

# THE SILVER LINING ON MYANMAR'S MINING INDUSTRY

*How the Bawdwin Project is leading the way, after 600 years of mining*

*Keynote Address, 2<sup>nd</sup> MAESA International Conference, Yangon, Myanmar  
John Lamb, Chairman and CEO*



*Imperial Jade Sponsor 2019*

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This presentation contains “forward looking statements”. Such “forward looking statements” may include without limitation: estimates of future earnings, the sensitivity of such earnings to metal prices and foreign exchange rate movements; estimates of future metal concentrate production; estimates of future cash costs; estimates of future cash flow, the sensitivity of such flows to metal prices and foreign exchange rate movements; statements regarding, future debt payments; estimates of future capital expenditure; estimates of reserves, resources and statements regarding future exploration results.

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The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the ‘JORC Code’) sets out minimum standards, recommendations and guidelines for Public Reporting in Australasia of Exploration Results, Mineral Resources and Ore Reserves. The Information contained in this announcement has been presented in accordance with the JORC Code.

The information in this report that relates to Geology and Exploration Results is based, and fairly reflects, information reviewed and compiled by Mr Andrew Ford, who is a Member of the Australian Institute of Mining and Metallurgy. Mr Ford is an employee of Myanmar Metals Limited. Mr Ford has sufficient experience which is 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 2012 Edition of the ‘Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves’. Mr Ford consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Mineral Resources is based, and fairly reflects, information compiled by Mr Serikjan Urbisnov, who is a Member of the Australian Institute of Geoscientists. Mr Urbisnov is a full-time employee of independent, resource industry consultancy CSA Global Pty Ltd. Mr Urbisnov has sufficient experience which is 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 2012 Edition of the ‘Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves’. Mr Urbisnov consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Ore Reserves is based on, and fairly reflects, information compiled by Mr Daniel Grosso and reviewed by Mr Karl van Olden, both employees of CSA Global Pty Ltd. Mr van Olden takes overall responsibility for the Report as Competent Person. Mr van Olden is a Fellow of The Australasian Institute of Mining and Metallurgy and has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking, to qualify as Competent Person in terms of the JORC (2012 Edition). The Competent Person, Karl van Olden has reviewed the Ore Reserve statement and given permission for the publication of this information in the form and context within which it appears.

## REFERENCES TO ORE RESERVES, MINERAL RESOURCES AND PRE FEASIBILITY STUDY (PFS)

Ore Reserve estimates are reported in accordance with the JORC Code 2012 Edition as announced on 6 May 2019. Myanmar Metals Limited confirms that it is not aware of any new information or data that materially affects the Ore Reserve information included in the market announcement dated 6 May 2019 and, in the case of estimates of Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The cut-off used for the determination of Ore Reserves is a net value per block of ore (net smelter return).

Mineral Resource Estimate reported in accordance with the JORC Code 2012 Edition as announced on 8 August 2019. Myanmar Metals Limited confirms that it is not aware of any new information or data that materially affects the Mineral Resource information included in the market announcement dated 8 August 2019 and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. A 0.5% Pb cut-off above 750m RL, 2% Pb below 750m RL has been used for the 100.6 Mt Indicated and Inferred Resources and the 42.4 Mt Indicated Resource. The high grade 47Mt Indicated and Inferred Resources has a global cut-off of 2% Pb.

The PFS was announced on 6 May 2019. Myanmar Metals Limited confirms that it is not aware of any new information or data that materially affects the PFS information included in the market announcement dated 6 May 2019 and, in the case of the PFS, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

# It's time.

- Myanmar is enormously prospective, has a great mineral endowment...but little modern exploration so far.
- **New regulatory framework brings certainty**
- **Government values transparency, consistency and the rule of law**
- **National appetite to kick-start development and investment in the minerals sector**

HEARTBEAT OF THE NATION  
**MYANMARTIMES**  
THURSDAY, OCTOBER 31, 2019

## Government seeks to get ball rolling on mining investments

CHAN MYA HEWE 29 OCT 2019



Miners and buyers check a Jade stone at the HpaKant jade mining area, Kachin State, northern Myanmar. Photo - EPA

Myanmar will boost efforts to seek more foreign investments in the resource sector in 2020. Due to the refugee crisis in Rakhine over the past two years, some western countries have been hesitant to invest in the country. To address this, the government launched a 20-year Myanmar Investment Promotion Plan (MIPP) with a "Look East Policy". However, investments under the plan have not met up with expectations. Currently, investments from Asian countries come mainly from China, Singapore, Thailand, South Korea, and Hong Kong. Western investments have been minimal and mainly in oil and gas and mining. The current situation makes 2020 a good year to boost foreign investments into the country's resource sectors, said U Thaung Tun, Union Minister of Investments and Foreign Economic Relations. "Based on the proposals we have received, we hope to achieve a potential record-high next year. With proper planning, our country will see a massive influx of foreign investment," U Thaung Tun said.

# Re-inventing the Minerals Sector

## What it takes to make the change:

1. Foreign expertise and investment
2. The right values:
  - Transparency and honesty
  - Environmental Care
  - Community engagement and involvement
  - Safety at work and at home
  - Technical and operational excellence
3. Design to succeed – profitable, safe, modern, long-life mines
4. Willingness to share the success with the nation and the community

Industry and government must work hand-in-hand to ensure responsible and successful development of Myanmar's mineral wealth



## What we need to enable the change:

- Clear, consistent government policy
- Willingness to remove red tape
- Equitable fiscal arrangements for mines
- An “open for business” attitude
- Regional Peace and Stability

# Welcome to Bawdwin



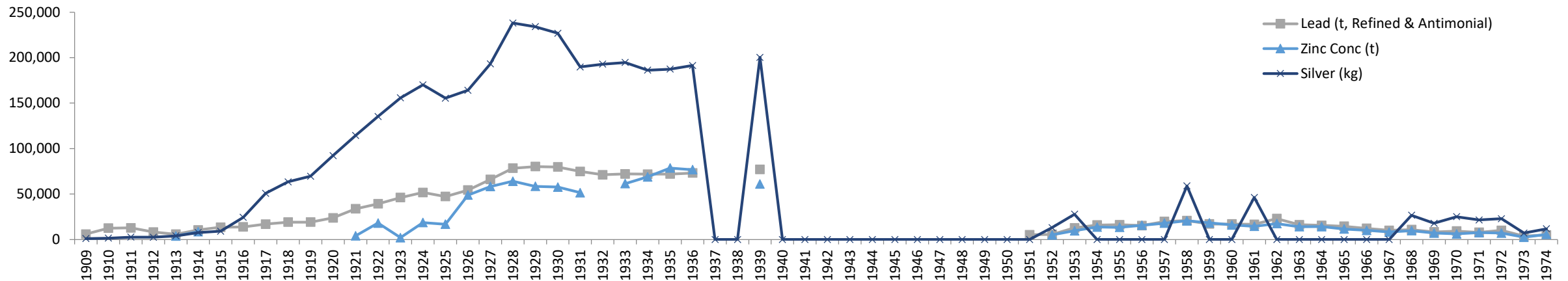
# Some 600 years ago, the Shan Kings and the Ming Emperors fought for a “Silver City” called Bawdwin

## Historically Asia’s biggest silver-lead-zinc producer

- Chinese mining dates back to 1420, Shan people earlier
- British–era production commenced in 1909 under Herbert Hoover
- Peak annual output (c. 80kt Pb, 64kt Zn conc. and 7.4Moz Ag) late 1920’s
- Exceptional historical mined grades of approximately 50% Zn equivalent in the 1930’s (14% Zn, 23% Pb, 1% Cu and 670 g/t Ag)<sup>1</sup>
- Mill destroyed in WWII
- Bawdwin JV now positioned to restart this globally important mine



*Bawdwin Lead, Silver and Zinc Production (1909 -1975)<sup>1,2</sup>*



# Flagship of Myanmar's New Mining Industry

- **Bawdwin was once Myanmar's greatest mine and will be again.**
- **New industry paradigm** in which foreign participation is matched with local capability to build and operate mines profitably, ethically and to high environmental and social standards.
- **A Flagship Operation:**
  - Several open pit stages, followed by underground mining
  - Safe, modern processing plant can treat ores from regional mines
  - Opens up a new mining province within 100km radius
  - Built and operated to Australian standards for safety, environmental care and social benefit

