



NUI PHAO, VIETNAM

MASAN RESOURCES

CHINA FERRO-ALLOYS CONFERENCE

HANOI 2016

Dominic Heaton, CEO

# Vietnam's Leading Business Group



- Vietnam's largest private-sector industry group, listed on the Ho Chi Minh Stock Exchange (HCM: MSN), with a market cap of ~US\$2.5 bn.
- Businesses include Masan Consumer, Nutri-science, Masan Resources and Techcombank, leading operating platforms in consumer products, agri, resources, and financial services sectors.
- Marquee investor/partner base includes the likes of TPG, KKR, IFC, Goldman Sachs and JP Morgan.
- Masan Resources, majority owned by Masan Group, acquired Nui Phao in 2010, commenced production 2013.
- 2014, Tungsten APT production (JV with H.C Starck).
- 2015, initial IPO - Masan Resources.
- Dec 2015, US\$1.1b strategic partnership with Singha Asia Holding – Thai beverage market.

NUTRISCIENCE  
(75%)\*

MASAN  
CONSUMER  
(70%)\*

MASAN  
RESOURCES  
(76%)\*

TECHCOMBANK  
(31%)\*

# With over 20 major projects trying to come online for over a decade, the tungsten market is due for transformation



The numbers in brackets represent the *expected* or nameplate annual production capacity of the project



Source: Tungsten Stakeholder Forum, Ganzhou, 13<sup>th</sup> March 2015  
Argus Media, [argusmedia.com](http://argusmedia.com)

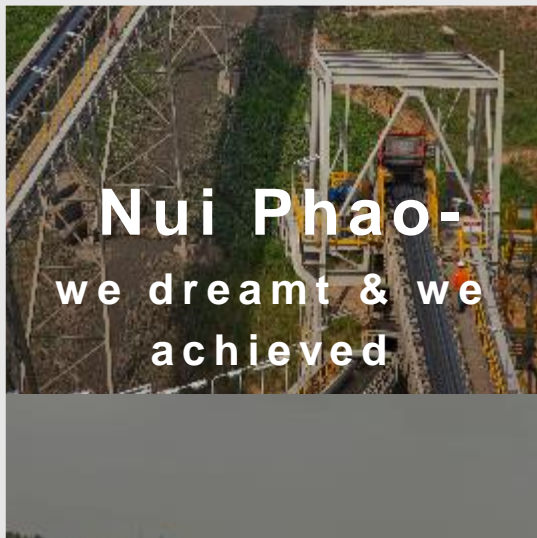


2010

WE SAW AN  
OPPORTUNITY  
TO BUILD A  
GLOBALLY  
SIGNIFICANT  
MINE







# The Nui Phao Project

## Unique Asset

- World's largest tungsten mine & one of largest fluorspar mines with significant bismuth & copper.
- Polymetallic; diverse revenue base, reserves >17 years
- Lowest quartile of industry cost curve.

## Location

- Located 80km from Hanoi in Thai Nguyen province
- Road links to HaiPhong and Quang Ninh ports ensure transport to markets.

## People

- International, experienced management team
- Skilled local workforce, supplemented by expatriate supervision with regional Asian experience.

## Social Responsibility

- Awarded "Corporate Social Responsibility Excellence Award" from Vietnam's Ministry of Planning and Investment for supporting local communities and exceeding world-class standards for environment, safety and social practices.

## Established Operation

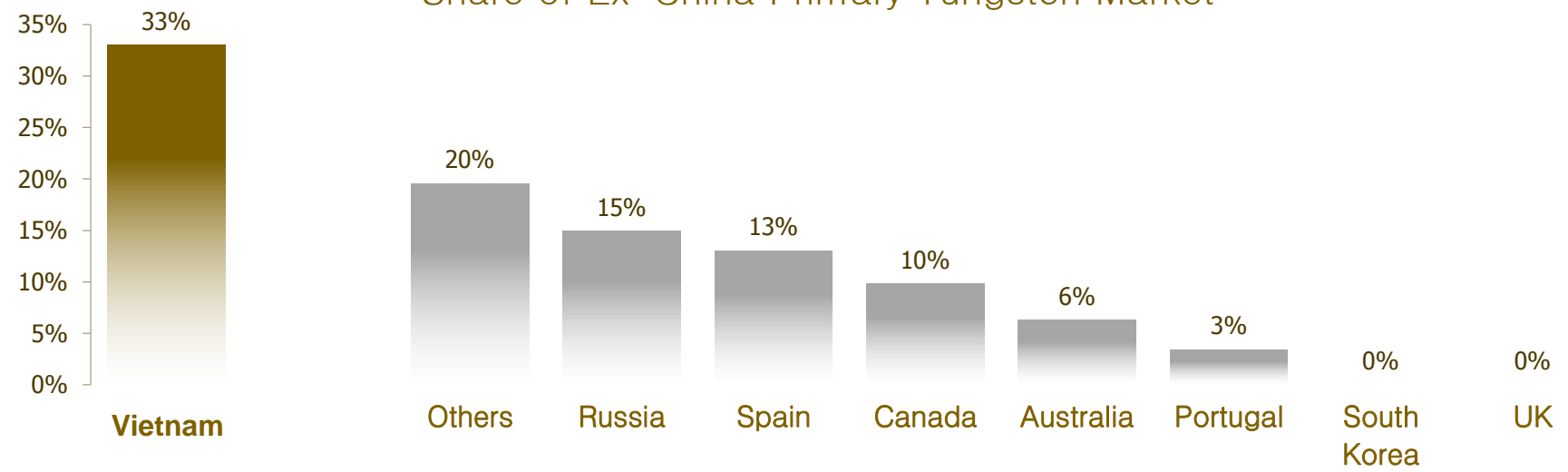
- Over US\$ 750 million invested in the project
- First production Q2/2013, first sales Q3/2013
- Established global customer base, >80% exported
- Tungsten JV company at same site
- Site visit on 27 February



