



**ALIGN**  
RESEARCH

## Bluebird Merchant Ventures

9<sup>th</sup> July 2018

### Rejuvenating gold mines in South Korea, where there is tremendous potential and a highly supportive government

Bluebird Merchant Ventures joined the LSE in April 2016 as a Philippine focused resources company. Within months, a general election ushered in an anti-mining government and so Bluebird began to look for other opportunities elsewhere in East Asia. March 2017 saw the company enter an agreement to form a joint venture with ASX-listed Southern Gold to reopen two high-grade gold mines in South Korea.

#### ■ Compelling economics in rehabilitating old gold mines vs exploration

Bluebird's strategy has big advantages over the conventional exploration model. Not only is the timeline to production far shorter, there is also no need for costly exploration as that was done by the old miners. **It is much cheaper to refurbish than to develop.** The company and its joint venture partner are targeting 100,000 oz of gold production annually within 5 years.

#### ■ Big opportunities in S Korea as gold mining has become insignificant

South Korea was once a substantial gold producer. The country's shift to technology has been at the detriment of some traditional industries, with gold mines closing in the 1970s due to a low gold price (under \$50/oz). **The government is now actively seeking to reinvigorate the mining sector.**

#### ■ Successful strategy has been perfected by the team over many years

Colin Patterson (CEO) and Charles Barclay (COO) have developed a cracking business model. In 2010, the Apex Mine (Philippines) was acquired for \$7 million, reinvigorated by the team and in just over 2 years received an offer from a major mining company for \$180 million.

#### ■ NPV at a 12% discount rate suggests upside of 316%

We believe our NPV valuation is conservative and initiate coverage of Bluebird with a target price of 11.85p and a **Conviction Buy** stance.

Table: Financial overview

Year to end June	2016A	2017A	2018E	2019E
Revenue (US\$'000)	-	-	-	-
PTP (US\$'000)	(921)	1,843	(1,933)	(1,750)
EPS (cents)	(0.47)	0.90	(0.93)	(0.57)

Source: Company accounts & Align Research

*This investment may not be suitable for your personal circumstances. If you are in any doubt as to its suitability you should seek professional advice. This note does not constitute advice and your capital is at risk. This is a marketing communication and cannot be considered independent research.*

## CONVICTION BUY – Price target 11.85p



#### Key data

PIC	BMV
Share price	2.85p
52 week high/low	4.00p – 1.75p
Listing	LSE
Shares in issue	215.17m
Market Cap	£6.13m
Sector	Mining

#### 12 month share price chart



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**IMPORTANT:** Bluebird Merchant Ventures (BMV) is a research client of Align Research. Align Research holds an interest in the shares of BMV. For full disclaimer information please refer to the last page of this document.

## Business overview

### Bluebird Merchant Ventures Operations

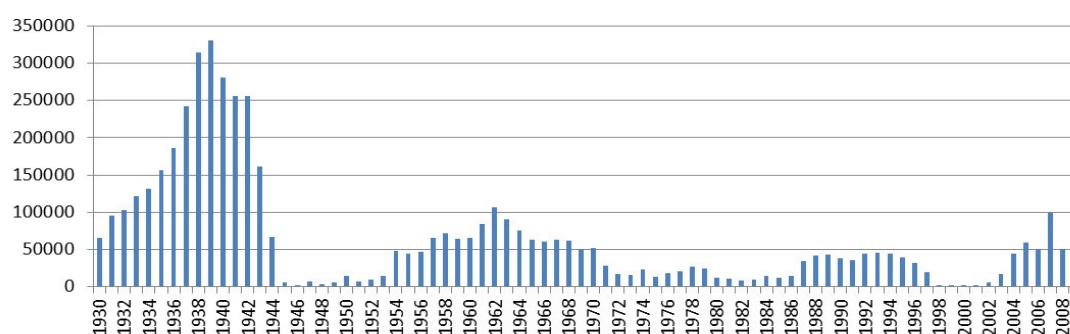
Bluebird Merchant Ventures (Bluebird) is focused on re-opening old gold mines in South Korea in a joint venture with its partner Southern Gold (ASX:SAU). The company is currently involved with the reopening of the following narrow vein gold underground mines:

- **Gubong** – In the past, Gubong was the second largest gold producer in South Korea. **This grand old mine is seen as having a substantial amount of remnant ore lying between mined blocks & which provide excellent exploration potential.** Gold production between 1926 and 1971 is recorded as 434,291 ounces but 120 kilometres of development drives would suggest that more like 5 million ounces of gold has been mined. Mine data indicates good potential from re-establishing production at the mine, as well as early cash flow.
- **Kochang** – There two separate mines - Kochang Gold Mine and Kochang Silver Mine. Mining ceased in 1985 and incomplete production records show a total of 88,023 ounces of gold, but this is probably highly understated. **Recent exploration work by Southern Gold has defined gold mineralisation extending over a 2.5-kilometre strike which joins the two mines.**

### Gold mining in South Korea

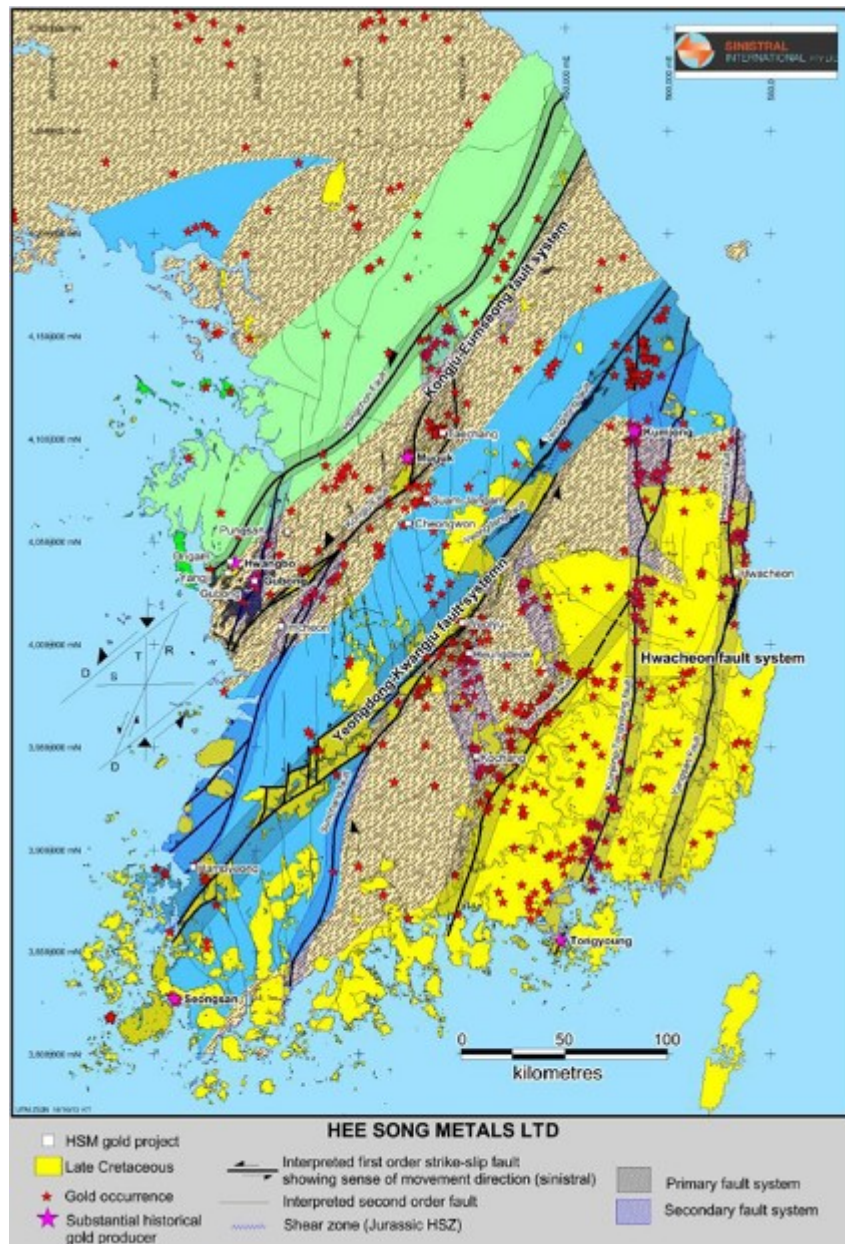
South Korea occupies the southern half of the Korean Peninsula. The country covers an area of around 100,00km<sup>2</sup> and so is roughly about the same size as England. South Korea has a population of 51 million, with 10 million people living in the capital Seoul, which is the largest city. The country is a global leader in the industrial and technological sectors and is the world's fifth largest exporter.

