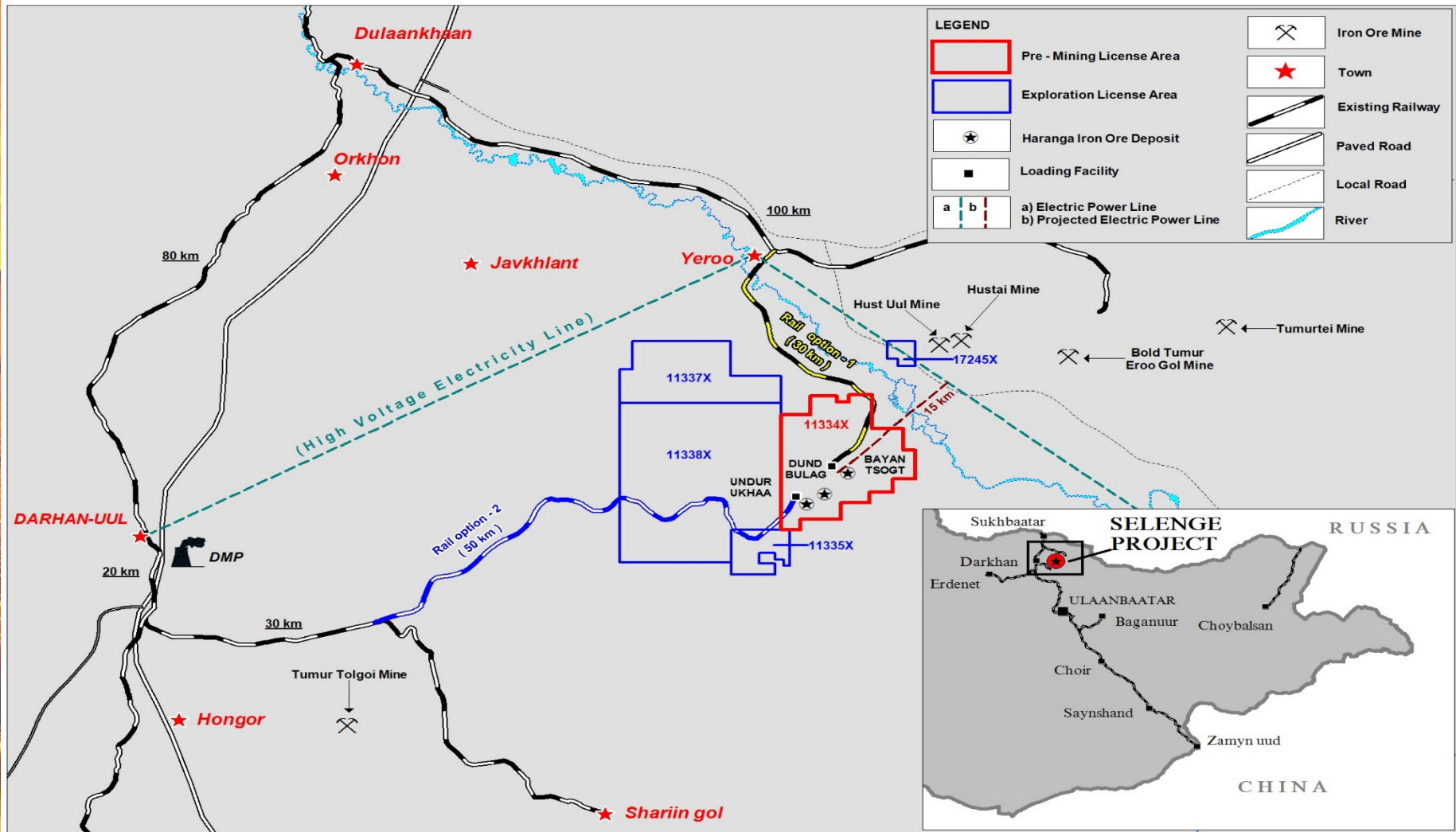
# The Resource is located in Bayangol metallogenic zone potential for magnetite skarn iron ore exploration

## IRON ORE METALLOGENIC MAP OF MONGOLIA



Source: MRAM

The Project is located in Mongolia's premier iron ore development region of Darkhan - Selenge with excellent access to the main trans-Mongolian Rail line & nearby spurs.



