

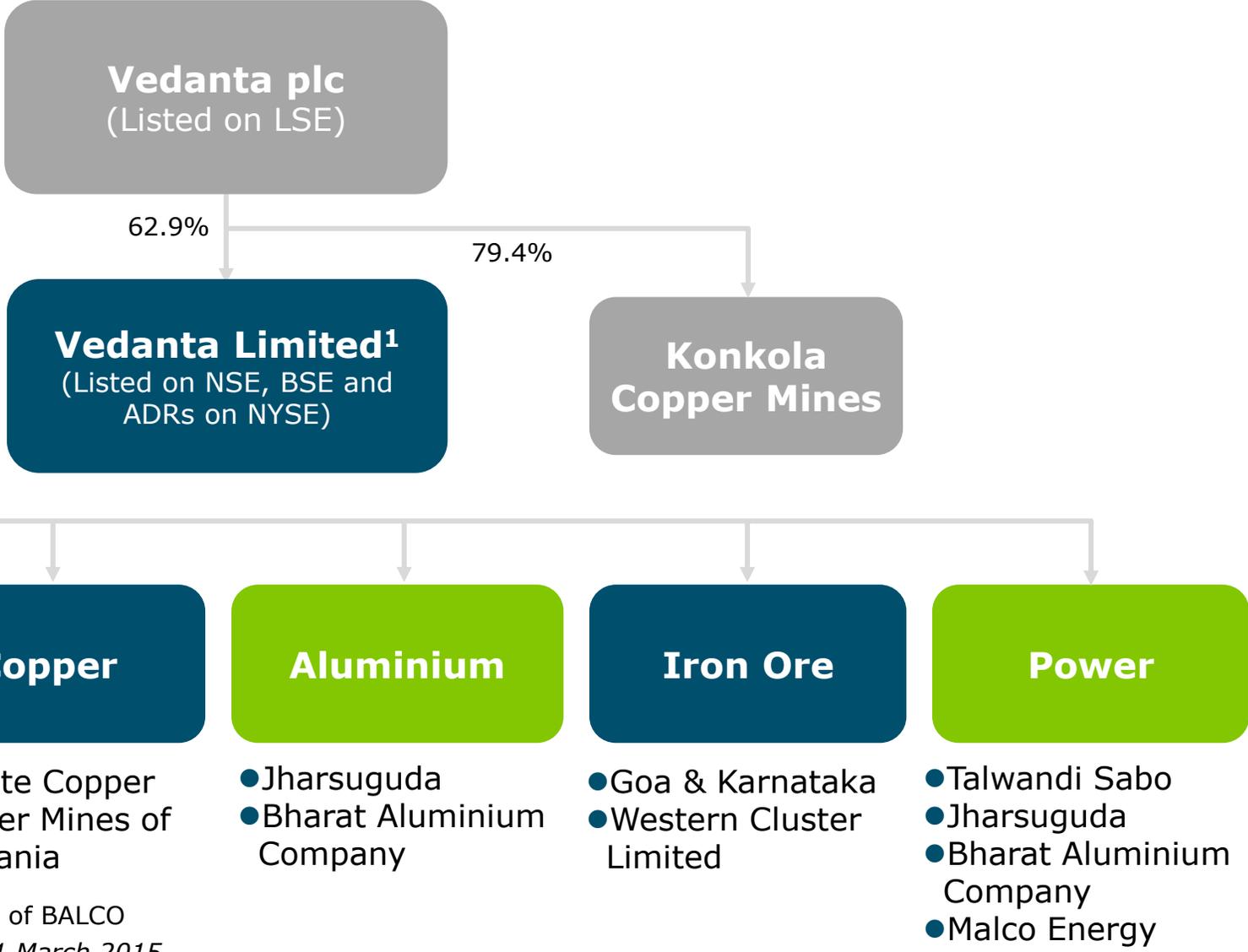


**India growth story -  
Driving Copper demand**

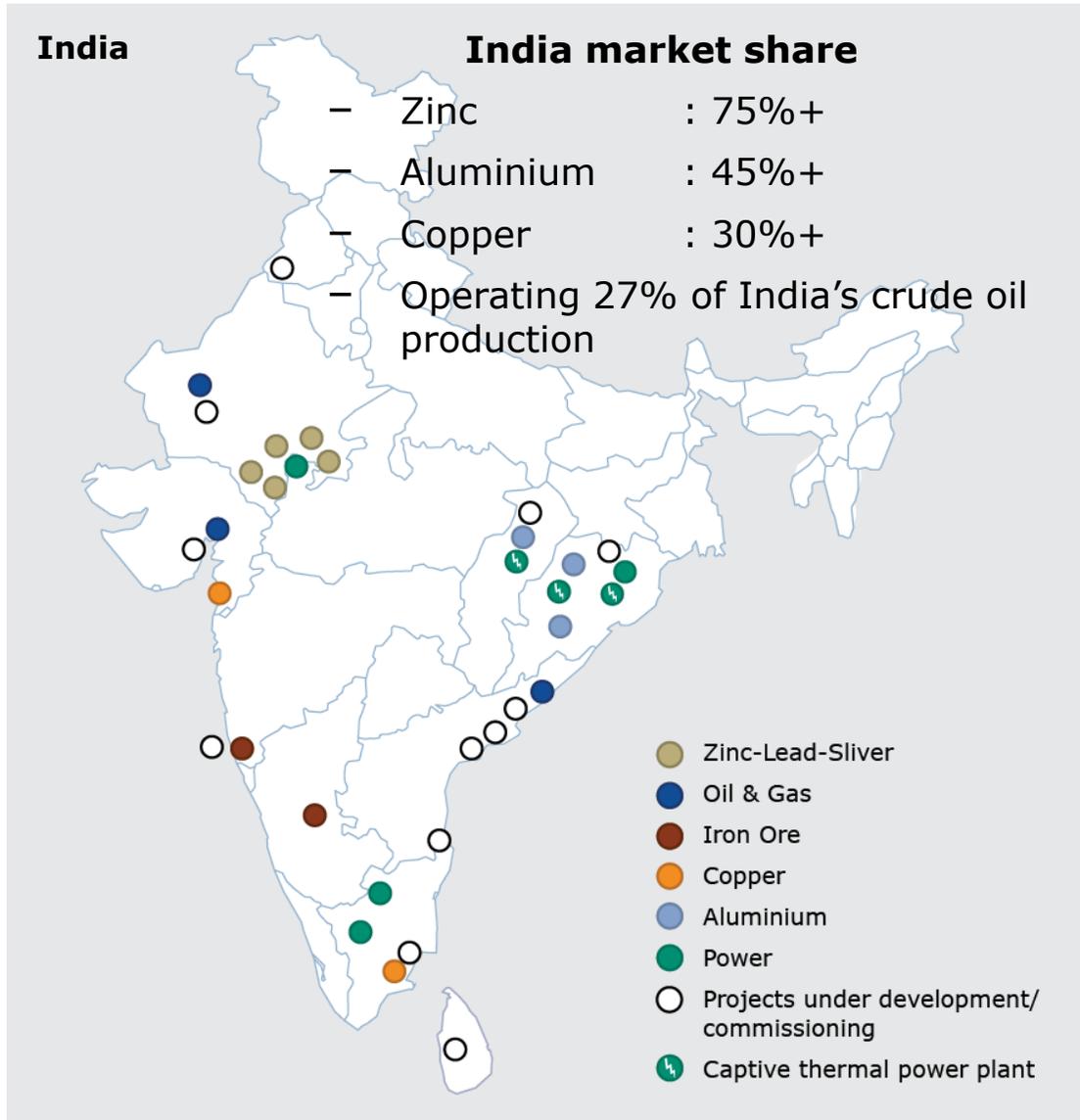
**29<sup>th</sup> International Copper Conference**