Innovation and technology have fuelled the country's remarkable rise from being one of the poorest countries in the 1960s, to now have the 11<sup>th</sup> largest economy in the world. However, South Korea has a long history of gold mining, with around 5 million ounces (Moz) produced between 1928 and 2008. After the First Sino-Japanese War and the Russo-Japanese War, Korea was occupied by Japan from 1910 to 1945, and the majority of this historic gold production was by Japanese companies in the 1928 – 1943 period.



Gold production in South Korea (ounces). Source: Company

South Korea's natural resources include: coal, graphite, molybdenum, tungsten and lead but the mining is not a primary contributor to the country's economy. In all, there is thought to be 1,400 old mines in South Korea which includes a substantial number of historic gold mines plus there have been numerous gold occurrences (see the red dots on the map on the next page) and some of these might have been mined. Many small to medium sized mines closed during the mid-1980s and there has been little exploration since the late 1990s.



*Gold projects in South Korea and the major lithological units. Source: CPR January 2018*

Recent history shows few international companies being involved in gold mining in South Korea. However, in the 1990s, Doug Kirwin, Bluebird's Senior Technical Advisor, was responsible for three gold discoveries in South Korea which **Ivanhoe Mines (TVX:IVN)** subsequently put into production. More recently, in July 2016, Southern Gold acquired a number of gold projects across a series of tenements in South Korea. Amongst these were six high priority targets, where there were plans to drill four of these quite quickly.

The government in South Korea is highly supportive of the mining industry, with the country charging no mining royalty, plus there are other incentives. The first drilling by Bluebird's partner Southern Gold at Kochang, was supported by the government-backed Korean Resources Corporation (KORES), which agreed to fund 70% of the direct drilling costs. South Korea was well recognised as a substantial gold producer in the past, but this profile has been reduced over recent decades. Southern Gold sees the country as a "time capsule" gold industry that was once substantial but has only recent been rediscovered.

## Background

Bluebird Merchant Ventures Ltd was incorporated in March 2014 in the British Virgin Islands. The shares were admitted to trading on the London Stock Exchange by way of a Standard Listing in April 2016. At that time, Bluebird was a Philippine focused resources company involved in the trading of copper concentrates and with an investment in a Philippine gold project. At the IPO, the company raised £1.725 million at 5.75p per share, giving an initial market capitalisation of £10.6 million.

On the LSE admission, the company had three business strategies which were: the development of Batangas Gold Project (BGP), development of the copper concentrate business, along with further acquisitions and expansion of trading activities. At that time, BGP was the flagship project which was an advanced gold exploration asset with total Indicated and Inferred JORC resources of 445,000 ounces gold. The company had an interest in BGP through a joint venture agreement with the owner and had the option to acquire an increased interest. Meanwhile, the copper concentrate business bought high-grade copper ores from permitted small-scale producers, processed the ore and sold the concentrate.

However, within months of the IPO, a general election in the Philippines led to the appointment of an anti-mining government and so Bluebird began to look at other opportunities elsewhere in East Asia. This bad news resulted in the share price falling to the 1.7p level. The changes in the Philippines subsequently gave Bluebird the opportunity to acquire a 100% interest in BTG for 1.25 million shares and a 1% Net Smelter Royalty in December 2016. The property is on care and maintenance and over its life exploration expenditure has totalled US\$20 million, and so has potentially US\$20 million of tax losses.

March 2017 saw the company enter an agreement to form a joint venture with ASX-listed Southern Gold to reopen gold mines in South Korea. Southern Gold had acquired a number of tenements within South Korea, some of which each contain historic gold mines. Southern Gold is an explorer and project generator with a business model of farming out production to professional mining operators. Bluebird finally selected the Kochang and Gubong mines with a plan of entering 50:50 joint venture upon completion of a feasibility report on each mine. The agreement required that Bluebird spend \$500,000 per mine over the initial twelve-month period to prepare the feasibility study for restarting production, along with investing A\$250,000 into Southern Gold for shares.

Bluebird secured the opportunity for the South Korean mines from Momentum Resources (MR), which had been engaged with in a number of similar projects in SE Asia over the past decade. Following these moves, Colin Patterson and Charles Barclay, who between them own a 25% stake in MR, joined the board as CEO and COO respectively. The MR team is an East Asia-based group of professional mine operators with substantial experience in all aspects of mining. MR are highly incentivised by being able to be awarded up to a total of 80 million shares based on achieving project milestones. The full number of shares are to be issued following the start of production, which judged to be when the first gold is poured.

The Competent Person's Report (CPR) on Bluebird's extensive Gubong project and other opportunities in South Korea was published in January 2018. This report highlighted that Gubong offered a resource potential of more than 1 million ounces of gold, plus there were satellite ore bodies containing a further 300,000 ounces of gold. The report also pointed out that there were more than nine stacked gold veins which had only been partially extracted because of the relatively low gold price (less than \$50/oz). **The CPR also recognised the huge potential of reopening the mine, which did not require expensive exploration.**

## Operations

Bluebird is focused on bringing old gold mines back to life in South Korea. At present the company has well developed plans to bring two historic gold mines into production: Gubong and Kochang. These old mines are all on tenements that are 100% owned by Bluebird's partner Southern Gold and all have been granted Mining Rights under the Korean mining law.



*Location of Southern Gold Projects in Korea. Source: CPR January 2018*

The company has a conditional agreement to farm-in to these two gold projects. Bluebird has agreed to spend US\$500,000 per project on preparing feasibility studies after which the partners intend to form a 50:50 joint venture with Bluebird becoming the operator. No government royalties or exercise tax are payable in South Korea.