**Bawdwin will be the silver lining on Myanmar's resurgent minerals sector**

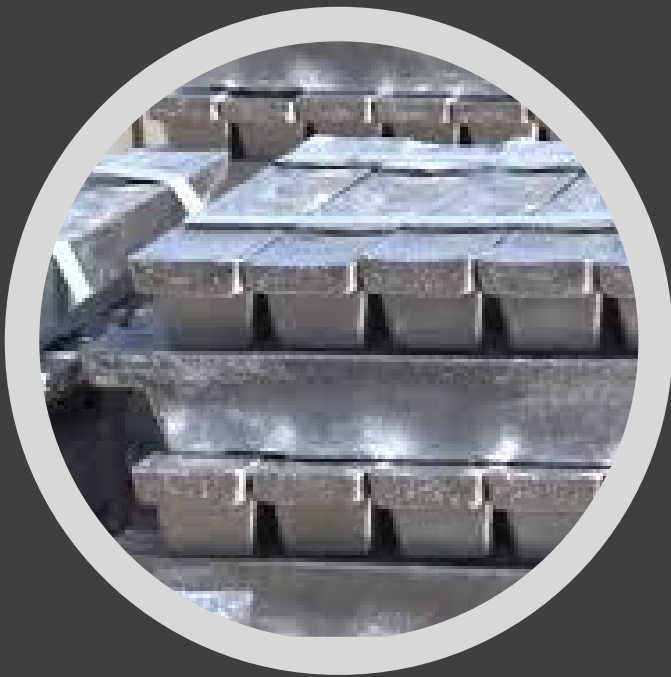


# Flagship of Myanmar's New Mining Industry



- Already >100Mt in JORC 2012 resources and growing <sup>3</sup>
- Set to become **world's 3rd largest producer of lead** and 9th largest producer of silver when production re-starts in 2022 <sup>4</sup>
- Located 400km by road from smelters in Yunnan province on the OBOR corridor
- MYL and its partners are bringing Australian mining practices, international standards and local know-how to bear on this world-class deposit





**Our Metals:**  
Primarily Silver and Lead...  
...with zinc, copper, nickel  
and cobalt

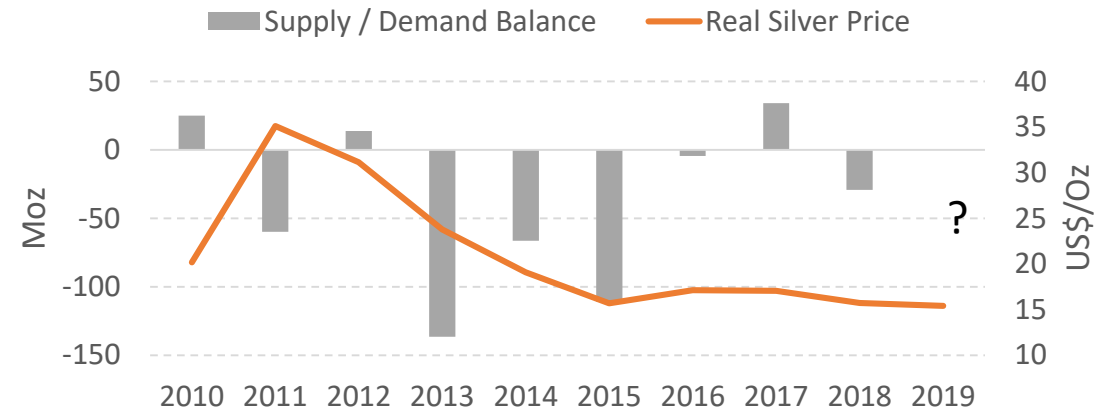


# Strong Outlook for Silver

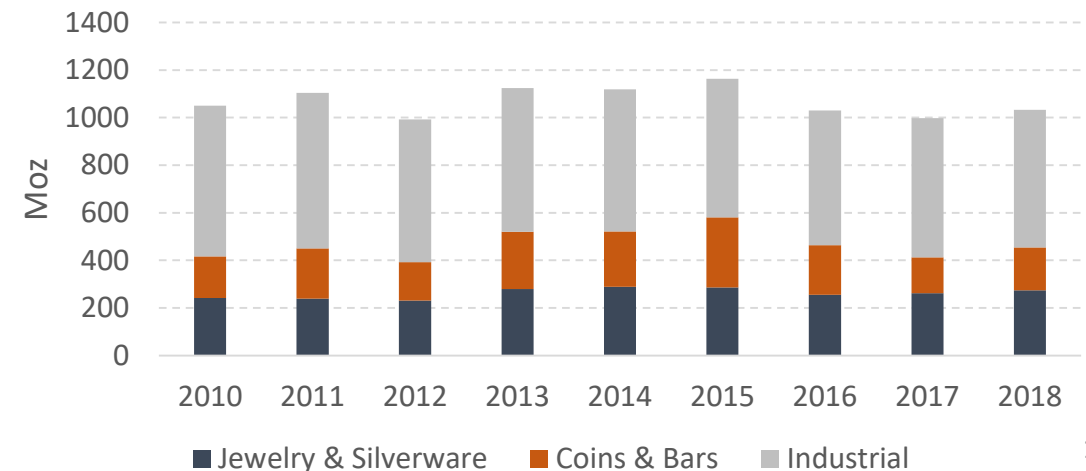
## Silver price is starting to react to physical deficit and market conditions

- Silver demand grew 4% in 2018
- Physical market is in deficit as is the market for exchange traded silver products
- Industrial demand is supported by long term growth in electronics and electrical products and more recently rapid growth in the solar industry
- Growth in silver demand for coins and bar was 21% in 2018. Demand in jewellery has also remained strong
- On supply side, mine production has fallen each of the past 3 years
- The elevated gold / silver ratio (1 oz Au / 89 oz Ag) and its potential for mean reversion (1oz of Au / 67oz Ag) is a significant catalyst for silver prices.<sup>6</sup> At spot gold prices (US\$1,500/oz) a mean reversion would result in silver prices of over US\$22/oz

Physical Silver Surplus / Deficit <sup>5</sup>



Physical Silver Demand by Application <sup>5</sup>

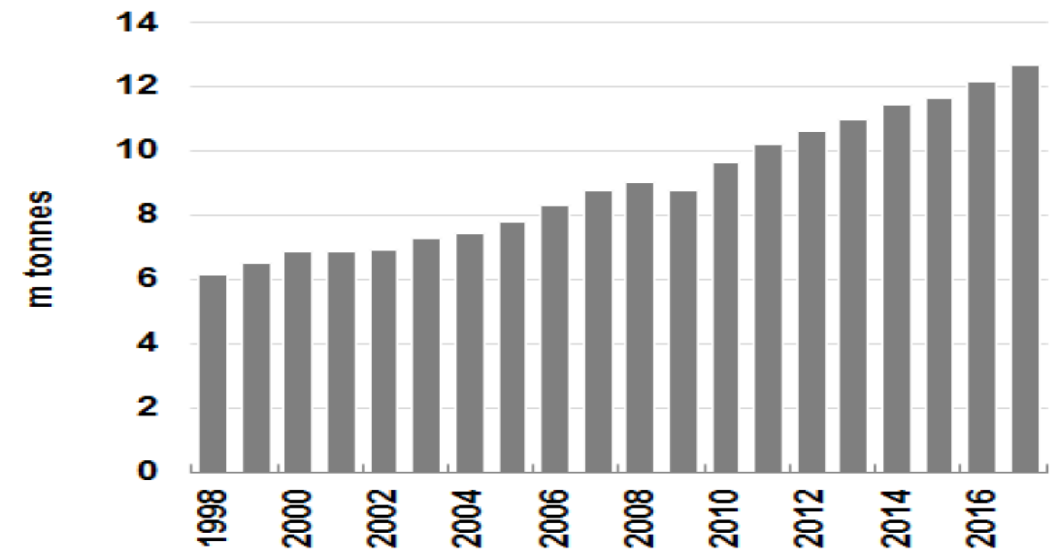


# Lead – Battery Metal for the Developing World

## Strong demand underpins a robust outlook for lead

- Lead demand has experienced a compound annual growth rate of 4% p.a. for the 20 years to 2017. Growth in demand has largely originated in China<sup>7</sup>
- Lead demand is driven by growth in lead-acid batteries: lead is the cheapest, most robust and most successfully recycled way to store electricity where weight is not a concern
- The developing world is expected to rely on cheap, modular and readily accessible lead acid batteries for energy storage
- Every automobile, electric or otherwise, contains a lead-acid battery to run the 12V system
- Lead production from Bawdwin's starter pit would place Bawdwin within the Top 3 global producing lead mines in the world<sup>4</sup>

World Lead Demand <sup>7</sup>



*The engine bay of a Nissan Leaf – note the lead-acid battery centre bottom (image: autonews.uk.com)*

