

# **Masan Resources**

Update on Nui Phao Project in  
Northern Vietnam

ITIA September 2012

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# Vietnam

# Vietnam – Key Stats

## Summary

- Population 91 million (2012 est.)
  - 50 million <30 years old, 70% reside in rural areas
  - Labour Force: 46.5 million (2011 est.)
- Government
  - Socialist One Party Republic
- GDP
  - Growth rate: averaged 7.2% last 10 years
  - Principal Exports: crude oil, marine products, agriculture, garments, shoes
  - Main Imports: machinery/equipment, petroleum products, fertilizer, steel products, raw cotton, grain
  - US\$123 billion (2011)
- WTO Member since 2007



# Nui Phao an Ideal Platform for Building Masan Resources

- Vietnamese company with internationally experienced management and local execution team
- Building a US\$2 billion enterprise by end of 2015
- Growth through M&A in the short-term, exploration for the medium to long-term
- We will consider opportunities:
  - Within Vietnam
  - Indochina region
  - Within the industry



# Nui Phao a Unique Asset of Scale That Has Made Significant Progress

## Summary

### Unique Asset

- One of the largest tungsten mines in the world with significant deposits of fluor spar, bismuth and copper
- Polymetallic mine provides exposure to diverse range of commodities

### Location

- Located approximately 80 km by road from Hanoi
- Road and Rail links to Hai Phong and Quang Ninh ports provide convenient methods for transportation of products to rest of the world

### Low Cost Operations

- As a low strip ratio open-pit mine, with 4 product streams Nui Phao will be a low tungsten cost producer.
- Local workforce, supplemented by expatriate supervision with regional experience.

### Significant Progress

- Over US\$300 million already invested into the project<sup>1</sup>
- Validated Geological model, proven and probable reserves, mine plan and flow-sheet
- Plant commissioning scheduled for end of Q1 2013.



<sup>1</sup> As of July, 2012

# Well Defined Resources



# Reputable Firms Have Validated Mineral Resources and Reserves

## Summary

### Resource/Reserve Estimation

- Resource & Reserve re-estimated by Cube Consulting (2011), in accordance with the JORC Code
- 295 holes used for Resource estimation
- In addition to historical drilling from 2000 to 2008 covering approx. 24,000 meters, conducted further in-fill drilling program in 2011

## Ore Resources<sup>1</sup>

Category	Tonnes ('000)	Tungsten (%)	Fluorspar (%)	Copper (%)	Bismuth (%)	Gold (g/t)
Measured + Indicated	65,010	0.20	8.40	0.19	0.09	0.20
Inferred	32,400	0.15	6.40	0.17	0.07	0.14
<b>Measured + Indicated + Inferred</b>	<b>97,410</b>	<b>0.18</b>	<b>7.73</b>	<b>0.18</b>	<b>0.08</b>	<b>0.18</b>