Project	Area hectares	Blocks	Location
Gubong	2,484	9 contiguous blocks of 276 hectares	Chungnam Province
Kochang	837	3 contiguous blocks of 279 hectares	Gyoungnam Province

*Two gold mines that Bluebird plans to bring back into production. Source: Company*

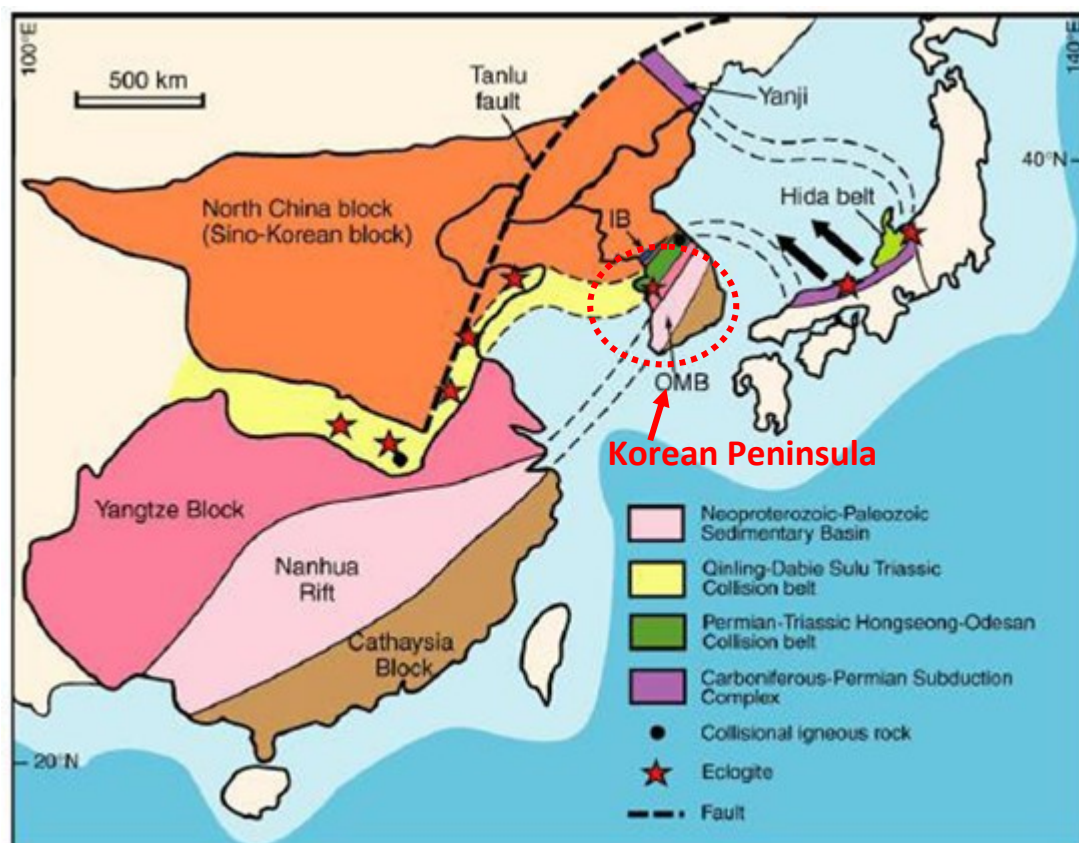
## Geology

The topography of South Korea consists mainly of hills and mountains but there are large coastal plains in the western and southern parts of the country. The highest point in South Korea is Hallasan, an extinct volcano which rises to a height of 6,398 feet.

Korea sits on the Pacific Rim and has affinities to the gold producing belts in China and Japan. In terms of geological time, Korea lies between the China and Japan subduction zone within the 'ring of fire' geology. This relates to plate tectonics and the enormous geological forces that are unleashed when tectonic plates collide.

A subduction zone represents an oceanic trench area at the margins of a continent where older and denser seafloor disappear underneath the continent as this plate is dragged downwards into the earth's upper mantle. These suprasubduction environments, which are the crust above the subduction zone, are seen as one of the major sources of the world's gold.

Limited systematic modern exploration has been undertaken in the Korean Peninsula in comparison to similar belts of rocks to the north-east (i.e. parts of Japan and Russia) as well as to the south-west (China) that are both known to host numerous significant gold deposits.



Major lithologic units in East Asia. Source: CPR Report January 2018

Partners Southern Gold believe that this geology means that South Korea hosts some of the best plumbing systems in the world when looking for the emplacement of precious metal deposits. Its technical team believes that South Korea is ripe for modern-style gold exploration and discovery.

Gubong is orogenic in nature which means that they were formed during plate tectonics at the time when mountains were built. Geologists believe that they were formed as parallel sets of structurally hosted gold and silver bearing quartz-calcite veins in metamorphosed terranes at a depth of 1.2 – 4 kilometres. These sorts of deposits are likely to have been formed either by magmatic fluids at a depth from within granitic intrusions or from metamorphic fluids which were heated during the metamorphism process, which have served to transfer and concentrate metals from country rock into veins.

Kochang differs in that it is an epithermal deposit occurring in a metamorphic setting. However, these two mines all have similar physical characteristics as they all occur within metamorphic rocks. Gubong and Kochang all consist of high grade quartz veins which have developed in narrow structurally controlled fissures or shears in numerous stacked veins. At all these mines, past gold production activity has been concentrated on just one or a few of these veins which in those days were seen as being of economic value.

### **Gubong**

In the past Gubong was the second largest gold producer in South Korea. This old mine is seen as having a substantial amount of remnant ore that lies between previously mined blocks and provides excellent exploration potential. Mine data indicates good potential from re-establishing production at the mine as well as the prospect of early cash flow. The mine lies 130 kilometres south of Seoul and is 10 kilometres from the nearest city of Cheongyang. The mine operated over three periods: 1911-39, 1946–50 and 1952-71.



*Old photograph of Gubong. Source: Company*

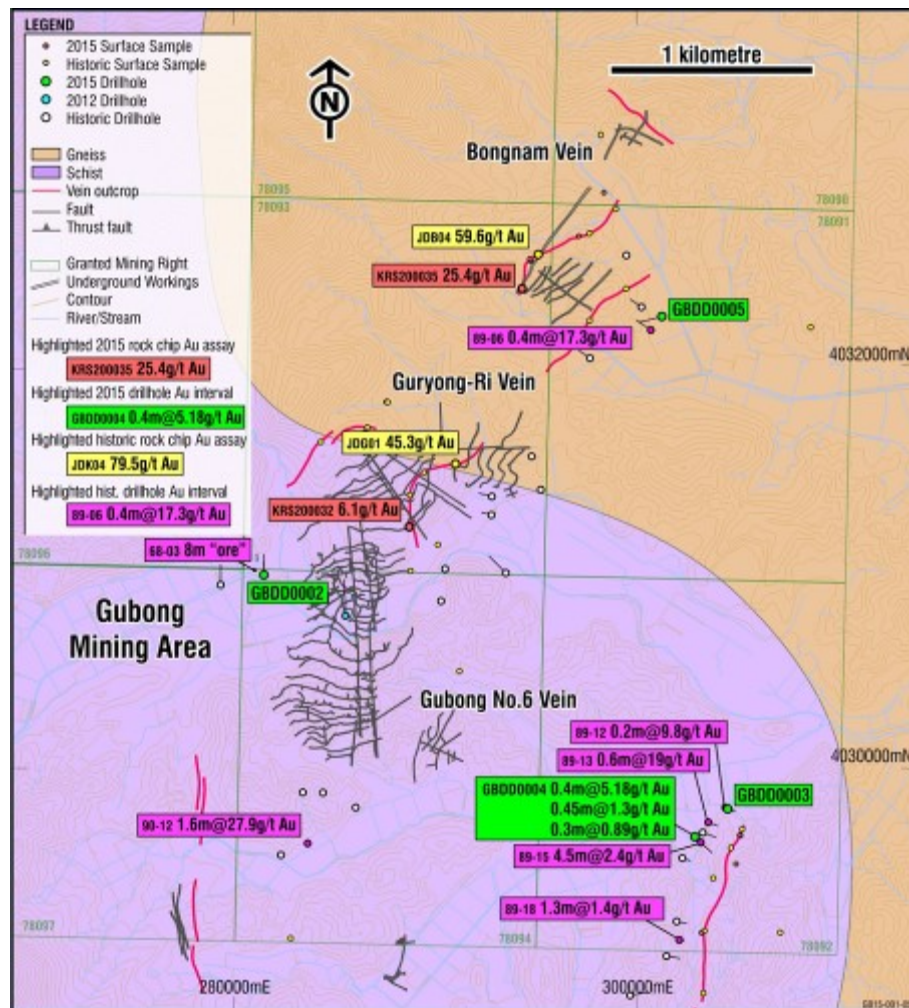
Gubong's orogenic gold mineralisation consists of quartz veins formed with schists and gneisses of Pre-Cambrian Age with the veins lying in a NNE corridor. These veins show a gold:silver ratio of 1:1 to 4:1 and form milk white quartz veins with a narrow band of sulphides, with the highest-grade gold mineralisation seen near the margins. There are nine stacked known veins plus the Danbong, Bongman and Gunryong veins. Just a few of these veins were mined, but other veins in this system are now seen as being economic.