# A leading player of unmatched scale in tungsten, fluorspar & bismuth



Share of Ex-China Primary Tungsten Market



Nui Phao is fully commissioned and operating at capacity



# A mine built to best-in-class standards

## Environment

Environment protection to IFC and World Bank guidelines

## Global Expertise

1,128 headcount,  
17 nationalities,  
49% with Higher Degrees

## Safety

World Class Safety performance – zero fatalities; No lost time injuries in 24 months

## World-Class Partners

Designed & implemented with world class contractors in a record 3 years

## Community

Community resettlement to Equator Principles, an industry gold standard





# One of the lowest cost tungsten mines in the world

## Low Strip Ratio of 1.8

More ore for the same amount of earth mined

## Multiple Revenue Streams

Credits from sales of Fluorspar, Bismuth and Copper reduce the production cost for tungsten

## Favorable Location

Only 80 Km by road from Hanoi. Hai Phong & Quang Ninh ports connect Nui Phao to the world.

## Long-life, Open pit ore body

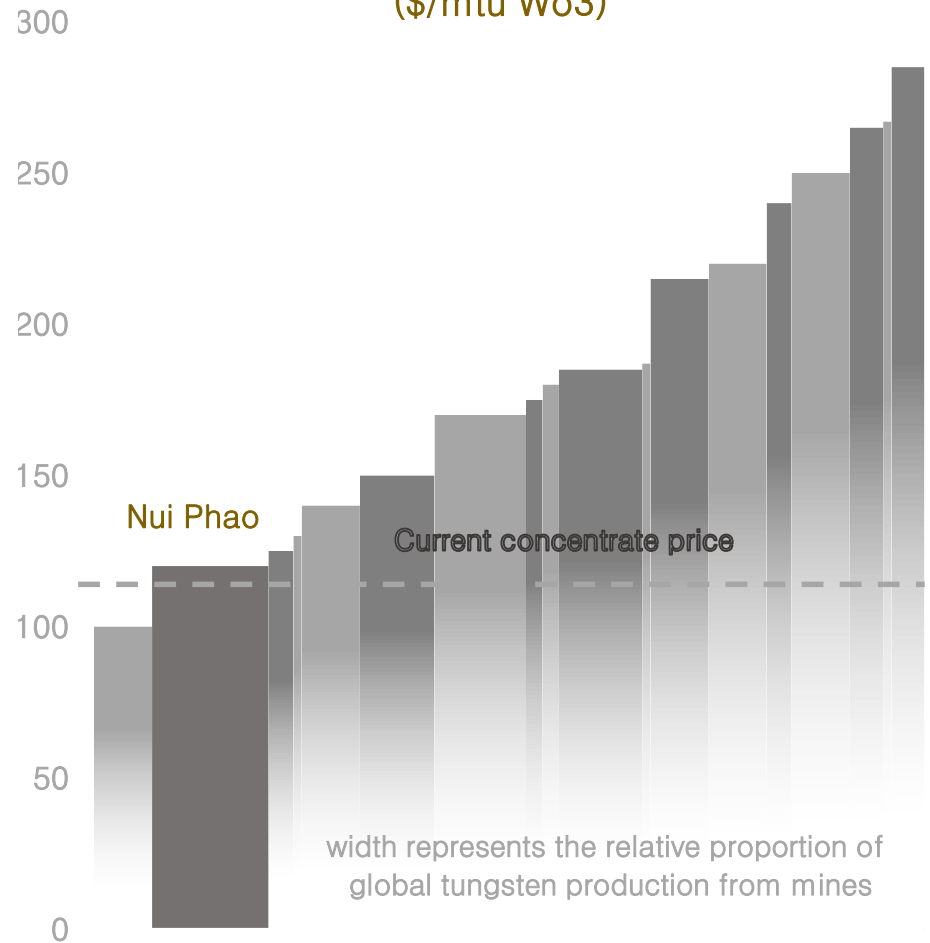
An open pit ore makes for simpler and safer mining operations for almost 20 years

