



## Iluka Resources

Mineral Sands Briefing Session

Sydney & Melbourne, 17-18 November 2011

Given the significant volatility and uncertainty in economic conditions, as indicated in Iluka's July 2012 Sales Volume Guidance ASX Release, the 2012 - 2014 parameters detailed on pages 10 and 11 of this presentation are now redundant. As the July 2012 release stated: "The volatility in factors which materially influence demand and which are beyond the company's direct control, as well as the company's move in recent years to shorter period sales contracts, have increased the difficulty in providing specific company performance guidance, particularly over extended periods. A reinstatement of such guidance will be dependent on market, commercial and other considerations, including reaching a period in terms of global economic performance when multiple-year forecasts can be made with an appropriate degree of confidence".



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- changes in exchange rate assumptions;
- changes in product pricing assumptions;
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# Disclaimer and Important Notes



## **Competent Person's Statement**

The information in this presentation that relates to Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Greg Jones and Chris Lee who are Members of the Australasian Institute of Mining and Metallurgy. Each of Messrs Jones and Lee is a full time employee of Iluka and has sufficient experience which is relevant to the style of mineralisation and the type of deposits under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" (JORC Code). Messrs Jones and Lee consent to the inclusion in this presentation of the matters based on their information in the form and context in which it appears.

## **Currency**

All currency referred to is Australian denominated unless otherwise indicated.

## **Production Potential Basis**

The information about production potential on slides 42 and 43 is predominantly based on a combination of Proved and Probable Ore Reserves and Measured and Indicated Mineral Resources within the meaning of the JORC Code, that have been subjected to project studies (Enhanced Production Project - EPP) using long term cost and pricing estimates and an assessment of risk, including access, approval and development timing. A very small portion of the production potential is based on Inferred Mineral Resources totalling approximately zero to four per cent of the production potential.

# Presentation Structure



- 1 Introduction and Scope of Presentation  
David Robb, Managing Director
  
- 2 Mineral Sands Market – Structure, Supply/Demand and Inducement  
Alan Tate, Chief Financial Officer
  
- 3 Iluka’s Enhanced Production Options  
Peter Benjamin, General Manager, Enhanced Production Project  
Victor Hugo, General Manager Product and Technical Development  
Steve Wickham, General Manager, Australian Operations
  
- 4 Concluding Remarks  
David Robb

# 1 Introduction and Scope of Presentation

David Robb, Managing Director

## Key Components of Iluka's Physical and Financial Flexibility



- New, higher margin and more integrated production base established
- High capital expenditure period over
- Leadership role in influencing industry dynamics
- Idled production capacity
- Encouraging product and technical development results
  - ability to monetise low value product streams; feedsource flexibility
  - operational and technical efficiencies
  - capacity to innovate and meet customers' needs
- Exploration upside
  - extensive tenement position in prospective basins in Australia
  - well advanced in establishing new international search spaces
  - industry leading technical, IP and resource commitment to exploration

## Mineral Sands Market Characteristics



- Favourable medium to longer term supply/demand characteristics of zircon and high grade TiO<sub>2</sub>
- Both of Iluka's main markets facing supply pressures
- Few high quality, capital efficient, quick response options
  - projects at early feasibility rather than commitment stage
  - typically long lead times
  - technical risk in project execution, commissioning, ramp up and product acceptability
- Supply responses for zircon and high TiO<sub>2</sub> likely to lead to/support significant new ilmenite supply
  - most new supply is ilmenite-dominated
  - potential price erosion
- Favourable dynamics not immune to global macro-economic factors
  - economic growth, consumer spending, business confidence, credit availability
- Iluka decision-making will take heed of such factors



# Mineral Sands Market Conditions



- Many customers have experienced improved profitability in 2011 despite raw material price increases
- Customers concerned about risks to that position – via demand reduction (e.g. thrifting) or supply increase
- Implications globally of a crisis of confidence regarding politicians, political systems and policy settings:
  - government debt and associated bank exposures in Western Europe
  - jobless recovery in the US
  - inflation taming, property policies and credit tightening in China
- Zircon customers' ability to secure credit in Europe and in China an increasingly serious issue
- China particularly volatile and very sentiment driven for next quarter or two
  - winter, New Year and leadership transition (in addition to above)
- Combination of conditions and Iluka response may result in a relatively soft zircon sales quarter or two
- Iluka has increased operational flexibility and a solid balance sheet
  - ability to flex production, sales, inventory
- Clear view on 2012 zircon demand and phasing of that demand will take time to emerge
- High grade TiO<sub>2</sub> demand solid
- Industry participants 'staking out turf'

## Key Physical Parameters 2012 – 2014



	2010 Actual	2011 Guidance (July)	2012-2014 average p.a.	2012-2014 Commentary
<b>Production (kt)</b>				
Zircon	413	~550	~550	Sales level dependent on market conditions and inventory position.
Rutile	250	~275	~280	2012 production expected to be lower (~20%) than 3 year average reflecting Murray Basin mine move, previously advised.
Synthetic rutile	347	~260	~400	Assumes 2 kilns in 2012 and reactivation of 3 <sup>rd</sup> kiln in 2013. 2 kiln operation equates to 300 - 310ktpa. Formal decision not yet taken on third kiln reactivation.
Ilmenite - saleable	469	~460	>400	Level of ilmenite available for sale dependent on SR feedsource considerations and relative economic value of internal use versus sale.

### Refer Disclaimer

Key Physical and Financial Trends reflect Iluka's 2011 corporate plan information. The table on this and the next page **excludes enhanced production options**, as discussed later in this presentation, which may entail additional capital and changes to cash production costs and depreciation schedules. Iluka will be finalising its 2012 budget later this year. It is possible that the company may provide an update to the Key Physical and Financial Parameters at the time of its full year results, if there any material changes, with the potential that key parameters for 2012 will also be provided. Finalisation of the budget, dependent as it is on market and business conditions, may alter the overall average guidance for 2012 to 2014.

## Key Financial Parameters 2012 – 2014



	2010 Actual	2011 Guidance (July)	2012-2014 average p.a.	2012-2014 Commentary
<b>Cash Costs \$m</b>				
Production Costs	544	~620	~780	Higher total reflecting higher production, expected cost inflation and reactivation of 3 <sup>rd</sup> SR kiln in 2013. Actual cash costs of sales in any period, as reflected in the P&L, are influenced by inventory movements.
Unit Costs Z/R/SR \$/t	538	~560	~630	
Other Costs	92	~115	Not guided	Includes marketing and selling costs, royalties, product and technical development, corporate, exploration expensed and major project development costs. Given production opportunities, may be higher than historical levels.
Restructure, Rehab & Idle Costs	24	~5	Not guided	
<b>Non Cash Costs</b>				
Depreciation & Amortisation	219	~195	~160	Dependent on mine plan scheduling and other factors.
Other	15	~15	Not guided	Mainly rehabilitation provision unwind. Historically has averaged ~\$15m pa.
<b>Capital Expenditure</b>	117	~170	~170	Indicative and based on 2011 corporate plan projects. Iluka's enhanced production options and SR kiln maintenance beyond 3 kilns are not included.

# Iluka's Production Approach



## **Alignment with objective: create and deliver value for shareholders**

Financial metrics - IRR, payback period, unit costs/margins, ROC, NPV

and

Market approach – assessment of implications for supply/demand under various scenarios

Options available:

Extend economic life of some deposits and/or

Increase near to medium term production

## Key Takeaways and Caveats



- Iluka's production options are extensive
  - over 30 opportunities identified as basis of current evaluation from the EPP
  - more than 10 opportunities to be subject to detailed evaluation
- Further work on technical, regulatory and other delivery risk factors required
  - integrated assessment critical across all products
  - project scheduling key value driver given mineral sands market opportunities
  - internal resourcing for multiple project delivery a key issue
- Options identified include higher annual production and/or longer economic lives of some deposits
  - trade off to be made in context of market supply assessments
- Forecasting an increase in Mineral Resources and Ore Reserves\* at full year
  - Ore Reserve\* increases in three key deposits announced (16 November 2011)
  - additional increases may flow from further (PFS, DFS) studies
- Iluka will maintain its disciplined and conservative approach to Mineral Resources and Ore Reserves estimates

\* To be reported in accordance with the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2004' (the JORC Code)

## 2 Mineral Sands Market – Structure, Supply/Demand and Inducement

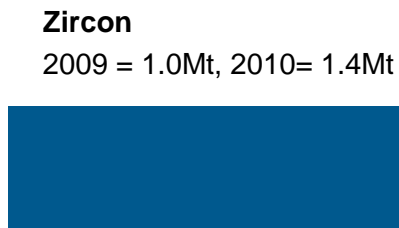
Alan Tate, Chief Financial Officer

## Overview of Zircon and High Grade Titanium Sectors

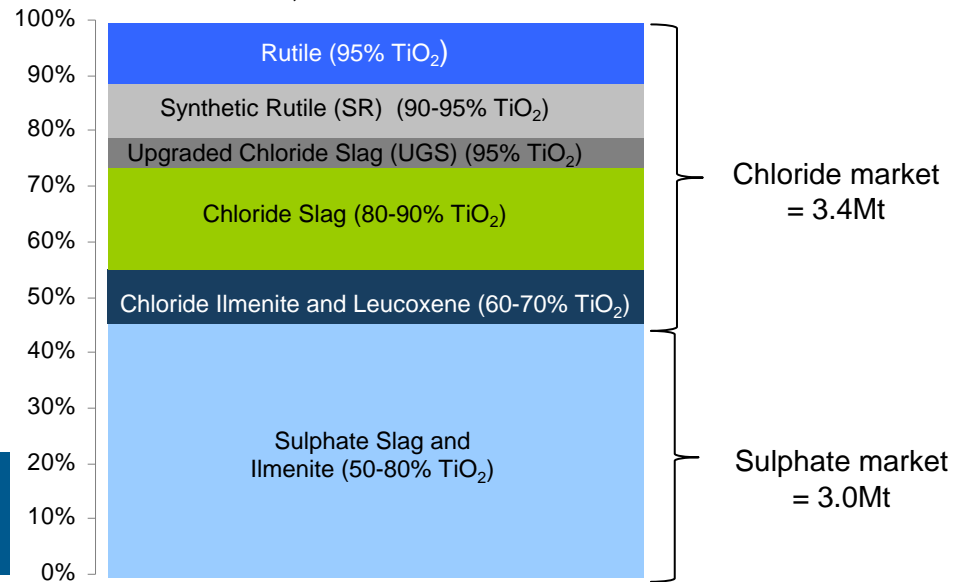
# Mineral Sands - Principal Product Streams



## Global Mineral Sands Market Sales (Mt)



## Titanium Feedstocks 2009 = 5.3Mt, 2010 = 6.4Mt



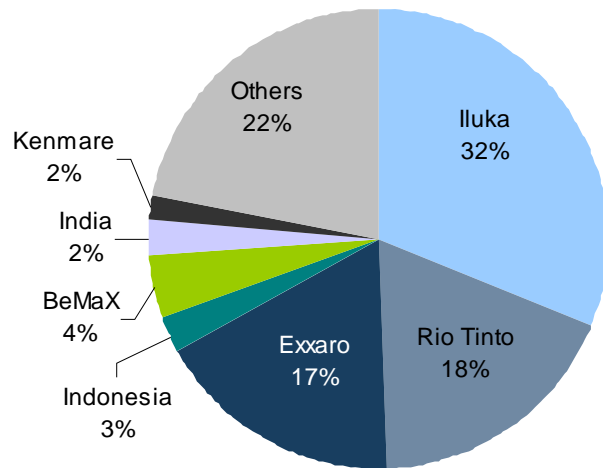
Typical industry zircon to titanium dioxide ratio in mineral sands deposits ~ 1:4



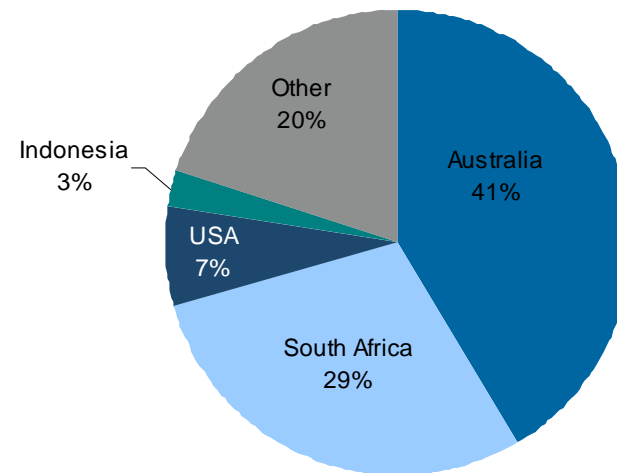
# Zircon Industry Structure and Participants



**Major Producers (2010)**  
1.4 Mt



**Major Producing Countries (2010)**



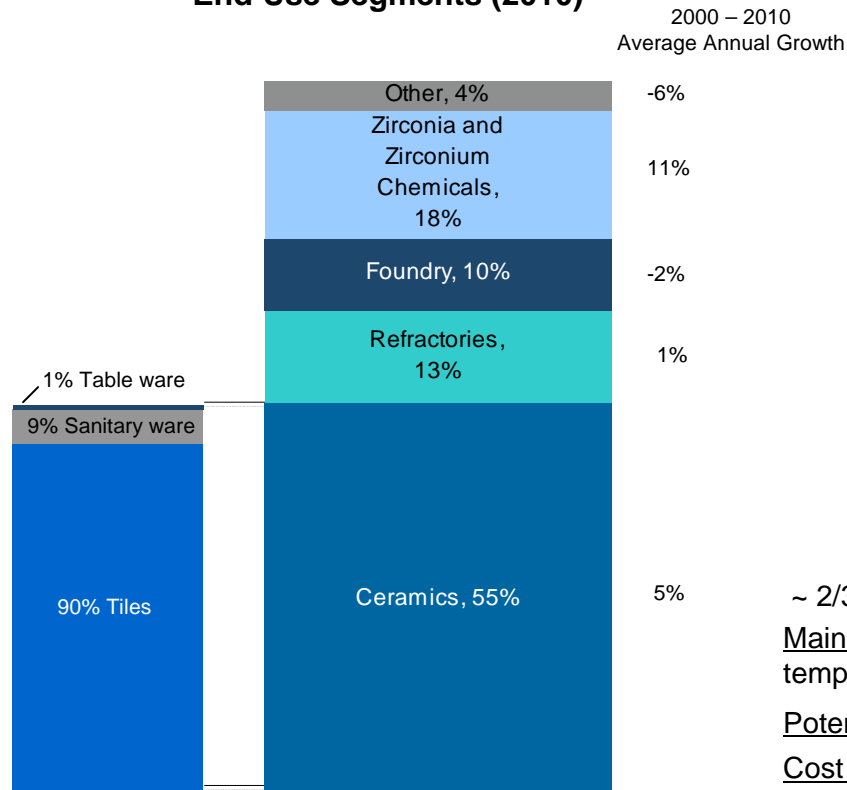
- 3 largest participants account for ~ 70% of the market
- Australia and South Africa produce ~ 80% of global zircon

Note: Rio Tinto and BHPB's production grouped together as Rio markets BHPB's mineral sands production from Richards Bay  
Source: TZMI and Iluka