Recorded gold production consists of 434,291 ounces mined during 1926-71, plus 109,307 ounces of silver. However, these figures are thought to have been understated as there was little control over the mining carried out by Japanese companies. The MR team believes that the 120 kilometres of development drives would probably suggest that a total of more like 5 million ounces of gold have been mined in the past.



The Korean Resources Corporation (KORES) estimate that the remaining resource at Gubong is 2.34Mt at 7.36g/t which equates to 555,229 ounces of gold. This however does not represent a JORC-compliant resource.

Mining at Gubong exploited six high grade quartz veins called No. 1 to No. 6 which lay within schist and gneiss and extended over an area of 14km<sup>2</sup>. No. 6 was the most extensively worked vein that was mined down dip for around 1,000 metres, which corresponds to a vertical depth of 550 metres below the surface. Previous exploration includes the drilling in 2004, which saw two deep drill holes (750 and 820 metres) drilled by KORES, which concluded that the No. 6 vein continued at depth.



*Gubong – drill holes and significant assays. Source: CPR January 2018*

International Gold Limited undertook an Economic Evaluation Study (EES) on the Gubong deposits in 2011. It was based on the design, mining and development of a 0.5Mtpa gold mine and mill. The authors considered that the historic resource could be upgraded to JORC using 2007 core and further drilling. They also highlighted a number of satellite deposits which included: Imcheon, Pungsan, Ongam and Yangi where KORES has a calculated a total of an additional 300,000 ounces of gold.

EES estimated a total of 2.7Mt of ore at an average grade of 7.0g/t and with more than 575,000 ounces recovered. Using a world gold price of A\$1,350, the authors determined a cash flow of A\$285 million over a mine life of just over eight years. **Based on the likely prevailing AUD/USD FX rate at the time, a gold price of US\$1,285 per ounce was used and a cash flow of US\$299 million was determined over the life of the mine.**



*Work begins at Gubong (left) and track to access an inclined shaft (right).  
Source: Company & CPR January 2018.*

### Feasibility Report

The company signed the joint venture agreement with Southern Gold for the Gubong Mine in April 2018, and which required a farm-in expenditure of some US\$500,000. The final requirement for commencing the 50:50 joint venture is the completion of Feasibility Study on the reopening the mine which is expected to be finalised in July 2018. After this, costs will be shared 50:50 between the partners.

Work commenced on reopening the main entrance at the huge Gubong Mine in July 2017. After the mine closed, the main adit was sealed and buried under tonnes of earth as part of a comprehensive rehabilitation process which saw all the buildings dismantled. Subsequently in January 2018, the Competent Persons Report was published.

Work underground has resulted in medium grade gold grab samples. In January 2018, it was reported that 10 out of 15 samples taken had grades in excess of 1g/t gold with three samples assaying more than 10g/t gold. In addition, there were high silver grades as well with 12 of the 15 samples being above 10g/t silver.

Since then, there have been excellent results from the initial metallurgical test work on ore from Adit 4 with recoveries of over 90%. **Importantly, this analysis has demonstrated that the ore does not need complex or extraction techniques.** A water treatment plant has been commissioned at Gubong with lab tests have showed that no heavy metals are present.



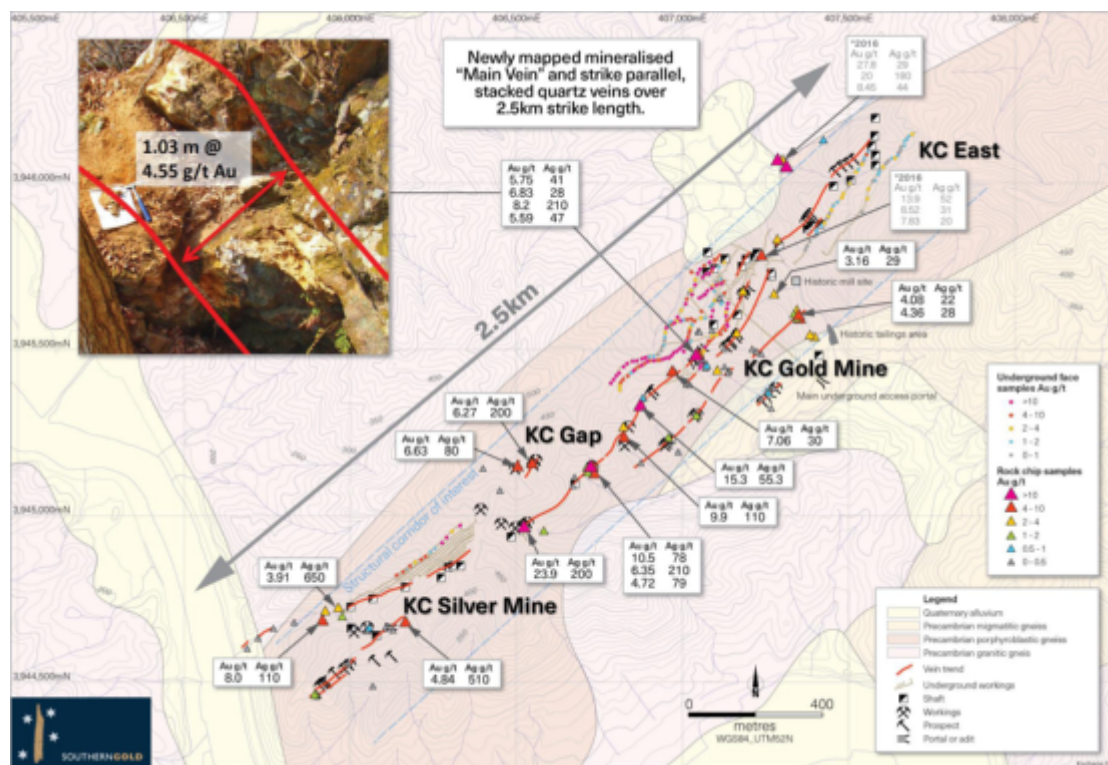
*Mining in the past in South Korea: Source: Company*

## Kochang

The Kochang Mine was worked in a total of four different phases between 1928 and 1975. Work was restarted and an exploration adit dug towards the south in 1989-90. Production records are incomplete, but it is thought that 88,023 ounces of gold were mined in the 1938-75 period. A report by KORES records mine production totalling 110,000 ounces of gold and 5.9 million ounces of silver between 1961 and 1985.

Kochang is an epithermal vein system with the mineralisation consisting of gold silver quartz veins up to 600 metres in length, hosted in Pre-Cambrian aged host rocks. There are at least five gold quartz veins which trend in a NE direction and are seen to be dipping by 50-70°. Quartz veins consist of narrow quartz-sulphide veins and veinlets 2-10 centimetres plus there is evidence of the presence of higher grade ore shoots.