## Ore Reserves

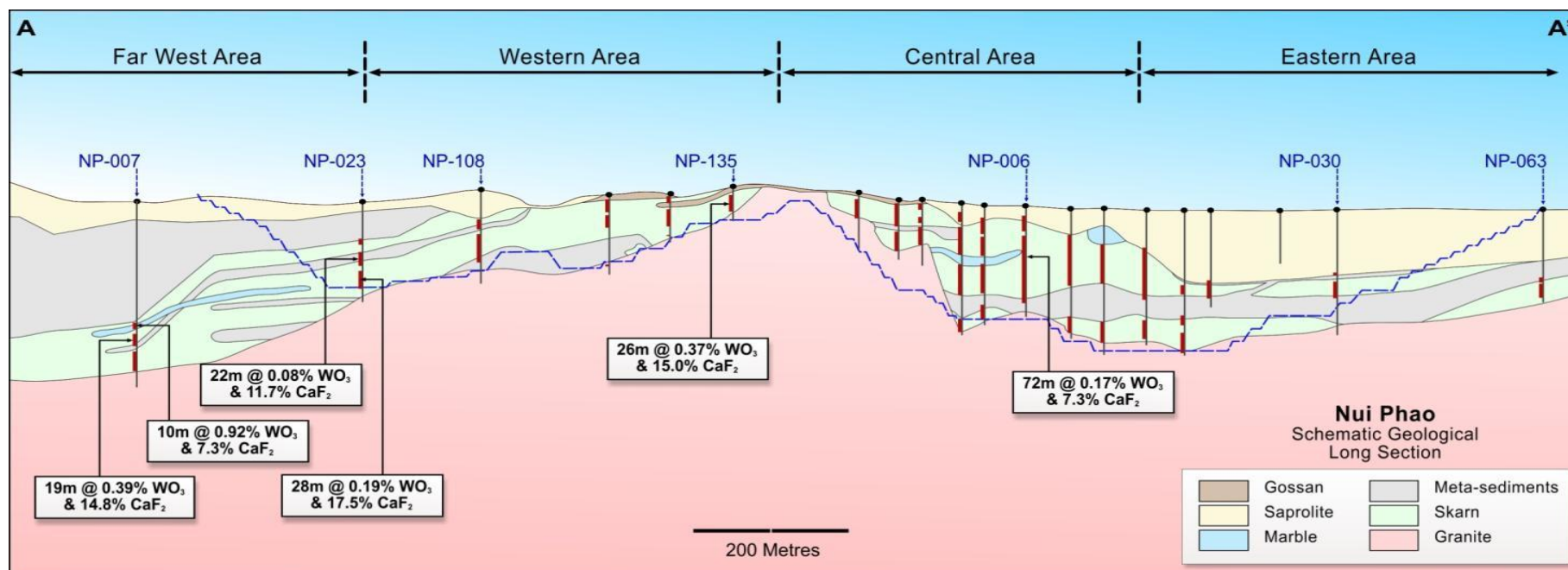
Category	Tonnes ('000)	Tungsten (%)	Fluorspar (%)	Copper (%)	Bismuth (%)	Gold (g/t)
Proven	25,200	0.26	8.31	0.25	0.12	0.27
Probable	27,350	0.17	7.71	0.17	0.08	0.18
<b>Proven + Probable</b>	<b>52,550</b>	<b>0.21</b>	<b>8.00</b>	<b>0.21</b>	<b>0.10</b>	<b>0.22</b>

<sup>1</sup> 0.1% Tungsten equivalent cutoff

# Nui Phao Resource Highlights

## Summary

- Mineralization tested over ~1,600m
- Ore dips ~45° to the north, ore zones vary from 10m - +150m
- Mineralization open to the west, and will be subject to further drilling in 2013



# Key Licenses and Approvals

# Key Licenses and Approvals in Place

Item	Current Status
Investment Certificate	<ul style="list-style-type: none"> <li>■ New Investment Certificate recognizing new ownership and converting Nui Phao into wholly Vietnamese-owned enterprise issued by Thai Nguyen Provincial People's Committee on July 21, 2010</li> <li>■ Investment Certificate valid till 2034</li> </ul>
Mining License	<ul style="list-style-type: none"> <li>■ Mining License re-issued by MONRE on September 21, 2010</li> <li>■ Mining License authorizes the Company to mine the tungsten, fluorite, bismuth, copper and gold resources at the Nui Phao mining area of 90 hectares through open pit mining till 2028</li> </ul>
Environment Impact Assessment (EIA)	<ul style="list-style-type: none"> <li>■ Updated EIA approved by MONRE on March 6, 2008</li> <li>■ 2008 EIA update reaccepted as part of Mining License re-approval</li> </ul>

# World Class Management Team

# Professional Management Team With Extensive Regional Experience

**Mr. Dominic Heaton**  
Chief Executive Officer

- Australian. Responsible for developing Nui Phao and build Masan Resources into a scale multi-asset resource company
- 20+ years of mining experience in Southeast Asia at Placer Pacific, Aurora Gold, Oxiana, OZ Minerals and MMG. General Manager of Sepon, Laos; General Manager of Operations of Martabe, Indonesia

**Mr. Vu Hong**  
Deputy Director General

- Vietnamese. Responsible for all C&R Activities. Has been involved in the Project since working with the Project in an advisory capacity while a World Bank professional in 2004.
- 30+ years of experience, including with the World Bank, working mainly in Southeast Asia on Infrastructure and Development Projects

**Mr. Dale Smith**  
Construction Director

- Australian. Responsible for managing the EPCM contractors and construction of infrastructure under the scope of the owner's team
- 23+ years of mining experience in Southeast Asia, Australia and South Africa with Newcrest, MMG, Placer Dome. Broad experience across all aspects of minerals projects – Operations, Corporate and Project Management

**Mr. Craig Bradshaw**  
Operations Director

- Australian. Responsible for day to day operations
- 15+ years of management experience in Operations, Supply Chain Management, and Finance in Southeast Asia and Australia. Member of Australian Society of CPA's

**Mr. Paritosh Gupta**  
CFO

- Indian. Head of Finance and Accounting, seconded from Masan Group
- Involved with the acquisition of Nui Phao and monitoring post acquisition.
- Previously with Lehman Brothers, experience in M&A and capital raising

**Mr. Russell Griffin**  
Sales & Marketing Director

- Australian. Head of Sales & Marketing team
- Considerable experience developing markets for new mines and expansions in Australia and Southeast Asia with companies including OZ Minerals.