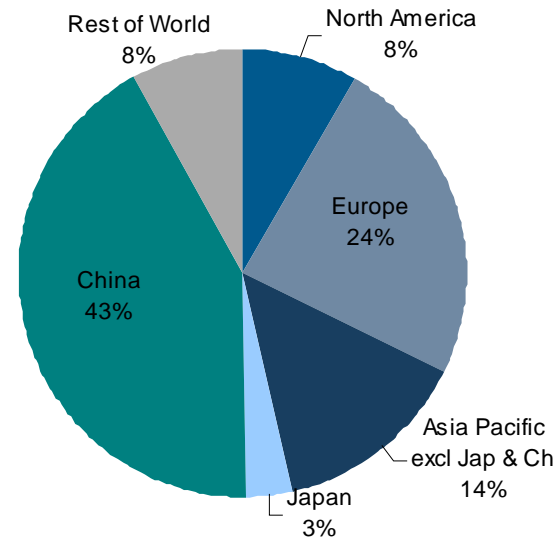
# Zircon - Usage and Consumption by Region



**End Use Segments (2010)**



**Consumption by Region (2010)**



~ 2/3rds of zircon sold to developing economies

Main Attributes: Opacity, whiteness, abrasion resistance, temperature resistance and inertness

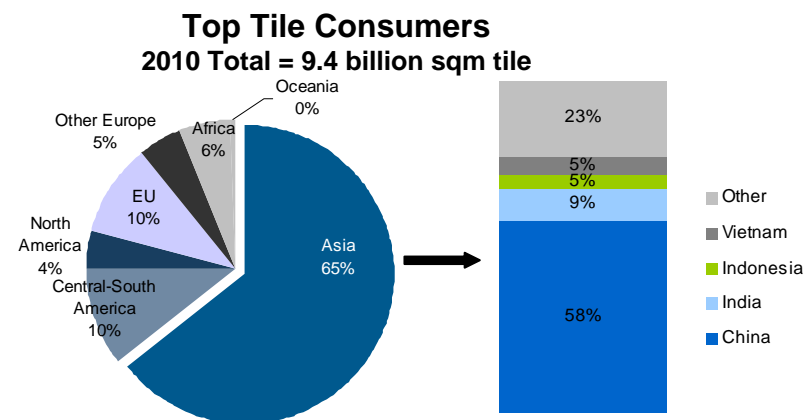
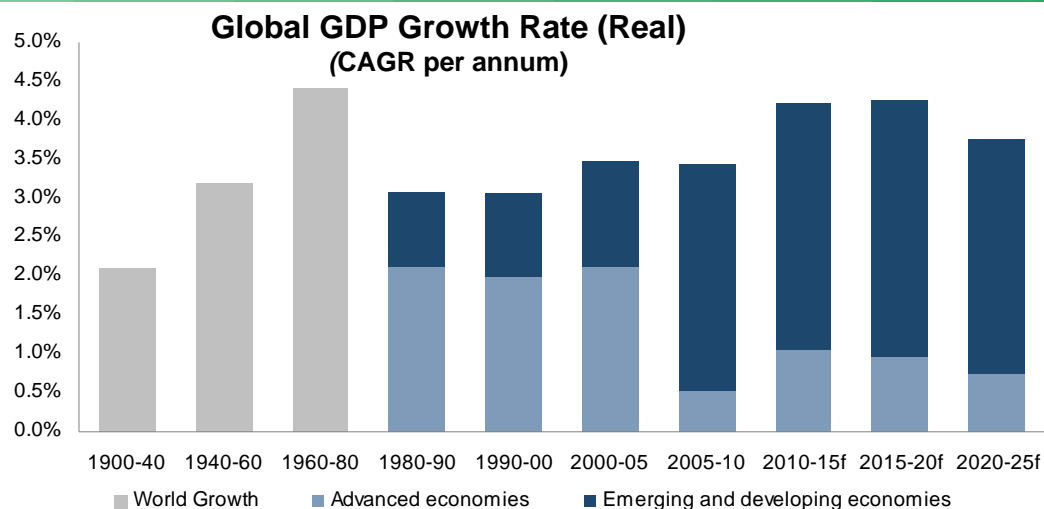
Potential Substitutes: White clays, kaolin and feldspar (in ceramics)

Cost in Final Product to Consumer (sq metre of tile)

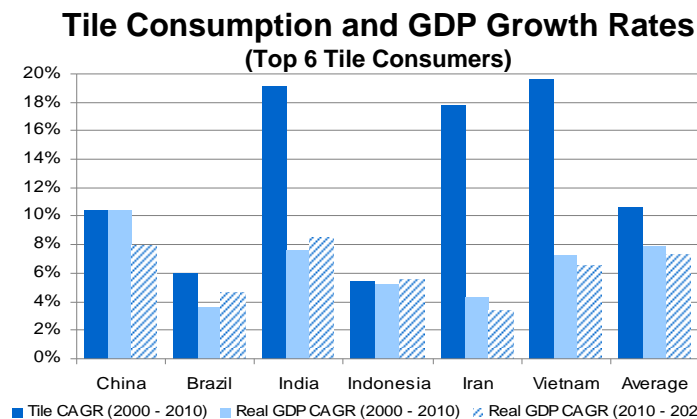
~ 3% to 16% (dependent on tile type, quality and colour)

Source: TZMI and Iluka

# Tile Consumption - Dominated by Developing Economies



- China, Brazil, India, Indonesia and Vietnam consume over half of the world's tiles
- These economies were relatively immune from 2009 GEC impacts
- Resilient demand likely even if global economic slowdown
- Italy and Spain represent 48% of the ceramics manufactured in Europe – but export > 70% of tiles manufactured, mainly to developing economies

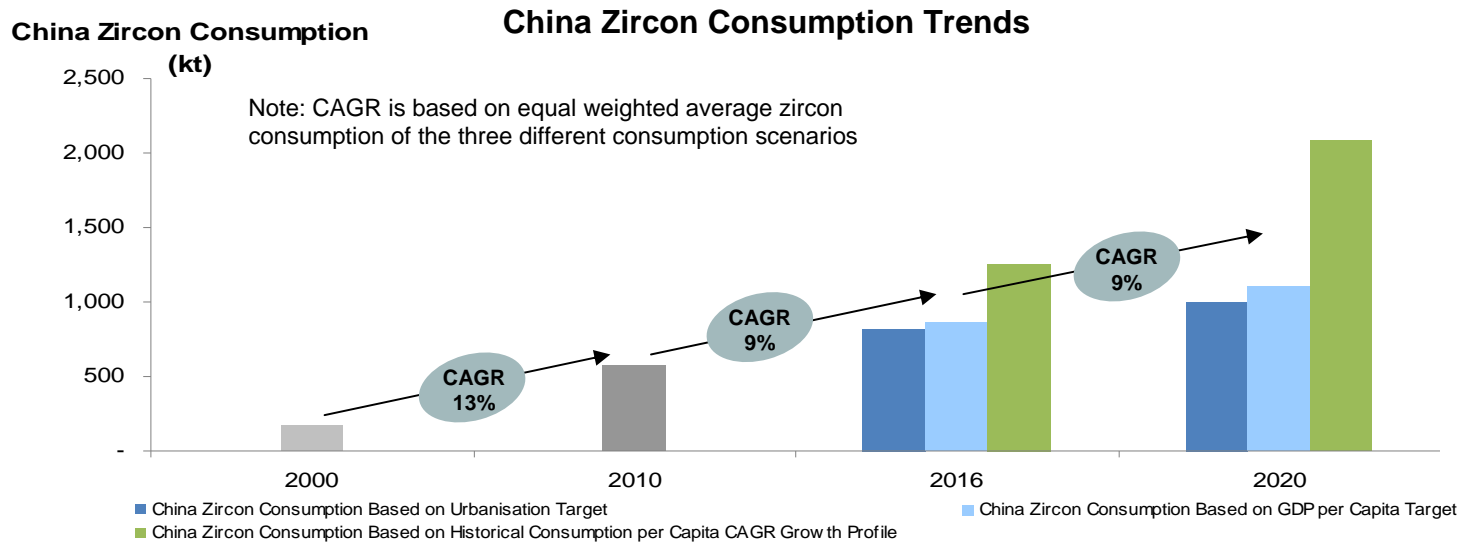


Source: Data for charts sourced from Maddison, IMF, Ceramic World Review, Global Insight

# Zircon Demand - Linked to GDP Growth and Urbanisation



*“The goal of the Chinese regulators is for China to become a moderately prosperous country by 2020. Its goal is to achieve a \$US10,000 per capita GDP by the year 2020...Urbanization rate will reach 51.5% by 2015” – China’s 12<sup>th</sup> 5 Year Plan*



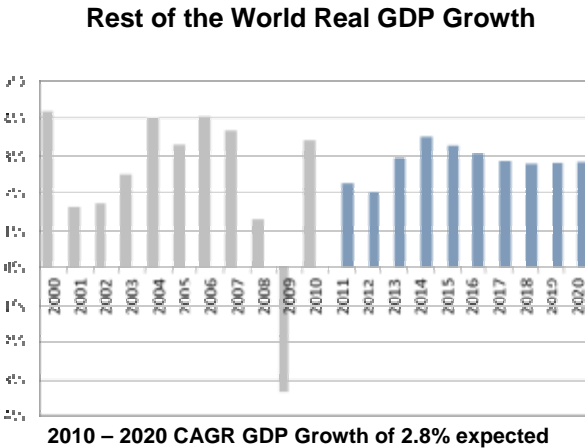
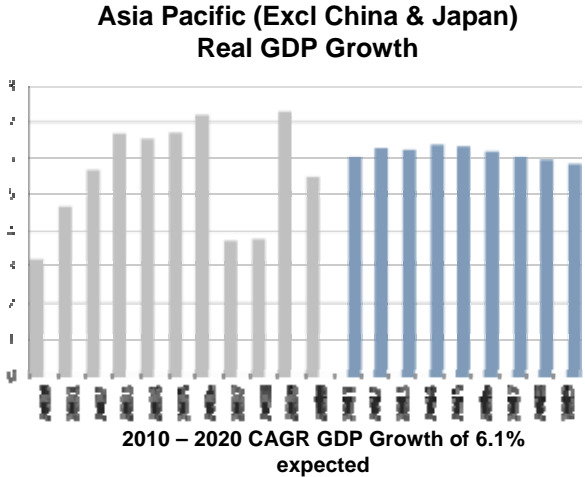
<b>Urbanisation (%)</b>	36	47	52.5	57
<b>GDP per Capita (US\$)</b>	950	4,392	7,165	10,000

Source: World Bank, Global Insight, McKinsey and China 12<sup>th</sup> Five Year Plan

# Zircon Demand



China zircon consumption trends (previous slide) indicate possible zircon growth of ~9%



Zircon Demand Growth Scenarios (CAGR Growth 2010 – 2020)

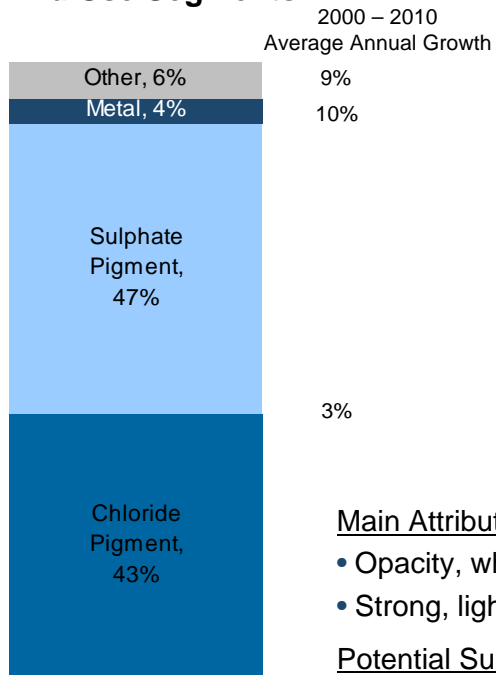
	China	Asia Pacific (Excl China & Japan)	ROW	Total
High	9%	6%	3%	6%
Medium	8%	5%	1%	5%
Low	5%	4%	0%	3%

Source: Global Insight and Iluka analysis

# Titanium Feedstock Demand - Usage and Regions of Purchase



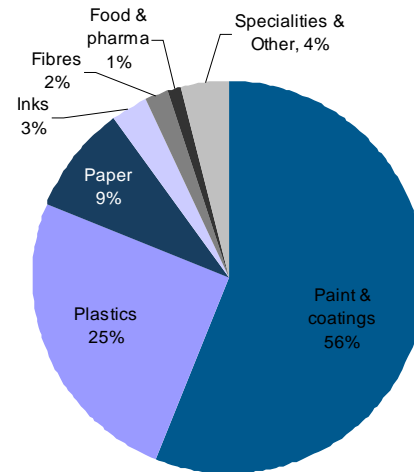
## End Use Segments



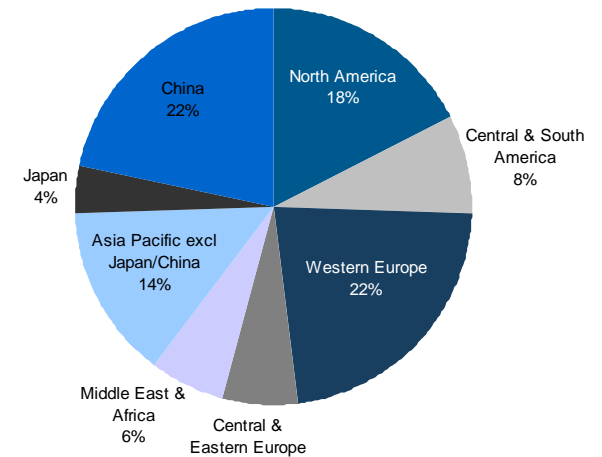
2000 – 2010  
Average Annual Growth

9%  
10%  
3%

## Pigment End Use



## Pigment End Use by Region



### Main Attributes:

- Opacity, whiteness, UV absorption (pigments)
- Strong, lightweight, corrosion resistant (metals)

### Potential Substitutes

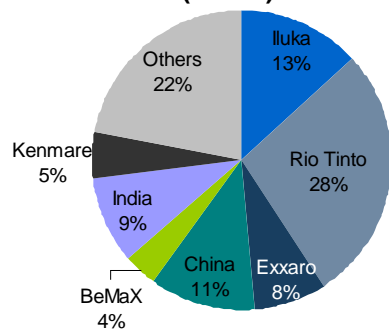
- No major substitutes

### Cost in Final Product to Consumer

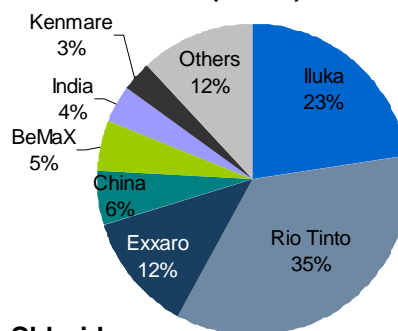
- Paint ~6% (dependent on paint quality and colour)