There are actually two separate mines: Kochang Gold Mine and Kochang Silver Mine. The Kochang Gold Mine mined the Main Vein, whilst the Silver Mine mined the South Vein. Assay maps from the past combined with recent surface mapping suggests that there are a number of separate veins associated with the Main Vein which were not mined in the past. Workings extend over 1.2 – 1.5 kilometres or 2.5 kilometres if the silver shaft area is included.



2.5 kilometre of mineralisation delineated at Kochang by Southern Gold. Source: CPR January 2018

Surface mapping and sampling at the Kochang Silver Mine shows significant gold assays along with a number of additional veins that were not mined in the past. Previous exploration work carried out, plus some drilling, has indicated the presence of high grade ore shoots. In the past, bonanza grades were reportedly mined in the upper levels of the north shaft vein.

In 1990, KORES undertook an airborne radiometric and magnetics survey which was part of a country wide investigation of old mining areas. The results showed that Kochang contained a Potassium Channel anomaly, together with a 1.5-kilometre-wide circular magnetic anomaly to the north. It is thought that the magnetic anomaly is a concealed intrusive one with the potassium anomaly likely to represent the hydrothermal outflow zones from that intrusive area.

The area containing these anomalies has since been mapped and chip sampled by Southern Gold and past owners. Four diamond drill holes were drilled to depths of 1,233 metres in 2016 by Asiatic Gold prior to being acquired by Southern Gold. Subsequent work by Southern Gold has led to the delineation of some 2.5 kilometres of mineralisation extending between the two historic mines.

### Feasibility Report

Bluebird is now working on a Feasibility Report on recommencing mining at Kochang. **Management seem to have great expectations for this mine as such deposits typically extend over 1 kilometre in depth whilst Kochang has only been developed to a depth of 150 metres.**

The company accessed the Main Vein at Kochang in February 2018. Ground conditions were reported to be excellent and access was gained to the bottom level of the old mine. The process of identifying early production feedstock material has already begun underground. In May 2018, the company was able to report that the initial results of grab sampling underground had demonstrated that sorting the broken rock by hand in the mine increased the grade from 1.69g/t to 5.12g/t gold.

Based on these early results, Charles Barclay, COO, estimated that Bluebird could expect to make an initial cash operating profit of around US\$750 per ounce of gold recovered from the already accessed broken ore and pre-developed orebodies at a gold price of US\$1,300 per ounce.

There has also been encouraging results from the sampling of the in-situ ore which was left behind by the original miners. Bluebird has channel sampled a total of 1,330 metres of veins at five metre intervals which provided average assays of 5.29g/t gold and 31.54g/t silver. **On the back of these assay results, management estimate a cash operating profit of around US\$500 per ounce from in-situ ore at a gold price of US\$1,300 per ounce.**

In mid-June 2018, the board was able to announce the execution of the formal 50:50 Joint Venture Agreement with Southern Gold for the Kochang Mine where the company will be the operator. At the time, Bluebird had already commenced the necessary farm-in activities at the mine. The company has to spend US\$500,000 on the cost of a feasibility study (the remaining farm-in spend is US\$100,000) to re-open the gold and silver mine, as well as completing a A\$250,000 placing in Southern Gold. Already this commitment has almost been met and the placing is expected to be completed in due course. The feasibility report on Kochang is expected to be completed in September 2018 and after that costs will be shared on a 50:50 basis between the partners.

## Strategy for growth

Bluebird is not an exploration company in the traditional sense, rather focusing upon bringing old gold mines back into production in South Korea to unlock the tremendous value that results from the discoveries made in the past. Any mention about ongoing exploration at the company's projects in South Korea purely concerns the work that Bluebird's joint venture partner Southern Gold is undertaking. Southern Gold is acting as a project generator in South Korea and has acquired a number of tenements which all contain historic gold mines.

There is no doubt that the company's corporate strategy has a number of big advantages over the conventional exploration model. Firstly, the timeline to production is far shorter. Not to mention any names, but there are multitude companies listed on AIM that have been exploring since the late 1990s and have yet to develop a single mine. Secondly, there is no need for costly exploration as that was done by the old miners. Thirdly, it is much cheaper to refurbish than to develop. Going back into old mines can be highly cost-effective as Bluebird will be saving on costs like \$3,000 per metre of development driveway or \$10,000 per metre for sinking a shaft. In addition, there is now far much better understanding of the geometry of the orebody, grade trends and characteristics that comes from years of exploration and mining.

South Korea provides some highly compelling opportunities for Bluebird's business model with so many abandoned gold mines. Nowadays, the country's gold potential has been largely forgotten as it has not been a substantial producer for decades. By and large, gold production pretty well ceased in the 1980s as the mines were no longer economic with the gold price below \$50 per ounce. Fast forward near forty years and gold now stands at \$1,300 per ounce. Plus, today there is a better understanding of orogenic gold deposits coupled with the availability of improved machinery and technology. Recoveries in excess of 95% are nowadays highly achievable given the new reagents along with modern processing equipment.

The South Korean deal was brought into the company by two highly-experienced and successful mining engineers Colin Patterson and Charles Barclay. Their own company, Momentum Resources (MR), has become a substantial shareholder in Bluebird. The pair have been working together over many years and have developed a proven and highly successful business model which Bluebird is now starting to benefit from. They have enjoyed many successes, but probably the best example is the Apex Mine in Philippines. **The mine was acquired for \$7 million in 2010, reinvigorated by the MR team and then in just over 2 years sold received an offer from a major mining company for \$180m million.** It has to be pointed out that this gain was achieved against a backdrop of an improving gold price, but the mine needed to be revitalised and asset improved in order to benefit.

Dilution can be the real killer in narrow vein deposits. MR's secret to turning around such old underground mines is to keep labour costs down and employ the best technologies with the capital that is available. By its very nature any narrow vein deposits are labour intensive and so there needs to be a firm control of costs. In addition, Colin and Charles put a lot of emphasis on team work, team building and getting the team locked into a single vision. It is often the case in mines around the world that local miners dislike their foreign owners. MR knows these problems well and has a specialist they bring in ensure that the mining team underground work together successfully.

**Bluebird has a target of mining 100,000 ounces of gold per annum within five years of initial production, which would mean a net 50,000 ounces to the company.** Management has a well-developed plan which currently focuses on bringing the Gubong and Kochang mines back into production. At this moment the actual running order of which mine will be put into production first is still to be decided, and which seems dependent on the speed of progress underground, sampling and processing requirements. Management is seeking to pour its first gold in South Korea in Q4 2019, either from Gubong or Kochang. The second mine is planned to go into production six months after production begins at the first one. Actually, these phased starts could realistically come two months apart, but the company is a “lean and mean” operation with only a small team and so sensibly wants to ensure that one mine is running smoothly ahead of opening a second mine.

Gubong is a vast mine which, anecdotally, in its heyday employed 20,000 people. The orebody might not be wide on strike, but these orogenic orebodies tend to be 1,000 metres deep. **So far, mining has only been to a depth of 500 metres, which suggests that there is plenty of future potential at depth.** In all, the mine has around 120 kilometres of development drives in the ore. This scale of development suggests to Colin and Charles that the stories of five million ounces of gold being mined there may well be more accurate than official figures in the Japanese era. Currently, systematic sampling and metallurgical test work is being used to create the mining plan and the processing circuit. The strategy is to start simply and use cash flow to increase production.

