



# Sustainability in Lead and Zinc

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**SAIMM Lead & Zinc Symposium**

**25-29 February 2008**

**exxaro**

**POWERING POSSIBILITY**



## The Exxaro story

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## Introduction to Exxaro

### Our commodities

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#### **COAL**

the fourth largest coal producer in South Africa



#### **MINERAL SANDS**

one of the world's top three producers of zircon and chlorinatable TiO<sub>2</sub> slag



#### **BASE METALS AND INDUSTRIAL MINERALS**

the only zinc producer in South Africa

#### **IRON ORE**

20% holding in Sishen Iron Ore Company

### At a glance...

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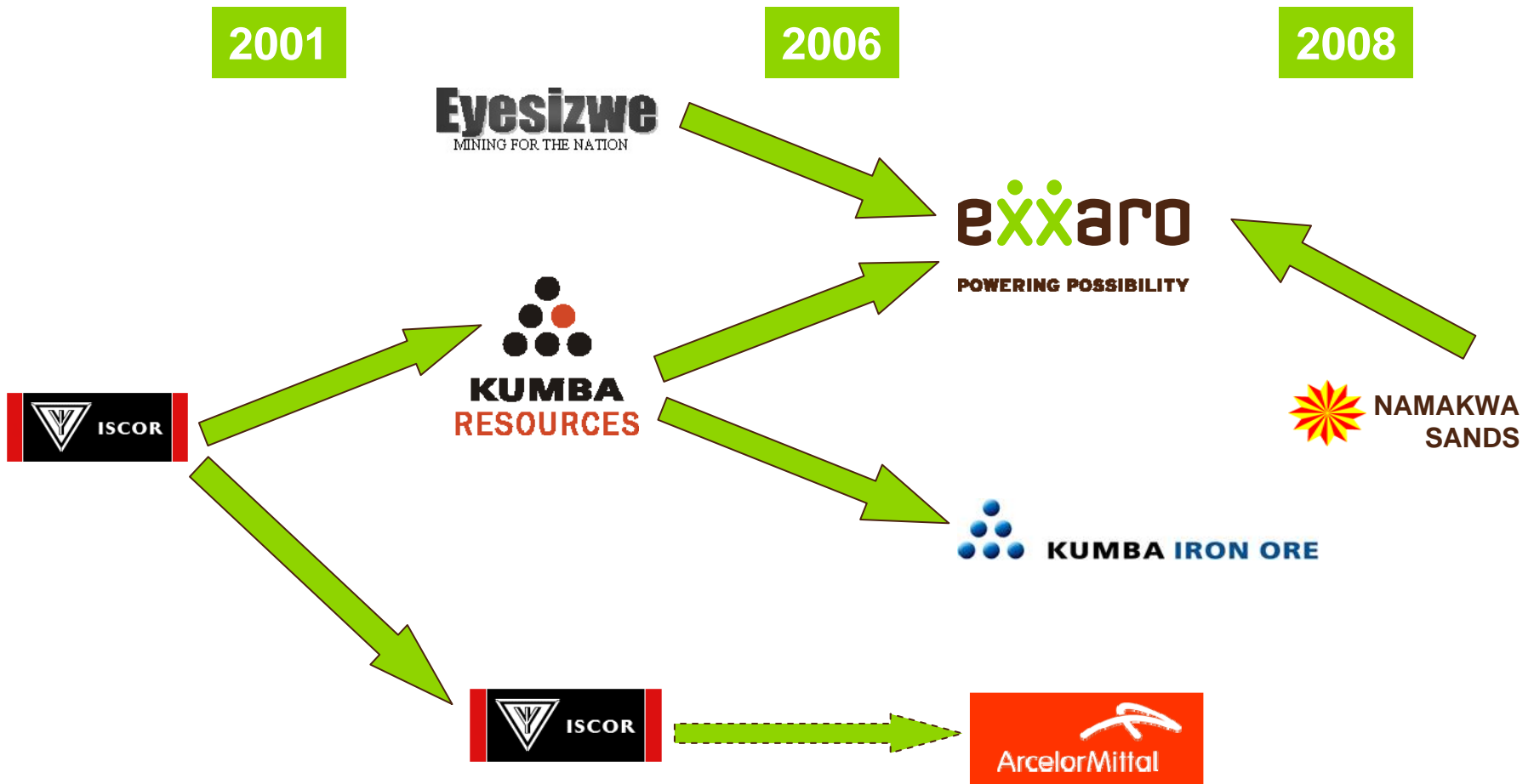
- South Africa's largest diversified resources company
- One of the top 40 companies on the JSE
- 8 300 employees
- Head office in Pretoria, South Africa
- Revenue: R10,16 bn\*
- Net operating profit: R1,44 bn\*

