

## Uiseong Cu-Au-Ag-Pb-Zn Project

The Uiseong Cu-Au-Ag-Pb-Zn project is situated in the southeast of South Korea. Based on historical drilling, the Mineral Resource Target is estimated as 20.83Mt @ 1.06g/t Au, 44g/t Ag, 1.10% Cu, 1.63% Pb and 1.12% Zn. Critical metals of Indium, bismuth, antimony, tin and tungsten are also present. The mineralization is identified as intermediate-sulphidation epithermal polymetallic style.

Korean Metals Exploration ("KME") is proposing an initial 1,000 tonne per day Sustainable Mining with Drilling (SMD) and Selective Flotation 330,000 tonnes per annum milling operation. Initial studies indicate a 1,000tpd operation will generate annual revenue of about US\$60M. All up mining, milling and administration Operating Costs are estimated to be <US\$100/t, generating annual pre-tax profit of about US\$33M. Capex is estimated to be about US\$50-75M.

### Corporate Summary

Korean Metals Exploration Pty Ltd has established a portfolio of polymetallic mineral projects in South Korea based on 25 years "in-country" operational exploration expertise. KME is a privately-owned Australian company with a 100% owned Korean subsidiary *Shin Han Mine Inc* ("Shin Han"), which holds the granted Mining Rights over its projects.

KME offers investors the unique opportunity to quickly convert drill-ready historical resources into JORC Mineral Resources at low exploration risk. KME is raising capital for check-infill drilling, establish JORC Mineral Resources, conduct metallurgical and engineering studies, and complete preliminary economic assessments on historical deposits in the Uiseong, Haman and Goseong projects. KME envisages sequentially advancing its projects into production with local domestic Offtake Agreements.

### Country Primer

South Korea is strategically located in the North Asia region and at the eastern gate of China's "One Belt One Road" development zone. South Korea is a member of the G12 Group and a developed, high-income country (GDP per capita of US\$35,000) with the fourth largest economy in Asia and the eleventh largest globally.

South Korea ranks 5<sup>th</sup> in "ease of doing business" globally by the World Bank (2019), has a S&P Credit Rating of AA Stable, is rated "Low Sovereign Risk" (Verisk Maplecroft, 2018) and has Free Trade Agreements with Australia and Canada.

A highly-skilled workforce in a population of 51.4 million (2017) supports the country's main industries of electronics, telecommunications, automobile, chemicals and steel production. South Korea is the largest global refiner and exporter of zinc, with major base metal refineries at Onsan and Seokpo.

Although the Korean peninsula is a mountainous landscape, an excellent infrastructure network of expressways, tunnels and elevated roads enable rapid commute between the major population centres.

### Historical Mining & Exploration Activities

The Uiseong mining district is situated approximately 250km southeast of Seoul. Historical base metal production was mainly during 1968-1988, but mine records are incomplete.

The Uiseong district formed part of the *Seorabeol Dynasty* during 100-57 BC and was the centre of an advanced metal-working "Bronze-Age" culture. The Cu-Ag-Ag deposits of Uiseong would have been important sources for these metals.

Historical exploration by the *Korean Mining Promotion Corporation* ("KMPC") during 1970-80s included airborne



geophysical, ground Self-Potential geophysical surveys and several drilling campaigns.

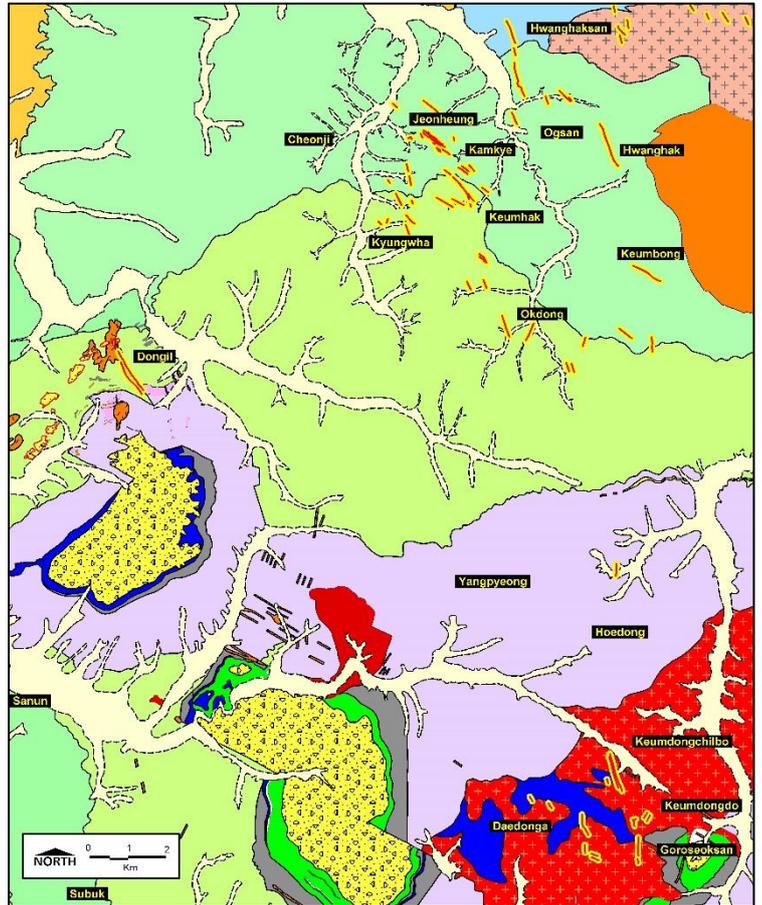
A total of 93 diamond drill holes (14,500m core) were drilled. Economic widths and grades of Cu-Au-Ag-Pb-Zn mineralization was intersected in 46 drill holes at 7 deposits. Translation of drill logs indicates wide intervals of veinlet and disseminated sulphide mineralization was never assayed.