The potential ore sources that are available at Gubong include: numerous surface stock piles that were considered to be waste, tailings, ore from underground clean-up and remnant mining. These will be the source of the initial production with existing broken ore underground to be vacuumed or conveyed out by mechanised means. Phase 2 will be the remnant ore and right at the bottom of the mine nine gold veins coalesce into a single vein right at the bottom with grades in the range of 15-20g/t. Diamond drilling has shown a continuation of the gold mineralisation 700 metres down dip which is Phase 3 and represents a new mine. Based on their experience, Colin and Charles believe that Gubong may well have another 5 million ounces of gold that could be mined.

Work on the feasibility studies of reopening the mines at Gubong and Kochang has already led to the expected capital expenditure for a 100,000 ounce per annum (pa) operation of US\$28 million. Gold production in the first year is planned to be 8,000 ounces and rising steadily to 40,000 ounces in year 4 (2023) with a big step change in year 5 (2024) to 100,000 ounces. Initial development has been budgeted at US\$10 million, which will be shared 50:50 between the joint venture partners. **Bluebird has stated that it does not want to dilute shareholders and once the initial operation is in place, the Board will be seeking to grow gold production organically from positive cash flow supplemented by project finance.**

The first year of production at both Gubong and Kochang is expected to be 8,000 ounces of gold. With orogenic gold, the trick is to find the structure because this is spotty gold with individual veins varying in width from 15 centimetres to 1 metre. The team is expecting that the grade early on will be around 4-5g/t gold and moving up to 8g/t. Initial mining costs are estimated to be US\$15-20 per tonne taking out existing broken rock, \$40 per tonne on remnants (exposure veins) and up to \$80/t for primary development which requires drilling and blasting. The overall mining cost at any one time will be dependent of the mix of production sources.

Good sampling will be vital to identify the areas of high, medium and low-grade ore that can be combined to create the suitable feed for the processing plant. Blending production in this way will achieve the grade which provides the optimum recovery rate to maximise returns and mine life depending on the prevailing gold price. Already the ore has been shown to be uncomplicated, which means simple low-cost processing such as a gravity circuit or vat leaching. The use of modern equipment and reagents means that a recovery rate of 90% and ultimately 95% is achievable. The initial capex on each project of US\$4 - 5 million includes a pilot plant with a capacity of 250 tonnes per day (tpd) which will at first be run at 100tpd. These processing systems are modular and so vat leach capacity can be expanded by bringing in another tank. Processing costs per tonne are estimated to be in the range of \$20-40/t, with \$30/t seen as the most likely.

**This is just the start. Bluebird is building a close relationship with its joint venture partner Southern Gold which has a number of old gold mines on its various tenements in South Korea and is also actively exploring these areas for further potential. The company is only looking at projects which can generate cash flow within 30 months of access to the project, which means that any future projects could provide additional cash flow fairly rapidly.**

South Korea has been forgotten by the mining industry. This is despite the country having had a substantial gold mining industry in the past and also sitting on the Pacific Rim with big affinities to gold producing belts in China and Japan. **In a couple of years' time when the bigger companies of the mining world wake up to the gold potential in this country, Bluebird could have already snapped up the best gold projects and have the systems in place. In our view, this could make the company a highly desirable target for any larger operator looking to gain a foot print in South Korea.**

## Financials & current trading

Results over the past few years cover the period when Bluebird was developing its mining and copper concentrate businesses in Philippines, before the political changes which shocked the entire mining sector and which led the company's shift of focus to South Korea.

Y/E 30 June US\$'000s	2014A <sup>1</sup>	2015A	2016A	2017A
Revenue	-	-	-	-
Pre-tax profit/loss	- 32	-107	- 921	1,843
Net profit/loss	-32	-107	-921	1,843

<sup>1</sup> period from 12 March 2014 to 31 December 2014

*Bluebird Merchant Ventures four-year trading history. Source: Company accounts*

### 2017 Results

Financial results for the twelve months ended 30<sup>th</sup> June 2017 marked a significant period of change for the company. Results were flattered to the tune of US\$2.945 million by an extraordinary gain on the acquisition of MRL Gold Inc. (which gave the company a 100% interest in BTG) in November 2016. The pre-tax profit came out at US\$1.843 million and the basic earnings per share came out at USD0.90 cents

### 2018 Interims

In February 2018 the company announced interim results for the six months to 31<sup>st</sup> December 2017, which marked a period when the team was active on the ground at Gubong. After US\$373,822 of farm-in costs and US\$347,680 of administration costs, the group made a pre-tax loss of US\$748,722 with a basic loss per share of USD0.36cents.

### Recent developments

In February 2018, Bluebird accessed the Main Vein at Kochang and discovered excellent ground conditions and an open development.

April 2018 was a busy month for announcements with news of a fund raising plus developments at Gubong and Kochang. US\$500,000 was raised in loans from Directors, management and key shareholders to fund the Feasibility Study at the Taechang gold/silver mine. Whilst at Gubong, the joint venture agreement with Southern Gold was signed which requires farm-in expenditure of US\$500,000 plus the completion of a Feasibility Study on reopening the mine. At the same time, mapping and sampling at Kochang resulted in more than four hundred assays being sent to SGS laboratories in China and Malaysia for analysis.

In May 2018, there was news concerning metallurgical test work at Gubong as well as sampling results from Kochang. The initial metallurgical test work on ore from Adit 4 at the Gubong mine provided excellent results with recoveries of over 90%. The analysis also importantly highlighted that the ore was not problematic and would not need complex extraction techniques. News from Kochang was also encouraging with results from underground channel sampling on in-situ ore left behind by the original miners. In all 1,330 metres of veins were sampled at five metre intervals with channel samples averaging 5.29g/t gold and 31.54g/t silver.



## **Risks**

### **Geological risks**

There are a series of technical risk factors concerning the amount of understanding of the geology of the project areas, the mineralisation style being targeted and the distribution and magnitude of the indicators that have been identified in exploration work.

### **Metal price risks**

Metal prices are highly cyclical and changes in the price of gold and could have a negative or positive impact on the valuation of the company's projects and revenue from the sales of metals. Over the past ten years the price of gold has been highly volatile, trading in the range of US\$1,899 - \$712 per ounce to currently trade around the US\$1,300 level.

### **Exchange rate risks**

Movements in the value of currencies will have an effect on the company's accounts on translation from the South Korean won into US dollars. Fluctuations in the value of the South Korean won and US dollar against sterling may have an effect on the valuation that Bluebird is awarded by the market.

### **Future funds**

The market for raising funds for small cap companies may have improved from the worse conditions seen two years ago. However, the equity market does continue to be difficult, especially for sectors such as mineral exploration where scope for early cash flow can be elusive. Some recent fund raisings in the resources sector have seen share prices being undermined by incoming investors demanding substantial discounts to provide the necessary capital.

### **Political risk**

South Korea is a developed world economy, but as with anywhere in the world there is always some degree of political risk attached to the mining industry. However, the government in South Korea is seen as being highly supportive of its mining sector, where it is incentivising exploration by providing grants for drilling and charging no royalty on production.

## **Board of Directors**

### **Jonathan Morley-Kirk – Non-Executive Chairman**

Jonathan has more than twenty years' experience as a Fellow of the Institute of Chartered Accountants in England and Wales. He has focused largely on natural resources and emerging markets. Jonathan has many years of public company directorship experience with international companies. Prior to moving to Jersey twenty years ago, he held directorial positions at Samuel Montagu & Co and S G Warburg in London.

### **Colin Patterson – Executive Director & Chief Executive Officer**

Colin has more than 40 years' experience in the mining industry in all major aspects of mining (management, production, design, exploration, evaluation, construction and corporate). He has held directorial and executive management positions at numerous mining and exploration companies and has operated and managed projects worldwide. Most recently Colin was Executive Chairman of a Philippine listed gold producer, Apex Mining. He is a fellow on Australian Institute of Mining and Metallurgy. Colin holds a degree of a Bachelor of Science in Engineering (Mining), a Bachelor of Commerce with honours in Business Economics (Finance).