# Financing Secured

# Financing to Build Nui Phao Secured

Item	Details
Equity	<ul style="list-style-type: none"> <li>In December 2010, Mount Kellett Capital Management invested US\$100 mm in Masan Resources for a 20% stake, towards development of Nui Phao</li> <li>Masan Group has committed US\$25 mm towards the development of the project</li> </ul>
VDB Debt Facility	<ul style="list-style-type: none"> <li>In January 2011, Vietnam Development Bank provided a VND2,377 bn (~US\$115 mm<sup>1</sup>) 8-year debt facility</li> </ul>
Commercial Bank Debt Facility	<ul style="list-style-type: none"> <li>In March 2011, a syndicate of local commercial banks led by Vietcombank provided a US\$90 mm 8-year debt facility</li> </ul>
SCB Debt Facility	<ul style="list-style-type: none"> <li>In March 2012, Standard Chartered Bank provided a US\$80 mm 2-year debt facility</li> </ul>

<sup>1</sup> At USD/VND exchange rate of 20,700



# Significant Value Enhancement in Nui Phao Since Acquisition

# Recent History – Progressing Project Development



**Mine site – July 2010**

**July 1, 2010**

Compensation & Resettlement (C&R) process restarted, 3 months ahead of original schedule

**July, 2011**

Earthworks works commenced

**Dec, 2011**

Mining contractor appointed, started pre-strip

**Mar, 2012**

SMP contract awarded.  
Obtained US\$80 mm loan from Standard Chartered Bank

**Nov, 2011**

Concrete works commenced

**September, 2012**

E&I contract awarded

**Mar 31, 2011**

EPSA signed with Jacobs Engineering Group



**Mine site – September 2012**

# Construction

# Design and Construction Under Way

Item	Current Status
Construction Management	<ul style="list-style-type: none"> <li>■ EPSA signed in March 2011 with Jacobs Engineering Group. Engineering design nearing completion.</li> <li>■ In July 2011, commenced self managing construction. Earthworks and concrete works were started. Site works are using a number of international and pre-qualified local contractors</li> <li>■ In Dec 2011, Vietnamese mining contractor was appointed and pre-strip was started</li> <li>■ In Mar 2012, SMP contract was awarded, in Apr 2012, steel erection was commenced</li> <li>■ In September 2012 E&amp;I contract was awarded and contractor mobilized</li> </ul>

PROJECT SCHEDULE <sup>1</sup>	2011												2012												2013		
Item	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
Detailed Engineering																											
Procurement																											
Processing Plant																											
Utilites and Owners' Scope																											
Mining Facility																											
Tailings																											
Pre-Commissioning																											

<sup>1</sup> High level schedule



**Mine site – July 2010**





Plant site – September 2012



# Infrastructure

# Good Infrastructure Access

## Access to Site

- Road & Rail:
  - Site ~80 km by road from Hanoi
  - Narrow gauge railway connects site to Vietnam Railways system
- Airport and Sea Ports:
  - Site ~50km from Hanoi airport
  - Hai Phong and Quang Ninh ports ~180 – 240 km from site
- Power:
  - From 110kV line from grid, ~8km from site. Construction power from local 35kV power line
- Water:
  - from Cong River, and bore field
- Community:
  - 98% of land handed over in Sectors 1-5