**Vedanta makes a positive contribution to India**

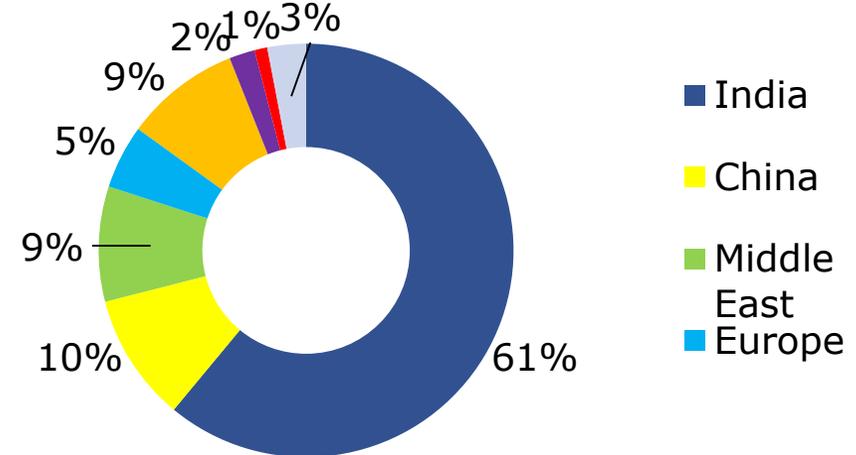
- Turnover of around \$12.9 bn (FY'15)
- Contribution of \$4.6bn to Indian Exchequer
- Direct and indirect employment for around 82,000 people
- Community investment of \$40mn benefiting 4mn people globally



<sup>1</sup> Vedanta Ltd owns 59.9% of Cairn India , 64.9% of HZL & 51% of BALCO  
 Note: Shareholding based on basic shares outstanding as on 31 March 2015



Revenue by Geography, FY 2015



CAPACITY SUMMARY	
Product	Existing Capacity (TPA)
Copper Anode	400,000
Copper Cathode	400,000
Copper Rod	350,000

### Other Products

Phosphoric Acid

Sulphuric Acid

Gypsum

Ferro Sand

Precious Metals

Power

- Started operations in 1997
- 7<sup>th</sup> Largest smelter capacity in the world
- India's leading copper producer at 0.4 MTPA
- Zero liquid discharge smelter since inception
- Refined copper market share in India of 35%
- Lowest cost quartile
- Invested approx. \$80 million in environmental measures