There has been no modern exploration conducted on the Uiseong project since 1981.

## Geology

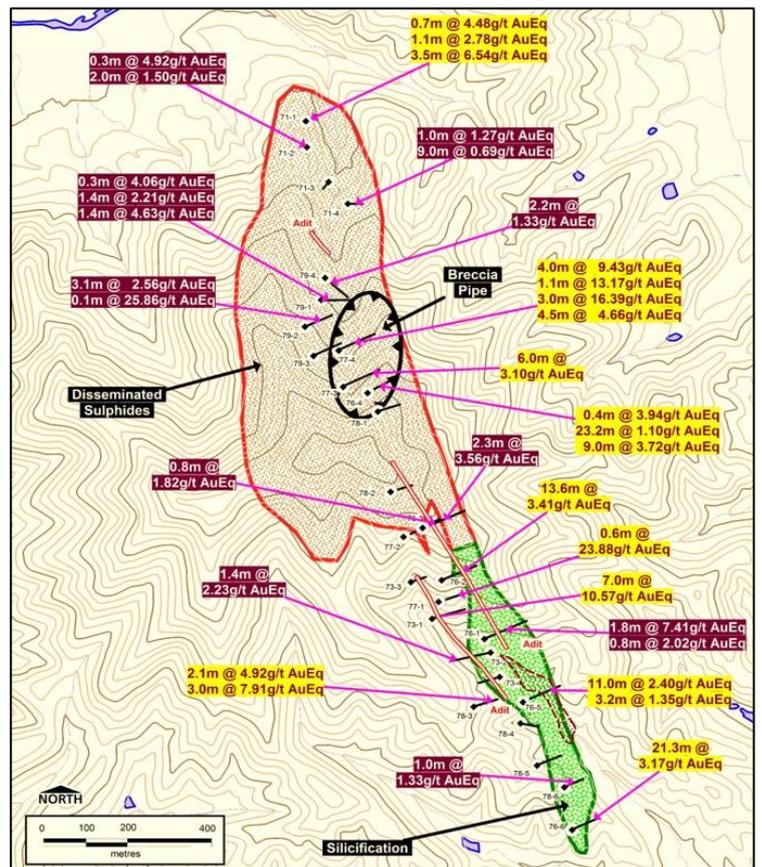
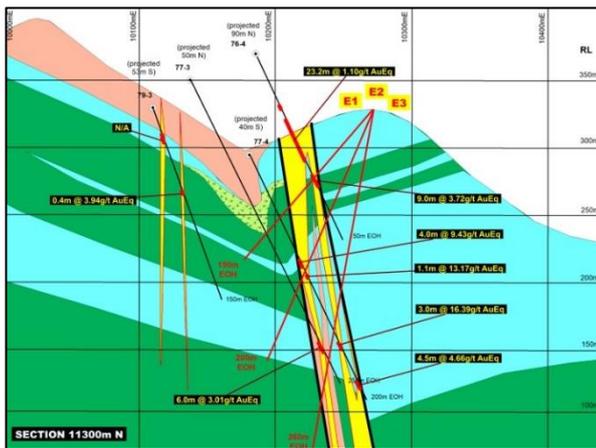
The Uiseong project lies within the Cretaceous Uiseong Sub-basin of the Gyeongsang Basin. The Gyeongsang Basin developed as a back-arc volcano-sedimentary basin during the Cretaceous, coinciding with the initiation of migration of the Japan-Kamchatka volcanic arc from the continental margin of Eurasia. The Gyeongsang Basin was likely adjacent to Kyushu Island, when "Slab Tear" occurred, followed by gradual "Trench Retreat" of the Japanese Islands after 100Ma.