# Production

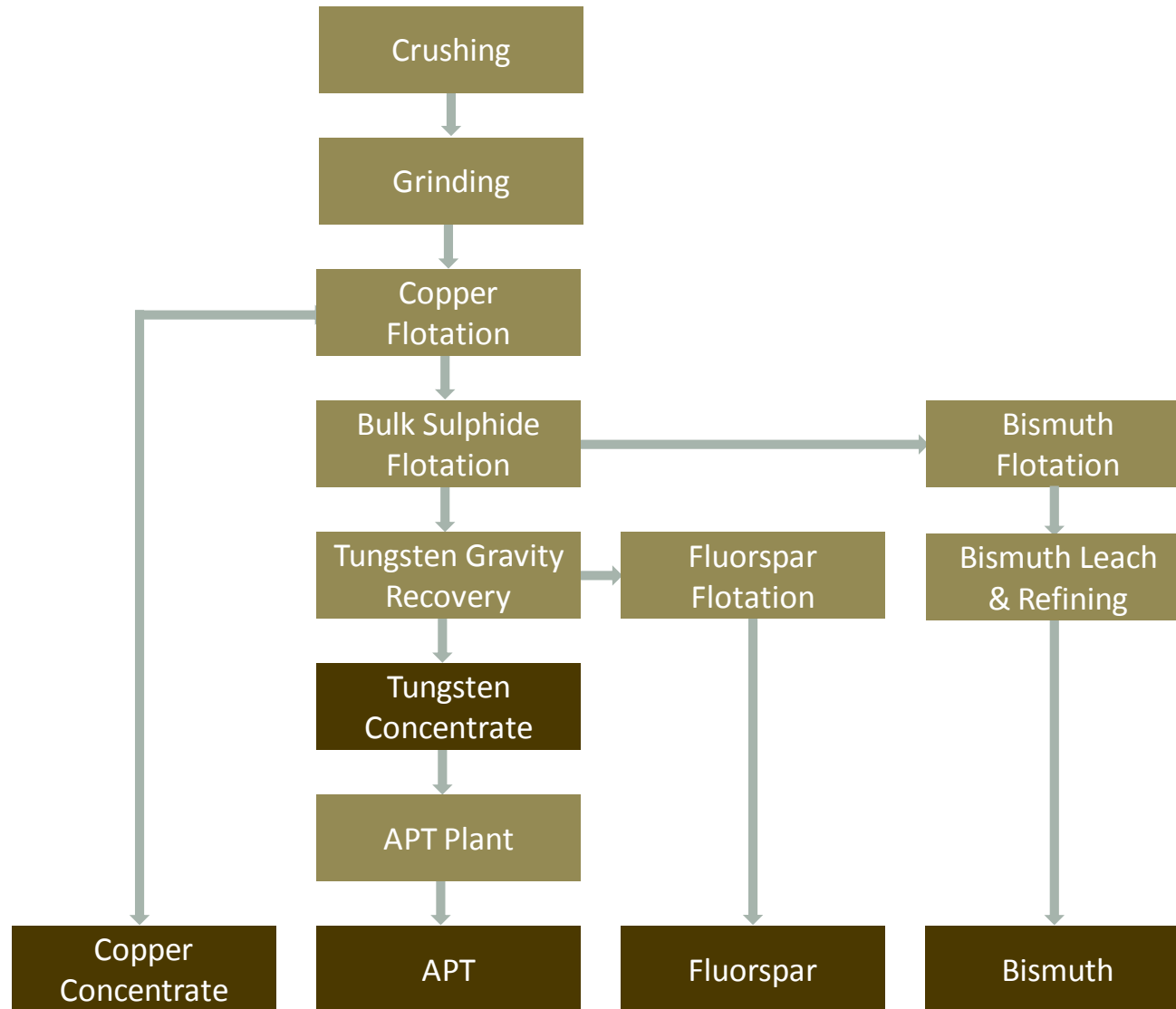
## Summary

- Conventional single open pit mine:
  - Nominally 1,600m x 620m x 200m deep
  - Low strip ratio ~1.5:1, waste dumps close to pit
- 3.5 million tpa ore mined and processed:
  - Work Index – 12.2kwh/t (moderate)
  - Abrasion Index – 0.144 (low to medium)
- Flowsheet development (2003-05):
  - SGS Lakefield (Canada) responsible for all principal metallurgical testwork
  - Flowsheet development a combination of pilot plant scale tests and batch tests
  - Flowsheet validated in 2011/12 at SGS



Processing Plant Equipment on Site

# Process Flow Diagram<sup>1</sup>



<sup>1</sup> Expected process flow, subject to further studies and modifications

# Production Statistics

## Production Statistics

Item	Average Ore Feed grade	Recovery <sup>1</sup>	Grade <sup>1</sup>	Production (tpa) <sup>2</sup>
Ore Throughput	NA	NA	NA	3,500,000
Tungsten (W) <sup>3</sup>	0.21%	67.0%	88.5%	4,100
Fluorspar	8.00%	76.5%	97.0%	210,000
Bismuth	0.10%	65.7%	90.0%	2,300
Copper	0.21%	88.4%	27.0%	6,500