# The Bawdwin Joint Venture, and our plan to restart Asia's greatest silver mine...



# Bawdwin Joint Venture (BJV)

## Collaborative 3-way JV between one Australian and two Myanmar companies

<p><b>Myanmar Metals Limited</b></p>	<ul style="list-style-type: none"> <li>ASX-listed explorer and mine developer</li> <li>Market cap ca. A\$70 million</li> <li>Major shareholder Perilya Limited</li> <li>Market-facing partner with technical and commercial lead role</li> <li>51% ownership</li> </ul> 
<p><b>(EAP) EAP Global Mining Company Limited</b></p>	<ul style="list-style-type: none"> <li>Operator of the high grade Longh Keng zinc mine and the Lashio zinc refinery in Myanmar via Cornerstone Resources Myanmar</li> <li>Also owns and operates a manganese mine and a coal mine in Myanmar</li> <li>Strong affiliation with EAC<sup>8</sup>, one of Myanmar's largest industrial conglomerates</li> <li>24.5% ownership</li> </ul>
<p><b>(WMM) Win Myint Mo Industries Co., Ltd</b></p>	<ul style="list-style-type: none"> <li>Mining subsidiary owned by NIHC<sup>9</sup>, a leading private Myanmar conglomerate that employs over 4,000 employees across 13 subsidiaries</li> <li>Major infrastructure focus includes roads, energy, retail, logistics and property related activities</li> <li>Existing partnerships in Myanmar with global leaders such as Wilmar and CNPC</li> <li>Current holder of the Bawdwin Concession</li> <li>24.5% ownership</li> </ul>





- **Our Goal** is to develop and operate a **modern, safe, profitable, long-life** mining and processing operation at Bawdwin
- **We will apply leading international practices** to ensure the project is technically and economically viable while also delivering **excellent social and environmental outcomes**
- **Six Point Plan for Success:**
  - Preserve history
  - Support community
  - Inspire youth
  - Protect environment
  - Value people
  - Excel in our craft



# Preserve History

The Bawdwin JV Partners will establish a museum at Namtu to preserve the iconic colonial features of the Bawdwin Mine and build a local tourism industry

# Support Community

- Bawdwin JV will improve community outcomes through education and training, job opportunities, improving infrastructure, business development and social investment programs
- We support schools, charities and community organizations
- We are already improving lives: for the first time in decades there are doctors stationed at Bawdwin, and for the first time in history there is an ambulance







# Inspire Youth

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Bawdwin JV already employs six Myanmar-trained graduate geologists, we have trained and employed local young people and we are teaching a new generation of children about responsible mining



# Protect Environment

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- MYL and its partners in the Bawdwin JV have spent in excess of US\$2 million completing an environmental and social impact assessment to international standards
- Our environmental management plan assures that our activities are controlled and monitored to avoid environmental harm
- Our license conditions ensure that funds are set aside for ongoing environmental management throughout the mine life, as well as proper mine closure at the end





## Value People

- BJV and its supplier companies have trained over one hundred people already for new jobs
- Many have earned certificates proving their new skills
- We value the safety of our people above all. We train our people in risk assessment, safe working practices and first aid



## Excel in our Craft

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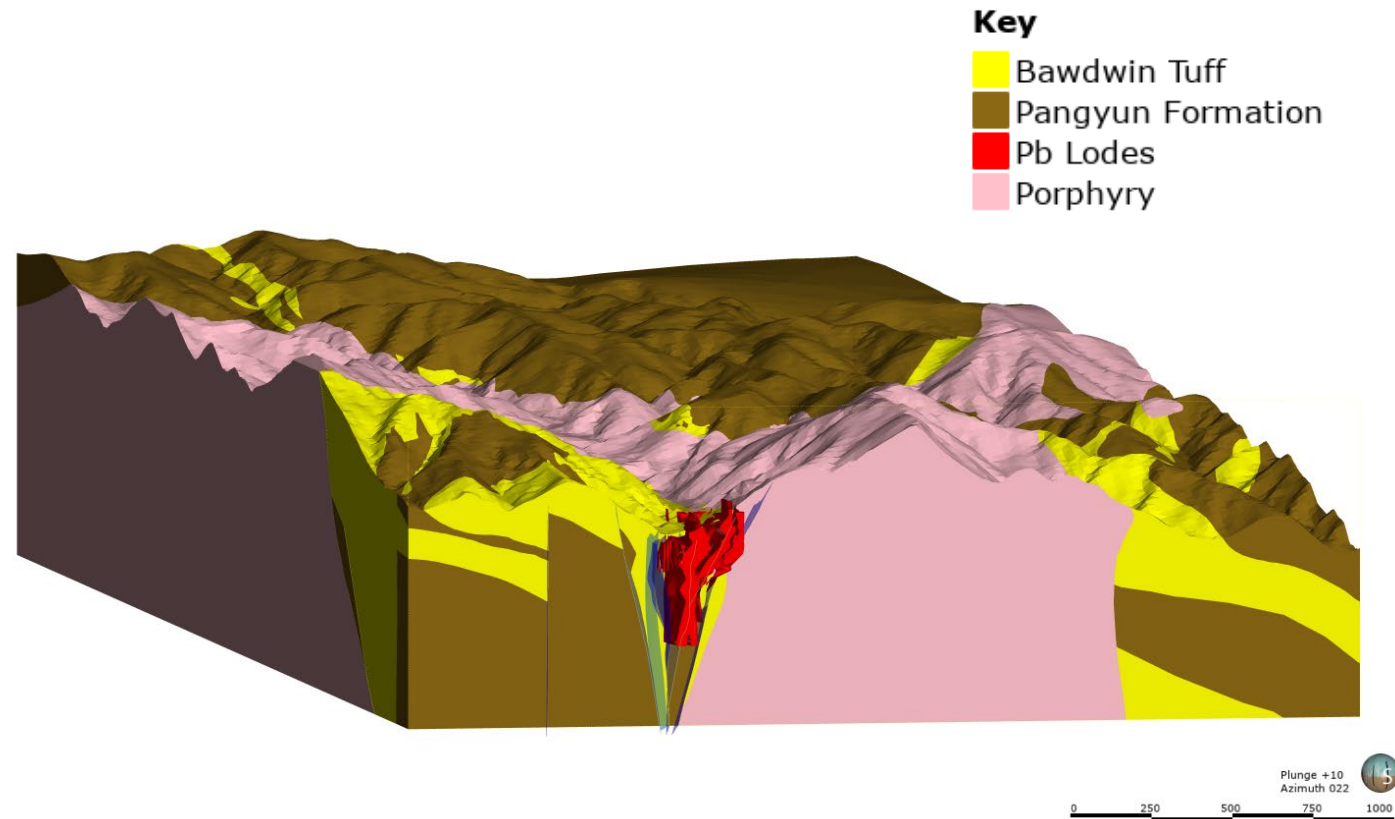
- Bawdwin JV applies high international standards of technical practice and reports under JORC-2012, the Australian code for mineral resource and reserves
- We apply the latest technology and innovations in our work and engage international experts in geology, metallurgy, geotechnical engineering, hydrology, mine design, civil engineering, process design, environmental management and safety.