# Titanium Dioxide Industry Structure and Participants

**Total TiO<sub>2</sub> Feedstock  
Chloride & Sulphate  
(6.4 Mt)**

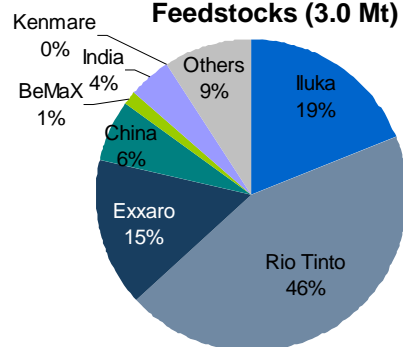


**Chloride Feedstock  
(3.4 Mt)**

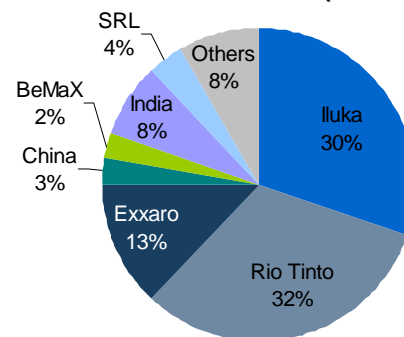


- 3 largest chloride feedstock producers > 70%
- High grade feedstocks - 3 largest producers ~ 80% of market

**High Grade Chloride  
(80%+) TiO<sub>2</sub>  
Feedstocks (3.0 Mt)**



**Very High Grade  
Chloride (90%+) TiO<sub>2</sub>  
Feedstocks (1.8 Mt)**



Source: TZMI and Iluka. 2010 data  
Iluka 2 SR kiln operation

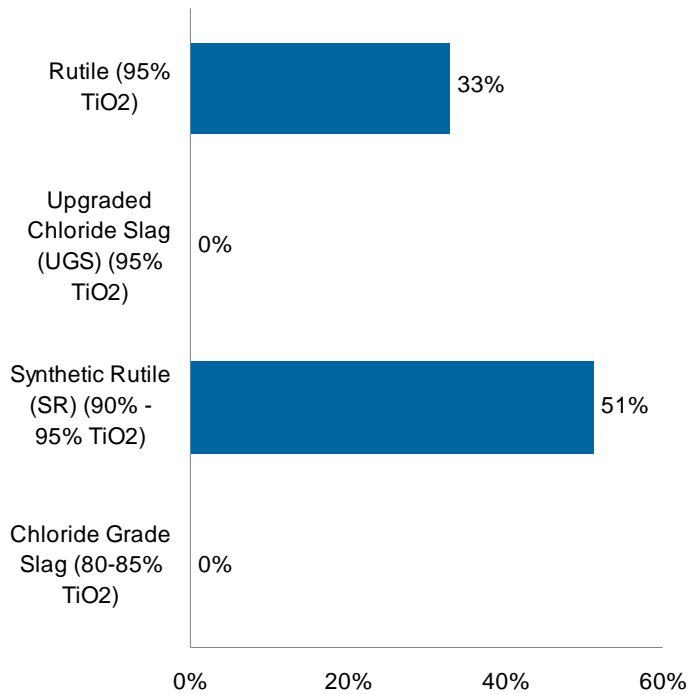
Note: Rio Tinto and BHPB's production grouped together as Rio markets BHPB's mineral sands production from Richards Bay

# Iluka's Market Position in High Grade (80%+) Feedstocks



Increasing value in use for pigment plants

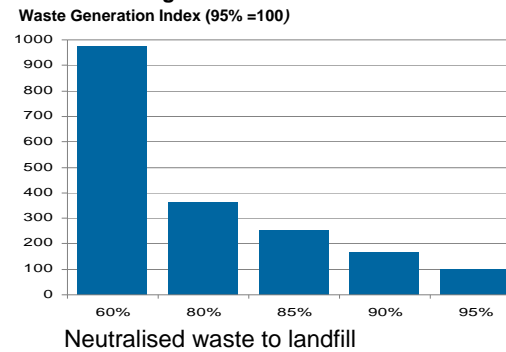
**Iluka's Market Share in 2010**



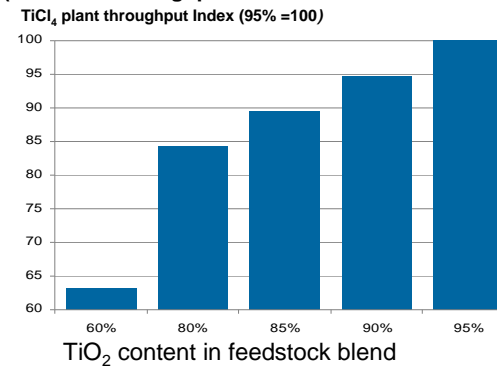
Note: TiCl<sub>4</sub> is an intermediate product in the production of pigment

Source: Iluka analysis

**Waste Production at Different Pigment Feedstock Blends**  
(Reduced waste generation as feedstock blend increases)

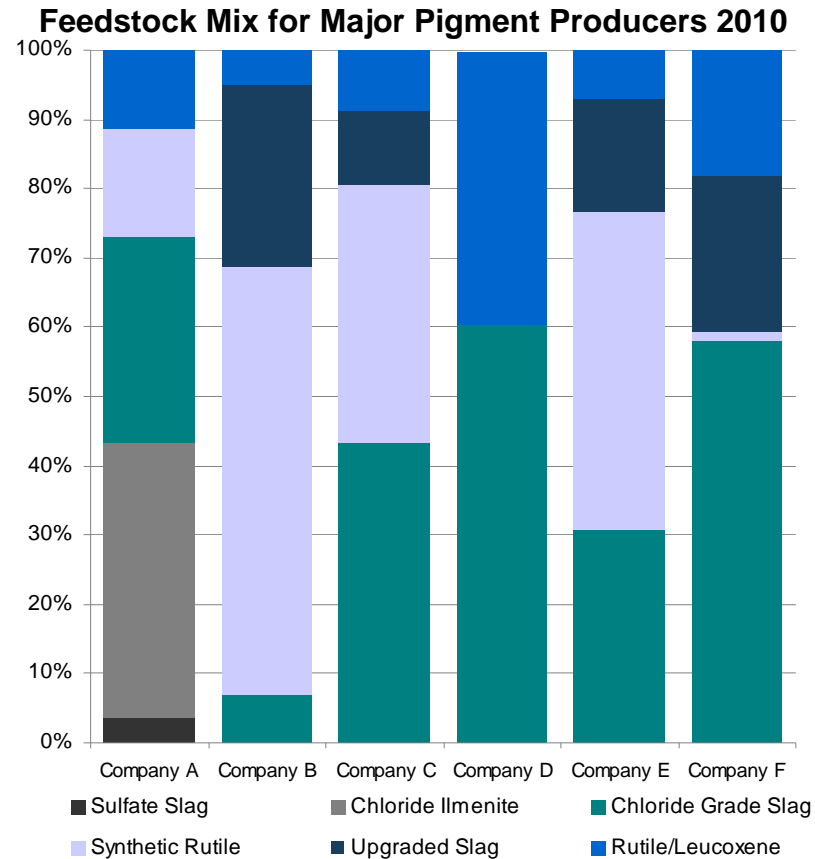


**TiCl<sub>4</sub> Production at Different Pigment Feedstock Blends**  
(Increased throughput as feedstock blend increases)





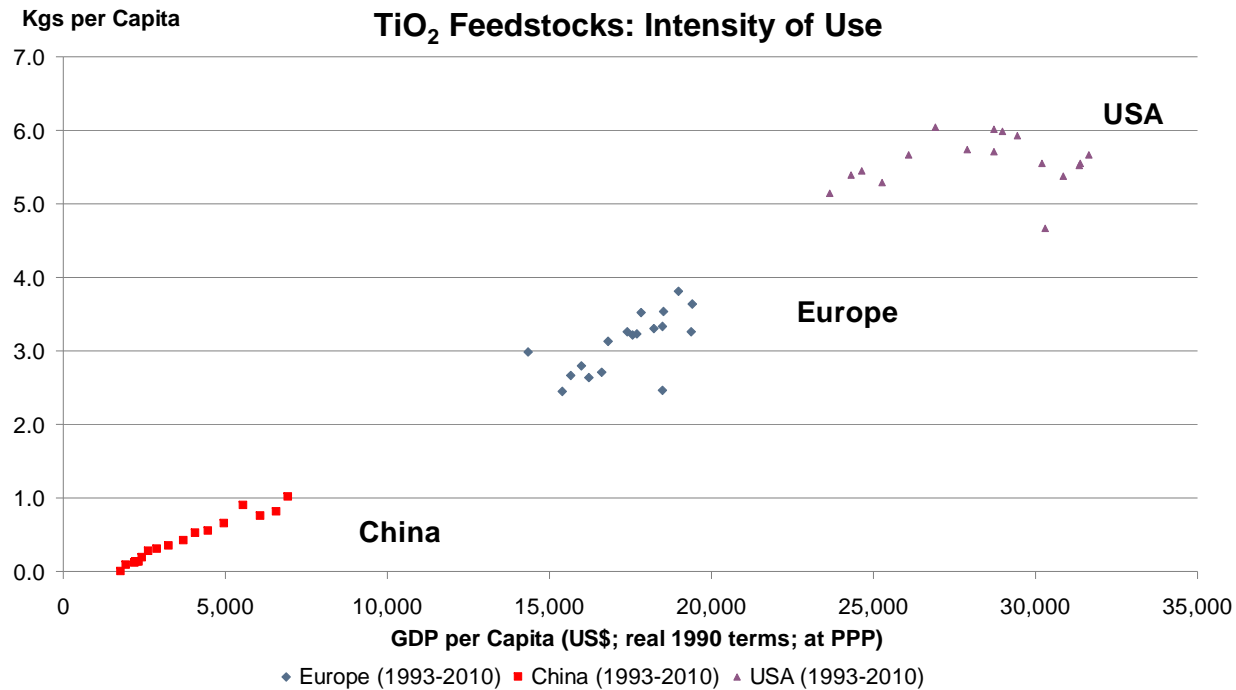
# Feedstock Mix for Chloride Pigment Plants



- Pivotal role of high grade titanium feedstocks
- Pigment plants are large and sophisticated, where operational efficiency is highly dependent on specifications of feedstock blends
- Iluka supplies predominantly to chloride producers which typically use combination of rutile, SR & UGS
- Currently only one major pigment producer has a proven capability to use significant quantities of chloride ilmenite in their pigment plants
- Feedstock blends vary between producers and even between plants for the same producer
- Some chloride pigment producers are very sensitive to the % TiO<sub>2</sub> content in the final feed
- TiO<sub>2</sub> content in the feedstock mix for pigment plants varies between 63% to 94%

Source: TZMI and Iluka analysis

# Pigment Demand Intensity - Linked to GDP growth

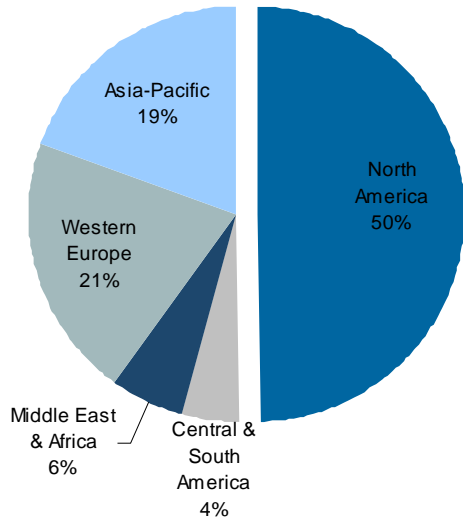


- Developing countries' intensity of pigment use (pigment per person) is expected to grow with rising living standards (GDP/capita)
- Developed countries show an intensity of pigment use ~1.5 – 4kg per person. This level of pigment use in China would be a significant increase from current levels – less than 1kg per person

# Chloride Pigment - End Demand Influenced by Developing Economies



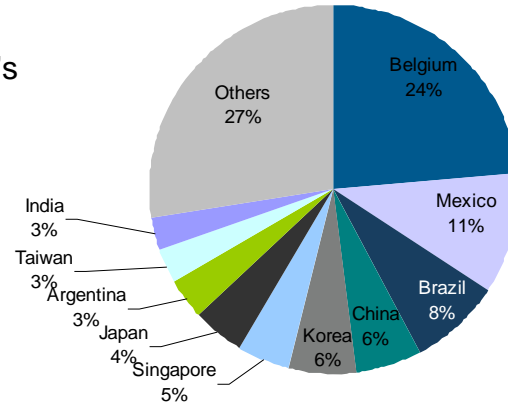
**Global Chloride Pigment Production**



~50% of North America's production is exported

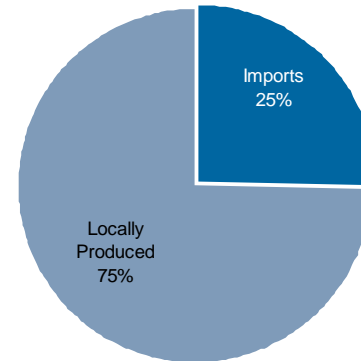


**North American Pigment Exports**



Note: Belgium is only used as an intermediate hub to finish TiO<sub>2</sub> from where it is exported, mainly to the rest of Europe

**Chinese Pigment Consumption**

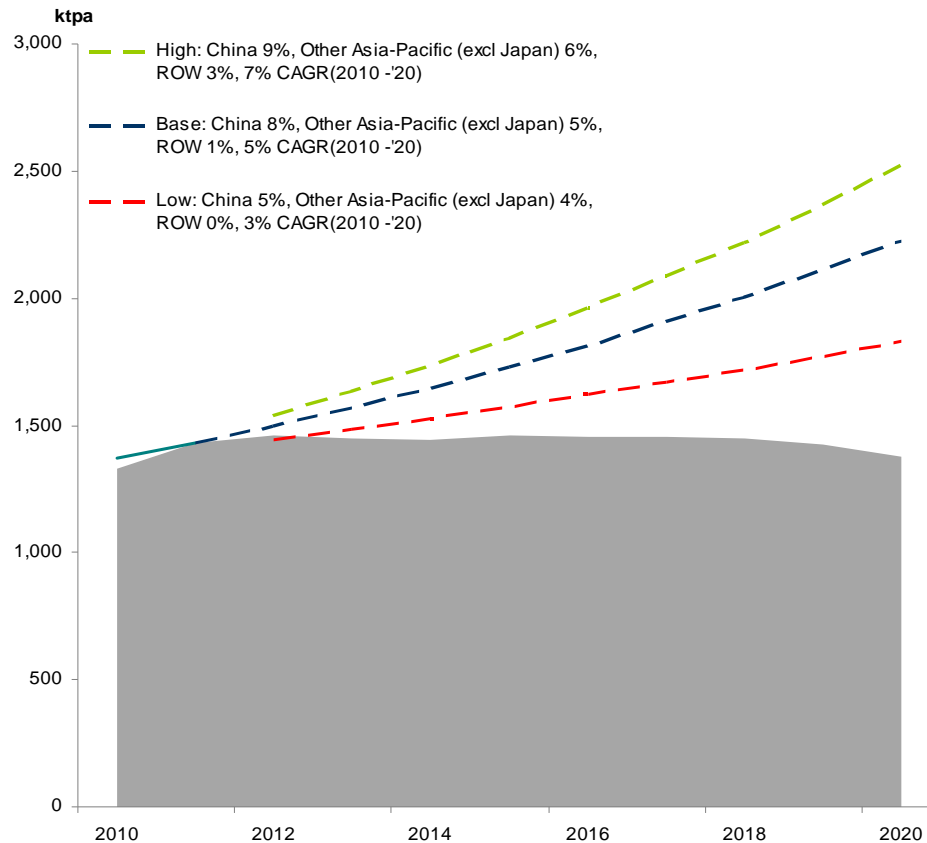


“Enterprises will be encouraged to develop chloride route TiO<sub>2</sub> pigment technology with a single line capacity of not less than 30ktpa consuming high-grade feedstock with a TiO<sub>2</sub> content of not lower than 90%.”