### Locations

#### Silvassa

- Refinery
- Rod Mill

#### Fujairah

- Rod Mill
- Precious metals

#### Tuticorin

- Smelter
- Refinery
- Rod Mill
- 160MW power plant

#### Mettur

- 120 MW power plant

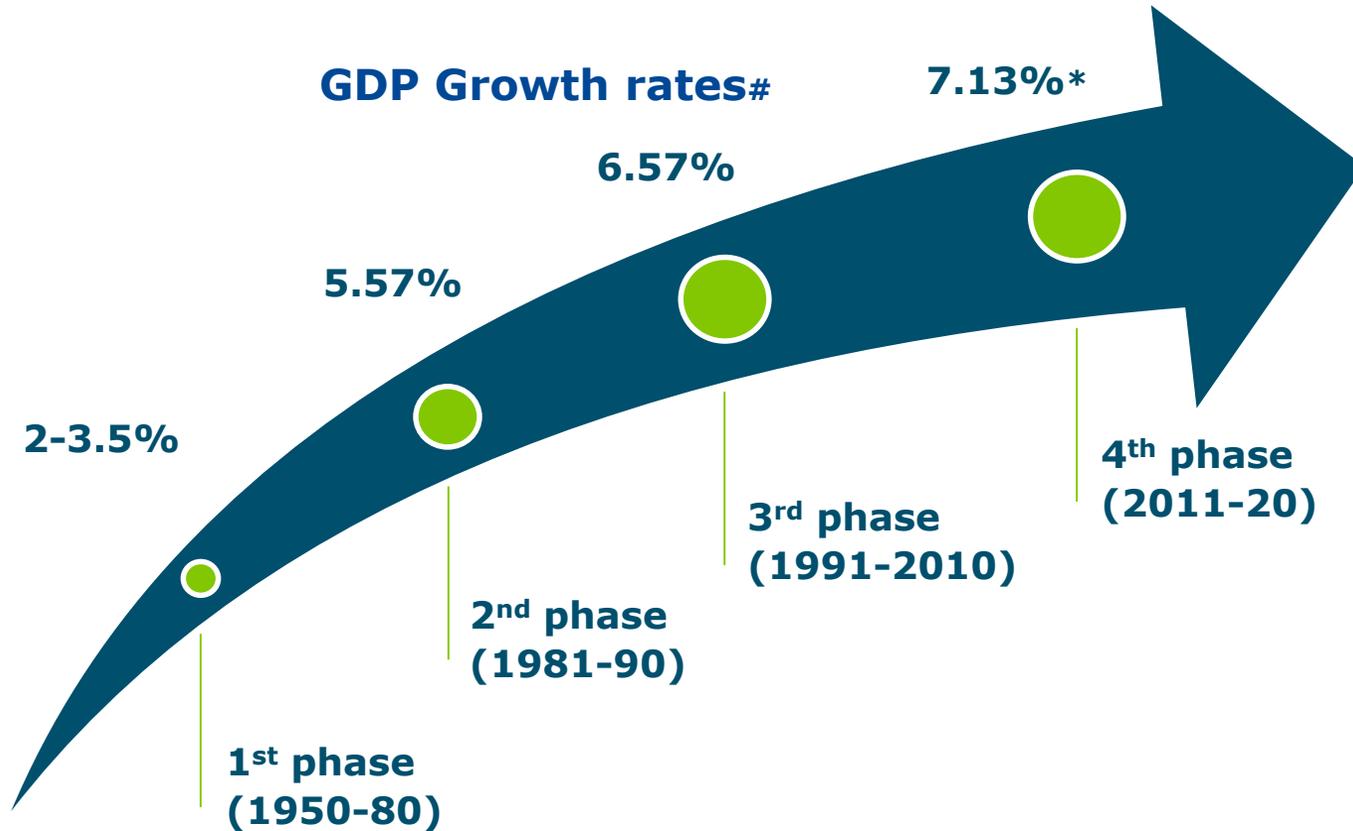


**sterlite copper**



**India's Growth Story**

## Various phases of development of the Indian economy

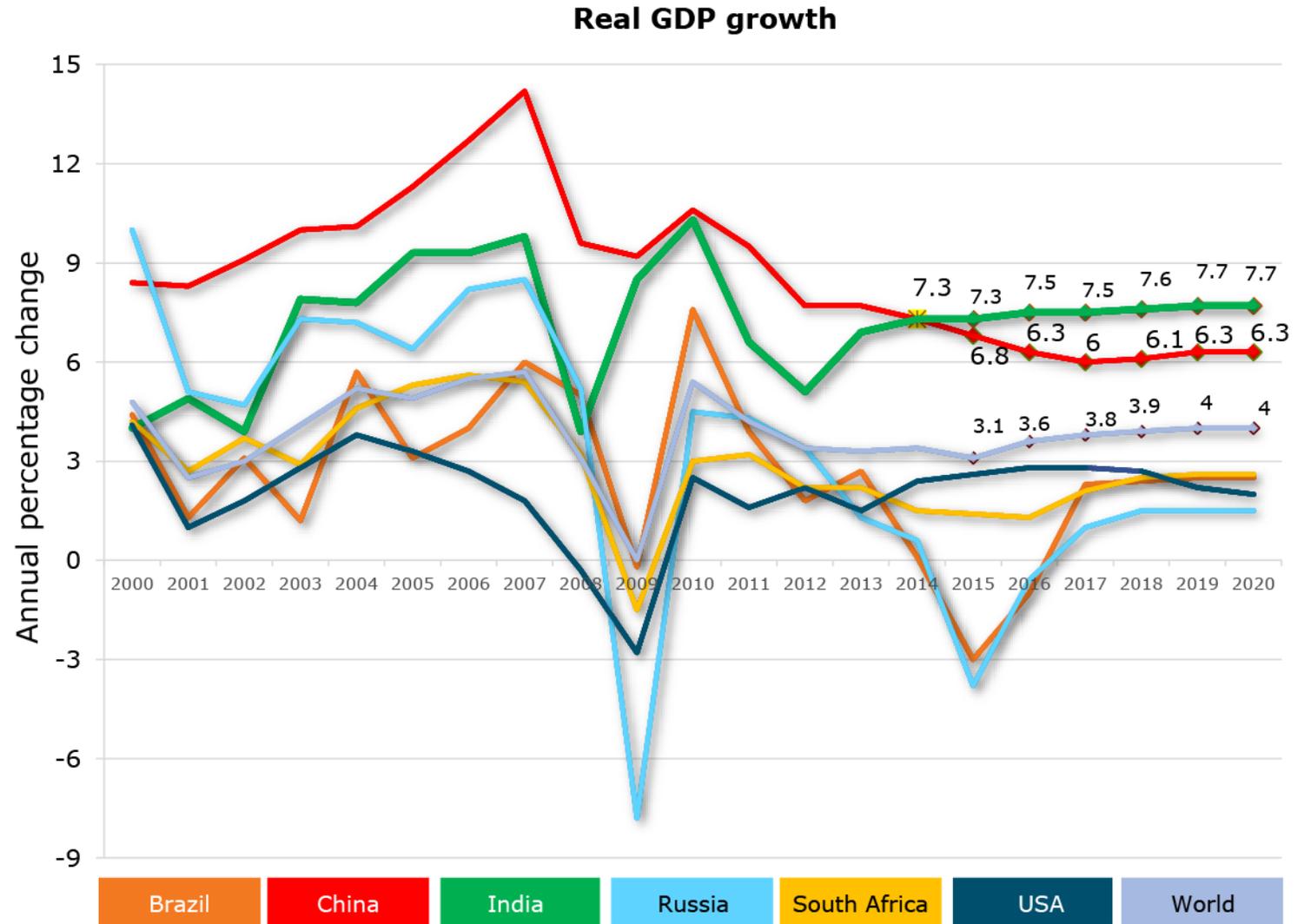


# World Bank figures  
\* Projected figure

- **1950-1980** – Substantial public investment in heavy & basic industries, infrastructure and agriculture sector
- **1981-1990** – Industrial and trade reforms facilitated, capacity expansion, modernisation and improvement in productivity in the industrial sector
- **1991-2010** – Economic liberalisation and expansion of service industry, rise in private consumption demand
- **2011-2020** – Substantial investment in physical, agricultural and social infrastructure expected.  
Policy reforms, demographic advantage, urbanization and consumer demand expected to fuel growth

## Strong macroeconomic indicators

- India is the world's fastest growing major economy
- International agencies project strong growth for India, above China and the world average
- Lower inflation, lower energy costs and further interest rate cuts to fuel economic growth
- Low crude prices bring significant benefits for Indian economy



Source: IMF, World Economic Outlook (October 2015)

## Growth drivers

### Political Stability & Reforms

### Public Investment

- Physical infrastructure (Transportation networks, industrial hubs etc.)
- Social infrastructure (Smart Cities, Skill development, healthcare, housing etc.)
- Agricultural infrastructure