- \* *Annual results for 12 months ended 31 December 2007*



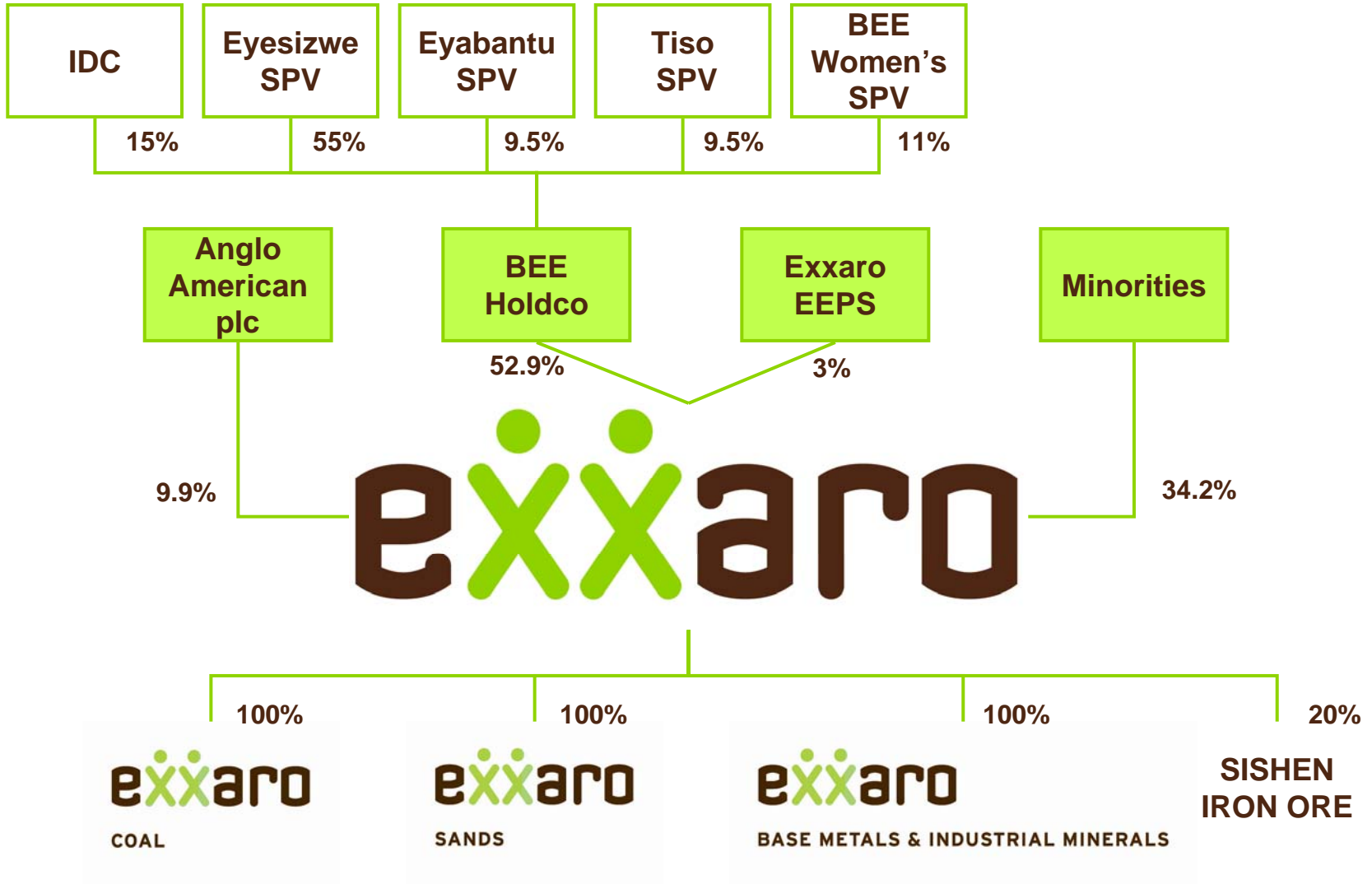


# To summarise the history ...



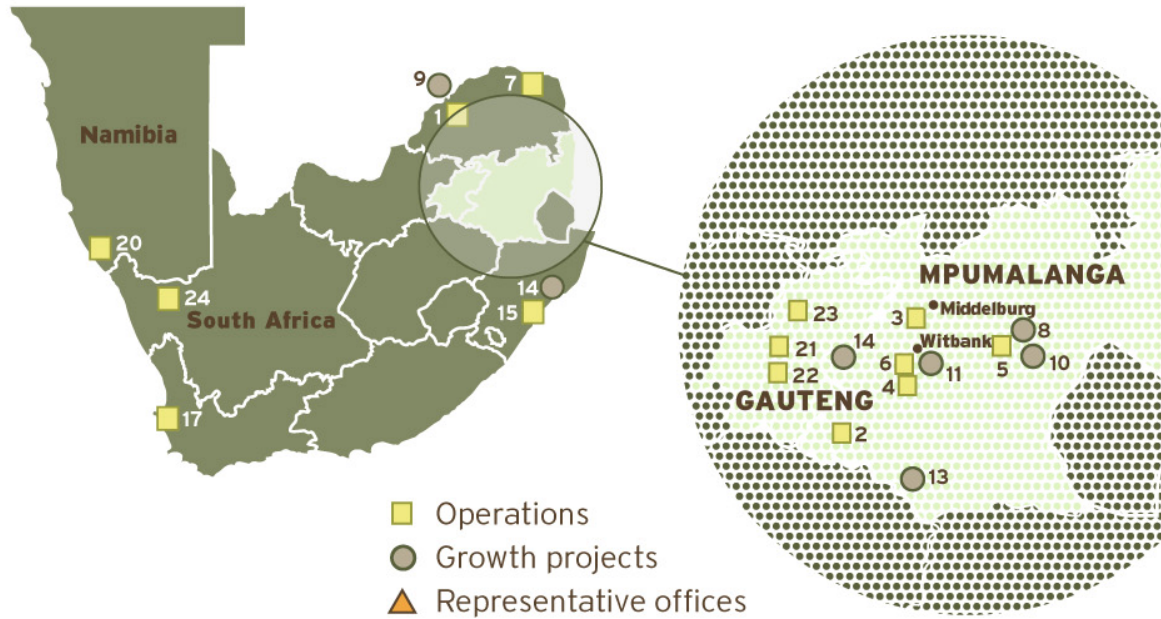


# Group shareholder structure





# Geographical locations – Southern Africa



### COAL

- 1 Grootegeluk
- 2 Leeuwpan
- 3 Arnot
- 4 Matla
- 5 North Block Complex (NBC)
- 6 New Clydesdale
- 7 Tshikondeni
- 8 Belfast
- 9 Mmamabula Central
- 10 Eerstelingsfontein
- 11 Inyanda
- 12 Moranbah South
- 13 Mafube
- 14 RBCT Phase V

### MINERAL SANDS

- 15 KZN Sands
- 16 Toliara Sands
- 17 Namakwa Sands
- 18 Australia Sands

### BASE METALS AND INDUSTRIAL MINERALS

- 19 Chifeng NFC Hongye Zinc Refinery
- 20 Rosh Pinah
- 21 Zincor
- 22 Glen Douglas
- 23 FerroAlloys
- 24 Black Mountain



# Geographical locations - international



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# A robust project pipeline

Ownership (100% unless indicated otherwise)	Board approval	Scope	Estimated Capex	Status	Estimated start-up