China National Development & Reform Commission May 2011

## Supply/Demand and Inducement

# Global Zircon Demand Scenarios



Source: Iluka analysis

## Demand Scenarios

- Three possible demand scenarios illustrated
- Difficult to envisage a demand scenario where zircon demand does not reflect the major influence of developing and urbanising economies
- Existing production is constrained
- Supply deficits could, conceivably, be large – see below

### Potential Supply Deficit Scenarios

Potential Scenario Deficits Based on Demand CAGRs of:	2016	2020
3%	170 kt	450 kt
5%	360 kt	850 kt
6%	510 kt	1,143 kt

# Zircon Supply Inducement - Potential Supply



## Announced and mooted projects included in inducement evaluation

Potential Project	Country	Current Stage of Evaluation
Birzulivske	Ukraine	In construction
Grand Cote	Senegal	Feasibility/near commitment
Kwale	Kenya	Feasibility/near commitment
Keysbrook*	Australia	Feasibility
Tormin*	South Africa	Feasibility
Coburn	Australia	Feasibility
Moma Stage 3**	Mozambique	Under investigation
Athabasca	Canada	Under investigation
Cerro Blanco	Chile	Under investigation
Cyclone*	Australia	Under investigation
Donald*	Australia	Under investigation
Moebase and Naburi	Mozambique	Under investigation
Toliara*	Madagascar	Under investigation
Obukhovskiy	Kazakhstan	Under investigation

## Total Announced/Estimated Production by Stage of Evaluation

Stage of Evaluation	Annual zircon production (kt) pa	Annual TiO <sub>2</sub> production in ilmenite (kt)	Annual TiO <sub>2</sub> production in high grade (kt)
In construction	0	167	0
Feasibility	202	616	106
Under investigation	405	1,200	326

Refer slide 67 for explanatory comments

Source: Company Reports, TZMI

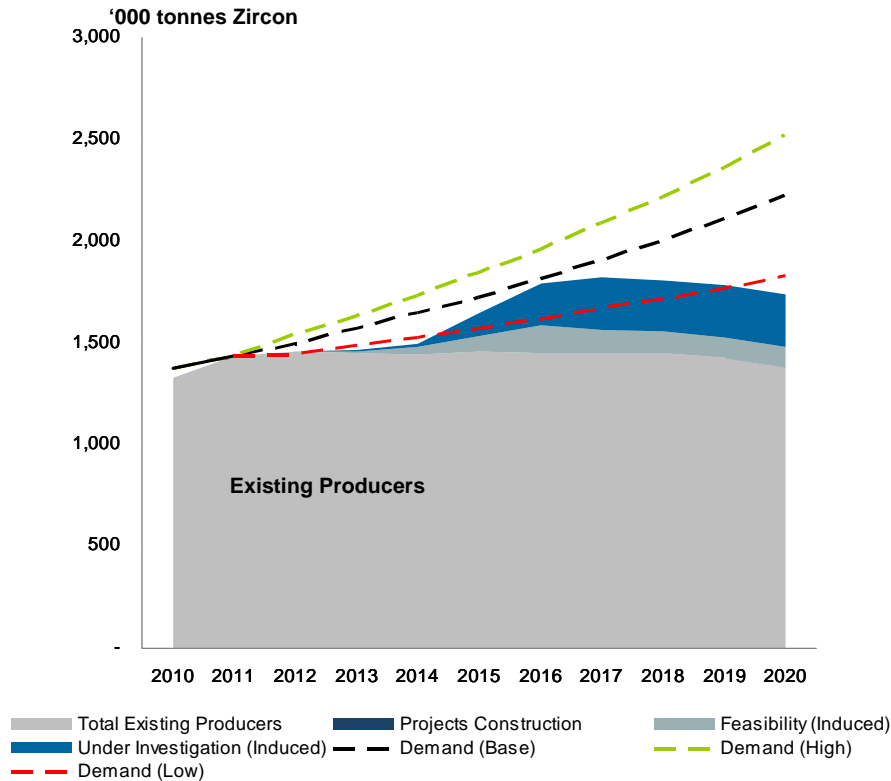
Note: Information concerning projects with \* is sourced from TZMI

Note: Information concerning projects with \*\* is based on Iluka estimate

# Zircon Supply/Demand - Assuming Projects Induced



Zircon Supply and Demand (including induced projects)



- Persistent supply shortage likely in base demand case
- Only under low case demand scenario (3% pa demand) would the market be in ~10% oversupply if all assumed projects are induced by 2014
- The foregoing assumes no enhanced production activities by Iluka - refer next section
- Of projects potentially “induced”:
  - ~30% assessed as high technical risk
  - ~40% in countries rated with a Significant or High Risk

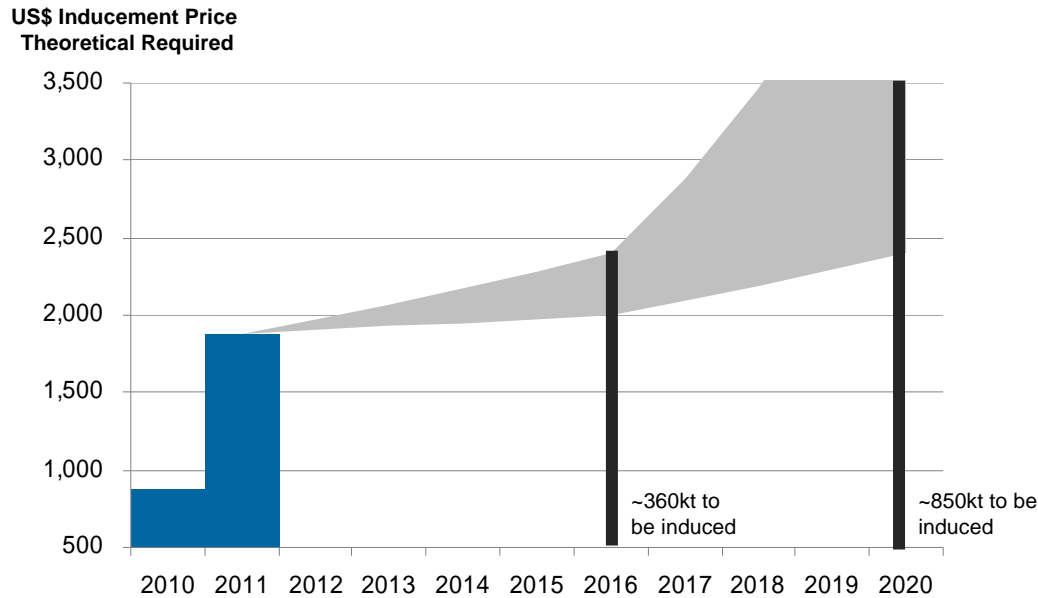
Source: Iluka analysis

Profile by IHS Global Insight

# Indicative Zircon Inducement Pricing



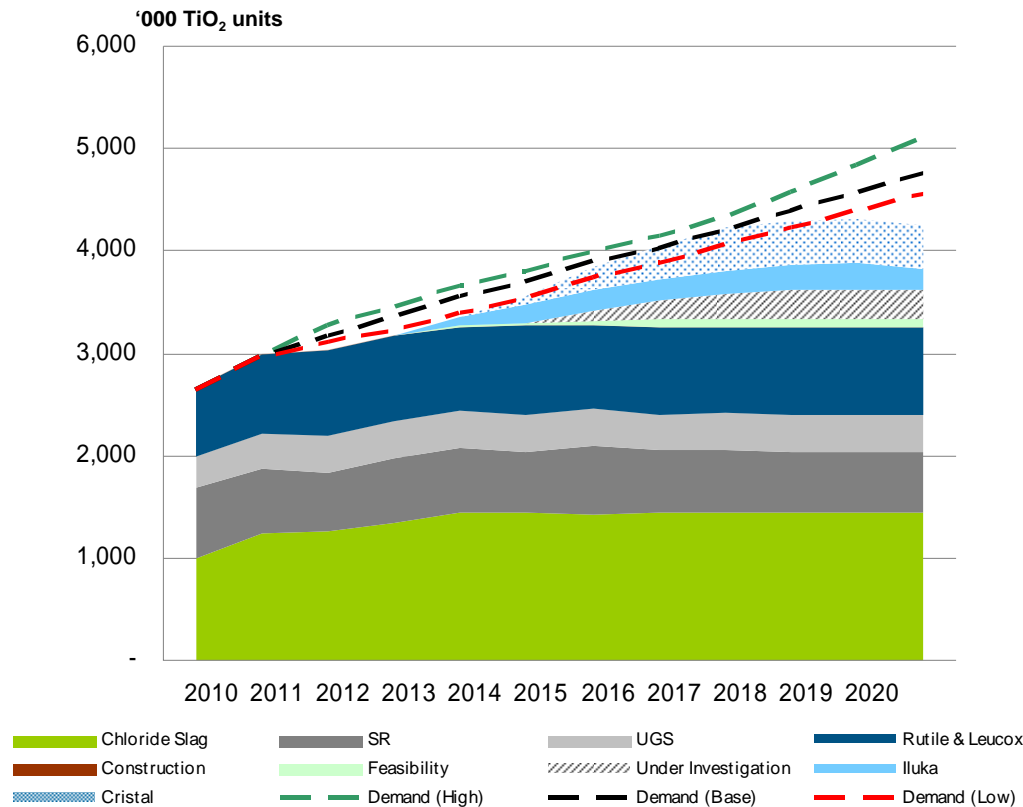
## Inducement Price Required to fill Supply Shortage in 2016



- Iluka’s analysis of prospective projects shows that sustained higher pricing required to rationally induce new supply
- To meet a 5% CAGR demand by 2016 an estimated inducement price of US\$2000-2400/t theoretically required
- Note: this is higher than the inducement prices presented last year (US\$1500 – US\$1700/t) to meet then forecast CAGR demand by 2015
- Zircon inducement pricing subject to TiO<sub>2</sub> pricing assumptions
- Inducement pricing for longer term supply is “theoretical” as insufficient, currently plausible, global supply exists or has been identified to meet forecast demand



# High Grade Titanium Dioxide Supply/Demand



- High grade feedstocks expected to remain in tight or short supply into the foreseeable future
- New high grade feedstock sources will in most instances require large capital outlays for upgrading facilities (smelters or SR facilities)
- Iluka has spare SR capacity (the supply chart assumes Iluka 4 kiln operation) and inclusion of recent Cristal slag announcement

## Scenarios based on the following assumptions

Scenario	Chloride Pigment Production Forecast CAGR	Metals and Other Forecast CAGR
High (5.6% CAGR)	5.0% (Higher usage of Chloride Pigment in China)	8% (2000 – '10 CAGR: 9.5%)
Base (4.8% CAGR)	4.0% (TZMI Forecast)	8%
Low (4.3% CAGR)	3.5% (Based on GDP Growth)	8%

Source: Iluka analysis.

## Summary Comments



- China urbanisation and GDP per capita growth expected to underpin zircon demand
  - notwithstanding potential periods of market softness
- Other developing economies provide further demand growth potential
- Zircon pricing supported in the medium term due to structural supply issues
- Iluka's high quality  $\text{TiO}_2$  products a core component in pigment and  $\text{TiO}_2$  metals feedstock markets

### 3 Iluka's Enhanced Production Options

Peter Benjamin, General Manager, Enhanced Production Project  
Victor Hugo, General Manager Product & Technical Development  
Steve Wickham, General Manager, Australian Operations

## Enhanced Production Project (EPP)



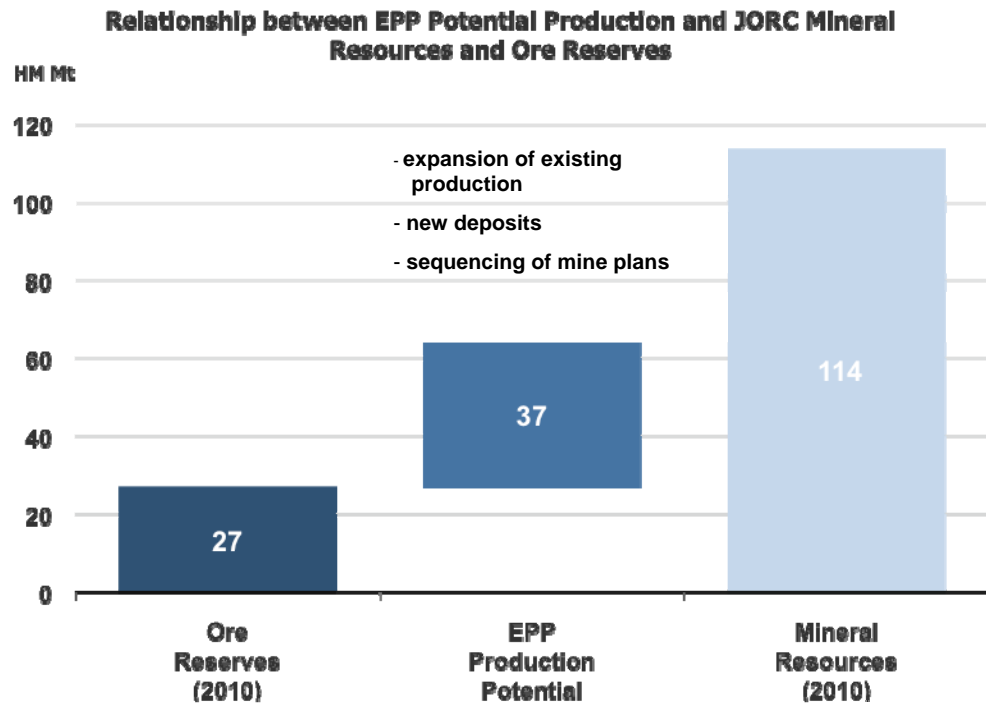
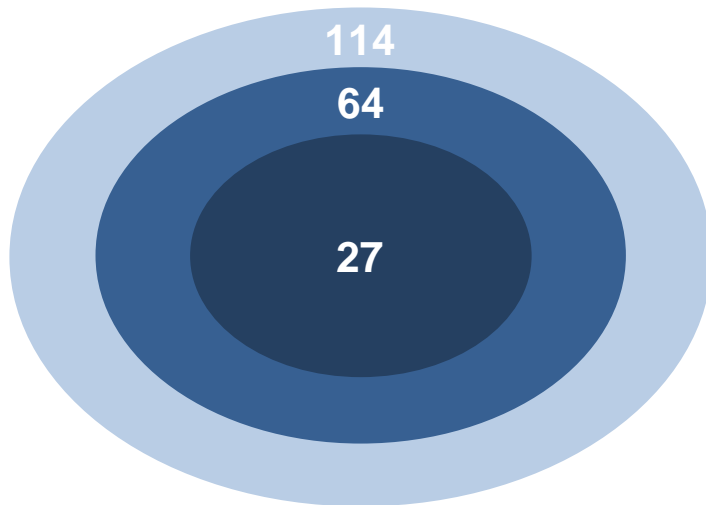
- Prime objective to evaluate internal mineral sands development opportunities
- Rank and choose optimum project development and production profiles
- Methodology based on higher long term pricing expectations
  - overlaid by utilisation or expansion of existing infrastructure, mineral separation plant capacities
- Provides key physical and financial metrics for individual deposits according to sequencing
- Further work (PFS, DFS studies) on technical, regulatory and other delivery risk factors required
- Main outcomes:
  - production options may lead to increases in Mineral Resources & Ore Reserves\*
  - options to increase production and/or mine life
  - possible acceleration of some new deposit developments
  - increased ilmenite production to underpin potential return to operation of 4 SR kilns over time