### Domestic consumption

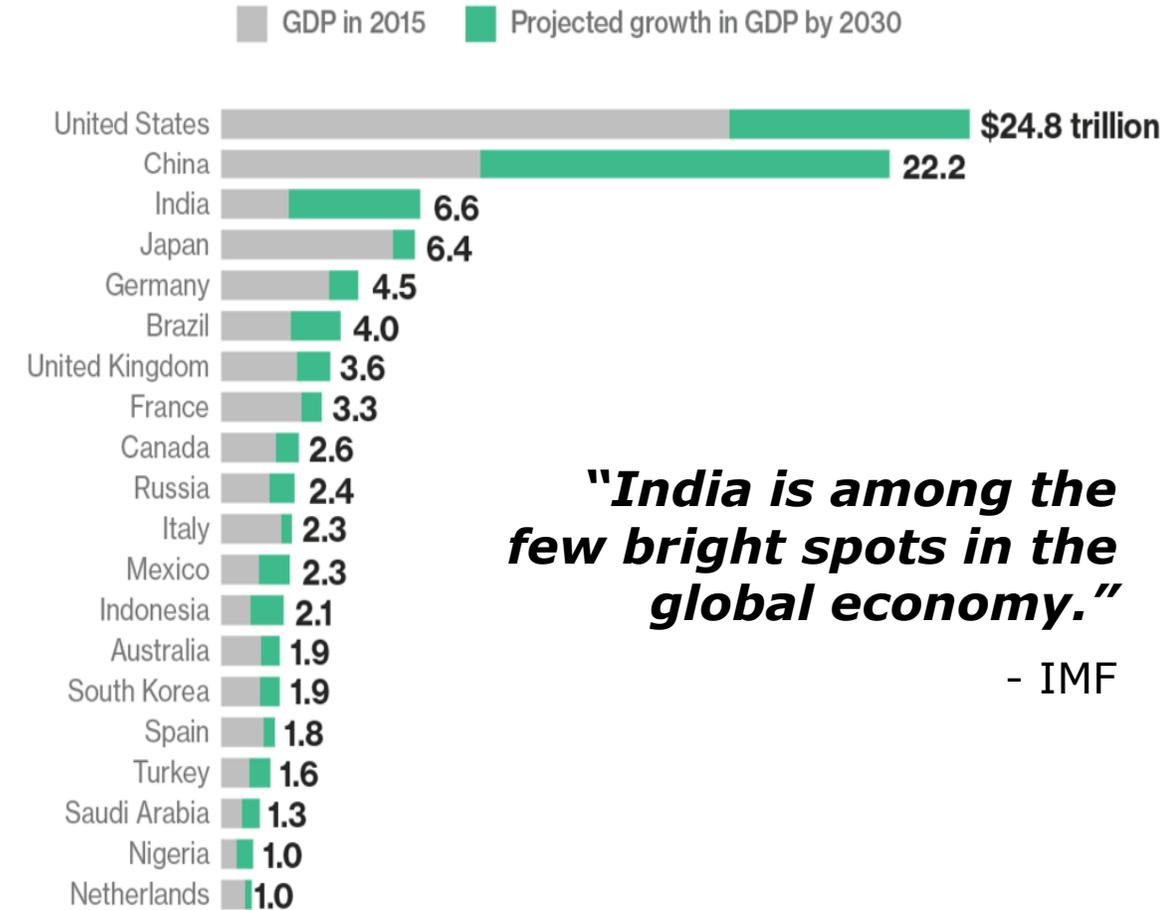
#### Demographics:

- Demand – Population growth
- Supply – Growth in workforce (>50% of population in working age)

#### Urbanization:

- Increase in consumer demand and creation of infrastructure

## World's 20 Largest Economies in 2030



***"India is among the few bright spots in the global economy."***

- IMF

Source: U.S. Department of Agriculture

## Growth drivers

### Private investment

- Stable taxation policies
- Facilitating private-public partnerships
- 'Make in India' campaign –
  - To increase Manufacturing share in GDP from 15% to 25%
  - To improve 'Ease of doing business in India' rank to 50 from current 130
- Opening up of defence sector to private investment

## ... leading to increased Metal demand

Increased metal demand growth (copper in particular) foreseen due to

- Urbanization
- Infrastructure development
  - 'Housing for all by 2022' campaign
  - Modernization of Railways
  - Electrification
- Rebounding manufacturing sector
- Focus on renewables energy sector
- Rising auto sector
- Developing electronics manufacturing clusters

### **FDI in India (USD bn)**

FY 13	FY 14	FY 15
34	36	45

Significant increase in FDI Year on Year contributing to GDP growth by supporting private investment

## Challenges

- Weakening rupee
- High interest rates
- Declining exports
- Low private investment

## Public Investment and domestic demand driving growth currently. Government needs to work on increasing Private investment and Exports through

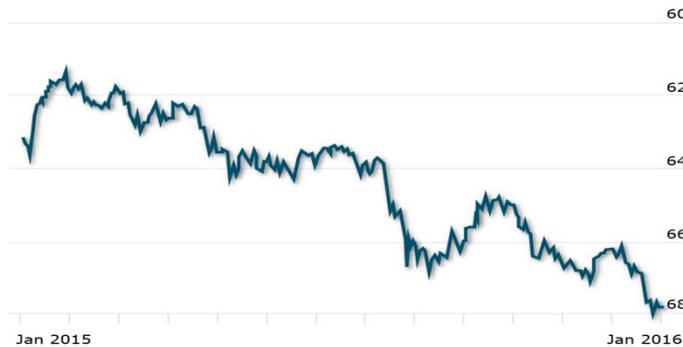
- Lower interest rates
- Policy reforms & Execution (Ex: Roll out of 'Goods and Services Tax')
- Infrastructure push
- Ease of doing business

### RBI repo rates



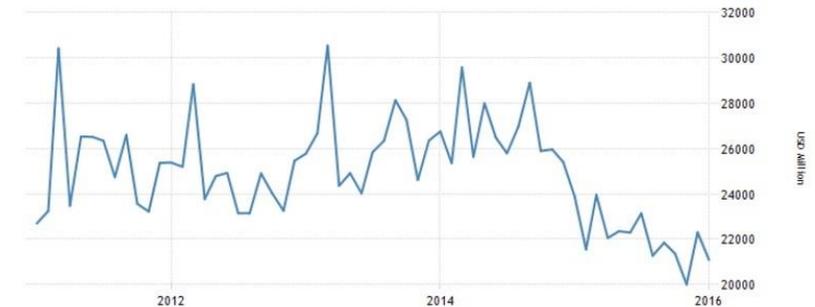
Source: Thomson Reuters Datastream, Trading Economics