# Geology and Resources



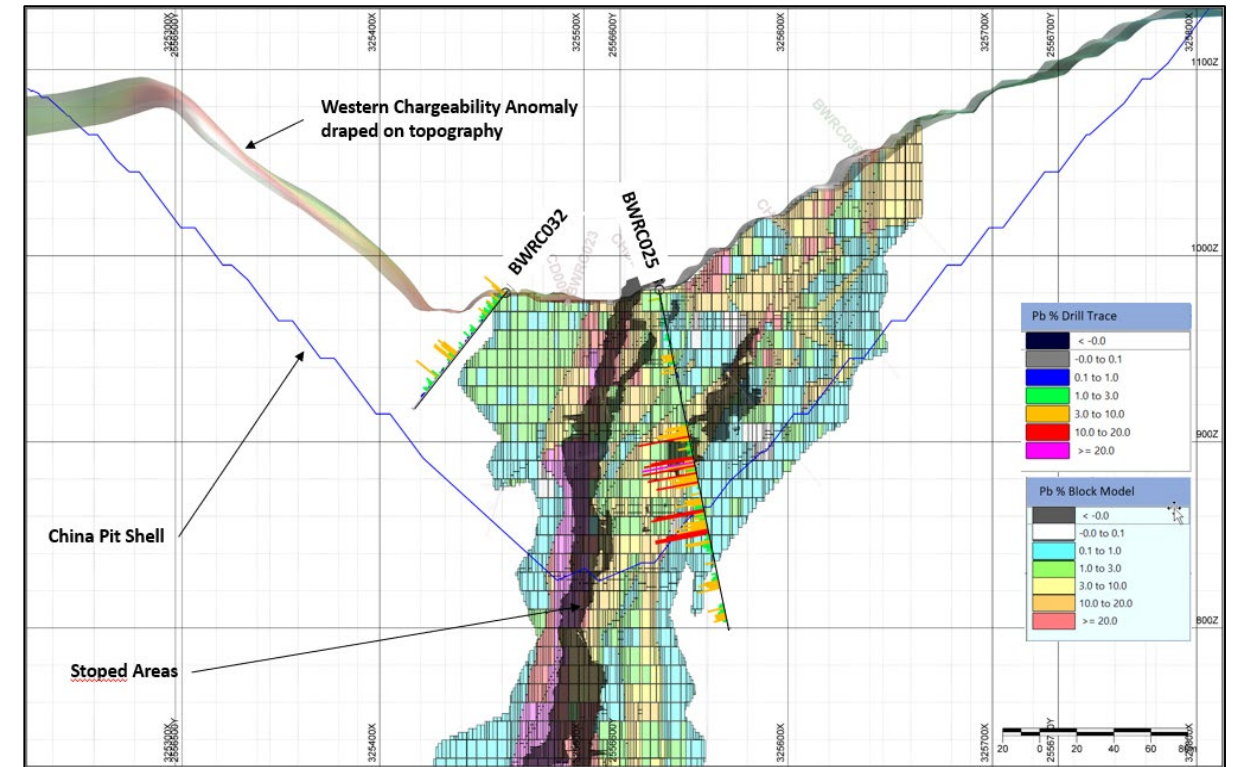
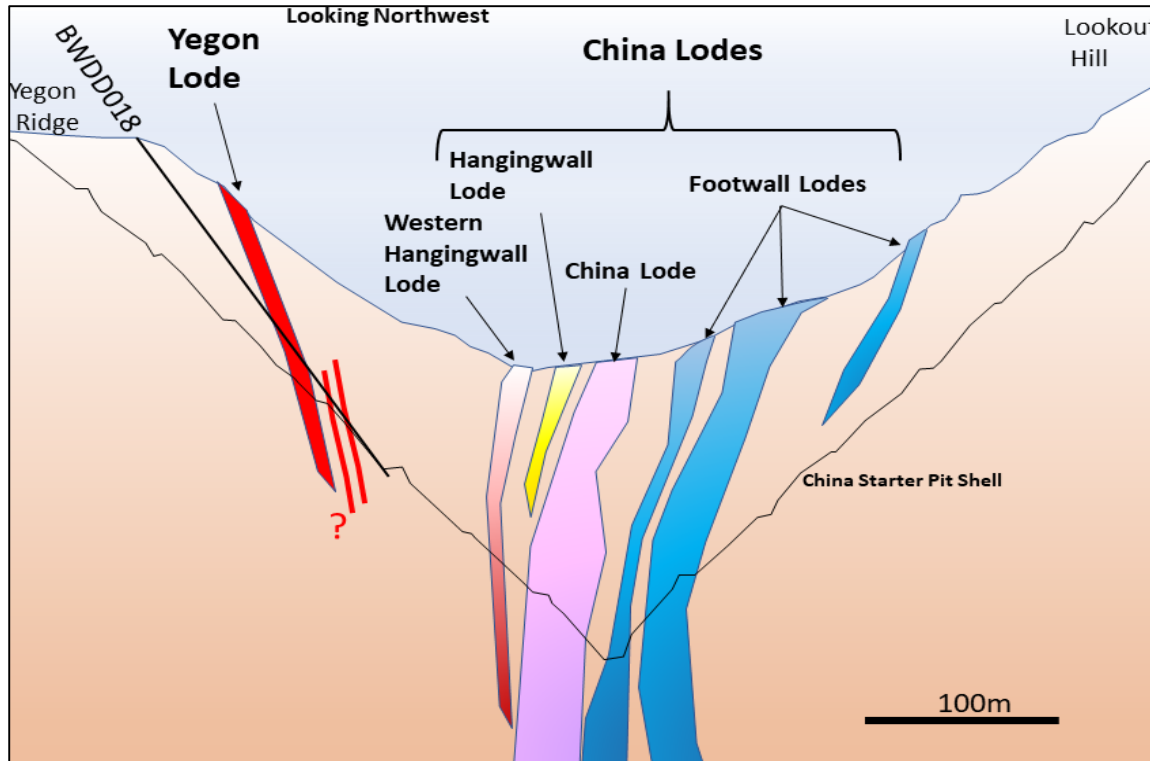
- Structurally controlled with thick polymetallic lenses - Both massive sulfide and disseminated halo mineralization styles
- Lodes occur within highly altered Bawdwin Tuff which hosts extensive low-grade stockwork as well as high-grade massive sulphide lodes along structures
- Central part of the mineralised system is approx. 2 km in length by 400 m width, with ancient workings over a strike length of about 3.5 km
- The Bawdwin deposit is interpreted as a structurally-controlled magmatic-hydrothermal replacement deposit emplaced within a rhyolitic volcanic centre

*Oblique cutaway view looking northwest of the main Bawdwin deposit showing key structures and host formations*



# Multiple parallel bodies within each lode

China, Meingtha and Shan are all comprised of many parallel lodes

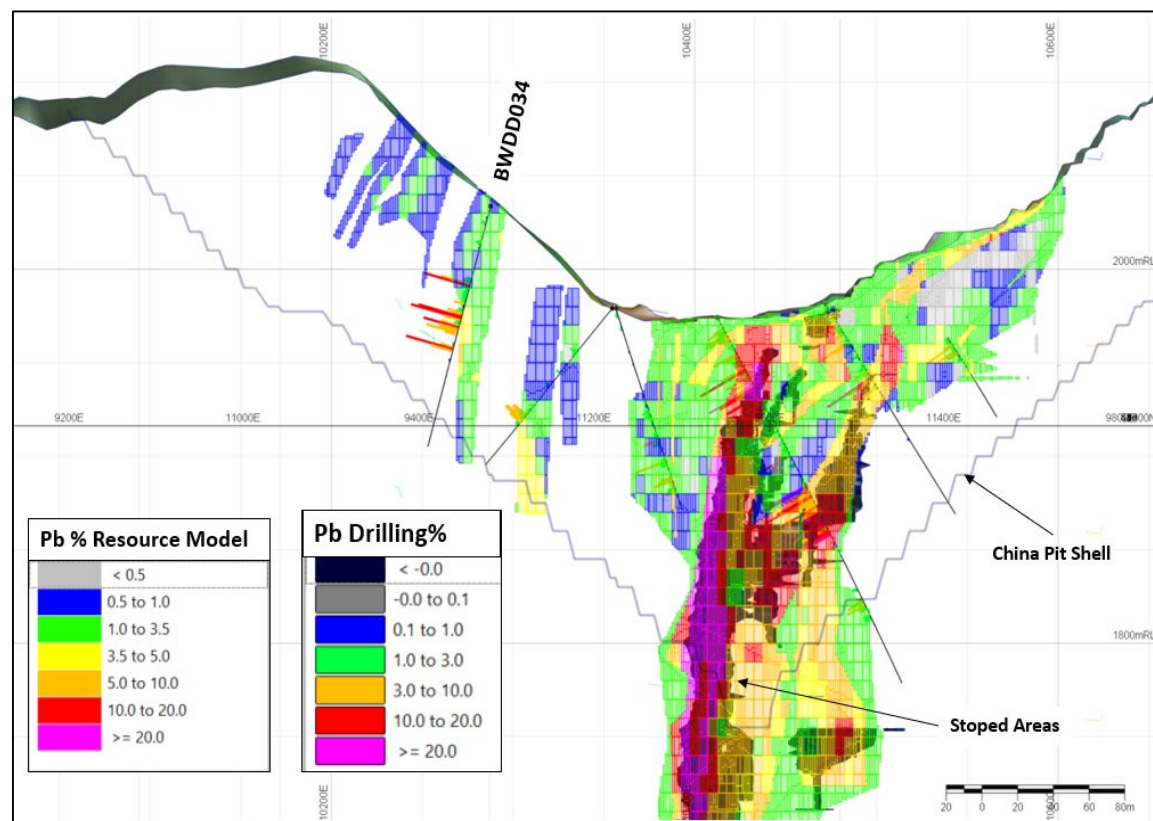


- Both hangingwall and footwall lodes have emerged in recent drilling
- Economic mineralisation in many steeply-dipping, stacked lodes over 300-400 metres stretching from ultimate HW to ultimate FW
- Historical mining focused on very high-grade lodes only, leaving most untouched

# JORC Ore Reserves & Mineral Resources

The Bawdwin deposit continues to grow and now ranks among the largest polymetallic resources globally.