\* Subject to further work (PFS, DFS studies)

# Production Potential Options

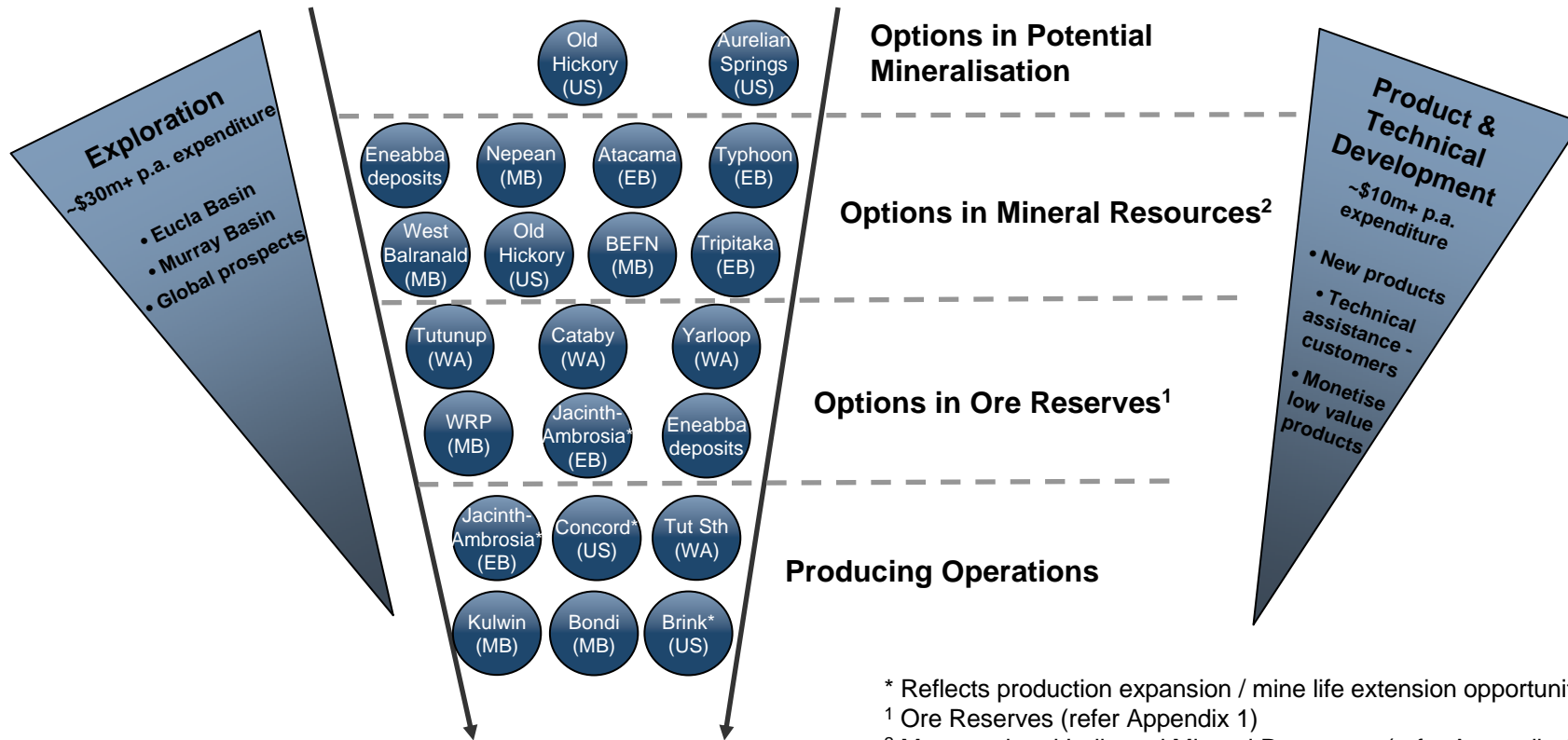


Material Type (Mt HM)	JORC 2010*
Ore Reserves*	27
Production Potential	64
Mineral Resources*	114



\*Reported in accordance with the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2004' (the JORC Code) - refer Appendix 1

# Production Potential



\* Reflects production expansion / mine life extension opportunities

<sup>1</sup> Ore Reserves (refer Appendix 1)

<sup>2</sup> Measured and Indicated Mineral Resources (refer Appendix 1)

## Enhanced Production Project – Sample Scenarios



- Market Driven
  - maintain and/or target zircon and rutile market share based on Iluka’s current long term market analysis
  - target zircon and rutile production to meet potentially lower demand curves
  
- Production Driven
  - target zircon and rutile production to pre-determined rates e.g. maintain current production levels
  - provide synthetic rutile optionality i.e. optimum production level (number of kilns) and product mix
  
- Constraint Driven
  - limit production based on a pre-determined capital expenditure constraint
  - limit production based on current or planned mineral separation capacity

## Ore Reserve Increases Announced



### Jacinth-Ambrosia, Eucla Basin South Australia

- Ore Reserve for Jacinth-Ambrosia\* is 6.82 Mt HM, a net increase of 0.42 Mt HM or 7% from 6.40 Mt HM

Refer ASX Release dated 16 November 2011

### Cataby Perth Basin, Western Australia

- Ore Reserve for Cataby is 7.45 Mt HM, an increase of 1.82 Mt HM or 32% from 5.63 Mt HM

Refer ASX Release dated 16 November 2011

### Eneabba, Perth Basin Western Australia

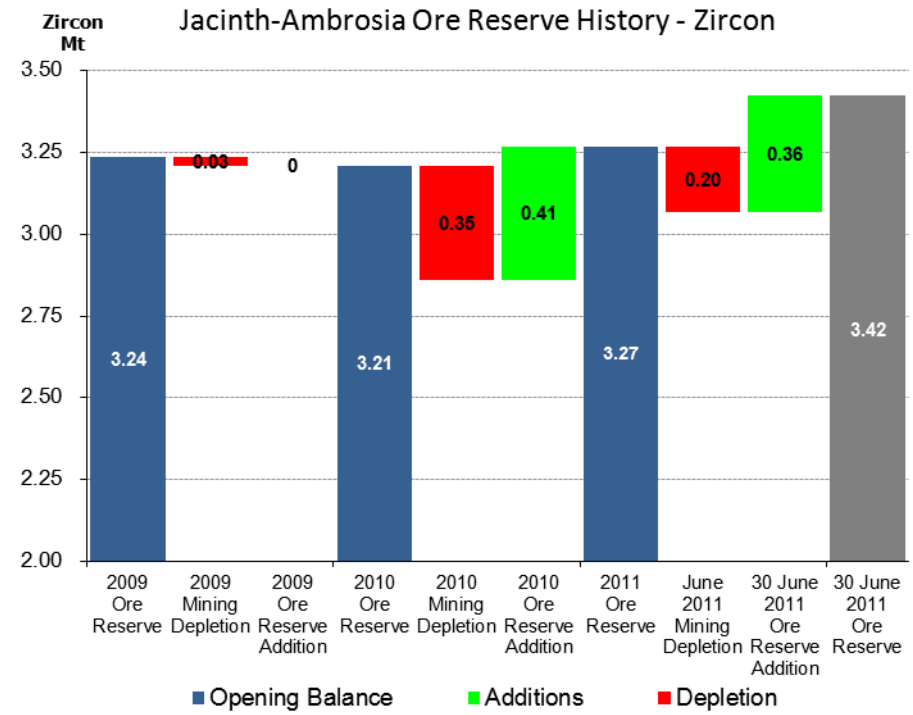
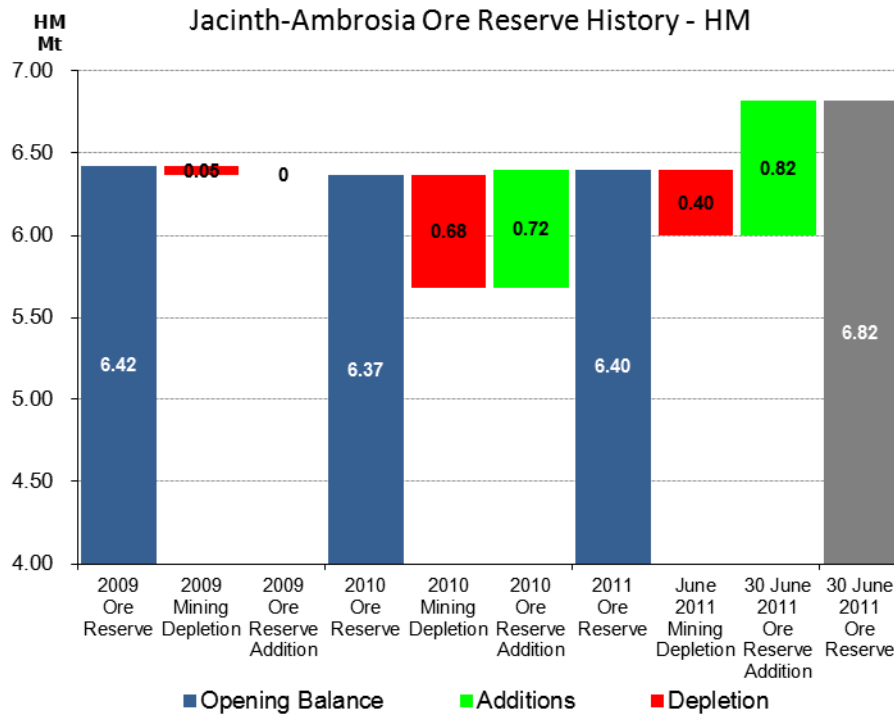
- Ore Reserve for four Eneabba deposits is 4.61Mt HM, an increase of 3.54 Mt HM or 331% from 1.07 Mt
- Economic life expected to extend significantly beyond 3 years
- Indicative production profile:
  - ~140 ktpa ilmenite (SR feed)
  - ~25 ktpa zircon
  - ~25 ktpa rutile

Refer ASX Release dated 16 November 2011

\* Jacinth-Ambrosia includes mining depletion of 0.4Mt HM to 30 June 2011

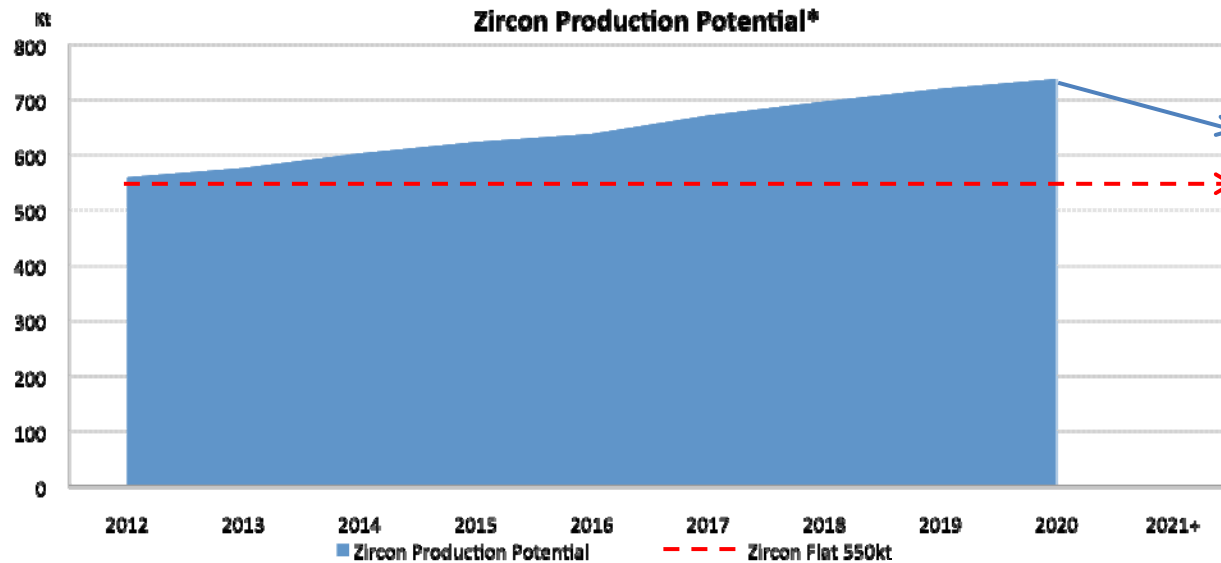


# Jacinth-Ambrosia Ore Reserve Changes, Project to Date



Refer ASX release dated 16 November 2011 and other ASX releases and investor presentations on [www.iluka.com](http://www.iluka.com)

# Zircon Production Scenarios

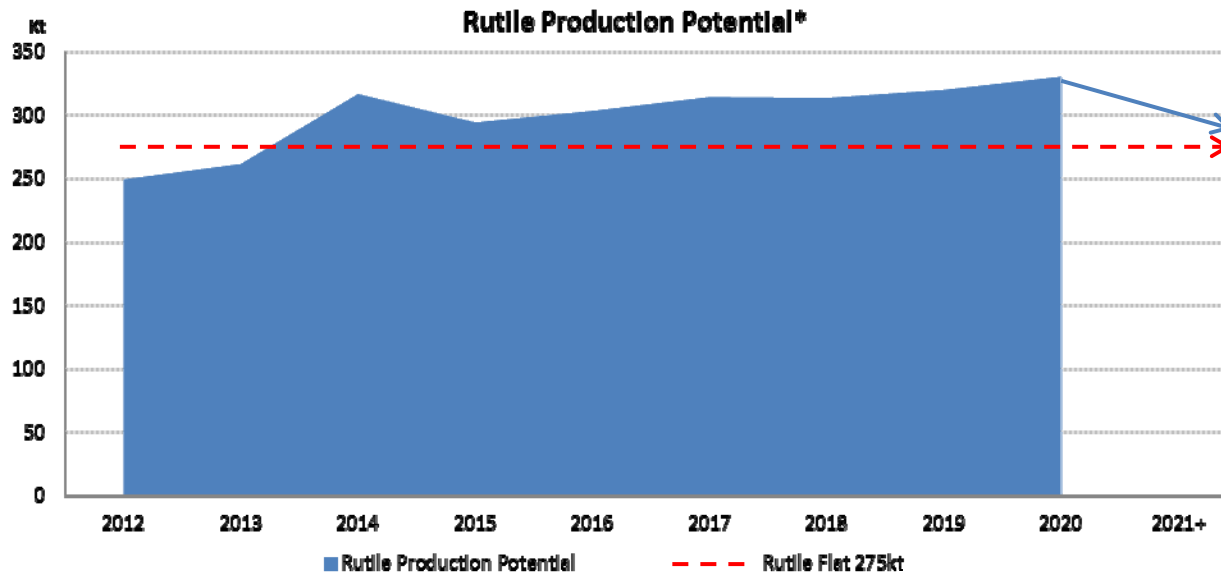


- Potential to increase production in response to demand growth, or
- Potential to extend current production levels significantly
- No account of enhancements due to utilisation of starting period inventories, Mineral Resources or Ore Reserves acquisition, exploration success or technological improvements and breakthroughs

Subject to caveats and disclaimers detailed on slides 2-4, 60 and 63

\* Production potential is predominantly based on a combination of Proved and Probable Ore Reserves and Measured and Indicated Mineral Resources that have been subjected to project studies (Enhanced Production Project) using Iluka's long term cost and pricing estimates and an assessment of risk including access, approval and development timing. A very small portion of the production potential is based on Inferred Mineral Resources totalling approximately zero to four per cent of the production potential.