### Exchange Rate (rupees per \$)



Source: Ministry of Commerce and Industry, India

### Indian Exports Trend





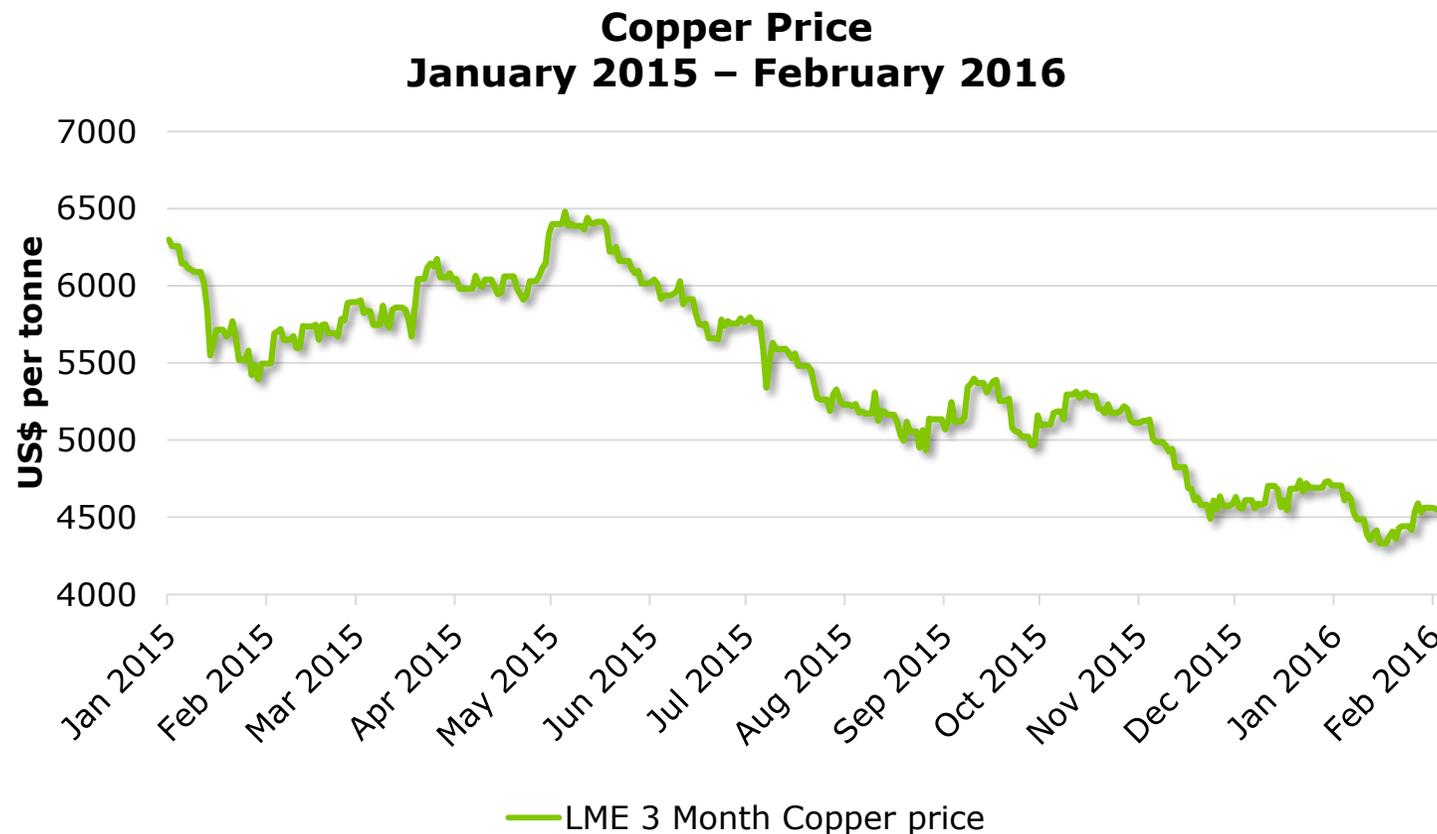
**sterlite copper**



**Copper Markets**

## Challenging market conditions

- Copper demand growth in China expected to slow down to around 4%
- Capacity closures in Zambia, USA
- Steep decline in copper prices in the last year
- Concentrate markets well supplied in near term
- Copper price to remain under pressure for next couple of years



Metal price (US\$/tonne)	2016	2017	2018	2019	2020
Copper	4,325	4,100	4,900	5,500	6,100