Mafube Coal JV (50%)	Nov 2006	5Mtpa	R1.96bn	Construction	1Q08
Inyanda	Nov 2006	1.5Mtpa	R269m	Construction	2Q08
Blesbok expansion		2.4Mtpa	-	In progress	2008
Eerstelingsfontein		1.1Mtpa	R10m	Feasibility study	2008
Char project - Grootegeluk	Aug 2005	160ktpa	R340m	Construction	2Q08
Diepspruit	Nov 2007	1.3Mtpa	R136m	Feasibility study	3Q08
Belfast		1.8Mtpa	R350m	Pre-feasibility	3Q09
Market coke		380ktpa	R1.9bn	Feasibility study	2011
Medupi Phase 1	May 2006	8.5Mtpa	TBD	Awarded	2011
Medupi Phase 2		6.1Mtpa	TBD	Feasibility study	2013
Moranbah South (Australia)		3.5Mtpa	TBD	Pre-feasibility	2012
Kwinana (100% - 50% attributable)		40ktpa	US\$90m	Feasibility study	3Q09
Fairbreeze - Sands	May 2006	300ktpa	R734m	Planned 4Q08	3Q10
Toliara Sands (Madagascar)		560ktpa	TBD	Pre-feasibility	2014
Dongara (Australia 100%)		200ktpa	TBD	Pre-feasibility	2011
Port Durnford (51%)		TBD	TBD	Pre-feasibility	1Q12
AlloyStream - Furnace 1		20ktpa	TBD	Feasibility study	2010