# Rutile Production Scenarios



- Potential to increase production in response to demand growth, or
- Potential to extend current production levels significantly
- No account of enhancements due to utilisation of starting period inventories, Mineral Resources or Ore Reserves acquisition, exploration success or technological improvements and breakthroughs

Subject to caveats and disclaimers detailed on slides 2-4, 60 and 63

\* Production potential is predominantly based on a combination of Proved and Probable Ore Reserves and Measured and Indicated Mineral Resources that have been subjected to project studies (Enhanced Production Project) using Iluka’s long term cost and pricing estimates and an assessment of risk including access, approval and development timing. A very small portion of the production potential is based on Inferred Mineral Resources totalling approximately zero to four per cent of the production potential.

## Implications for Ilmenite Production and Kiln Operation

- Subject to the economics of zircon/rutile expansion options, Iluka has the potential to produce sufficient ilmenite to support 4 kiln operation
- Additional chloride ilmenite available for expansion of upgrading capacity and sulphate ilmenite for external sales, if warranted
- SR production volume and product mix optionality available
- 1 or more kilns potentially devoted to producing high grade sulphate pigment feedstock
- 6 months production lead time for SR3 (2011)



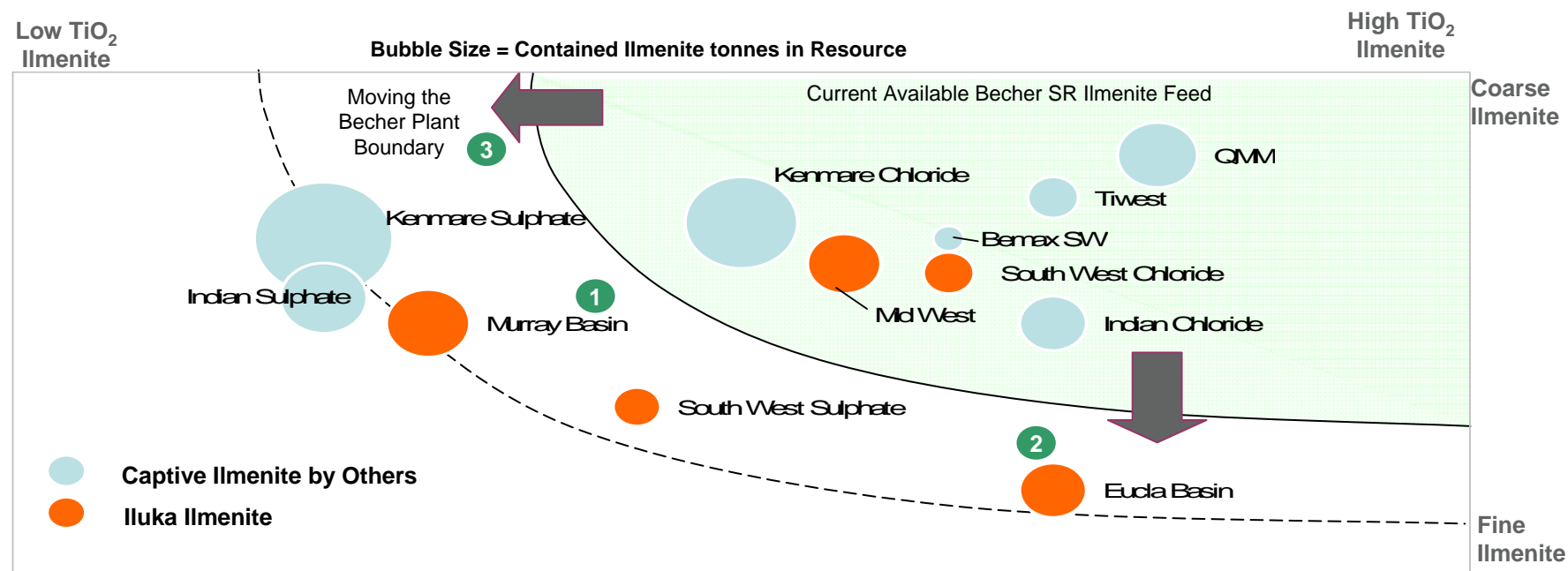
Subject to caveats and disclaimers detailed on slides 2-4, 60 and 63

\* Production potential is predominantly based on a combination of Proved and Probable Ore Reserves and Measured and Indicated Mineral Resources that have been subjected to project studies (Enhanced Production Project) using Iluka's long term cost and pricing estimates and an assessment of risk including access, approval and development timing. A very small portion of the production potential is based on Inferred Mineral Resources totalling approximately zero to four per cent of the production potential.

Victor Hugo, General Manager, Product & Technical Development

# Repositioned Ilmenites used in the Becher Process

- 1 Production of lower grade Chloride SR (SR85) from Murray Basin Ilmenite
- 2 Use of finer grained ilmenites in Premium Grade or SREP SR
- 3 Production of Acid Soluble SR from Murray Basin Ilmenite



# Synthetic Rutile Developments



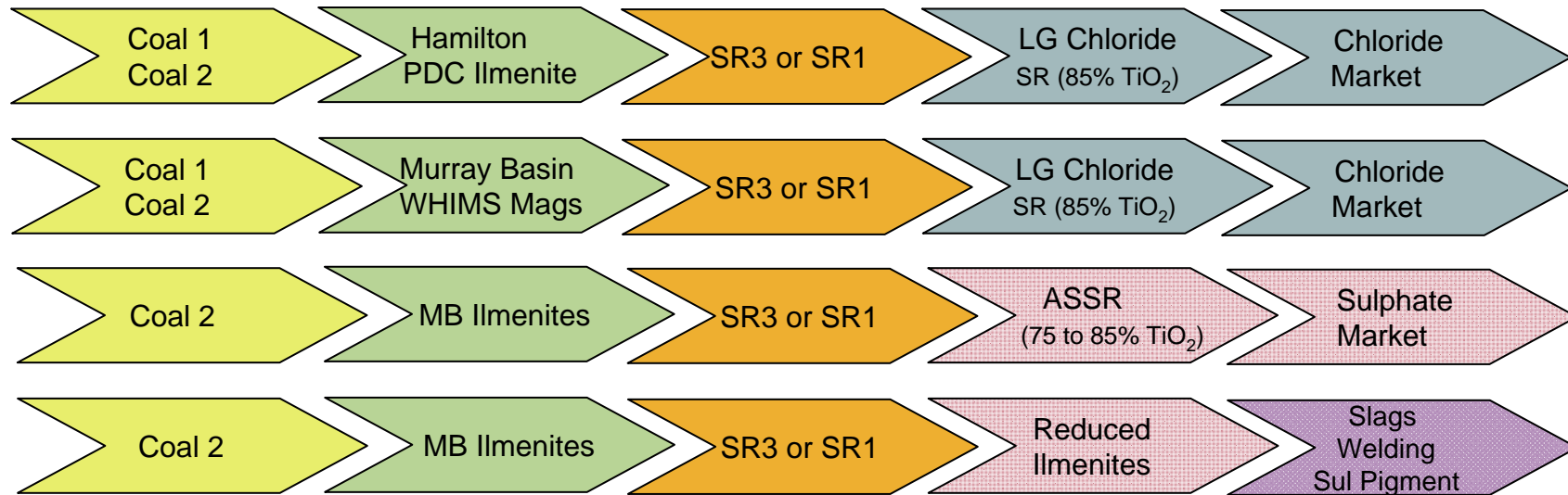
- Utilise idle synthetic rutile capacity (SR1) using Murray Basin ilmenite
- Based on plant trials conducted during 2010 and 2011
- The matrix of development opportunities is shown on following slide
- Products chosen will depend on:
  - highest cash margin
  - capital requirement
  - market acceptance
  - technical risk
- New SR products brought into commercial production from 2011 to 2013
- Utilise SR3 (as part of product mix) and SR1
- Use Hamilton ilmenite and Woorack Rownack Pirro (Murray Basin) WHIMS magnetic material

# TiO<sub>2</sub> Product Development



Use waste or low value feedstock to utilise spare SR kiln capacity for value creation with minimum capital expenditure

Developing products with different coal types



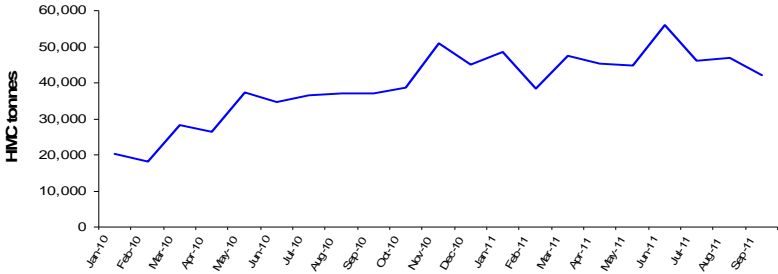


Steve Wickham, General Manager, Australian Operations

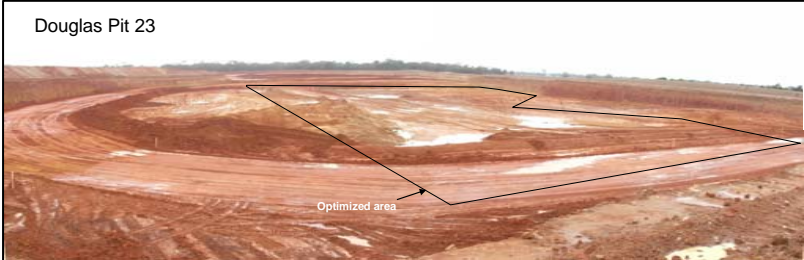
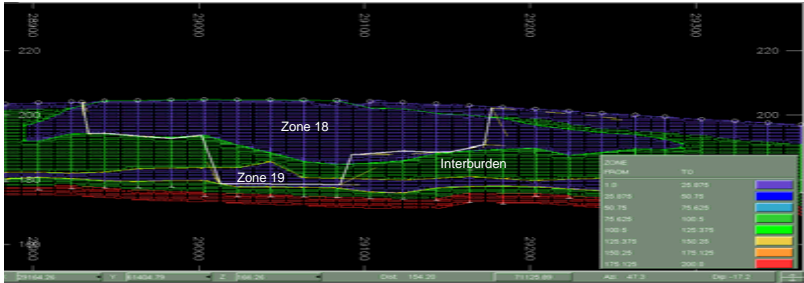
# Murray Basin Mining



**Kulwin Heavy Mineral Concentrate (HMC) Production**

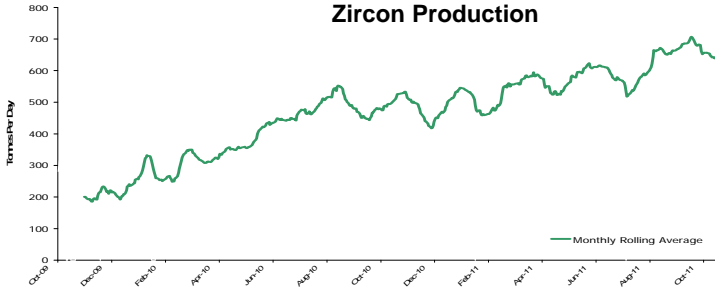
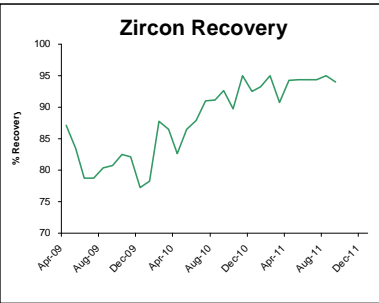
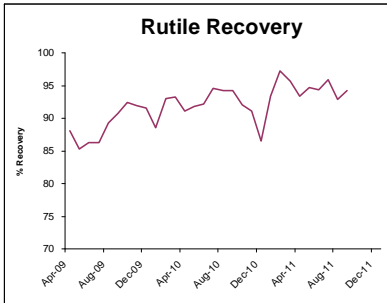
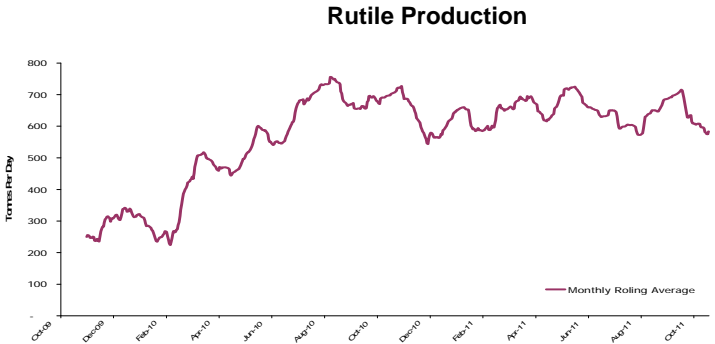
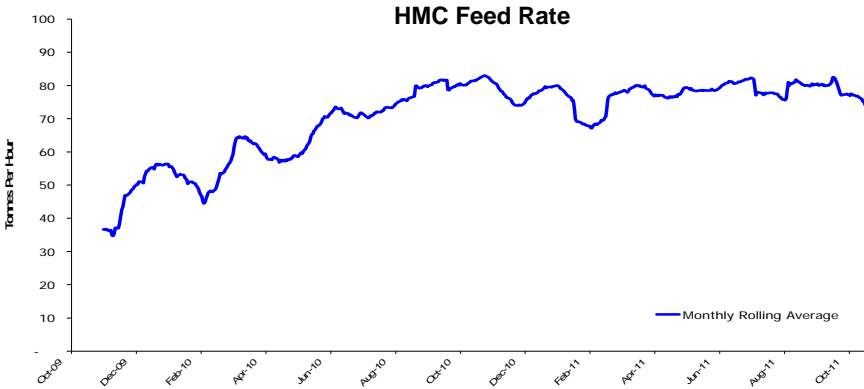