The neighboring iron ore mine:  
Eruu Gol Mine – A 5Mtpa Export Operation



## Key Milestones and Performance

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## Key milestones and Performance

### 1. Metallurgical Pilot Test

- ✓ *Laboratory scale Davis Tube Recovery test and Progressive Grind test works are completed*
- ✓ *Desktop and Gap analysis are completed*
- ✓ *Representative bulk samples for testing are prepared and the scope of the test is being finalized*
- ✓ *An Independent expert is hired to ensure a successful completion of the test*
- *A pilot scale metallurgical test will be commenced after the samples are delivered in ALS Technical Centre in Western Australia*

### 2. Hydro-geological study for water supply

- ✓ *Hydrogeological work result reports (2012) were reviewed in terms of hydrogeological conditions, water characterizations, and underground water resource flow*
- ✓ *The Permit for the further hydrogeological study is obtained from the Ministry of Environment and Green Development of Mongolia (MEGD)*
- ✓ *A contractor is selected and the Scope of Work is approved by the Water Authority at the MEGD*
- *The field hydrogeological drilling to define water supply alternatives (surface & underground) to be completed by mid 2014*

### 3. Geotechnical study

- ✓ *Geotechnical RMR and MRMR measurement loggings and overall slope stability assessment (using the Limit Equilibrium Methods) are completed*
- ✓ *Preliminary geotechnical study to optimize an Open Pit Slope Design Criteria is completed*
- ✓ *Further Feasibility study geotechnical investigation was recommended*
- *A dedicated geotechnical drilling program to be completed by mid 2014*

***Three main components of the Project Feasibility Study are underway***

# Key milestones and Performance

## 1. Mining License Application Process

- ✓ *Mongolian Pre-FS and Reserves (Technical) reports are completed*
- ✓ *The registration of the Reserves by the Minerals Council of Mongolia, which is the most important and necessary condition for applying for a ML, is completed*
- ✓ *A full scale topographical study for locating boundaries for mine and processing plant facilities is completed*
- ✓ *The Environmental Baseline Study has been successfully reviewed by the Ministry of Environment and Green Development (MEGD) of Mongolia*
- *Based on this, MEGD approved the Company further to complete an Environmental Impact Detailed Assessment*
- *A Mining license application full package submission to the Minerals Authority of Mongolia*