Coal
  Mineral Sands
  Base Metals and Industrial Minerals



## Our strategy

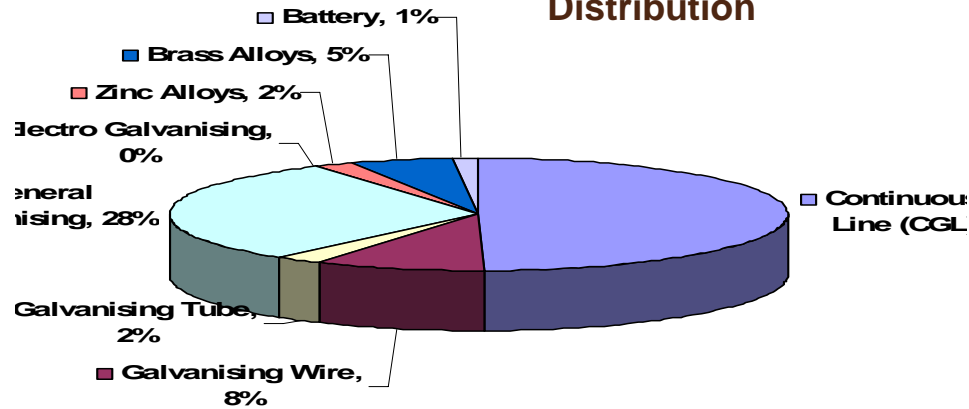
- Aim to become a significant world player in coal and mineral sands and a significant regional player in base metals and industrial minerals
- Focus on commodities and investments that offer above average growth and returns, while minimising risk by investing in a diversified portfolio of commodities and geographies
- Evaluate new business opportunities on an ongoing basis
- Strategic criteria of adding value on a sustainable basis and diversifying the income stream
- Seek opportunities to capitalise on centres of specific competence, utilising well-developed skills in project and risk management, value enhancement and continuous improvement techniques
- Focus to maintain and improve international competitiveness, adopt international best practices and optimize current operations
- Support government in safety initiatives to further reduce fatalities and injuries





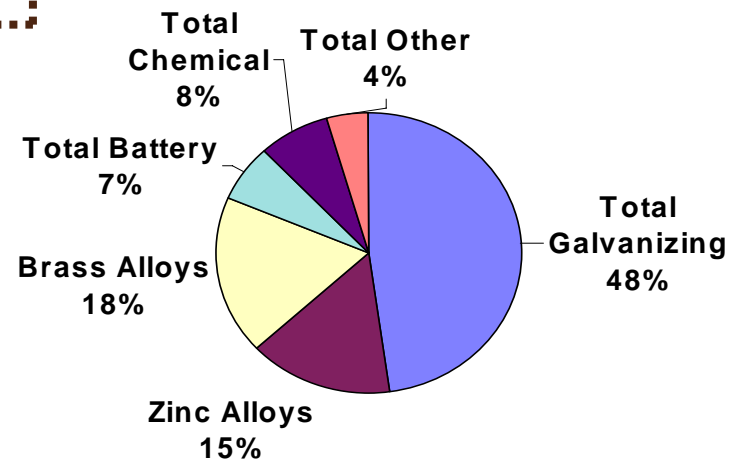
# How our market segmentation compares with the world

### 2007 Zinc Sector Distribution



- Strong bias to the galvanising sector
- Market sector pattern typical of a developing nation