**Douglas Re-Optimisation**



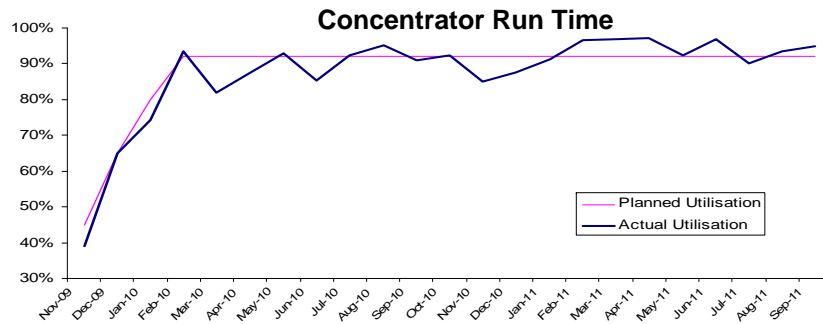
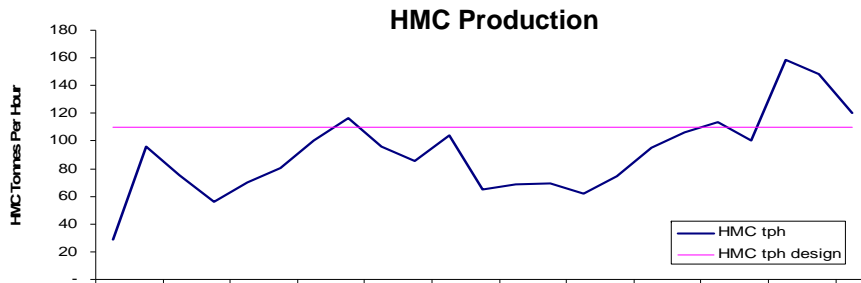
- Introduction at Kulwin of standby mining unit and changes to mining approach have underpinned solid performance
- Re-optimisation of Douglas has delivered a further 850kt ore
- Kulwin and extra Douglas HMC stockpile to partially mitigate move to Woorack, Rownack, Pirro in early 2012

# Hamilton Mineral Processing Plant

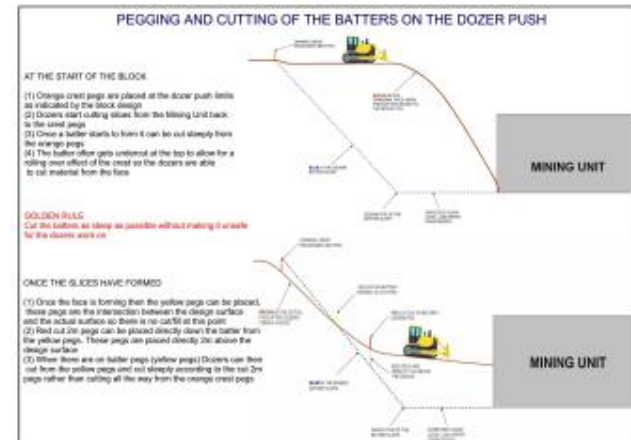


- Consistent feed from mines
- Multiple improvements implemented to de-bottleneck, improve availability, efficiencies and recoveries

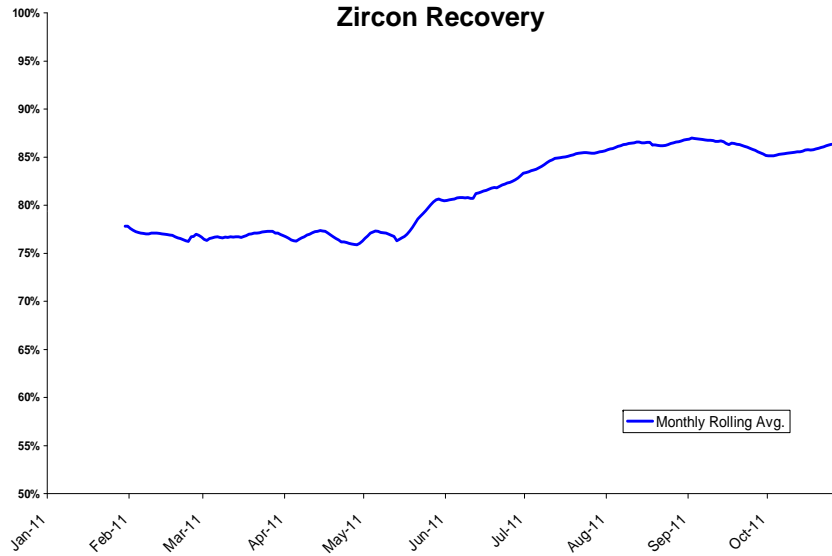
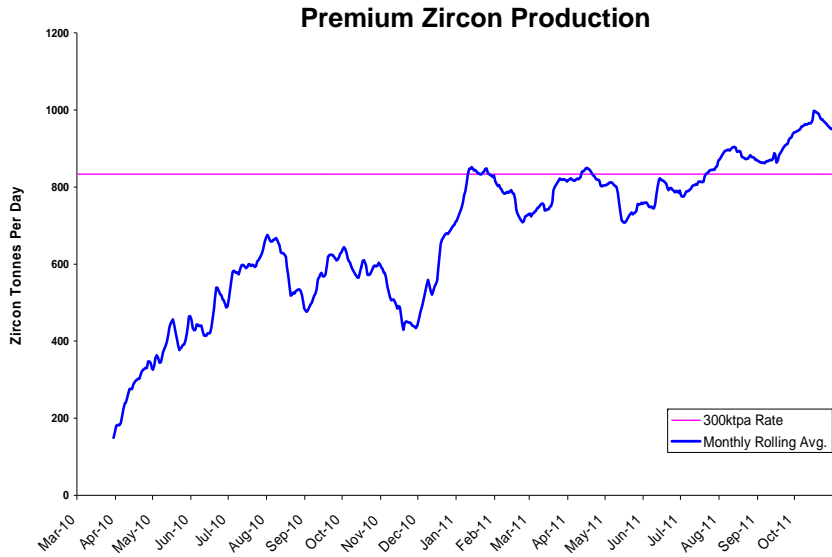
# Jacinth - Ambrosia Mine (J-A)



HMC production improvement mainly due to plant redesign and grade control



# Narngulu Mineral Separation Plant

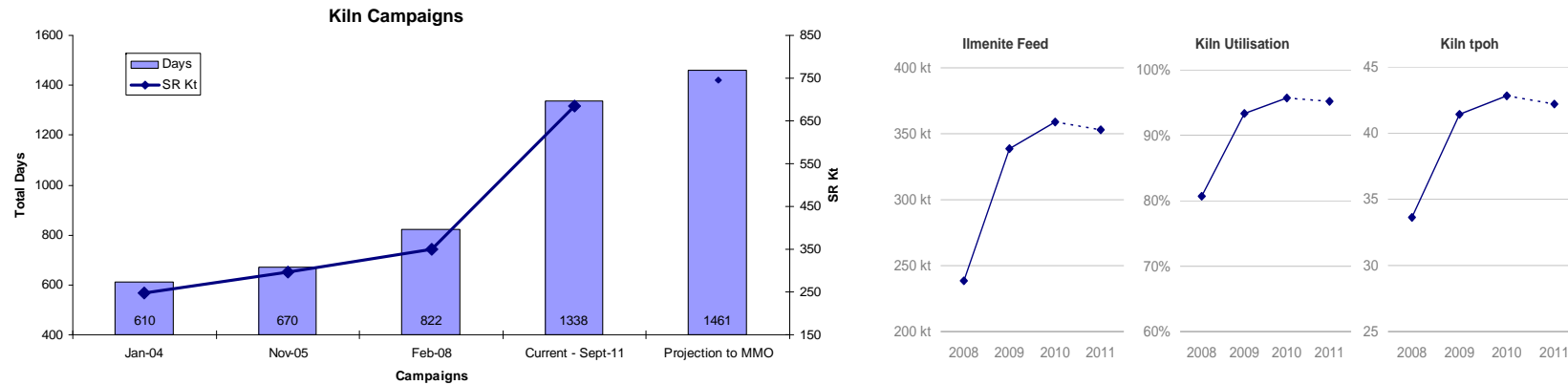


Zircon production improvement mainly due to de-bottlenecking and improved quality from Jacinth-Ambrosia mine

# Synthetic Rutile Production, Western Australia



## South West SR2 Kiln Performance



Kiln has improved performance in latest campaign will be maintained after major maintenance outage (MMO) in H1 2012



### Mid West SR3 Kiln

- Restarted kiln on 31 October utilising Murray Basin ilmenite after completing MMO on time and budget
- Will operate on a blend of Murray Basin and Eneabba ilmenites for a period of 3 years



### Tutunup South Mine

- Commissioned 14 days ahead of schedule on 9 June 2011
- First HMC processed at North Capel for SR2 Kiln on 20 June 2011
- Project completed 3% under budget

### Eneabba Mine Restart

- On track for commissioning late Q4 2011.
- Ilmenite available as SR3 kiln feed Q1 2012
- Operational 6 months after announcement



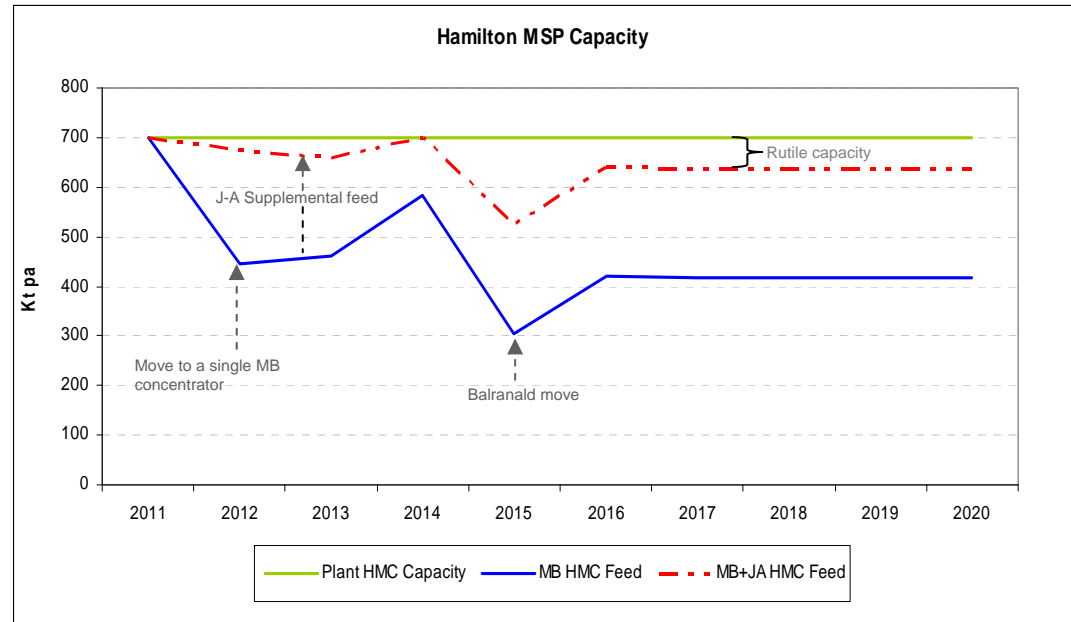
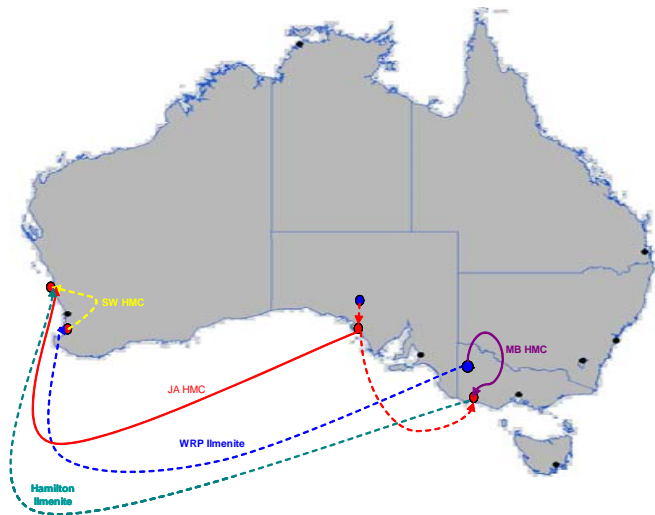
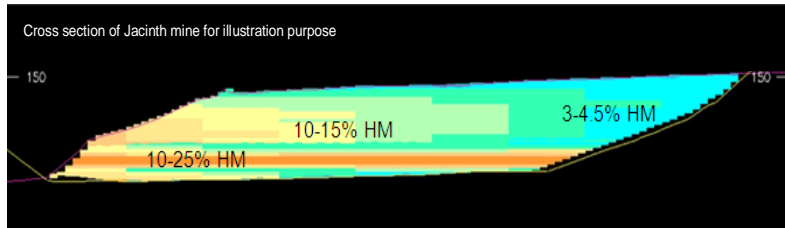
## Operational Capability, Flexibility and Adaptability



- 480 Iluka leaders have attended 5 day leadership programme since 2009
- Current Operational team managed the 2009 re-engineering of WA, commissioning of Murray Basin 2 and J-A
- Strong project management capabilities
- SR and mineral separation plant performance assets managed as single process streams to optimise overall performance
- Jacinth-Ambrosia mine schedule flexibility allows production to be decreased or increased on demand
- Unit cash cost and ROC focus when considering operational approach to market demand



# Production Flexibility Example: Hamilton MSP Capacity



- Consistent variation in Jacinth-Ambrosia grade across and through the depth of mine
- Ability to generate variable mine schedules to increase or decrease HMC output
- Adapting mine schedule over next three years allows increase in HMC output to maintain Hamilton MSP at near capacity

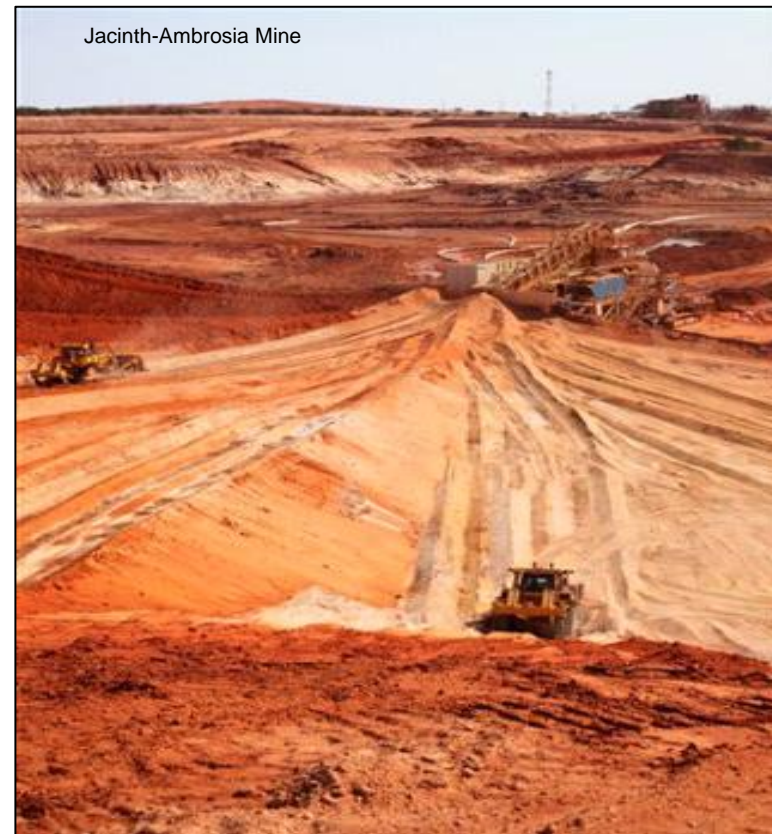
## Australian Operations Well Placed to Deliver



- Continued consistent production and unit cost performance
- Implement opportunities created by:
  - Product & Technical Development
  - Enhanced Production Project

and

- Ability to adapt production to changes in market demand



## Concluding Remarks

David Robb

## Iluka's Enhanced Production Potential



- Iluka's production options are extensive
  - over 30 opportunities identified as basis of current evaluation from the EPP
  - more than 10 opportunities to be subject to detailed evaluation
- Further work on technical, regulatory and other delivery risk factors required
  - integrated assessment critical across all products
  - project scheduling key value driver versus external mineral sands opportunities
  - internal resourcing for multiple project delivery a key issue
- Options identified include higher production and/or longer economic lives of some deposits
  - in context of market supply assessments
- An increase in Mineral Resources and Ore Reserves\* expected at full year
  - Ore Reserve\* increases in three key deposits announced (16 November 2011)
  - additional increases may flow from further (PFS, DFS) studies
- Iluka will maintain its disciplined and conservative approach to Mineral Resources and Ore Reserves estimates

\* To be reported in accordance with the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2004' (the JORC Code)

## Potential Cash Cost and Cash Margin Implications

- Cash cost and margin implications not yet determined with sufficient level of confidence for disclosure purposes
- Cash cost determination subject to detailed technical and economic assessment by project
- Initial indications are that cash costs for various options range from A\$700/t – A\$900/t Z/R/SR/<sup>1</sup>
  - relative to 2012 – 2014 Guidance of ~A\$630/t Z/R/SR<sup>2</sup>
- Weighted average cash cost/tonne position will flow from:
  - which production options are pursued
  - more detailed evaluation PFS and DFS work
- Initial EPP work suggests all projects (including several ilmenite dominated) exceed Iluka's hurdle rates

<sup>1</sup> The cash costs for enhanced production potential projects are based on a unit cash cost for zircon/rutile/synthetic rutile and saleable ilmenite. As such, the cash costs for such projects include a credit for saleable ilmenite production, reflecting the fact that a number of these projects include a significant saleable ilmenite component, in some cases (such as a US project) with a relatively low zircon assemblage.