Geology of the Uiseong sub-basin consists of sandstones of the *Jeomgog Formation*, volcaniclastics, tuff breccia, calcareous siltstones and black shale of the *Sagok Formation*, overlain by purple mudstones of the *Chunsan Formation*. Rhyodacite lava domes (see photo), "ring dykes", sills and diatremes of the *Umunsa Rhyolite* has intruded the sequence.



## Mineralization

The Dongil Au-Cu-Zn-Ag-Pb ± In-Sn-Bi-Sb-W-Cd deposit is the main focus for KME. The KMPC drilled 28 drill holes (4,970m core) at Dongil during 1971-79 at 100m hole spacing, intersecting widespread Cu-Au-Ag-Pb-Zn mineralization. Mineralization at Dongil consists of at least 3 vein-breccia structures enclosed by disseminated sulphides and stockworks up to 23m wide. These NNW veins have a 1800m strike length over a 300m wide zone, occurring as a sub-parallel sheeted arrangement. A "chimney" breccia pipe is present at Dongil North. KME classifies the mineralization as intermediate-sulphidation epithermal style (cf. Zacatecas, Mexico).



**Mineral Resources & Exploration Targets**

Using the available KMPC data, *Senlac Geological Services Pty Ltd* (2017) estimated Inferred Mineral Resource Exploration Targets of 20.83Mt @ 1.06g/t Au, 44g/t Ag, 1.10% Cu, 1.63% Pb & 1.12% Zn (see Table below).

These inferred mineral resource targets have combined contained metals totalling 707,300 ounces gold, 229,000t of copper (500Mlbs), 341,000t of lead, 234,000t of zinc and 30 million ounces silver. The insitu value of the metals is about US\$4.41Billion (approximately US\$212/t using *August 2017 metal prices*), equivalent to 3.4Moz gold at 5.15g/t AuEq.

Exploration by KME has discovered new vein outcrops with bladed carbonate replacement textures, indicating fluids “boiled”. Sampling also indicates significant grades of critical

metals are present in all the deposits, including indium, bismuth, antimony, tin and tungsten. The exploration potential of the Uiseong project is considered excellent.



**Inferred Mineral Resources and Exploration Targets – Uiseong Project<sup>1</sup>**

Mine / Deposit	Tonnes (t)	Grade AuEq (g/t)	Grade Au (g/t)	Grade Ag (g/t)	Grade Cu (%)	Grade Pb (%)	Grade Zn (%)
Dongil	9,234,500	4.65	1.19	44	0.96	1.05	1.05
Ogsan	3,006,300	10.61	1.32	61	3.24	3.95	1.60
Kyungwha	4,802,215	3.53	0.25	42	0.66	1.69	0.98
Jeonheung	2,470,655	4.06	1.90	39	0.46	0.67	0.73
Keumdongchilbo	1,320,770	4.03	0.94	35	0.00	2.19	1.85
<b>TOTALS</b>	<b>20,834,440</b>	<b>5.15</b>	<b>1.06</b>	<b>44</b>	<b>1.10</b>	<b>1.63</b>	<b>1.12</b>

NOTES: AuEq was calculated using August 2017 metal prices of Au = US\$1284/oz, Ag = US\$16.94/oz, Cu = US\$2.93/lb.

**Sustainable Mining with Drilling**

KME is proposing an initial 1,000 tonne per day Sustainable Mining with Drilling (SMD) operation for the Uiseong Project (330,000 tonnes per annum). SMD is an innovative and new mining technology which uses conventional Pile Top RCD drills to extract ore from steeply-dipping narrow veins.

The Pile Top RCDs are manufactured in Korea and can be fitted with drill bits of 1.0-4.5m diameter. The Reverse Circulation drilling method (RCD) is used with airlift in water to lift the -2mm drill cuttings as a slurry to surface. Pile Top RCDs are capable of drilling holes down to >200m depth, with inclinations from vertical to -70°. The drill string components are of modular design and suitable for any depth and hole diameter up to 4.5 metres. Drilling depth is increased by simply adding 3m drill pipe runs.



Stabilizers are added every 3 runs to add stability to the drilling process and maintain hole azimuth and inclination.

Each stabilizer is fitted with skid-arms, which expand out to fit tight against the drill hole wall.

Dilution is minimized using customized Ground Penetrating Radar (GPR) technology to “see the vein”. Directional Steering Tools are used to keep the Drill Bit aligned on the vein structure. The Waste:Ore ratio is expected to be <1:1.

The Drill Bit can be fitted with specialized Cutters designed to match rock hardness and strength. The “Weight on Bit” and “Penetration Rate” can be varied by adjusting rotation speed and adding lead weights to the Bottom Hole Assembly.



The cuttings slurry can be fed directly via pipeline into pre-concentration plant, or the mill, without the need for any primary crushing. Online analysis and ore sorter methods can be used to increase the ROM feed grade into the mill.