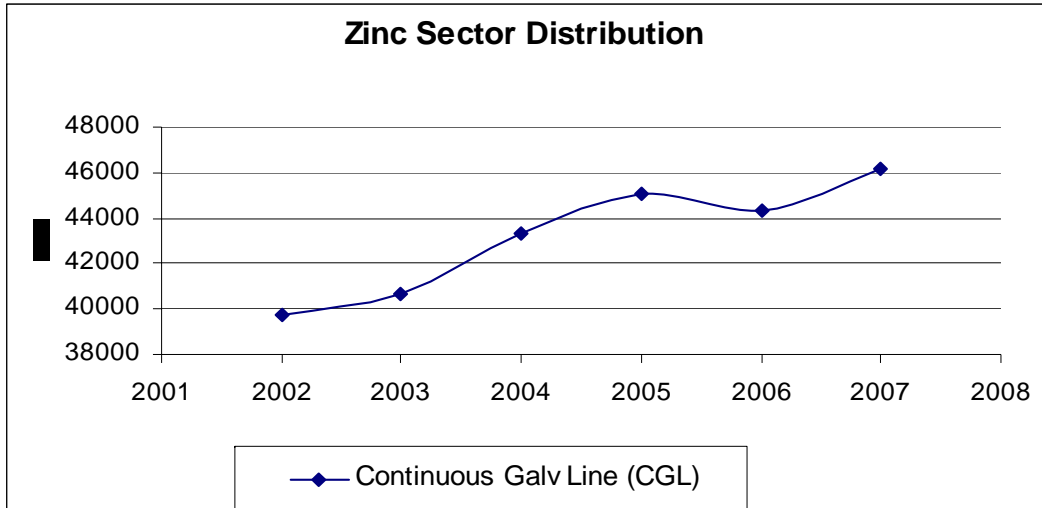
### World Distribution



- First world market sector indicates lower galvanising sector (compared to SA)
- Stronger emphasis on the alloying sector

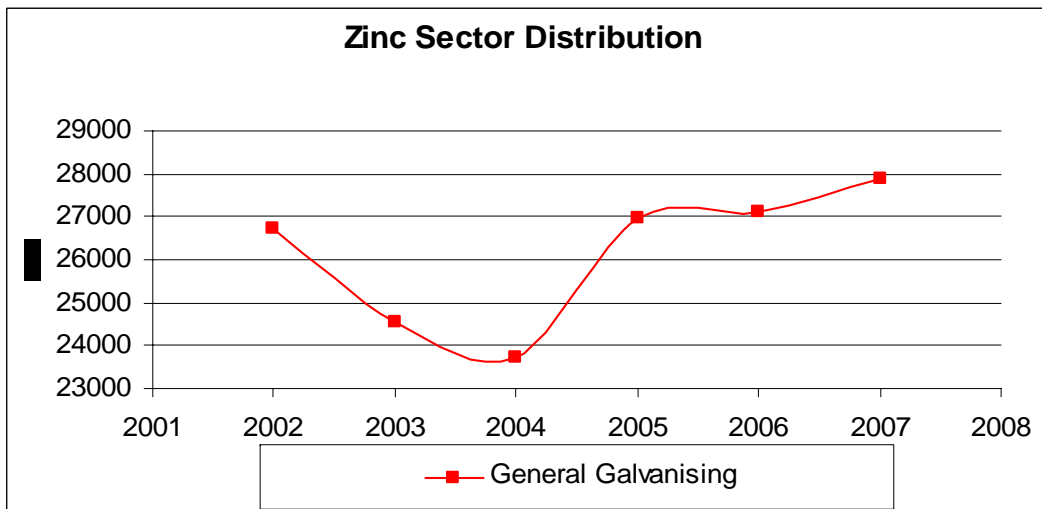


# What are the main market segments into which we sell zinc – annual off-take per sector



Largest market sector showing positive growth.

Additional line at Mittal (nos.5) should support additional growth in 2007 (47 000 Mtpa)



General galvanising sector services the requirements of the steel fabrication industry.