### **Charles Barclay – Executive Director & Chief Operating Officer**

Charles has worked in the gold mining industry for more years than he cares to remember. His career has encompassed most mining and project positions from Sampler to Chief Operating Officer, a position he has held in three mining companies in the Asia Pacific area over the past twenty years. Charles has managed many projects including Vertical Shaft construction (South Africa), mine design and construction (Papua New Guinea and Vietnam) but his favourite projects have always been reopening and rejuvenating old mines and mine workings.

### **Aidan Bishop – Executive Director**

He has a number of years of experience in start-up businesses in the Philippines in various sectors. Since 2013, he has been founder of a consumer food tech start-up that operates in the Philippines, Indonesia and Hong Kong. He has also been actively involved in the cocoa industry in the Philippines and is a founding Director of a UK based super premium chocolate company.

### **Clive Sinclair-Poulton – Non-Executive Director**

Clive has many years of experience working as a Director of a number of companies within the natural resources sector. Since 2009 he has been Executive Chairman of Agricola Resources plc. Previously, from 2008 until November 2014, Clive was the Executive Chairman of Beowulf Mining plc, an AIM listed company. Prior to this he was a Non-Executive Director at Morning Star Holdings (Australia) Ltd, an aluminium processing and platinum exploration company listed on the ASX. Between 2004 and 2008, Clive held the office of the Chief Executive Officer at Bezant Resources plc, an AIM listed exploration company whose assets included a Philippine exploration project. He earned a Bachelor's and Master's degree in Law from St Catharine's College (Cambridge). Clive is a Member of the Chartered Institute for Securities and Investment.

### **Senior Management**

#### **Douglas Kirwin – Senior Technical Advisor**

Doug is an Australian geologist with 45 years of international experience. His exploration teams have been responsible for several well-known mineral discoveries which are now being mined, the most notable being the giant Oyu Tolgoi gold copper deposit in Mongolia developed by Rio Tinto. Doug was Executive Vice President of Ivanhoe Mines from 1996 to 2012 and currently an independent consulting geologist based in Thailand. Doug has an MSc in Mineral Exploration from James Cook University, where he is currently an Adjunct Professor of Geology

#### **Stuart Kemp – Chief Financial Officer**

Stuart is an MBA qualified Chartered Accountant. He has 30 years of experience working across various industry sectors in senior Financial, Operational and General Management roles. Stuart has worked for leading, innovative corporations in the UK, New Zealand and across SE Asia where he has been able to utilise his significant consultancy experience to ensure the delivery of effective, solution focused approaches to facilitate financial control and business growth.

#### **Graeme Fulton – Project Manager**

Graeme has been involved in the mining industry for more than 30 years. He has worked in New Zealand, Canada, Malaysia, Papua New Guinea, Vietnam, South Africa and Australia. Graeme has expertise in geological modelling & evaluation; Resource & Reserve definition/modelling; mine design & scheduling; feasibility studies audits and due diligence. He is a Fellow of the Australian Institute of Mining and Metallurgy. Graeme has a degree in Mining & Petroleum Engineering from Strathclyde University.

### **Peri Resabel – Operations Manager**

Peri has over 40 years' experience as a Mining Engineer. He co-founded Paramina Earth Technologies, Inc., a mine development and civil construction contracting company in 1992 that had underground development contracts in Asia. Peri worked with Roan Consolidated Mines in Zambia and was a President of the Philippine Society of Mining Engineers; a Director of the Chamber of Mines of the Philippines; an APEC Engineer and was previously President and COO of Philippine listed gold producer, Apex Mining Co., Inc. He has a Bachelor's degree in Mining Engineering.

### **Peter Wallwin – Metallurgical Manager**

Peter has over 40 years of experience in mining and minerals processing with companies such as Goldfields, Messina Limited and was a founder member of Time Mining. He formed his own process and project development consultancy in 1999 operating internationally. Peter has held numerous positions including general manager of an underground gold mine and has project managed many successful projects from development to commissioning.

### **Emy Fabro – Administration Manager**

Emy holds a Masters Degree in Communications. She began her career in the broadcasting industry before moving to Vietnam to work in an NGO. Her involvement in this organization lead to her to a PR role in 2006 for a Canadian Mining company, Olympus Pacific Minerals where she met Colin Patterson and Charles Barclay. In 2009 she returned to the Philippines and took up a role in the Administration, Community Relations and HR in Apex Mining Corporation. She subsequently became the HR and Administration Group Manager at a gold mine owned and operated by Philex Mining Corporation.

### **Darryl Norton – Engineering Manager**

Darryl has over 35 years of experience in the gold mining industry, particularly in Africa, the Former Soviet Union & South East Asia. He has been an Executive Director and Chief Operating Officer of two London listed companies KazakhGold and Oxus Gold. Darryl has also managed projects for mines, process facilities & infrastructure from design through construction to final commissioning/hand-over for numerous gold mining companies. He is currently COO of London listed Goldstone Resources.

## Forecasts

We initiate coverage of Bluebird with forecasts for the 2018 and 2019 financial years. Results for these two years are not expected to show any revenue as gold production from either Gubong and Kotang is not planned until towards the end of calendar year 2019. For 2018, we expect a pre-tax loss of US\$1.933 million with a loss per share of USD0.94cents.

For 2019, the company will be continuing to fast-track the re-opening of the Gubong and Kochang gold mines. **During this period, we assume that the number of shares will increase significantly for a number of reasons.** Firstly, MR is highly incentivised to achieve certain milestones with the projects in South Korea and will be awarded additional equity. Secondly, the initial funding of US\$10 million to reopen the mines will require a 50% contribution from Bluebird, which we assume will be partly funded by a placing of shares. Thirdly, any such equity issue is likely to be accompanied by US\$1 million that has been lent to the company by the Directors and management being converted into equity, to clean up the balance sheet. The estimated pre-tax loss for 2019 comes out at US\$1.75 million, with a loss per share of USD0.59 cents.

Year End 30 June (000s 'US\$)	FY2016a	FY 2017a	FY 2018e	FY 2019e
Revenue	-	-	-	-
Cost of Sales	-	-	-	-
Gross profit/(loss)	-	-	-	-
Farm-in costs	-	-	(1,000)	(500)
Administration expenses	(778)	(759)	(800)	(1,000)
Share based payments	(85)	(115)	(125)	(250)
Share of loss of associates	(39)	(2)	-	-
Operating profit/(loss)	(903)	(877)	(1,925)	(1,750)
Exchange gain/(loss)	(22)	(20)	(100)	-
Finance gain/(expense)	4	-	-	-
Loan write-off	-	(206)	-	-
Extraordinary gain on acquisition	-	2,945	-	-
Sale of White Tiger Mineral Resources Inc	-	-	92	-
Profit/(loss) before taxation	(921)	1,843	(1,933)	(1,750)
Income tax expense	-	-	-	-
Profit/(loss) for the year from continuing operations	(921)	1,843	(1,933)	(1,750)
Profit/(loss) for the year	(921)	1,843	(1,933)	(1,750)
Attributable				
Equity shareholders to the parent company	(921)	1,843	(1,933)	(1,750)
<b>Earnings per share</b>				
Basic profit/(loss) per share (cents)	(0.47)	0.90	(0.93)	(0.57)
Weighted average number of shares	195,605,589	204,713,938	207,807,601	306,456,130
Total shares plus warrants and options	201,518,296	210,626,645	221,086,645	327,736,645

Source: Company/Align Research

## Valuation

**Our valuation is solely based on production from the Gubong Mine which we see as the company's main focus moving ahead due to vast size and also the scale of its future potential.** At the moment, the most detailed information available relates to Gubong. We have developed a financial model of the Gubong mine based on the CPR, discussions with management and costs of similar sized projects around the world. Our analysis is based on employing a flat gold price at the current level of \$1,300 per ounce over the life of the project.