No personnel or equipment are underground, making the operation very safe.

A Pile Top RCD fitted with a 2-metre diameter drill bit is typically capable of excavating about 7 tonnes per hour (0.85m/hr). The Operating Costs of SMD is estimated to be about 50% of conventional underground mining methods.

Pile Top RCDs offer the flexibility to select high-grade zones within vein structures to help establish the mining operation and achieve rapid payback. SMD also enables optimal blending of ROM feed from other drill sites and deposits.

<sup>1</sup> Cautionary Statement: These Inferred Mineral Resources were calculated by *Senlac Geological Services Pty Ltd* (2017). The data is Historical and so does not comply with current NI-43-101 or 2012 JORC Code reporting requirements.

## Milling Operation

An integrated automated 1,000tpd milling operation is envisaged for Uiseong project, sequentially involving Gravity Concentration, Dense Media Separation and Sequential Flotation to recover copper, lead and zinc concentrates. Leaching and electrowin recovery of gold-silver dore.

The grade and density of the Pile Top RCD Cuttings slurry feed can be monitored in Real Time by On-Line Analysers (*Elemision & Gekko Olga*). Gravity Concentration of the <1mm stream is expected to recover gravity recoverable gold and tungsten (*Gekko InLine Pressure jig and Falcon Concentrator*). Dense Media Separation ("DMS") (*Sepra Condor*) can be used on the <2mm-1mm stream to concentrate sulphides. Sorter technologies could also be included. These fully-automated pre-concentration technologies effectively "Up-Grade" the mill feed and enable early rejection of waste to minimize dilution. Rejected waste can be returned immediately to the RCD hole void as backfill.

Pre-concentrated coarse sulphide can be recovered using a *Eriez Hydrofloat™ Separator*. Finer pre-concentrated sulphides can be ground in a ball mill and then fed into the 50tph Sequential Flotation plant (*OutoTec C-Plant*).

## Environmental Best Practice

KME has identified several mining and processing technologies to help achieve environmental best practice.

No tailings dams are required on site, as the Flotation plant tailings and waste are returned back into the void left by the previous drill hole. Settling of waste is facilitated by the 'columnar settling' effect of the void and further enhanced by clarifiers. De-toxified paste tailings from the mill is environmentally safe and can be pumped as paste backfill into the hole void.

SMD eliminates the need for Primary Crushing. No personnel or equipment are underground making the operation very

## Project Infrastructure

Site infrastructure is excellent, with National Grid power, sealed road access, railway and water available. The town of Uiseong-(population 14,409) lies 5-20km to the NW and has all modern services and amenities.

Uiseong county government is seeking to attract new projects to support the local economy, which is based mainly on agriculture.

## Conceptual Financial Analysis

KME desk-top conceptual financial studies were conducted on a 330,000tpa SMD mining and Flotation milling operation for the Uiseong Project.

Studies indicate a 1,000tpd operation will generate annual revenue of about US\$60M. Operating Costs of mining, milling and administration are estimated to be <US\$100/t, generating a pre-tax profit of about US\$33M. Capex (incl working capital) is estimated to be about US\$50-75M.

South Korea has a Corporate Tax rate of 10-22% and VAT of 10%. There are no Royalties on minerals.



The *OutoTec C-Plant* is a "turn key" flexible small plant design with flotation and launder modules. The plant features a high level of automation, including instant assaying of flotation products (*OutoTec Courier® Analyzer*) and onsite troubleshooting. The plant is low capital cost, compact-sized and mobile, requires minimal civil engineering site works and is simple to operate at low operating cost.

KME believes there is excellent potential for a central milling facility sited near Dongil, processing high-grade ores sourced from several satellite deposits.

safe and reducing energy consumption. SMD is relatively quiet and does not generate dust, reducing emissions.

Rehabilitation of each SMD drill site can commence rapidly once the drill moves onto the next site.

Water is continuously re-cycled in both the Pile Top RCD mining, Gravity, DMS and Flotation milling processes.

Apart from the ball mill, energy consumption of the Flotation plant is very low (water pumps).

Both SMD and Selective Flotation are very eco-friendly mining and milling methods and are expected to be well-accepted by the local community and government agencies.

The Uiseong project is expected to generate about 80 new direct jobs, as well as offer several supporting-services contracts for local business.

Major base metal refineries are located at Seokpo (60km) and Onsan (100km) and easily accessible by Expressway. KME envisages negotiating Offtake Agreements with these refineries.

Under the *Foreign Investment Act* ("FIPA"), the First 3-5 years of Income are Tax-Free and the next 2 years is 50% Exempt. Losses can be Carried Forward for up to 10 years. There are also Tax Credits on Job Creation. Under FIPA, there is guaranteed repatriation of approved capital investments.