<sup>2</sup> Iluka's current cash cost guidance and reporting is on a Z/R/SR basis reflecting the relatively low revenue contribution to existing assets from saleable ilmenite.

# Indicative Capital Expenditure



**2012 – 2016  
indicative average p.a.**

---

Total capital expenditure estimate (includes Corporate Plan & Enhanced Production Potential options)	~\$250m
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---

This capital estimate relates to production options outlined on slides 42 - 43

Potential capital expenditure estimates, while still largely at scoping study stage, are expected to be well within Iluka's ability to fund through operating cash flow, based on current assessment.

Given the initial stage of capital estimation for a number of potential projects, there is the potential for actual capital expenditure to vary – potentially significantly – from the total estimate provided above. Further details on capital expenditure are expected to be provided associated with formal project capital approval and commencement decisions.

Capital estimates above exclude sustaining capital expenditure for ongoing operations and other group expenditures.

## Iluka Resourcing and Execution Considerations



- Multiple project development options to be run in parallel
- Adherence to prime objective and focus on key financial parameters
- Challenges for internal resourcing and skills base in key areas:
  - experienced operational and technical personnel
  - project management
  - governmental/regulatory approvals
  - environmental management
- Capital implications expected to be accommodated comfortably within forecast cash flows
- EPP production potential **not** in Iluka's 2012 – 2014 guidance
  - confirmation of Iluka project development subject to further technical and economic evaluative work
  - ASX disclosures will confirm actions to be implemented and parameters
- Timing of actions subject to global economic conditions and market considerations

## Iluka's Evolution - Current and Prospective Phases



### **2011 - New Iluka**

- Zircon and high grade titanium dioxide markets tight
- Substantial zircon and TiO<sub>2</sub> price increases
- Higher margins and stronger free cash flows
- Global uncertainties, volatile markets, but medium term industry dynamics favourable
- First instalment of company objective delivered

### **2012 - 2014**

- Global volatility likely to persist
- Iluka has strength and flexibility to respond
- Supply an acknowledged problem – Iluka's EPP production potential, exploration
- New growth horizons for shareholders, employees and customers





# Iluka Resources Limited

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[www.iluka.com](http://www.iluka.com)



## Explanatory Comments for Slide 27



- A major proportion of US pigment is exported to developing economies
- China is ~95% import dependent for chloride pigment
- China's chloride: sulphate pigment consumption is ~1:3
- Chloride pigment utilised in China for automobile coatings, white goods and other durable applications
- 1% of Chinese pigment production is currently via the chloride process
- Based largely on environmental considerations, China's Twelfth Five Year Plan indicates that local enterprises will be encouraged to develop chloride  $\text{TiO}_2$  pigment technology:
  - pigments plants with single line capacity of not less than 30,000 tonnes
  - use of high-grade feedstock with  $\text{TiO}_2$  content of not lower than 90% i.e. SR, rutile or UGS
- China's transition to chloride  $\text{TiO}_2$  pigment could be a major demand driver for high grade feedstocks

## Zircon Supply Inducement – Comments Related to Slides 29 - 32



### Evaluation of Potential Supply – Explanatory Comments

- Iluka undertakes inducement analysis of all known potential new mineral sands projects (concept to feasibility stage)
- This analysis includes all identified “projects” whether at feasibility completion/funding stage through to under investigation
- The universe represents over 15 projects; most ilmenite-dominated
- Project economics are evaluated using publicly available information, industry benchmarking and internal expertise
- Iluka assumes project proponents are “rational”, that is, a return will be sought above a risk weighted cost of capital
- Projects are evaluated from an economic perspective, excluding other considerations such as access to funding, country risk, marketability and technical risks – although such factors can be an additional filter on likelihood of being developed
- A number of the projects face ore body/country/technical and other risks which may lead to delays and/or failure to reach stated production targets/product quality specifications
- A lead time from discovery to first production may be 5 to 10 years; from capital and project approval to first production may be 3 years+. However, in this analysis, Iluka assumes project proponents time frames are met
- Not all potential projects are rationally induced: ~200kt of potential supply considered not likely to be induced by 2016, in Iluka’s analysis
- Evaluation and analysis does not incorporate possibility of major new discoveries or major technical advances which could influence both demand and supply

Iluka Resources Limited Mineral Resource and Ore Reserve Statement  
as at 31 December 2010

# Ore Reserves at December 2010



ILUKA ORE RESERVE BREAKDOWN BY COUNTRY, REGION AND JORC CATEGORY AT DECEMBER 31 2010									
Summary of Ore Reserves <sup>(1,2,3)</sup> for Iluka			HM Assemblage <sup>(4)</sup>						
Country	Region	Ore Reserve Category	Ore Tonnes Millions	In Situ HM Tonnes Millions	HM Grade (%)	Ilmenite Grade (%)	Zircon Grade (%)	Rutile Grade (%)	Change HM Tonnes Millions
Australia	Eucla Basin	Proved	99.5	6.10	6.1	28	52	4	
		Probable	7.6	0.30	3.9	39	38	5	
<b>Total</b>			<b>107.1</b>	<b>6.40</b>	<b>6.0</b>	<b>29</b>	<b>51</b>	<b>4</b>	<b>0.03</b>
	Murray Basin	Proved	15.9	3.97	25.0	51	11	16	
		Probable	14.0	2.53	18.1	50	13	15	
<b>Total Murray Basin<sup>(5)</sup></b>			<b>29.8</b>	<b>6.50</b>	<b>21.8</b>	<b>51</b>	<b>12</b>	<b>16</b>	<b>(1.55)</b>
	Perth Basin	Proved	12.4	1.18	9.5	62	13	2	
		Probable	163.2	11.53	7.1	63	11	4	
<b>Total Perth Basin<sup>(6)</sup></b>			<b>175.6</b>	<b>12.71</b>	<b>7.2</b>	<b>63</b>	<b>11</b>	<b>4</b>	<b>0.62</b>
USA	Virginia	Proved	18.1	1.25	6.9	72	15	-	
		Probable	3.1	0.14	4.4	65	19	-	
<b>Total Virginia<sup>(7)</sup></b>			<b>21.2</b>	<b>1.38</b>	<b>6.5</b>	<b>72</b>	<b>16</b>	<b>-</b>	<b>(0.20)</b>
<b>Total Proved</b>			<b>145.9</b>	<b>12.51</b>	<b>8.6</b>	<b>43</b>	<b>31</b>	<b>7</b>	
<b>Total Probable</b>			<b>187.9</b>	<b>14.49</b>	<b>7.7</b>	<b>60</b>	<b>12</b>	<b>6</b>	
<b>Grand Total</b>			<b>333.8</b>	<b>27.00</b>	<b>8.1</b>	<b>52</b>	<b>21</b>	<b>7</b>	<b>(1.09)</b>

**Notes:**

- (1) Competent Person - Ore Reserves  
C Lee (MAUSIMM)
- (2) Ore Reserves are a sub-set of Mineral Resources.
- (3) Rounding may generate differences in last decimal place.
- (4) Mineral assemblage is reported as a percentage of in situ HM content.
- (5) Ilmenite currently has had no value ascribed in the reserve optimisation process for the Murray Basin. Metallurgical testwork and marketing studies are presently underway; the outcomes of which may see a revision of the Ore Reserves.
- (6) Rutile component in WA - South-West operations is sold as a Leucoxene product.
- (7) Rutile is included in Ilmenite for the Virginia region.

Refer to Iluka Resources Limited Annual Report, 2010

# Mineral Resources at December 2010



ILUKA MINERAL RESOURCE BREAKDOWN BY COUNTRY, REGION AND JORC CATEGORY AT DECEMBER 31 2010									
Summary of Mineral Resources <sup>(1,2,3)</sup> for Iluka			HM Assemblage <sup>(4)</sup>						
Country	Region	Mineral Resource Category	Material Tonnes Millions	In Situ HM Tonnes Millions	HM Grade (%)	Ilmenite Grade (%)	Zircon Grade (%)	Rutile Grade (%)	Change HM Tonnes Millions
Australia	Eucla Basin	Measured	175.3	7.72	4.4	29	49	5	
		Indicated	53.1	1.22	2.3	12	62	5	
		Inferred	65.5	4.93	7.5	65	17	2	
	<b>Total Eucla Basin</b>		<b>293.9</b>	<b>13.87</b>	<b>4.7</b>	<b>40</b>	<b>39</b>	<b>4</b>	<b>3.82</b>
	Murray Basin	Measured	31.8	5.89	18.5	51	11	15	
		Indicated	118.2	21.64	18.3	55	10	13	
		Inferred	90.2	12.71	14.1	51	11	15	
	<b>Total Murray Basin</b>		<b>240.2</b>	<b>40.23</b>	<b>16.8</b>	<b>53</b>	<b>10</b>	<b>14</b>	<b>(2.69)</b>
	Perth Basin	Measured	478.5	28.97	6.1	58	10	5	
		Indicated	285.3	17.55	6.2	57	10	4	
Inferred		221.1	11.89	5.4	55	8	5		
<b>Total Perth Basin<sup>(5)</sup></b>		<b>984.9</b>	<b>58.40</b>	<b>5.9</b>	<b>57</b>	<b>10</b>	<b>5</b>	<b>2.53</b>	
USA	Virginia	Measured	25.4	1.55	6.1	71	16	-	
<b>Total Virginia<sup>(6)</sup></b>		<b>25.4</b>	<b>1.55</b>	<b>6.1</b>	<b>71</b>	<b>16</b>	<b>-</b>	<b>(0.22)</b>	
<b>Total Measured</b>			<b>711.0</b>	<b>44.12</b>	<b>6.2</b>	<b>52</b>	<b>18</b>	<b>6</b>	
<b>Total Indicated</b>			<b>456.5</b>	<b>40.41</b>	<b>8.9</b>	<b>55</b>	<b>12</b>	<b>9</b>	
<b>Total Inferred</b>			<b>376.9</b>	<b>29.53</b>	<b>7.8</b>	<b>55</b>	<b>11</b>	<b>8</b>	
<b>Grand Total</b>			<b>1,544.4</b>	<b>114.06</b>	<b>7.4</b>	<b>54</b>	<b>14</b>	<b>8</b>	<b>3.44</b>

**Notes:**

- (1) Competent Person - Mineral Resources G Jones (MAusIMM)
- (2) Mineral Resources are inclusive of Ore Reserves.
- (3) Rounding may generate differences in last decimal place.
- (4) Mineral assemblage is reported as a percentage of *in situ* HM content.
- (5) Rutile component in WA - South-West operations is sold as a Leucoxene product.
- (6) Rutile is included in Ilmenite for the Virginia region.

# Ore Reserves Mined and Adjusted at December 2010



ILUKA ORE RESERVES MINED AND ADJUSTED BY COUNTRY AND REGION AT DECEMBER 31 2010							
Summary of Ore Reserve Depletion <sup>(1)</sup>			In Situ HM Tonnes	In Situ HM Tonnes	In Situ HM Tonnes <sup>(2)</sup>	In Situ HM Tonnes	In Situ HM Tonnes <sup>(3)</sup>
Country	Region	Category	Millions 2009	Millions Mined 2010	Millions Adjusted 2010	Millions 2010	Millions Net Change
Australia	Eucla Basin	Active Mines	4.91	(0.68)	0.61	4.85	(0.07)
		Non-Active Sites	1.45	-	0.10	1.55	0.10
	<b>TotalEucla Basin</b>		<b>6.37</b>	<b>(0.68)</b>	<b>0.71</b>	<b>6.40</b>	<b>0.03</b>
	Murray Basin	Active Mines	2.70	(1.68)	0.95	1.97	(0.73)
		Non-Active Sites	5.35	-	(0.82)	4.53	(0.82)
	<b>TotalMurray Basin</b>		<b>8.05</b>	<b>(1.68)</b>	<b>0.13</b>	<b>6.50</b>	<b>(1.55)</b>
	Perth Basin	Active Mines	0.81	(0.34)	(0.17)	0.31	(0.51)
		Non-Active Sites	11.28	-	1.13	12.41	1.13
	<b>TotalPerth Basin</b>		<b>12.09</b>	<b>(0.34)</b>	<b>0.96</b>	<b>12.71</b>	<b>0.62</b>
USA	Virginia	Active Mines	1.58	(0.48)	0.28	1.39	(0.20)
		Non-Active Sites	-	-	-	-	-
<b>TotalVirginia</b>		<b>1.58</b>	<b>(0.48)</b>	<b>0.28</b>	<b>1.39</b>	<b>(0.20)</b>	
<b>TotalActive Mines</b>			<b>10.01</b>	<b>(3.18)</b>	<b>1.67</b>	<b>8.51</b>	<b>(1.50)</b>
<b>TotalNon-Active Sites</b>			<b>18.08</b>	<b>-</b>	<b>0.41</b>	<b>18.49</b>	<b>0.41</b>
<b>TotalOre Reserves</b>			<b>28.09</b>	<b>(3.18)</b>	<b>2.09</b>	<b>27.00</b>	<b>(1.09)</b>
<b>Notes:</b>							
(1) Rounding may generate differences in last decimal place.							
(2) Adjusted figure includes write-downs and modifications in mine design.							
(3) Net change includes depletion by mining and adjustments.							