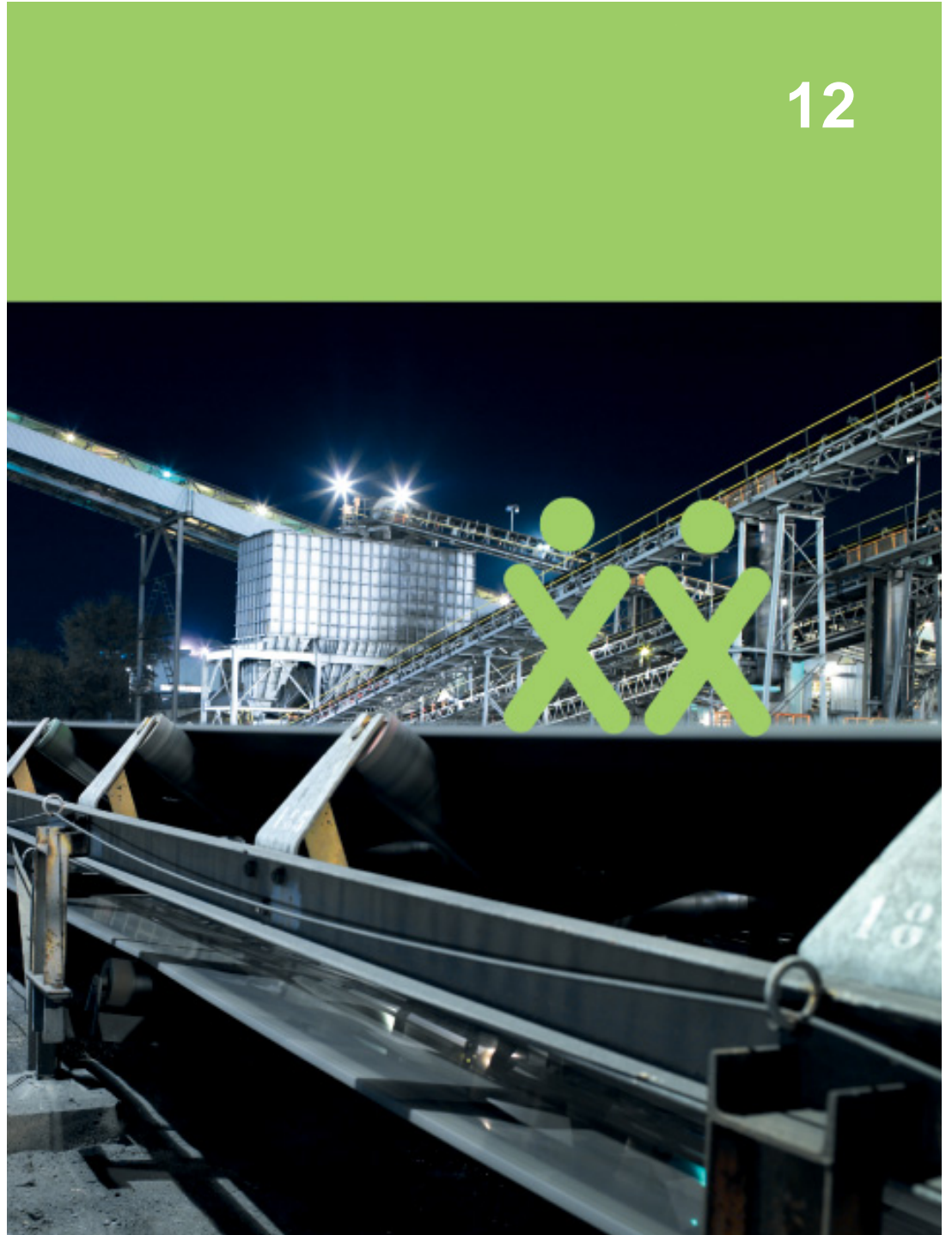
Sector likely to show steady growth in line with increased economic activity in SA.

Source : Zincor Sales Data



## The importance of zinc for South Africa – some highlights

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## Zinc - Sustainable?

In Southern Africa there is an increasing focus on the community

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## Zinc – sustainable?

- Exxaro understands the importance of long-term business sustainability and guards against a short-term focus to survive in the modern global business world
- In the mining industry, the challenge is to demonstrate that the way we approach business contributes to sustainable development – that social, environmental and economic impacts of mining, both positive and negative, are accounted for and managed in a transparent and accountable way



## Sustainable Community?

- Sustainable development as a guiding principle has become a societal, regulatory and market trend
- The use of zinc and lead, as with other major materials, is increasingly affected by environmental and social considerations about products and their life cycle
- These factors influence design and purchasing decisions in key sectors, such as the building, construction and automotive industries
- There is a market trend toward high performance and environmentally responsible products



## Zinc in community development

- Lepharo incubator project:
  - A R15 million small business development project was launched at the Zincor refinery in Springs, Gauteng
  - Primary objective is the identification and training of entrepreneurs to establish new businesses in the Base Metals sector, with focus on zinc products
  - These new businesses will be developed and supported until they are economically sustainable and no longer need the support of Lepharo