Source: JP Morgan forecast for copper prices over the next 5 years

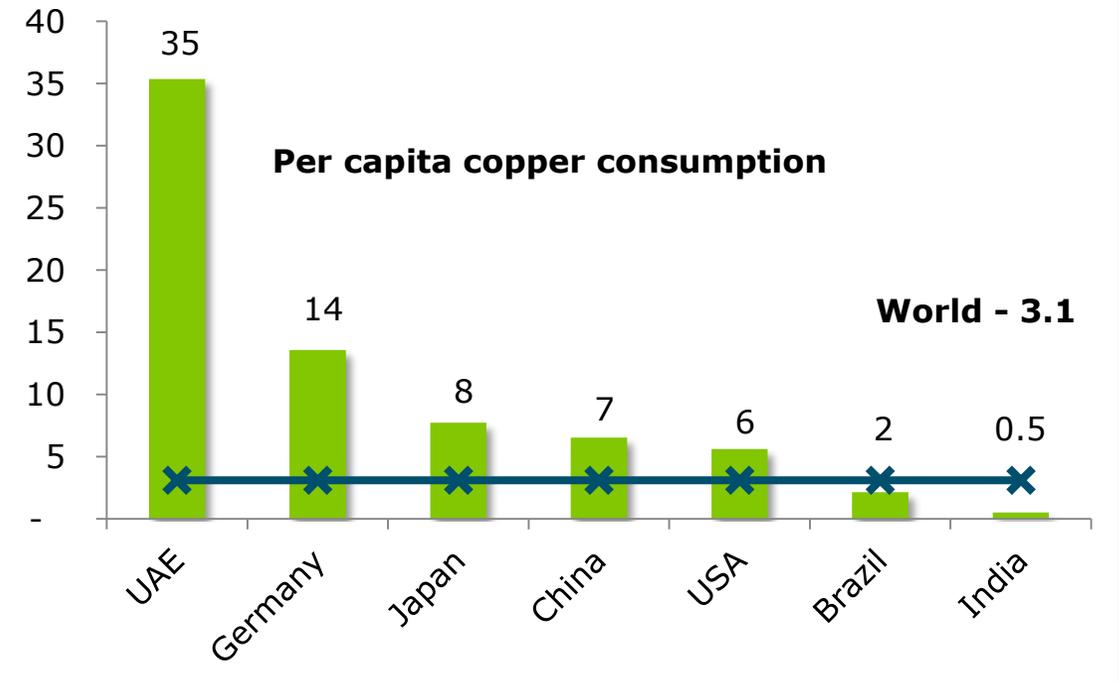
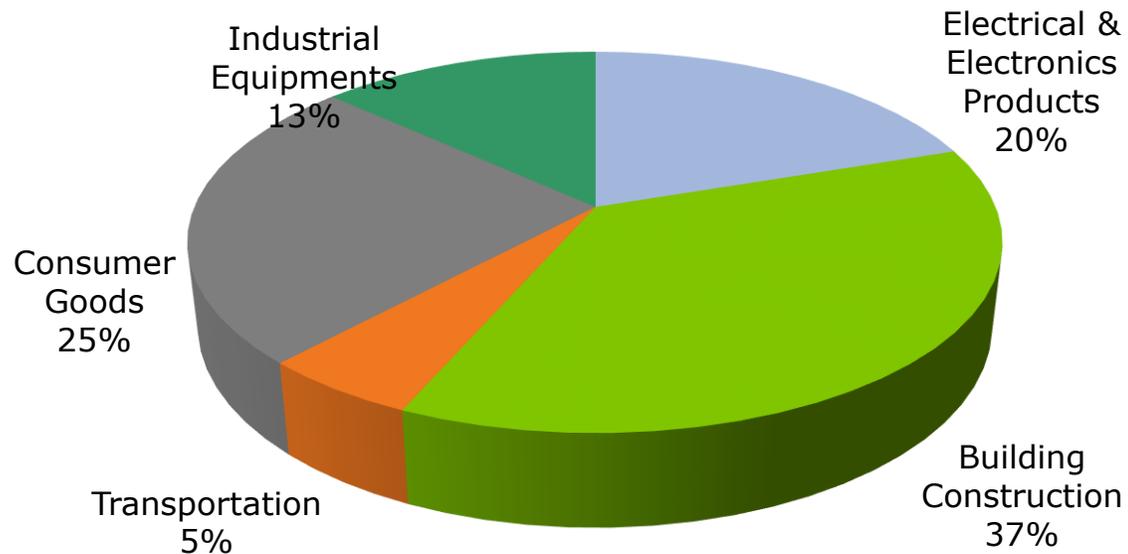
Supply & Demand balance (kt)	2014	2015E	2016F	2017F	2018F	2019F	2020F
<b>Mine production</b>	<b>18,649</b>	<b>19,065</b>	<b>19,119</b>	<b>20,347</b>	<b>20,867</b>	<b>21,321</b>	<b>21,415</b>
Growth	2.6%	2.2%	0.3%	6.4%	2.6%	2.2%	0.4%
<b>Refined production</b>	<b>21,882</b>	<b>22,027</b>	<b>22,428</b>	<b>23,108</b>	<b>23,458</b>	<b>23,866</b>	<b>24,104</b>
Growth	5.3%	0.7%	1.8%	3.0%	1.5%	1.7%	1.0%
<b>Refined use</b>	<b>21,500</b>	<b>21,540</b>	<b>22,111</b>	<b>22,660</b>	<b>23,254</b>	<b>23,813</b>	<b>24,338</b>
Growth	3.5%	0.2%	2.7%	2.5%	2.6%	2.4%	2.0%
<b>Balance</b>	<b>382</b>	<b>487</b>	<b>316</b>	<b>447</b>	<b>204</b>	<b>52</b>	<b>-234</b>

### Trade Implications

- Global Copper market likely to be in surplus in 2016-19 period as China copper demand growth fails to live up to expectations.
- Emerging markets of India, Africa, Middle-East, ASEAN & Latin America expected to compensate demand growth partially.
- Expected surplus production till 2019 is bound to add further pressure on copper prices.

- India is likely to be the world's 4<sup>th</sup> largest copper market by 2020 (900 kt of refined copper)
- Expected growth of 8% per year
- Focus on increasing domestic volumes

### Copper Usage in India (Sector-wise)



Source: Metal Miner, Freedonia Group

## Vedanta Limited - Sterlite Copper

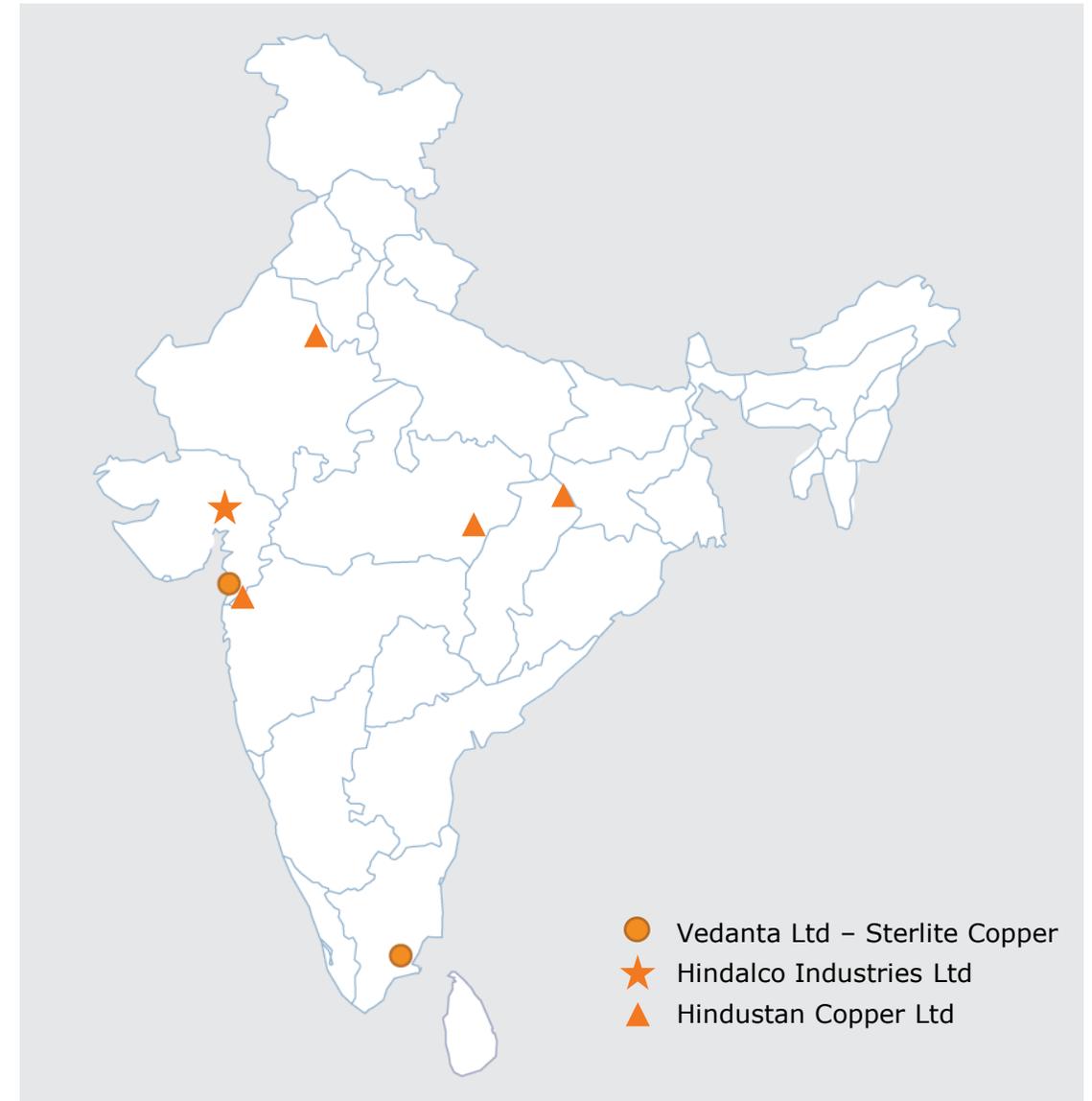
- 400,000 tpa copper smelter
- India's largest non-ferrous mining and metal company