<sup>1</sup> Based on metallurgical test work conducted by SGS Lakefield that forms part of the Feasibility Study and internal estimates for APT recovery

<sup>2</sup> Average LOM production, rounded

<sup>3</sup> to convert to WO<sub>3</sub> divide by 0.793, to convert to APT divide by 0.7042



Processing Plant Equipment on Site

# Offtake Contracts

# Offtake Contracts For Fluorspar and Bismuth in Place

Commodity	Details
Tungsten	<ul style="list-style-type: none"><li>▪ Ongoing discussions with potential customers. Many customers are seeking to diversify their sources of supply</li><li>▪ Seeking a range of customers and exposure to a range of end-use markets</li></ul>
Fluorspar	<ul style="list-style-type: none"><li>▪ Offtake agreement with CMC Cometals (USA)</li><li>▪ Take or pay agreement for 200,000 mt of fluorspar per year, with floor-price</li><li>▪ Widespread industry interest in securing non-contracted supply</li></ul>
Bismuth	<ul style="list-style-type: none"><li>▪ Offtake agreement with Sidech (Belgium), part of 5N/MCP Group, the largest processor of bismuth globally</li><li>▪ Commitment to offtake 2,000 mt of bismuth product per year</li></ul>
Copper	<ul style="list-style-type: none"><li>▪ Evaluating opportunities, small production easily saleable</li></ul>

# Community



# Social Management Planning Meets Equator Principles

## Summary

- Planning based on Equator Principles and is focused on 3 specific areas:
  - Resettlement Action Plan (RAP)
  - Community Development Plan (CDP)
  - Public Consultation and Dissemination Plan (PCDP)
- All 3 plans have been accepted by the Government (2005/2008)



Billboards Inform the Community About the Project and Its Benefits



# Resettlement Action Plan – Investing in Our Community

## RAP Summary

- The Resettlement Action Plan has been developed with the following objectives in mind:
  - Minimize impact of land acquisition and other socially adverse impacts
  - Ensure that the affected people maintain or improve their economic standards
  - Ensure project benefits are shared with project affect people as well as surrounding communities
- The Plan addresses:
  - Compensation and Resettlement – nearing completion
  - Economic Restoration
  - Minority and gender issues



**Nam Song Cong Resettlement Site**



**Mushroom Farming**

# Environmental Management

# Environmental Management As Per International Standards

## Summary

EIA/ESIA	<ul style="list-style-type: none"><li>■ Environmental Impact Assessments approved by both MONRE and World Bank</li><li>■ ESIA 2008 developed to Equator Principles and accepted by previous banking syndicate (Including MIGA 2008)</li><li>■ Environmental management to be reviewed annually for compliance by third party groups</li><li>■ Commenced development of an ISO 14001 compatible Environment &amp; Safety Management System</li></ul>
Sediment	<ul style="list-style-type: none"><li>■ High arsenic soil to be separated and encapsulated in designed facilities</li><li>■ Control structures constructed to improve water quality through removing sediment and adsorbed metals</li></ul>
Rehabilitation	<ul style="list-style-type: none"><li>■ Progressive rehabilitation of disturbed areas to minimise overall disturbance footprint</li><li>■ Rehabilitation to promote biodiversity subject to studies, discussion, and agreement with DONRE</li></ul>
ARD/Tailings	<ul style="list-style-type: none"><li>■ Sulphide rich tailings and selected mine waste to be stored under water in a dedicated storage facility</li><li>■ Storage and containment facilities to meet national and international design standards</li></ul>
Water	<ul style="list-style-type: none"><li>■ Manage water quality in area through:<ul style="list-style-type: none"><li>■ Detailed material movement schedules and sediment controls</li><li>■ Treatment of wastewater prior to discharge</li><li>■ Maintaining a detailed water balance, and water monitoring and treatment program</li></ul></li></ul>

# Nui Phao – Summary

- **Long life:** 16.5 years known reserves
- **Competitive:** open cut, low strip ratio
- **Diverse:** Tungsten, Fluorspar, Bismuth, Copper
- **Well located;** close to infrastructure, supported by Government
- **Independent:** product sales not locked away or pre-committed
- **Funded:** Masan Group support and funding
- **Experienced:** management team
- **Progress:** demonstrated significant construction progress in fourteen months
- **On schedule:** Commissioning end of Q1 2013



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