Cross section (looking grid north) showing resource block model coloured for lead grade and recent drillhole BWDD034 on Yegon Ridge



Ore Reserves & Mineral Resources<sup>3</sup>

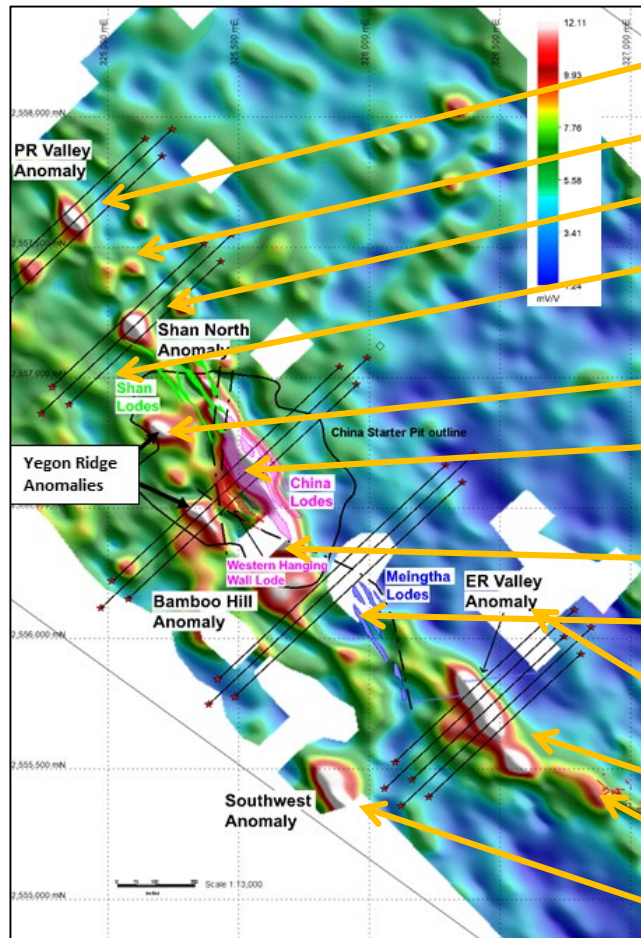
Classification	Tonnes	Pb Grade	Ag Grade	Zn Grade	Cu Grade
	(Mt)	(%)	(oz/t)	(%)	(%)
Proved	-	-	-	-	-
Probable	18.4	6.4	5.4	3.4	-
<b>Total Ore Reserves</b>	<b>18.4</b>	<b>6.4</b>	<b>5.4</b>	<b>3.4</b>	<b>-</b>
Indicated	42.4	4.0	3.2	2.0	0.2
Inferred	58.2	4.1	3.1	1.8	0.2
<b>Total Mineral Resources</b>	<b>100.6</b>	<b>4.0</b>	<b>3.1</b>	<b>1.9</b>	<b>0.2</b>

High grade core of 47.0Mt @ 7.4%Pb, 2.8%Zn, 163g/t Ag



# Bawdwin Mineral Field Exploration Program

Multiple resources and targets over 10km strike length



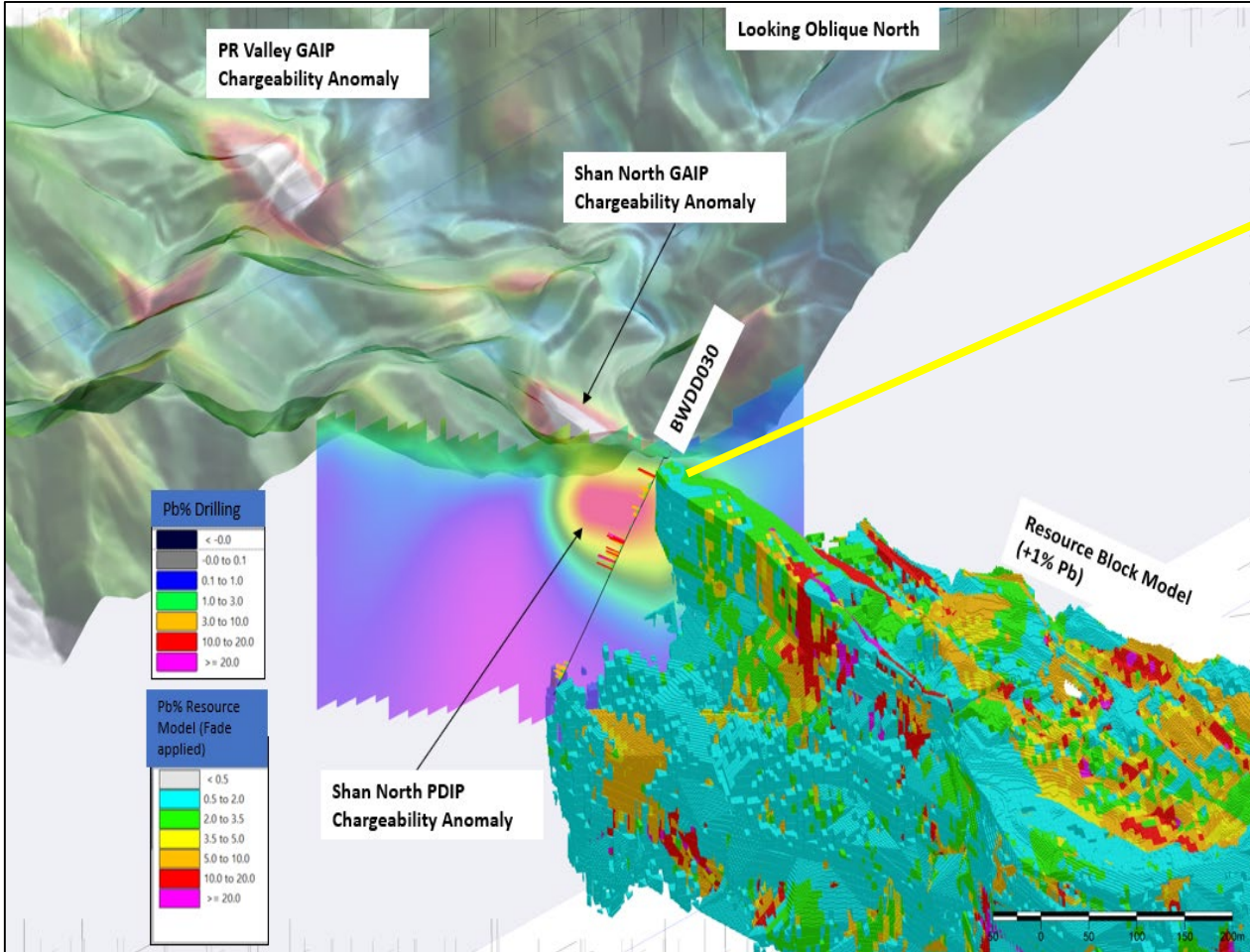
- PR Valley: Exploration target
- Chin South: Exploration target, historical resource
- Shan North: Discovery confirmed June 2019**
- Shan Lode: Current resource: 31Mt at 4.7% Pb, 2.2% Zn, 0.2% Cu and 107 g/t Ag including some high-grade zinc zones**
- Yegon Ridge: Discovery confirmed Dec 2018, step-out drilling underway**
- China Lodes: Current resource: 40Mt at 4.7% Pb, 2.3% Zn, 0.2% Cu and 107 g/t Ag Multiple lodes defined 2018 with new resource estimate pending**
- Meingtha gap: Mineralisation defined in Q4 2018 – 9Mt added**
- Meingtha Lode: Current resource: 29Mt at 2.5% Pb, 1.0% Zn, 0.2% Cu and 72 g/t Ag Including some high-grade copper zones**
- Mount Teddy Exploration target: Gossan discovered, soil anomaly, historical adit
- ER Valley: Discovery confirmed Mar 2019, step-out drilling planned for 2020**
- Pangyun Junction: Exploration target for drilling 2020
- SW Anomaly: Exploration target

Soil sampling, two geophysical surveys and 26,800m of drilling now completed on site