## Low Labor & Utility Costs in Vietnam

## Mgmt.-led Margin Improvement Plans

Masan DNA to continually identify synergies & efficiencies

Global tungsten production cost curve,  
(\$/mtu Wo<sub>3</sub>)



# One of the lowest cost fluorspar mines in the world

## Low Strip Ratio of 1.8

More ore for the same amount of earth mined

## Multiple Revenue Streams

Credits from sales of Fluorspar, Bismuth and Copper reduce the production cost for tungsten

## Favorable Location

Only 80 Km by road from Hanoi. Hai Phong & Quang Ninh ports connect Núi Pháo to the world.

## Long-life, Open pit ore body

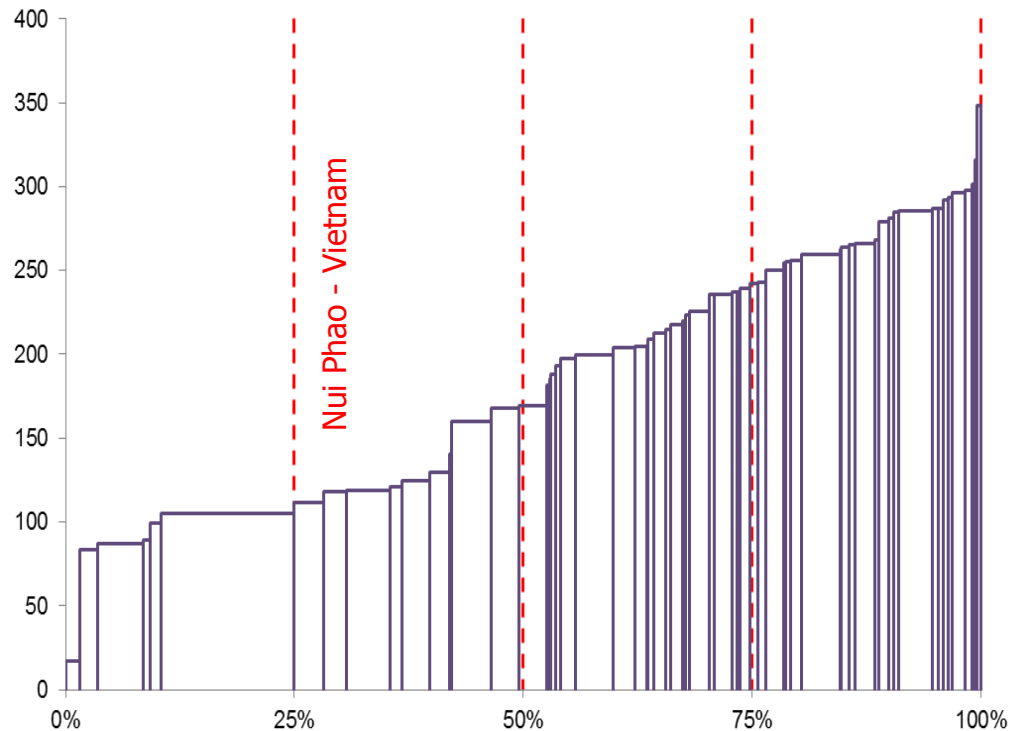
An open pit ore makes for simpler and safer mining operations for almost 20 years

## Low Labor & Utility Costs in Vietnam

## Mgmt.-led Margin Improvement Plans

Masan DNA to continually identify synergies & efficiencies

C1 Cost of Global Acid Grade Fluorspar, US\$/t  
- Núi Pháo excludes by-product credit



Source: CM Group

TRUNG TÂM THÔNG TIN

WE WORK WITH  
THE COMMUNITY  
FOR THE  
COMMUNITY





# Collaborated with community for sustainable development

## Engagement

Conducted 76 meetings involving 2,093 participants in 2014.

