

**ASX Release**

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**Issued Capital:**

241.75 million shares

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HAR

## SEPTEMBER 2013 QUARTERLY ACTIVITIES REPORT

Haranga Resources Limited ("**the Company**") is pleased to report on its activities for the September 2013 Quarter. Strong progress was made over the quarter on the development of the Company's Mongolian Iron Ore Projects.

### HIGHLIGHTS

- **The Company is in the final stages of selecting a contractor for the pilot scale metallurgical test work.**
- **Pilot plant level test work to achieve a high quality magnetite ore concentrate as a final saleable product is set to commence with representative bulk samples prepared.**
- **The official permit for the hydrogeological study has been obtained from the Ministry of Environmental and Green Development of Mongolia.**
- **The preliminary geotechnical study work has been completed.**
- **The Company expects to finalise and submit the Selenge Project mining license application to the Minerals Authority of Mongolia in the coming weeks.**
- **An independent assessment of the Selenge Iron Ore Project economics based on the Measured and Indicated JORC Compliant Resource was completed during the Quarter.**

### DEVELOPMENT ACTIVITIES

The Company's flagship Selenge iron ore project is transitioning into its Development stage after the completion of the successful Exploration phase.

The project is ideally located in the heart of Mongolia's premier iron ore development region with excellent access to the main trans Mongolian rail line and nearby rail spurs. The nearby Eruu Gol mine, Mongolia's largest magnetite concentrate rail export operation, exported approximately 4 million tonnes of dry magnetite concentrate in 2012, shipping the product via a newly constructed rail spur to the main trans-Mongolian rail line.

The Company has signed an MOU with both the Mongolian Railway Authority and the Ministry for Transportation requesting up to 5Mtpa of rail capacity from 2015 onwards.

## JORC Code Compliant Resource

The Company completed approximately 47,900m of diamond drilling at the Selenge Project during 2011 and 2012 exploration seasons. As a result of this extensive exploration work the Company was able to delineate a Resource that is now the largest internationally recognised JORC compliant Iron Ore Resource in Mongolia, with significant exploration upside.

The combined total resource is 254Mt of iron ore at an average in situ grade of 17.2% Fe (for 44Mt of contained iron metal) based on a 12.5% Fe cut-off grade, of which 99.7% is in the Measured and Indicated categories (refer to Table 5)\*.

## Feasibility Study

The delineation of a Resource in the Measured and Indicated categories is sufficient to use as a basis for estimating Proven and Probable Ore Reserves and undertaking a Project Feasibility Study. The Company commenced work on the three main components (Metallurgical Pilot Test, Hydrogeological study and Geotechnical study) of a Feasibility Study with the key results of each aspect to date summarised below:

### Metallurgical Pilot Test

The Company has approached several laboratories and technical service providers of pilot level metallurgical test work. The Company is now in the final stages of reviewing and selecting from the shortlist the most suitable and capable contractor for completion of this programme.

During the Quarter, in order to successfully achieve a pilot scale metallurgical test, the following work has been completed.

### Progressive Grind Test

The laboratory (ALS) scale DTR test work was conducted based on average of 60 representative samples (each comprising 5 to 6 meter composites) across each deposit at the different grind sizes of: 45µm, 75µm, 105µm, 125µm, 150µm, 212µm, 300µm (microns). These 60 composite samples consisted of 12 composite samples from Bayantsogt, 44 composite samples from Dundbulag and 4 composite samples from Undur-Ukhaa.

The tables below show the results of progressive grind test work for selected target grind sizes at which a high quality magnetite concentrate with low impurities were achieved:

**Table 1: DTR Results: Average Concentrate Quality (75 µm, 100% Passing)**

Deposit	Average Mass Yield**	Fe	SiO2	Al2O3	S	P
		%	%	%	%	%
Bayantsogt	20,81	<b>66,53</b>	3,54	0,94	1,22	0,01
Dundbulag	13,36	<b>66,86</b>	3,56	0,85	0,12	0,00
Undur-Ukhaa	14,89	<b>67,48</b>	3,89	0,75	0,01	0,00

**Table 2: DTR Results: Average Concentrate Quality (105 µm, 100% Passing)**

Deposit	Average Mass Yield	Fe	SiO2	Al2O3	S	P
		%	%	%	%	%
Bayantsogt	21,43	<b>65,54</b>	4,13	1,10	1,47	0,01
Dundbulag	13,56	<b>66,13</b>	4,71	1,10	0,14	0,00
Undur-Ukhaa	15,13	<b>67,04</b>	4,73	0,87	0,01	0,00