## Hindalco Industries

- Hindalco is the metals flagship company of the Aditya Birla Group
- Copper cathode capacity of 500,000 tpa

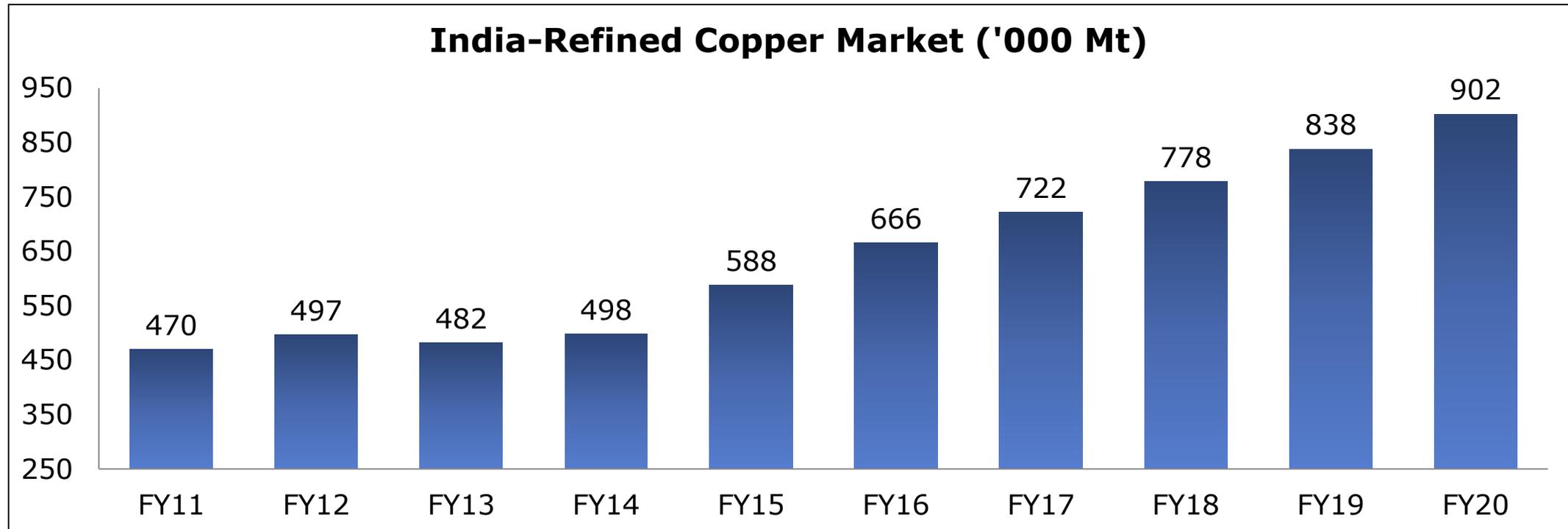
## Hindustan Copper

- Government-owned business
- Full-scale casting, refining, smelting, beneficiation and mining of refined copper metal



CAGR 7.28%

CAGR 8%



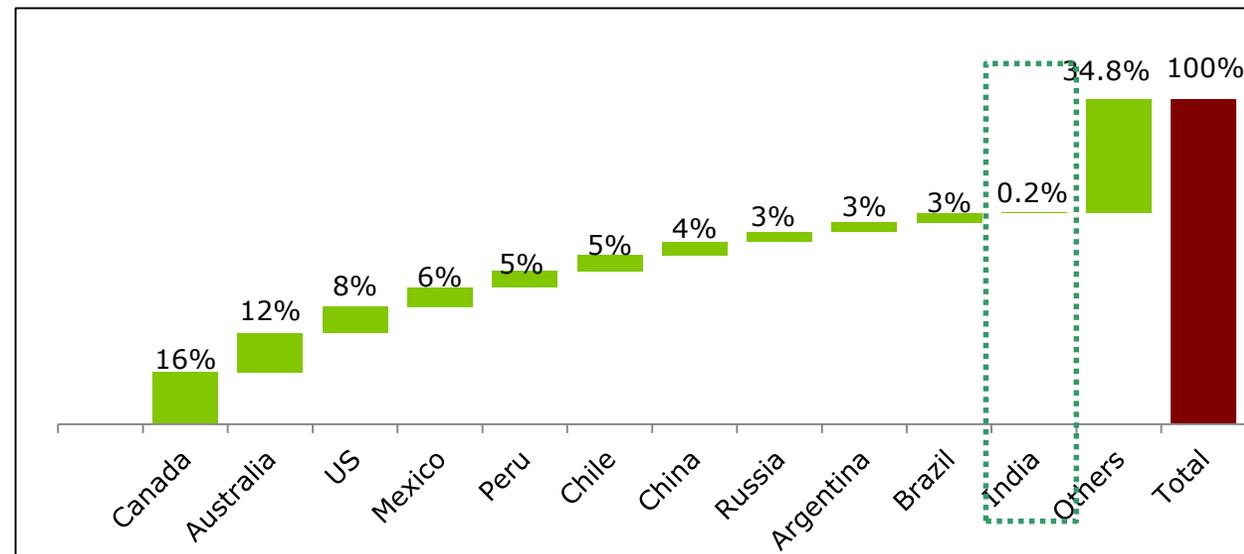
- 8% CAGR expected for the next 5 years
- Building construction, Industrial equipments and electrical goods sectors are expected to lead copper growth in India