## Zinc air battery project in rural upliftment

- Zinc air battery project:
  - Providing both electricity and energy for cooking at Rosh Pinah mine in Namibia
  - In very isolated desert area and was sponsored by Exxaro
  - Selected residents in area received AEDC fuel cell installations to provide basic electricity that is available 24/7
  - Installations included provision of lights and a separate control panel with cellphone charger outlet, auxiliary power outlet for radio/TV or other small appliances
  - Migrating to coal business





## Community development from zinc

- Rosh Pinah socio-economic development programme – SME Centre
- Community trained in basic skills of brick making, followed by training in brick laying to help sustain the local community
- Aim of programme is to promote employment opportunities, income generation and general social upliftment
- Programme is designed to be financially self-sustaining and is currently making a small profit that is reinvested in the programme





## Zinc in agriculture

- Zinc is one of the essential elements for healthy crop growth
- Regarded as a micronutrient, but without it no crop will grow
- Zinc is also essential in galvanising agricultural equipment  
(example: pivot irrigation system)





## Zinc in corrosion control

- Zinc is perhaps best known for its ability to protect steel from the ravages of corrosion
- Locally produced Galfan coated wire is now available in South Africa (a hot dip coated sheet product with a two-side zinc/ aluminium alloy coating)
- International Zinc Association of South Africa (IZASA) facilitated local alloy production and technical support where appropriate
- Standards development is progressing





## Zinc and health

- Zinc is an essential element for good health
- Trace elements are present in the body in minute quantities and without zinc none of the body's vital chemical reactions could function
- A comprehensive new report, by an international group of medical researchers, issued by the International Zinc Nutrition Consultative Group (IZiNCG) states that up to one fifth of the world's population lack sufficient zinc in their diet, while an estimated one third live in countries considered at high risk of zinc deficiency



## Value from waste

- Mine waste from the extraction and processing of minerals, ores and rocks commonly occurs in substantial volumes which remain in waste piles or tailing heaps
- Fine-grained waste especially, creates problems in its containment and disposal and usually remains at the site after mining has long since ceased
- There is an obvious environmental benefit achieved by the reduction or removal of waste
- There can also be a socio-economic advantage, as the production of a saleable mineral product from the waste can provide employment and help sustain the local community