**Table 3: DTR Results: Average Concentrate Quality (125 µm, 100% Passing)**

Deposit	Average Mass Yield	Fe	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	S	P
		%	%	%	%	%
Bayantsogt	21,94	<b>64,39</b>	4,89	1,29	1,53	0,01
Dundbulag	13,82	<b>64,41</b>	6,17	1,39	0,16	0,00
Undur-Ukhaa	15,54	<b>64,21</b>	6,71	1,19	0,01	0,00

**Table 4: DTR Results: Average Concentrate Quality (150 µm, 100% Passing)**

Deposit	Average Mass Yield	Fe	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	S	P
		%	%	%	%	%
Bayantsogt	22,23	<b>63,54</b>	5,32	1,37	1,54	0,02
Dundbulag	14,18	<b>62,17</b>	7,57	1,70	0,17	0,00
Undur-Ukhaa	15,54	<b>61,91</b>	8,30	1,42	0,01	0,00

Based on the results of the progressive grind test work the following correlation can be made. The coarser the grind size the higher the yield and finer the grind size the higher the Fe grade in concentrate. The key results of the grind size of 105µm were superior to the original 75µm in the previous DTR test work; therefore the 105µm grind size can be selected for further pilot scale metallurgical test work.

Overall, it was concluded that a premium and/or high quality (>+60%Fe) magnetite concentrate is attainable from the Selenge Iron Ore Project. In addition, based on the results of this pilot met test work, energy and water consumptions will be estimated, and a nominal and design flow sheet for a potential processing plant design at the Selenge Project will be developed.

#### Gap Analysis and Desktop Review

After the completion of the laboratory scale DTR test work at different progressive grind sizes, the Gap analysis was performed. In addition to its main purpose of determining the suitability and completeness of the test work for the processing or beneficiation plant design, the analysis aimed in specific: (i) to audit the test data, (ii) to determine whether there is sufficient data to undertake a process design for a beneficiation plant, and (iii) to recommend if any additional testing is necessary in order to achieve the process design of a beneficiation plant.

As a result of this Gap analysis, it was concluded that the Bond Work Index (18.8kWh/T) determination and the Dry Low Intensity Magnetic Separator (LIMS) test works were complete and provided sufficient data for the use of a dry magnetic separator for process design. Also, the Davis Tube Wash test work carried out at 3000 gauss provided an indication for the process design with additional work being beneficial for equipment size confirmation of a Wet High Intensity Magnetic Separator Circuit. The plant configuration for all ores will be the same with the primary differences being in the amount of rejects as well as the grade and yield of the iron concentrates produced.

It was recommended that additional equipment size confirmation work be undertaken using approximately 400kg to 500kg of PQ drilling core product. The further pilot scale metallurgical test work planned will sample the following streams:

1. Feed to dry separator
2. Product from dry separator (feed to mill)
3. Reject from dry separator
4. Mill product (feed to wet separator)
5. Product from wet separator
6. Reject from wet separator

Bulk samples of 500kg to 1200kg from PQ drill holes from Bayantsogt and Dundbulag Deposits were carefully selected and logged at site and delivered to Ulaanbaatar ready for shipment. Selection criteria for these samples were to be representative of different ore domains that exist in each of the deposits and average Fe grade in ore.

The main ore domains at Selenge iron ore deposits are: (i) banded magnetite skarn (40%-52%), (ii) magnetite skarn (25%-39%), (iii) magnetite garnet skarn (13%-18%), and (iv) garnet phyrrotite skarn (5%-8%).

### **Hydrogeological Study**

The permit to carry out the hydrogeological study and field drilling was obtained during the quarter. The detailed scope of work has also been approved by the Ministry of Environment and Green Development of Mongolia.

The hydrogeological study will include;

- (i) water supply alternatives and its assessment for a future mine/open pit and processing plant complex at the Selenge project,
- (ii) water characterization of mining hydro-geological conditions, and
- (iii) hydrogeological drilling programme and study for exploring the underground water resources. The Company will be exploring for underground water resources based on the two identified target areas Khavtsgait and Eruu Valley.

### **Geotechnical report**

The preliminary geotechnical work to optimize a pit slope design criteria was completed during the quarter. The geotechnical logging and relevant parameters/measurements were performed in each deposit.

The key tasks performed included;

- (i) identified drill holes were geotechnical logged on site and when necessary this was supported by utilizing geology logs (the field work consisted of six holes to represent the geology inside the pit walls);
- (ii) Natural Seismic loading assessment was conducted using available data to determine seismic loading for limit equilibrium analysis;
- (iii) structural assessment of the oriented core using DIPS – extracting structural types that relate to the geotechnical performance of the slope;
- (iv) empirical slope angle assessment on MRMR logging based on geotechnical domains was performed;
- (v) overall slope stability assessment was done using limit equilibrium methods (SLIDE Program) to verify overall slope geometries;
- (vi) blasting characteristics such as rock mass strength/rock hardness, rock support and reinforcement were defined and measured; and
- (vii) Available hydro-geological reports on the work completed in 2012 were reviewed in terms of hydrogeological conditions, water characterisations, and underground water flow through geotechnical or tectonic faults.