Scheduled frequent opportunities for discussions with all stakeholders

## Employment

Nui Phao employs 76% of its people from within Thai Nguyen province, and 56% of people employed are the Project Affected People

4 local enterprises established as part of economic restoration programs



# Business development & innovation

Nui Phao's scale & HC  
Starck's experience

To produce a wider range of  
products to a global  
customer base

Producing tungsten in a  
sustainable and environment  
friendly way

Nui Phao's Joint Venture  
with HC Starck brings  
almost 100 years of  
experience and  
technology in tungsten

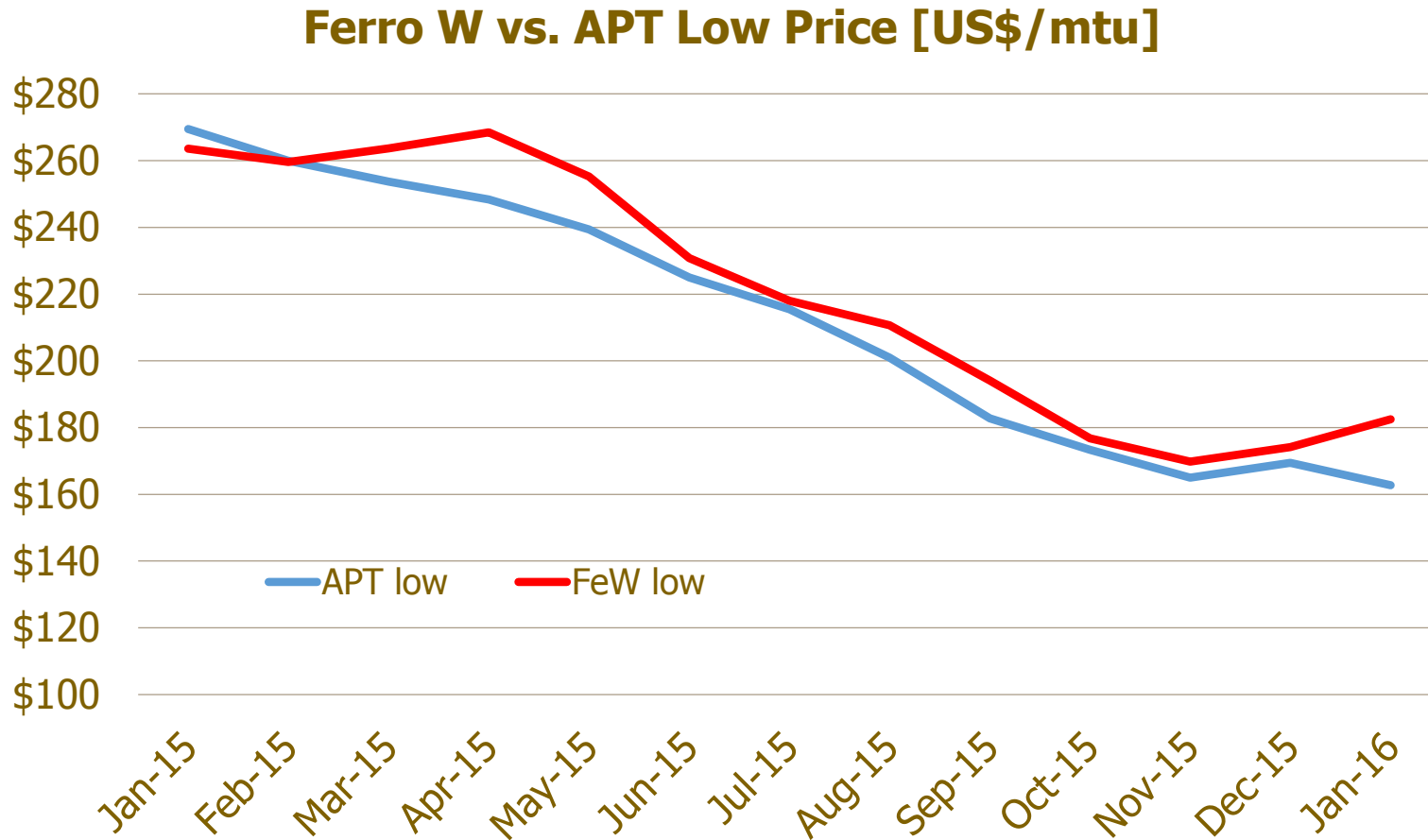
The JV produces high  
quality APT, BTO, YTO, ST  
and Concentrate to meet  
the requirements of a  
diverse customer base

Our unique, patented  
technology minimizes  
environment impact by  
consuming 40% less  
water and 60% less  
NaOH

Nui Phao–HC Starck Tungsten JV; established Jan 2014



# Tungsten: APT and FeW price closely correlated







MASAN RESOURCES,  
A VIETNAMESE  
COMPANY DRIVEN TO  
TRANSFORM THE  
GLOBAL TUNGSTEN  
MARKET

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