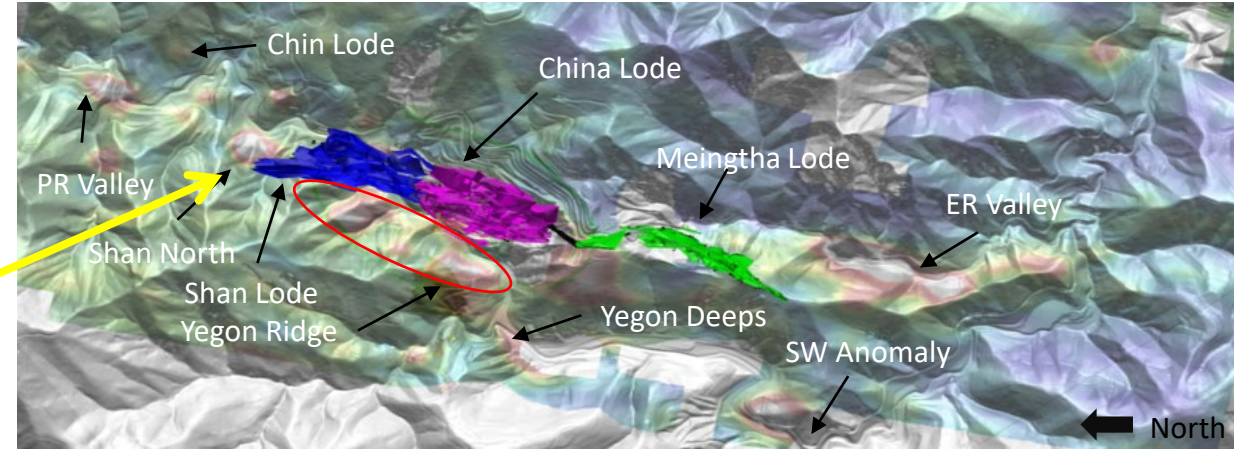
# Case Study: Shan North Discovery

Illustration of our exploration methodology – 100% success rate to-date:

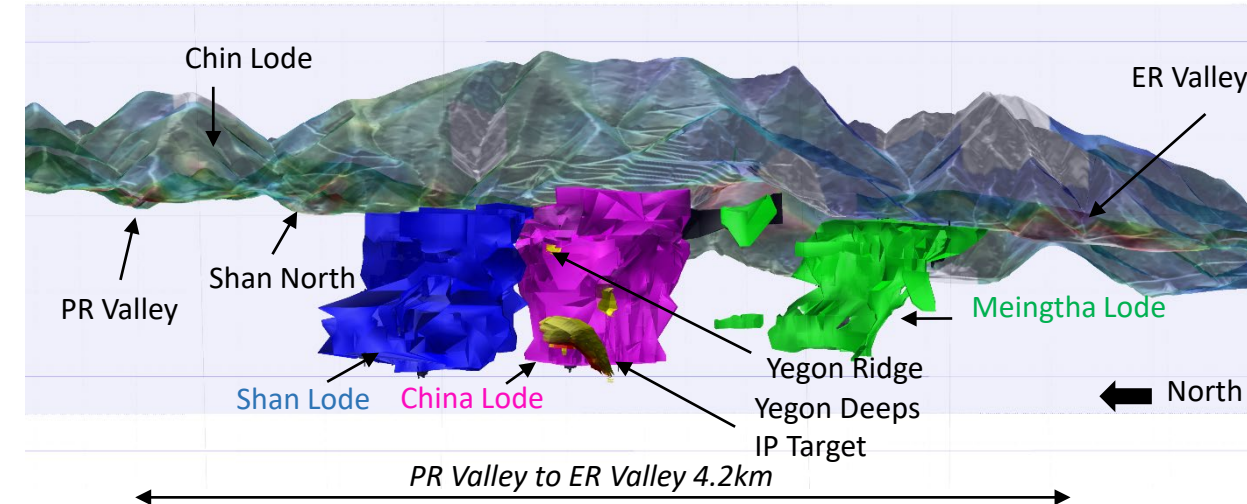
Oblique cutaway view showing topography, GAIP anomalies, block model and discovery hole.



Plan view of lodes and targets



Longitudinal section of lodes and targets



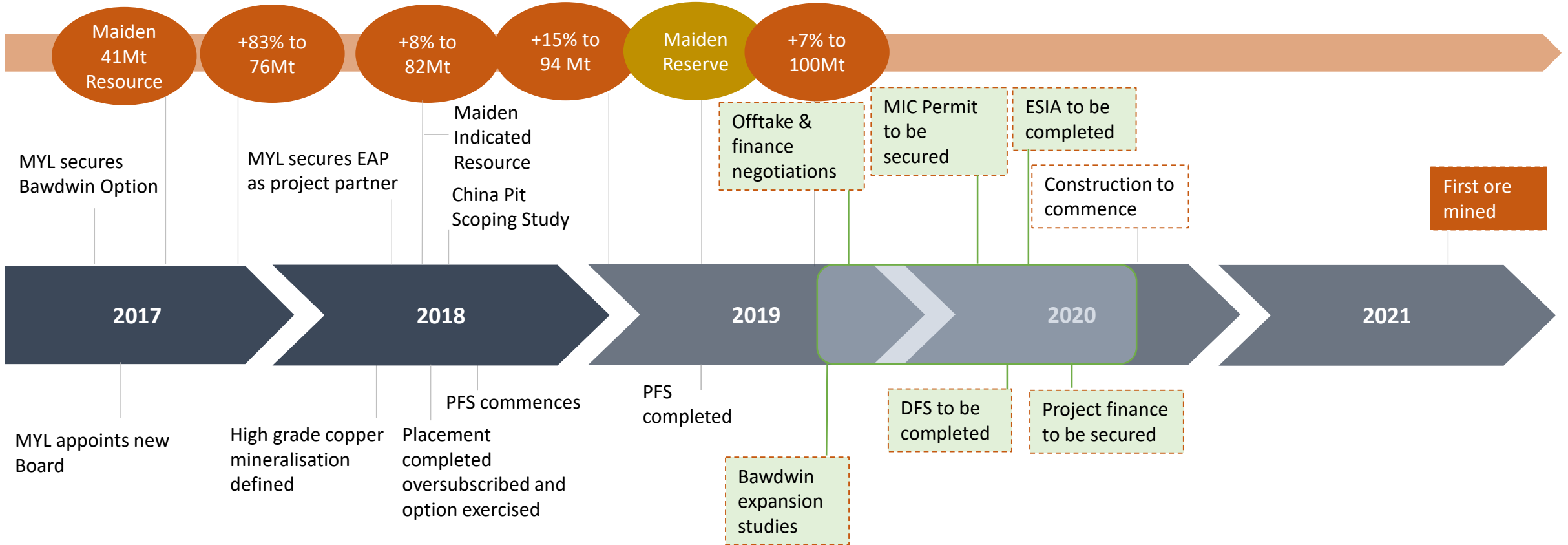
# Bawdwin Development Plan



# Project Timeline

Key 9 months in which the value-accretive milestones will be delivered

## Bawdwin Resources<sup>3</sup>

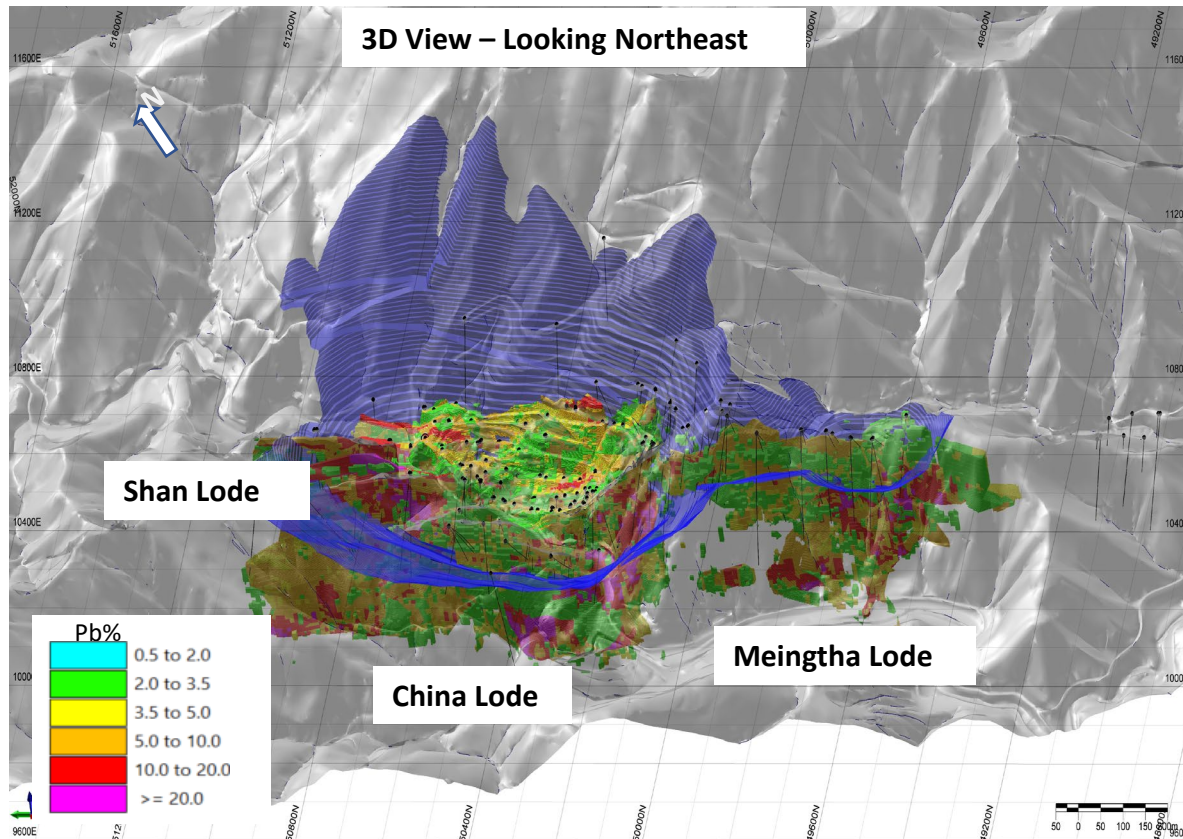


Exploration program operates throughout, discovering additional resources at local sites