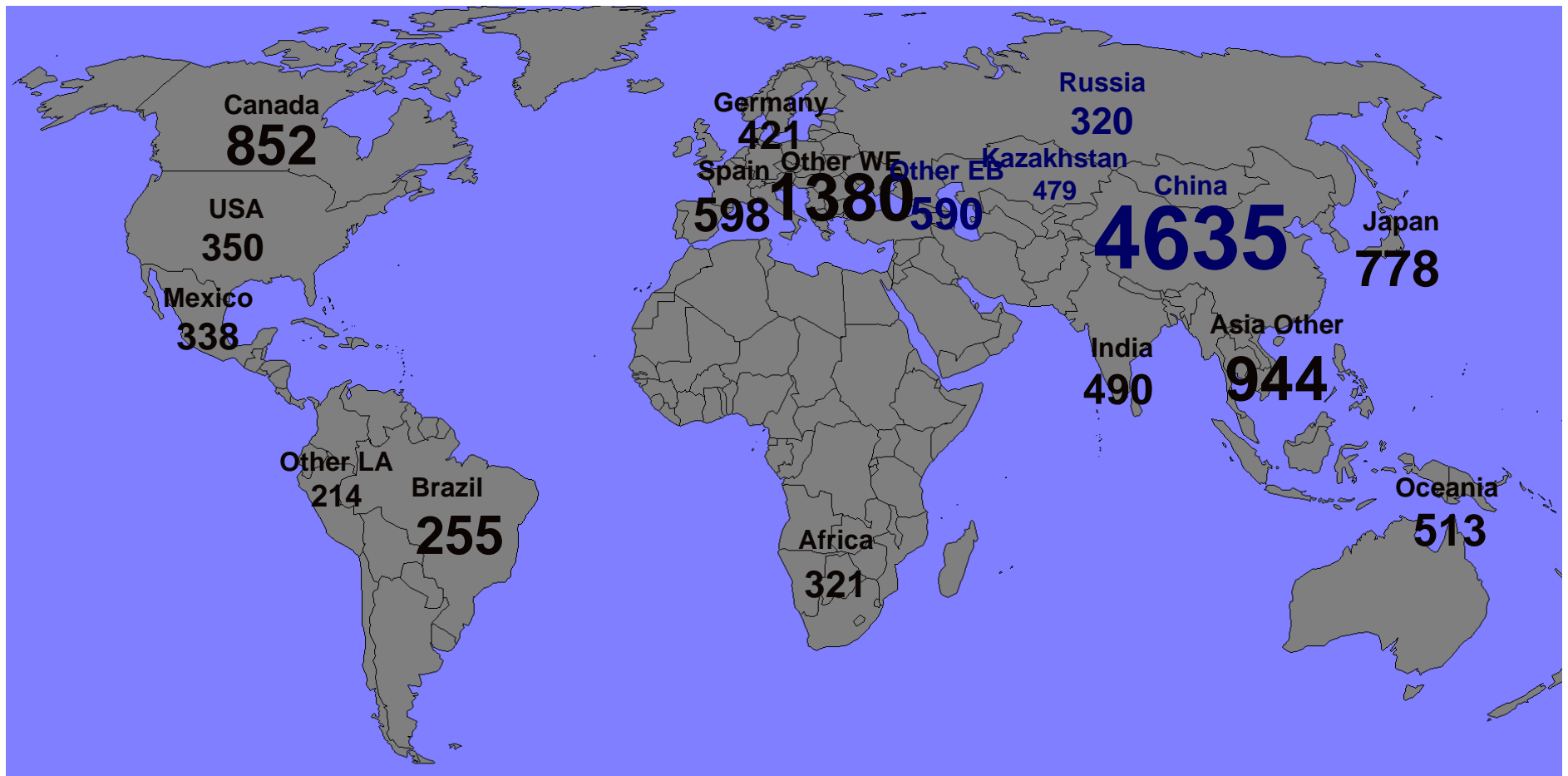
## Zinc is a natural element

- It is recyclable
- It is environmental friendly
- It is good for you



# Trends

Zinc World Refined Capacity 13 820 000





## Challenges in lead and zinc

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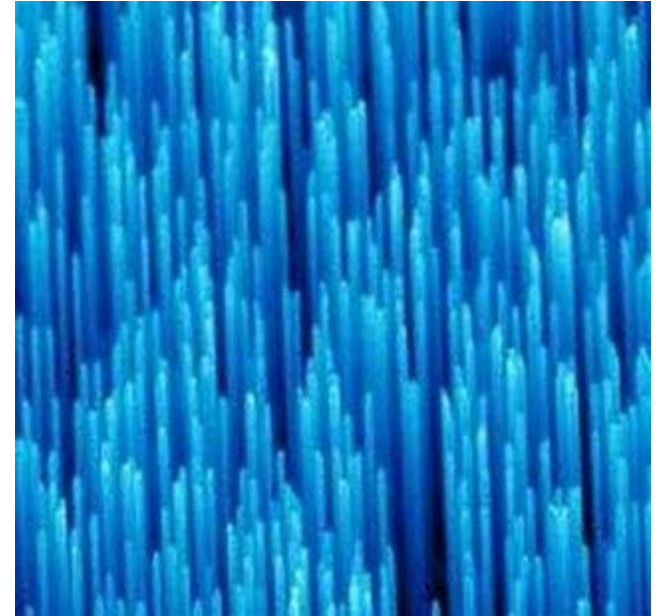
## Future challenges in lead and zinc processing

- Uncertainty with respect to:
  - Fluctuating prices
  - Fluctuating exchange rates
  - Electricity shortages
- Cost hikes with respect to:
  - Capital
  - Opex
  - Manufacturing
- Shortage of good grade local concentrate and related transport costs
- Skills shortages



## What can be done ... technology mind shift?

- What can be achieved by:
  - Dry processing
  - Bio-leaching
  - Pre-beneficiation
  - Whole ore leaching
  - Zero effluent
  - Innovative new products from nano technology



**Nano zinc**

You are here to tell me!



## Technology changes ... isn't this what is needed?

- Processes that can:
  - Address the lower concentrate grade
  - Recover by-products (if any)
  - Be built quickly and cheaply
  - Require low energy inputs
  - Electrical, fuel, human
  - Minimise environmental impacts
  - Intrinsically safe
  - Simple to operate

You are here to tell me!

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**THANK YOU**