## 2. Pre-Mining Agreement

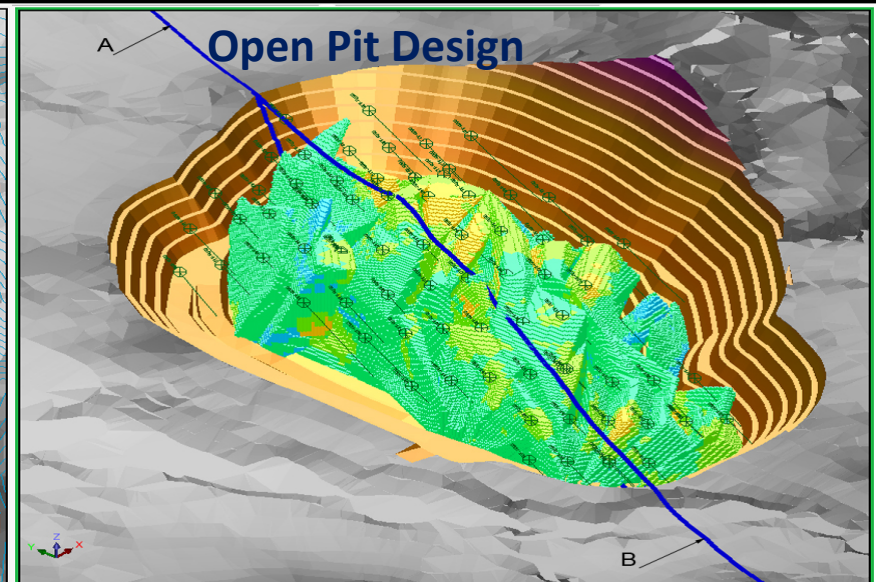
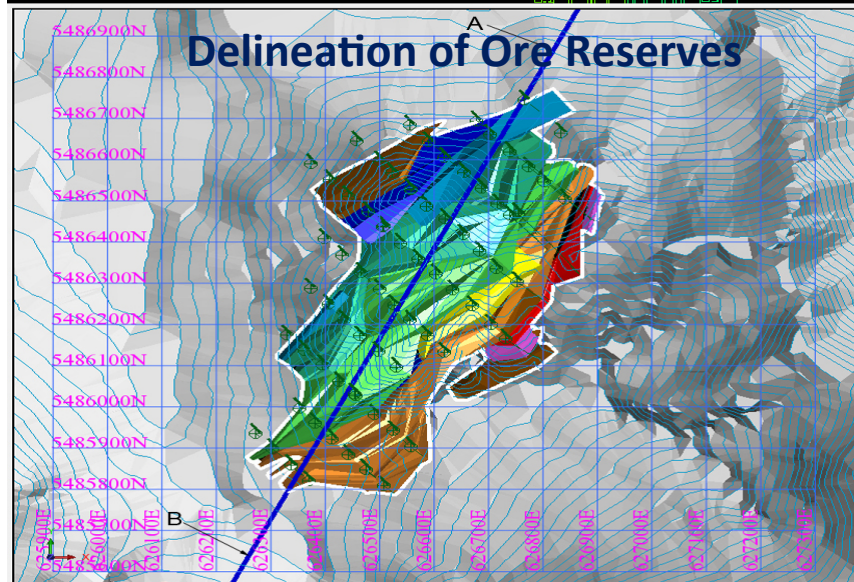
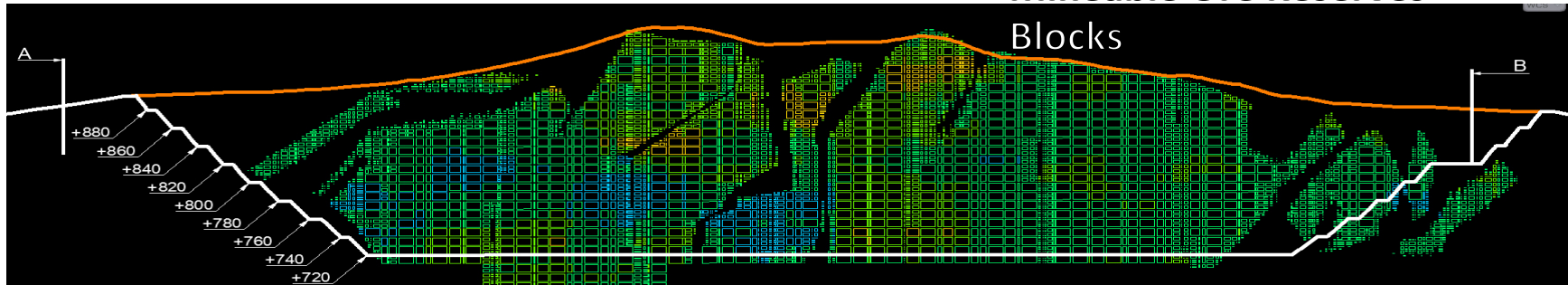
- ✓ *The Company's 80% owned Mongolian subsidiary Haranga Huder LLC, which holds the Mineral Exploration License ("MEL") for the Selenge Iron Ore Project, was successfully awarded a Pre-Mining Agreement with the Mineral Resource Authority of Mongolia*
- *Under this agreement the Company is allowed to construct a mine after completion and submittal of a Feasibility Study together with a Mine Design*

## 3. Project Feasibility and Preliminary Valuation

- ✓ *Independent TE Assessment based on the updated JORC Resource is completed*
- ✓ *Conceptual alternative options (small and large production capacities and own wet-mag-sep plant), and transportation options (truck, rail and conveyor) were assessed*
- *Pit Design and Whittle Optimizations to estimate mineable Ore Reserves and to delineate initial mining blocks are in progress*
- *A further detailed study for a start up/small scale mine operation to achieve early production and cash flow is underway*

***Selenge is transitioning into a Development stage  
from successful Exploration phase***

# Blocks



- *Dundbulag deposit where lower stripping ratio of as low as 0.5:1 with a massive ore body outcropping from the ground surface; OR*
- *Bayantsoqt deposit where higher Fe% grade in ore reserve blocks.*

## Test Results and Product Quality

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## Lab Scale DTR Test Work

### Summary Results of Davis Tube Recovery (DTR) and Progressive Grind Test (Average for 60 Representative Samples, 100% Passing)