### **Topographical survey**

A topographical survey was completed during the quarter. The purpose of this survey was to identify a suitable location for a future mine/open pit, a processing plant and other necessary facilities of a mine complex and to locate the mining license boundaries within the existing exploration license area.

## Mining License Application

Haranga Resources expects to finalise and submit the Selenge Project mining license application to the Minerals Authority of Mongolia in the coming weeks.

## Independent Techno-Economic Assessment

The assessment was conducted by a third party independent consultancy firm<sup>\*\*\*</sup>, which used their valuation model (ORVAL) designed specifically for a magnetite iron ore project. The purpose of the independent assessment was to assess the economics and feasibility of the Selenge project.

This work was important as it;

- (i) was based on the new updated JORC Compliant Resource;
- (ii) assisted in selecting and prioritising further development and investigation of the Selenge Project; and
- (iii) analysed the different options and alternatives of:
  - the mill target grind size to be optimised based on the results of the pilot scale metallurgical test;
  - the production capacity of a concentrator; and
  - the transportation options such as railing (full scale plant capacity), trucking (smaller capacity initial operation) and overland conveyor.

The focus of the assessment was to examine the Selenge Project economics based on the following two scenarios and assumptions:

1. two different target grind sizes (75 and 150 microns) by a crushing and mill complex; and
2. two different production capacities of a processing plant: 3Mtpa and 0.5Mtpa.

The JORC Compliant Resource at the Selenge Project's three clustered deposits supports the 16-year life of mine and a wet magnetic processing plant with a standalone infrastructure solution to deliver 3Mtpa of magnetite concentrate onto the nearby rail spurs for domestic and export consumption. This techno-economic assessment assumes that a 43km railway will be constructed from the project to the rail line of Darkhan - Shariin Gol which connects the producing coal miner to the main Trans-Mongolian railway.

The Company is now working towards improving the economics of this scenario based on additional adjusted input data including but not limited to; Initial mine blocks that are being optimized by the Whittle model and a grid line for power supply instead of diesel electricity generation.

### Summary Results from Independent Techno-Economic Assessment

(12.5% Discount Rate, US\$131.5/t Price for concentrate)

JORC Compliant Resource	Tonnage (Million tons)	Mine Life (LOM, years)	Annual Concentrate Production (Mtpa)	CAPEX (AU\$ Million)	Cash Cost (AU\$ per ton conc.)	NPV (AU\$ Million)	IRR (% After tax)
Measured and Indicated	253.8 <sup>1</sup>	16	3.0	562.4	64.0	457.8	47.6

<sup>1</sup> Refer to Table 5 for the Selenge Resource Estimates Split by Deposit.

For further details and the summary results of the Independent Techno-Economic Assessment, including key assumptions and inputs, refer to the ASX announcement dated 9 October 2013.

## Other Projects

- 1. Shavdal project:** During the quarter the Company withdrew from the Shavdal project and returned its interest in the project to the joint venture partner based on the results of previous exploration activities.
- 2. Khundlun project:** During the quarter the Company relinquished the Khundlun exploration license 13867X to the Minerals Authority of Mongolia based on the results of previous exploration activities.

Erdene Tsengelbayar

**Managing Director**

**HARANGA RESOURCES LIMITED**

**Table 5: Selenge Resource Estimates Split by Deposit (Cutoff = 12.5% Fe)**

Deposit	Measured		Indicated		Inferred		TOTAL	
	Mt	Fe Grade	Mt	Fe Grade	Mt	Fe Grade	Mt	Fe Grade
Dund Bulag	96.4	16.6	103.5	16.1			199.9	16.4
Bayantsogt	20.7	23.0	15.0	22.8	0.55	16.6	36.3	22.8
Undur Ukhaa	9.3	15.8	8.9	15.1			18.2	15.4
<b>TOTAL</b>	<b>126.4</b>	<b>17.6</b>	<b>127.4</b>	<b>16.8</b>	<b>0.55</b>	<b>16.7</b>	<b>254.4</b>	<b>17.2</b>

\* The technical information contained in this announcement in relation to the JORC Code (2004) Compliant Resource for the Selenge Project Deposits 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 in this report 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.

\*\* Davis Tube Recovery (DTR) progressive grind tests give theoretical yield results which need to be verified by pilot plant scale metallurgical testworks using bulk samples, the results of which may differ from the results presented here.

\*\*\* The information in this release 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 in this release 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 in this release of the matters based on his information, in the context in which it appears.