# Bawdwin Starter Pit

Starter Pit focuses on the central China Lode and will be mined down to 220 metres below the current valley floor for an initial 13-year mine life

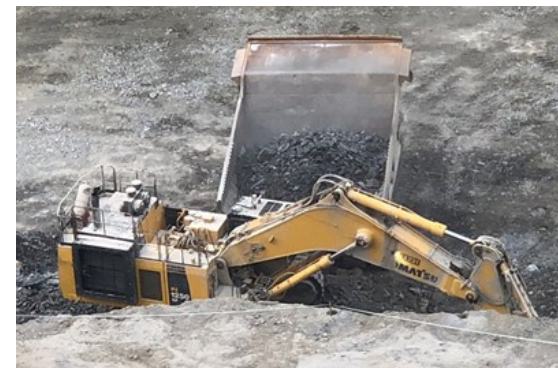
*Wireframe of the Entire Bawdwin Mineral Resource Deposit*



## Commentary

### Starter Pit <sup>10</sup>

- Conventional drill, blast, load and haul mining operation
- Mining commences 2021, first concentrate 2022
- 13-year life at 2Mtpa grading 6.4% Pb, 3.2% Zn, 168g/t Ag
- Fleet sized to suit the location, access and production rate
- \$300 million up-front capex, payback 4 years
- Followed by open pit and underground mining operations.



*Example fleet. Phu Kham Mine, Laos*

# Modern plant and logistics

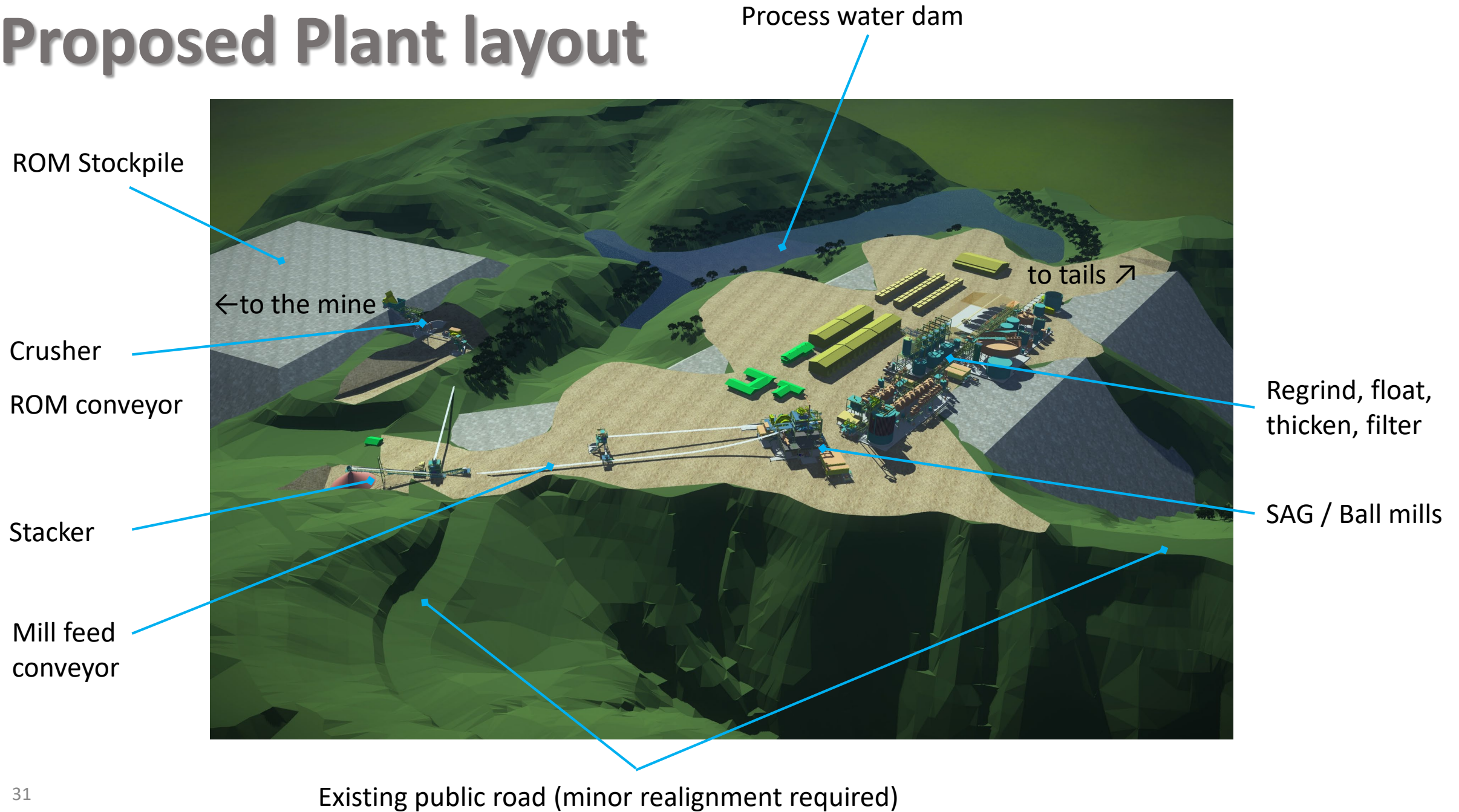
## Planned 2.0 Mtpa processing facility to produce 2 concentrates, up-scale possible

- Modern flotation and filtration plant
- Sulphide flotation plant to produce:
  - Zinc concentrate (ca. 93ktpa)
  - Lead, silver concentrate (ca. 196ktpa)
- Secure transport in covered half-height 20' containers by rail and road to Muse for export to China
- Smelters in Yunnan province have provided payability estimates which are internationally competitive <sup>10</sup>
- Offtake unencumbered and uncommitted at this stage