Average Concentrate Quality ( <b>75μm</b> )						Average Concentrate Quality ( <b>150μm</b> )					
Deposits	Fe	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	S	P	Deposits	Fe	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	S	P
	%	%	%	%	%		%	%	%	%	%
Bayantsogt	<b>66.53</b>	3.54	0.94	1.22	0.01	Bayantsogt	<b>63.54</b>	5.32	1.37	1.54	0.02
Dundbulag	<b>66.86</b>	3.56	0.85	0.12	0.00	Dundbulag	<b>62.17</b>	7.57	1.70	0.17	0.00
Undur-Ukhaa	<b>67.48</b>	3.89	0.75	0.01	0.00	Undur-Ukhaa	<b>61.91</b>	8.30	1.42	0.01	0.00

#### In 2011:

- Preliminary test works conducted by ALS Ammtec in Perth (Detailed suite of mineralogical test: QEMSCAN)

#### In 2012/2013:

- Davis Tube Recovery test conducted by ALS in UB: Total of **3,270 composite samples** comprising: BT 861 samples, DB 2,172 samples, UU 237 samples.

#### Next step:

- A Pilot Scale Metallurgical Test Work with the target grind size of +105 micron.
- Nominal and Design Flow-Sheets will be developed for a potential processing plant.

***Test work results showed that the Premium (66%Fe) and/or High quality (+62%Fe) Concentrate is achieved as a final saleable product.***

## Project Feasibility and Preliminary Valuation

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## Selenge Project Estimated Value

### The Summary Results of the Independent TE Assessment of the Selenge Iron Ore Project

(12.5% Discount Rate, US\$131.5/t Price for Concentrate, 150μ scenario)

Resource Base	Tonnage (Mln tons)	Mine Life (LOM, years)	Annual Concentrate Production (Mtpa)	CAPEX (AU\$ Mln)	Cash Cost (AU\$ per ton conc.)	NPV (AU\$ Mln)	IRR (% After tax)
JORC	253.8	16	3.0	562.4	64.0	457.8	47.6

- The coarser grind concentrate was superior to the fine grind, as a result reduced mill size and the power consumption resulting in lower CAPEX and OPEX;
- Independent Techno-Economic Assessment demonstrated that the project Net Present Value is estimated at AU\$457.8Million.

***The life of mine will potentially extend based on additional drilling programs resulting in an improvement of the project economics***

## Summary

### **The RESOURCE:**

- **The largest internationally recognized JORC compliant Resource in Mongolia**
- **The ideal location in the premier iron ore development region in Mongolia**
- **Necessary base for delineating and estimating Proven and Probable Ore Reserves for developing a Mine**
- **Potential upside to grow**

### **The COMPANY:**

- **Transitioning into a Development stage from successful Exploration phase**
- **Pre-Mining Agreement with the Mineral Resource Authority of Mongolia is signed**
- **Key milestones towards completing the Project Feasibility Study are being achieved**
- **High quality product is attainable and well tested**
- **Independent TE Assessment is completed and a further work to optimize an initial ramp up mine operation to achieve early production and cash flow is underway**

## Competent Persons' Statements and Disclaimers

*The technical information contained in this presentation in relation to the JORC Compliant Resource for the Selenge Project has been reviewed by Mr Peter Ball of DataGeo Ltd, who is a member of the Australasian Institute of Mining and Metallurgy. Mr Ball has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Mineral Resources and Ore Reserves'. Mr Ball consents to the inclusion of the matters based on his information, and information presented to him, in the form and context in which it appears. Refer to the HAR ASX announcement dated 7 May 2013 for further details.*

*The information in this release, which relates to Mineral Resources and exploration results was prepared and first disclosed under the JORC Code 2004. It has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported.*

*The information in this presentation is based on the Options Study Report prepared by GHD. This report was prepared on the basis of information provided by Mr. Kerry Griffin, the former Technical Director of Haranga Resources Limited. Mr. Christopher Welsh from GHD consented to the inclusion of the matters based on the Option Study Report and information presented to it, in the context in which it appears. Mr. Kerry Griffin consented to the inclusion of the matters based on his information, in the context in which it appears.*

*This presentation includes certain 'forward looking statements'. All statements, other than statements of historical fact, are forward looking statements that involve various risks and uncertainties. There can be no assurances that such statements will prove accurate, and actual result and future events could differ materially from those anticipated in such statements. Such information contained herein represents management's best judgment as of the date hereof based on information currently available. The company does not assume the obligation to update any forward-looking statement.*