## Mineral Reserves & Resources in India

S N	Mineral	Unit	Reserves	Remaining Resources	Total Resources
<b>Major Metals</b>					
1	Copper	kilo Tonnes	4,768	7,518	12,287
2	Lead	kilo Tonnes	2,245	9,304	11,549
3	Zinc	kilo Tonnes	12,453	24,212	36,665
<b>Minor Metals</b>					
4	Gold	Tonnes	111	555	666
5	Silver	Tonnes	8,040	19,589	27,628
6	Tin	Tonnes	1,132	101,142	102,275
<b>Ores</b>					
7	Bauxite	kilo Tonnes	592,938	2,886,682	3,479,620
8	Iron Ore	kilo Tonnes	8,115,302	20,410,856	28,526,158

Source: Ministry of Mines, GoI, Indian Bureau of Mines, SNL Metals Economics Group, Wood Mackenzie, BP Statistical Review June 2013, U.S. Geological Survey, Planning Commission

## India's share of global non-ferrous exploration spending very low



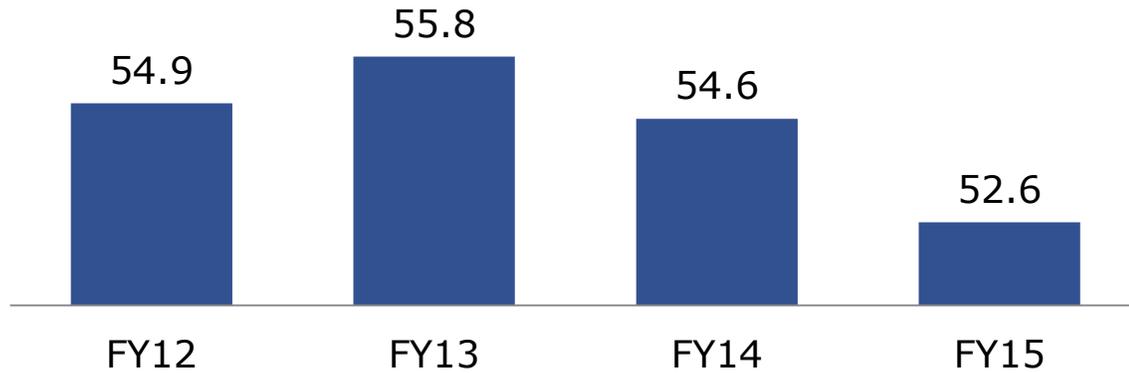
## Recent Regulatory Development

MMRDA (Mines and Minerals Development Act) passed in January 2015 Provides for auction and transfer of of natural resources in a transparent manner paving the way for growth in the mining sector.

## Copper Mines in India

- Currently only Hindustan Copper (Government owned) has a captive copper mine in the country.
- Government of India plans to auction 12 copper mines in the country by end of 2016.
- 10-15 million tonnes of copper ore supply expected from these 12 mines.
- New exploration policy to fast track exploration expected shortly.

### Copper scrap imports '000 Mt

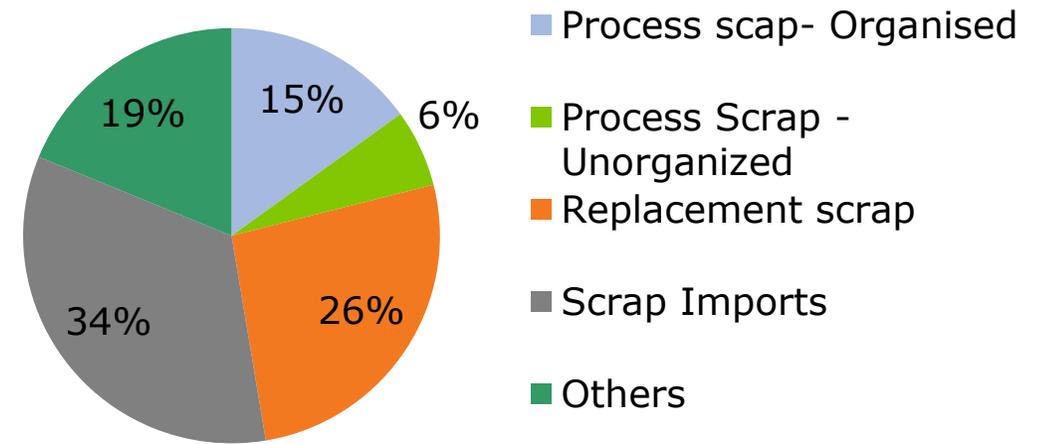


In India, currently copper scrap is directly used to manufacture substandard wires, tubes, profiles, etc.

#### Issues faced

- Low conductivity & reduction in same over time
- Increase in scrap generation due to lower shelf life
- Fire accidents due to substandard copper usage

### Sources of raw material for black rod



Black rod production in India: ~130-140ktpa

Problems of black rods in industrial usage (drawing)

- Formation of fine particulates twisting or wiredrawing
- Rapid die wear
- Deterioration of the wiredrawing emulsion

**Regulations to ensure copper scrap is importable only by companies with expertise in copper production need to be enacted**

## **GDP Growth Drivers**

Political stability, public investment and domestic consumption have supported growth so far. To increase growth, the government should focus on the following to boost private investment and exports

- Tax reforms (Stable taxation policies and rollout of uniform 'Goods and Services Tax')
- Ease of starting and doing business
- Low interest rate environment
- Promotion of export oriented units

## **Copper Demand Growth**

**Building construction - Expected to be the biggest copper growth contributor in India**

Industrial equipment and Electrical products sectors will be the next biggest contributors.

Defence and railways are the expected greenfield copper demand sectors.

# Thank You