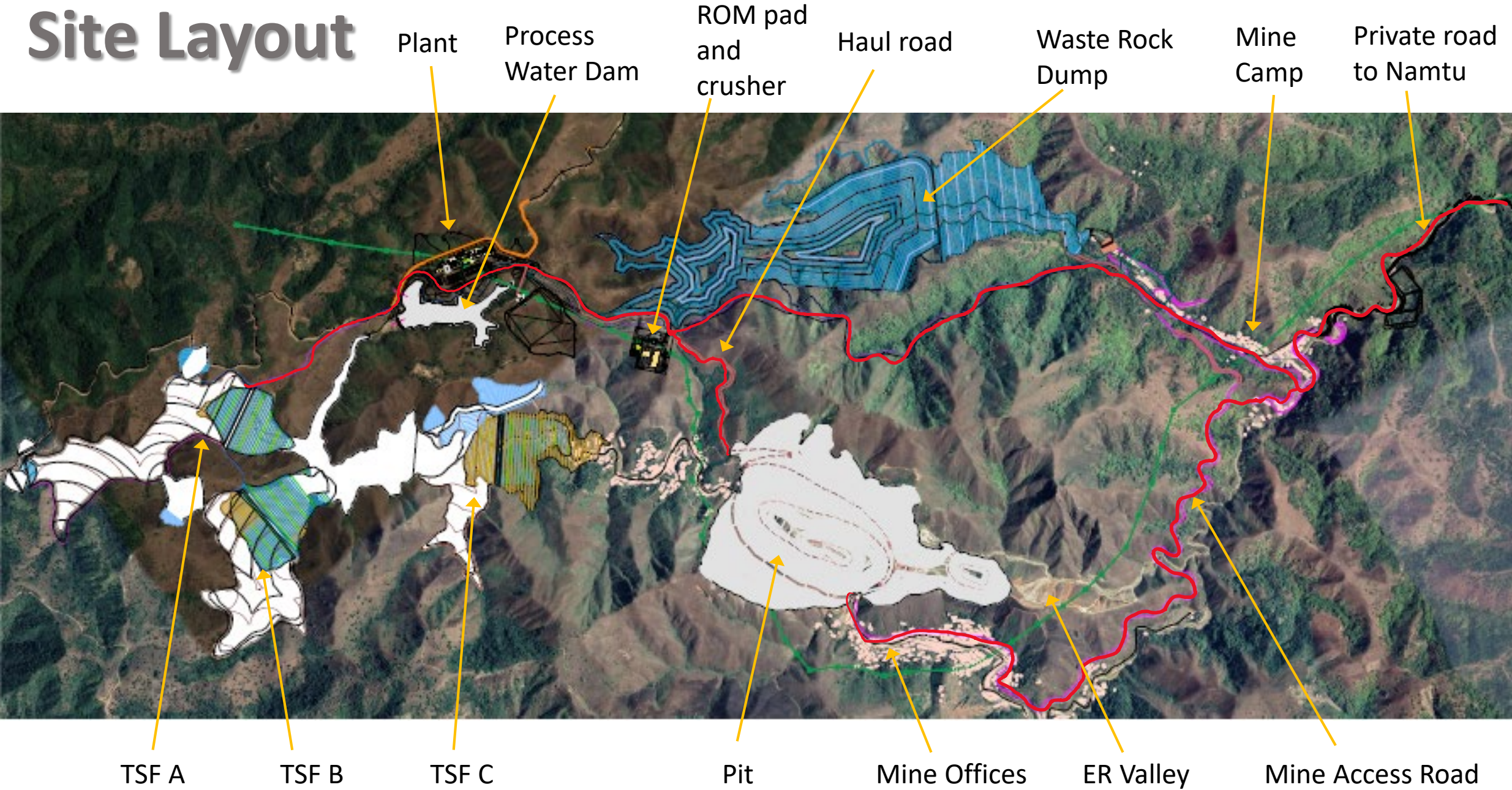


Example facilities – Phu Bia Mining Limited, Laos

# Proposed Plant layout



# Site Layout





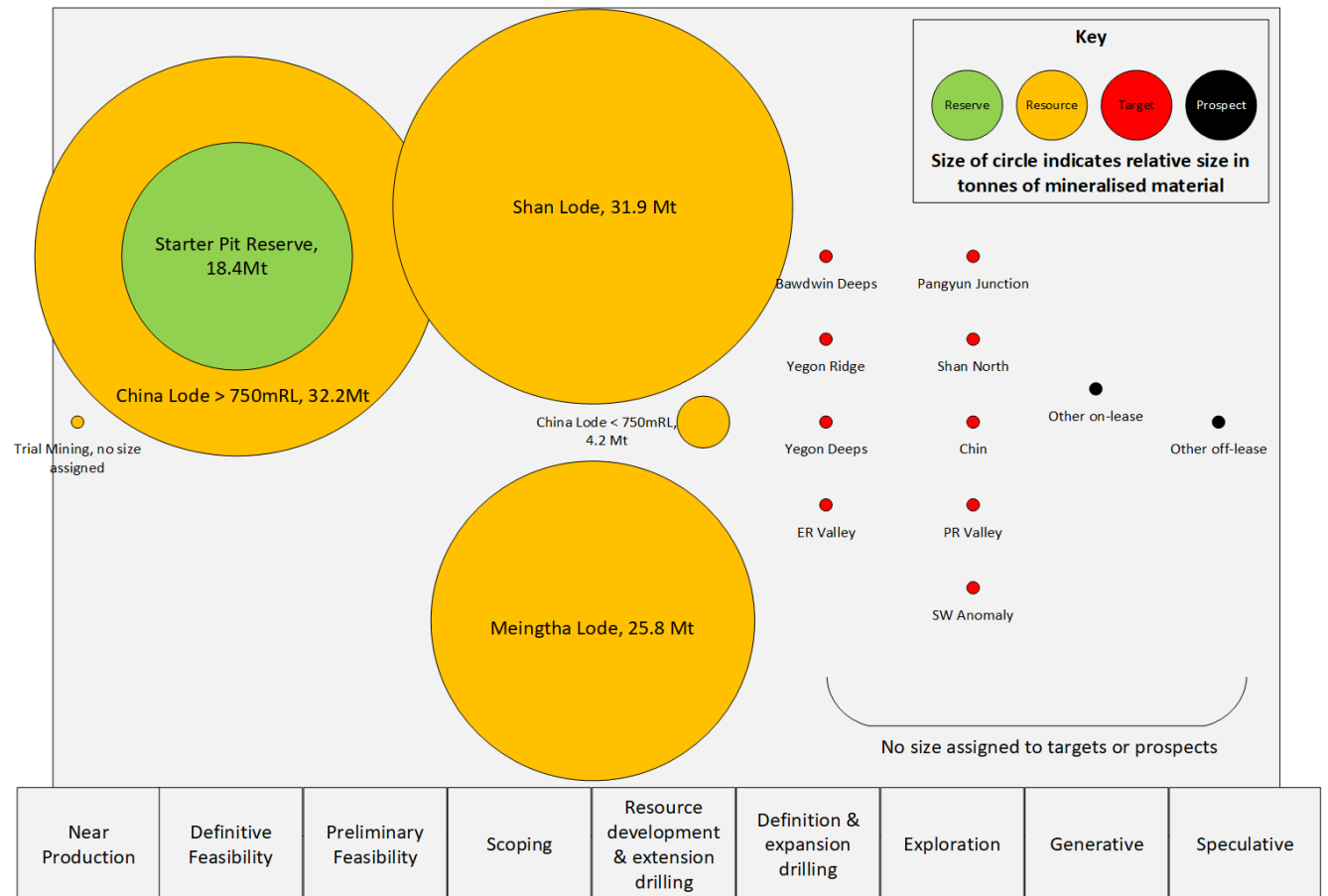
# Bawdwin Project Pipeline

A full project pipeline has been developed at Bawdwin

■ **Foundations for a long-life mining operation:**

- The 13-year Starter Pit is Phase 1 of mining operations at Bawdwin
- Phase 2 will target the un-mined mineral resources of the China, Shan and Meingtha Lodes
- Appraisal programs will define the mineral resources of drill tested targets
- Exploration will test new prospects and leads
- We expect to see many years of mining at Bawdwin

Bawdwin Project Pipeline<sup>3</sup>



# Summary



**MYANMAR**  
METALS LTD

## The silver lining on Myanmar's Mining Industry

- It is time to refresh and reinvent Myanmar's Minerals Sector
- Maintaining peace and stability across Myanmar's mining regions is the most important thing that government can do to enable this change
- Myanmar Metals and our partners have defined a world class resource at Bawdwin of over 100 million tonnes at high grades
- Our goal is to develop and operate a modern, safe, profitable, long-life mining and processing operation
- We will apply leading international practices to ensure the project is technically and economically viable while also delivering excellent social and environmental outcomes
- We have completed a pre-feasibility study and will deliver a final feasibility study in Q1 2020, construction is scheduled to begin in the second half of 2020 and first production in 2022
- Asia's greatest silver mine will lead the way. Bawdwin will again be the silver lining on Myanmar's Mining Industry



*Drill access road to ER Valley*

1. John Brinkman et al., On the Geology of the Bawdwin Lead-Zinc Mine, 1981
2. Khin Zaw, 1990, Mineralogy, ore metal distribution and zonation at Bawdwin Mine, Northern Shan State, Myanmar (Burma); an Ag-rich volcanic-hosted, polymetallic massive sulphide deposit. Geological Society of Australia Abstracts No. 25, Tenth Australian Geological Convention, Hobart, 1990
3. Ore Reserve and Mineral Resource Estimate reported in accordance with the JORC Code 2012 Edition as announced on 6 May 2019 and 8 August 2019, respectively. Probable Ore Reserves are included in the Indicated Mineral Resources. Myanmar Metals Limited confirms that it is not aware of any new information or data that materially affects the Reserve and Resource information included in the market announcements dated 6 May 2019 and 8 August 2019, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. A 0.5% Pb cut-off above 750m RL, 2% Pb below 750m RL has been used for the 100.6 Mt Indicated and Inferred Resources and the 42.4 Mt Indicated Resource. The high grade 47Mt Indicated and Inferred Resources has a global cut-off of 2% Pb. The cut-off used for the determination of Ore Reserves is a net value per block of ore (net smelter return)
4. Based on data sourced from S&P Global Market Intelligence as at 10 April 2019. Information sourced from reported 2018 annual production metrics from project operators.
5. World Silver Survey 2019. GFMS, The Global Silver Institute, Refinitiv. 2019 Silver price is the average spot silver price for the year to 20/8/19
6. Bloomberg Intelligence. Golds Future May Be in Silver's Hands (14/8/19)
7. International Lead and Zinc Study Group
8. Europe and Asia Company
9. National Infrastructure Holdings Company
10. Based on Starter Pit Pre-Feasibility Study, as announced on the ASX 6 May 2019



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