In order to remain conservative, we have chosen to use the remaining resource estimate for Gubong that has been determined by KORES, and which is 2.34Mt at 7.36g/t - equating to 555,299 ounces of gold. **This does not represent a JORC-complaint resource, but the Korean system does seem to be logical.** The company does not intend to go down the route of delineating JORC resources. However, the authors of the EES, which International Gold undertook on Gubong in 2011, considered that the historic resource could be upgraded to JORC using 2007 core and further drilling.

**The independent CPR report dated January 2018 highlighted that Gubong had the greatest potential resource, estimated in excess of one million ounces of gold, as well as having the largest area to explore.** In addition, the ESS also considered that there was potential to incorporate a number of satellite deposits (Pungsan, Ongnam and Yangi) where KORES had estimated further resources totalling 300,000 ounces of gold. In addition, the EES also considered tailings as providing additional potential. All this does underline the fact that our model is highly conservative.

On the basis of the KORES resources figures, we have modeled a mine with a 20-year life with 150 tonnes per day (tpd) in 2020 rising to a plateau production level of 500t pd in 2022. **Management believes that recoveries in excess of 90% are likely and so we have assumed a 90% recovery, with 85% in the first year of production.** The long-term grade has been chosen to be 7g/t - in line with the KORES resource estimates, with an average grade of a 4.5g/t and 6.5g/t in the first two years. These figures suggest gold production of 5,500 ounces in 2020, 14,000 in 2021 and 30,000 in the years 2022 -38.

Discussions with management have highlighted that the incomplete work on the feasibility reports for reopening the mines at Gubong and Kochang has already led to the indicated necessary capital expenditure for a 100,000 ounce per annum operation (being estimated at a capital cost of US\$28 million). The initial development has been budgeted at US\$10 million. These are figures that have been used as the basis of the capital expenditure in our model.

Mining costs are assumed are to be US\$15-20 per tonne for taking out existing broken rock and US\$40 per tonne for mining remnants. Our model does not include any primary development involving drilling and blasting which would form Phase III and comes with higher costs of around US\$80/t. Processing costs have been assumed to be US\$30 per tonne whilst general & administration costs are assumed to be US\$10 per tonne. A South Korean corporate tax rate of 30% has been applied.

**Undiscounted cash flow totalled US\$324 million, which is broadly similar to the US\$299 million that the EES determined (based on using the then currently prevailing FX rates).** The annual cash flows have been discounted using a 12% discount factor, which serves to risk these already highly conservative figures. **The net present value of the project at a 12% discount rate comes out at US\$76.03 million. Bluebird has a 50% interest in Gubong which equates to US\$38.01 million or £28.58 million at prevailing exchange rates.**

Based on our model, the sum-of-the-parts valuation derived is £27.68 million. Using the current number of shares in issue (215,173,938) suggests a per share valuation of 12.86p and on a fully diluted basis (221,086,645) this valuation equates to 12.52p per share.

Currently, there are total of debts of US\$1.2 million, of which it is thought that US\$1 million has been lent by the Directors, management and certain shareholders. We believe this is likely to be converted into equity, which we have assumed will take the fully diluted number of shares to 239,743,361. **On that basis, the per share valuation would be 11.85p, which we have chosen to use as our target price.**

#### Sum-of-the-parts valuation

Assets	Valuation £ million
South Korea joint venture (50% x US\$76.03 million)	28.58
Cash	-
Debt (c\$1.2 million)	(0.90)
<b>Total</b>	<b>27.68</b>
Per share (215,173,938)	12.86p
On a fully diluted basis (221,086,645)	12.52p
\$1.0 million of debt converted into equity	0.75
<b>Total</b>	<b>28.43</b>
On fully diluted basis plus shares issued by a conversion of \$1 million of loans into equity (239,743,361)	11.85p

*Source: Align Research*

**We believe our target price is highly conservative, as it is just based on the potential of the Gubong mine based on the KORES resources estimate, which is almost 50% of the resource suggested in the CPR.** Far higher grades in the realm of 15-20g/t gold have been found at the bottom of the existing workings at the mine, which is expected could extend a further 500 metres as orogenic gold deposits tend to characteristically. In addition, the level of production, even at its peak, is significantly lower than the company's target production of 100,000 ounce per annum within five years. That is not to mention contributions from Kochang which are also planned to go into production over this period.

Today, we believe Bluebird offers a highly compelling gold play with a commitment to provide a decent pipeline of news to keep investors fully informed. Management has extensive experience of bringing old mines back on stream with powerful economics due to the attractively lower costs of refurbishing an old mine compared with building a new one. At the same time, no amount of advanced exploration and drilling can ever provide the level of knowledge and comfort that the data from the historic mining of a deposit provides.

At the same time, the company's team are the first people to have stepped into these mines for probably thirty years and can now optimise the economics using modern mining practices, processing, equipment and reagents plus the latest mineralisation models. **In small cap stocks management is key and there is nothing more reassuring for investors than having a company being run by a Board that have proven themselves in a similar previous venture.** The mining team at the helm of Bluebird has a highly successful track record of bringing old narrow vein gold underground mines back to life and unlocking the value. This is the story that is really only just starting to become unveiled in South Korea.

There is currently a lot going on at Bluebird, with the team working on a Feasibility Study for Gubong, Kochang and Taechang which covers the re-opening of these three gold mines. The first Feasibility Study will be on Gubong and is expected to be completed in July 2018. The completion of these studies with more rigorously determined opex and capex will allow us to refine our model moving ahead.

We look forward to being able to revisit our target price as the company moves ever closer to the first gold pour and establishes sustained gold production at Gubong, Kochang and Taechang.

**Accordingly, our coverage of Bluebird Merchant Ventures is initiated with a target price of 11.85p and a Conviction Buy stance.**



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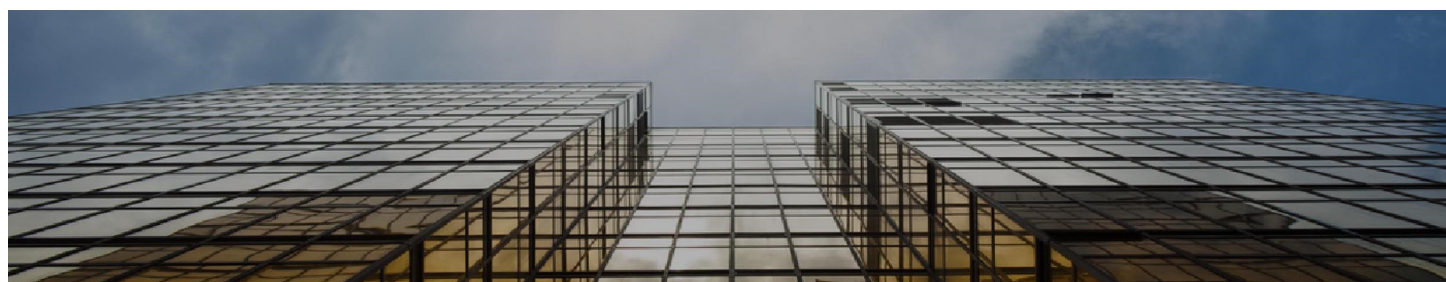
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