



# Zanaga Project – Staged Development Presentation

September 2013



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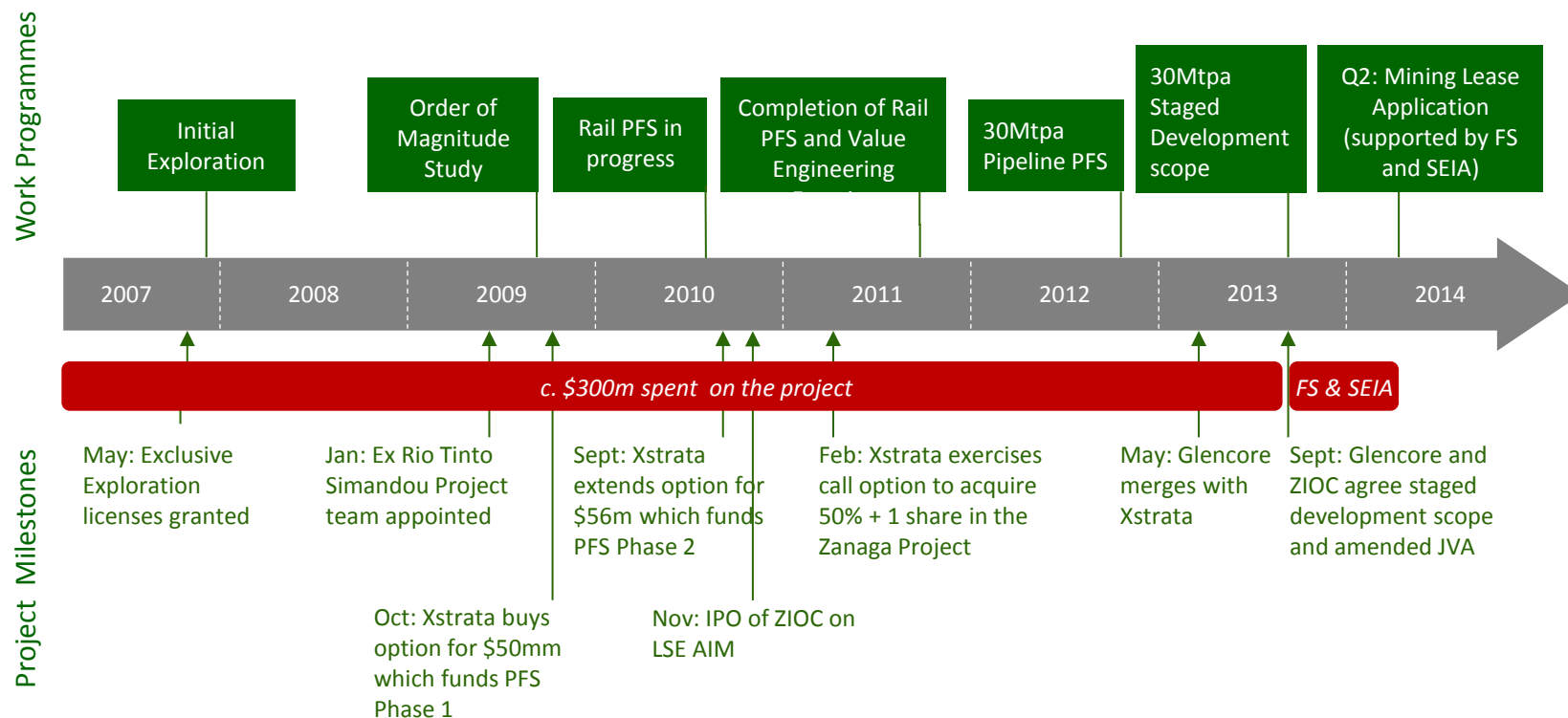
# Introduction

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- World class iron ore project in the Republic of Congo
  - Resource – 6.8Bt (32% Fe)
  - Reserves – 2.5Bt (34% Fe)
- Joint Venture with Glencore Xstrata (Glencore)
- Review process post-PFS identified attractive opportunity for Staged Development of the Zanaga Project
- Feasibility Study now advancing on revised Staged Development Scope
- Application for Mining Licence on schedule for Q2 2014, supported by FS & SEIA
- Joint Venture agreement amended to reflect Staged Development Scope
- Joint Project Funding search to commence together with Glencore to seek development finance

*Note: (1) Reserves & Resources announced by ZIOC in Nov-12 and Sept-12 respectively – all reported in accordance with the JORC code*

# Project history



# Feasibility Study advancing on Staged Development basis

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- Review process post-PFS identified attractive opportunity for Staged Development of the Zanaga Project
  - Stage One: 12Mtpa + additional 1-2Mtpa DSO operation
  - Stage Two : Expansion to 30Mtpa
- Substantial improvement in deliverability and financeability of the Project
- Feasibility Study will be completed in Q2 2014, and will then form the basis for an application for a Mining Exploitation Licence
- Further opportunities under consideration
  - Early start-up for DSO operation
  - Trade-off between owner operated and contract mining
  - Port options

# Staged Development Approach Overview

	Indicative 12+2Mtpa Stage 1 (US\$m)	Previous 30Mtpa PFS (US\$m)
Initial capital cost reduced to 1/3 <sup>rd</sup>	c.\$2.5-3.0bn	\$7.4bn
Improved capital cost intensity	c.\$200/annual tonne	\$245/annual tonne
Attractive LOM operating costs	c.\$37-40/t	\$23/t
Premium product maintained	60-62% Fe (DSO) 66% Fe (pellet feed)	68% (pellet feed)
Leverage existing infrastructure	Existing road/rail for DSO, existing grid power	Scale made this impossible
Scaled pipeline	Low opex solution, appropriate solution for direct remote route	
Low cost port options	Transship from low draft service harbour	Large scale deep water port

*Note : Estimated capital and operating costs in 2013 US Dollar terms for Stage One and 2012 US Dollar terms for the Pipeline PFS, before including potential future inflation. Operating cost estimates include contingency but exclude 3% royalty. Cost estimates are subject to change following feasibility study work*



# DSO opportunity: Flexible capacity & near term cash flow potential

- Stage One DSO potential of up to 2Mtpa
  - Low capital cost
  - Operational flexibility based on prevailing market conditions
  - Initial indications suggest attractive 60-62% Fe product
- Exploring opportunity to fast track DSO production
  - Use of contractors and established road, rail and port infrastructure
  - Potential to deliver early cashflows

**Sampling of high grade DSO ore (60% Fe)**



**Upgraded road between mine site and national highway**



# Stage One - Mining and Processing

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## Mining

- Targeting the upper part of the orebody which consists of >500Mt friable ~42% Fe material (circa 20 year life)
- Low cost mining due to low strip ratio and free dig material
- Suitable for contract mining (current assumption)
- Reduced mine infrastructure requirements and community impacts
- Post 20 year life extension through mining of compact itabirite (ITC)

## Processing (pellet feed plant)

- Plant location optimised based on reduced mining footprint (truck and conveyor hauls cut)
- Plant capital and operating intensity reduced
  - Simplified design to treat only hematite ore types with spirals and flotation
  - Reduced power demand as softer, coarser liberating ore
  - Weight recovery increased to over 40%
- 66% Fe Product with 3% Silica and 0.5% Alumina
- Post 20 year life extension through plant conversion to process magnetite-dominant compact itabirite

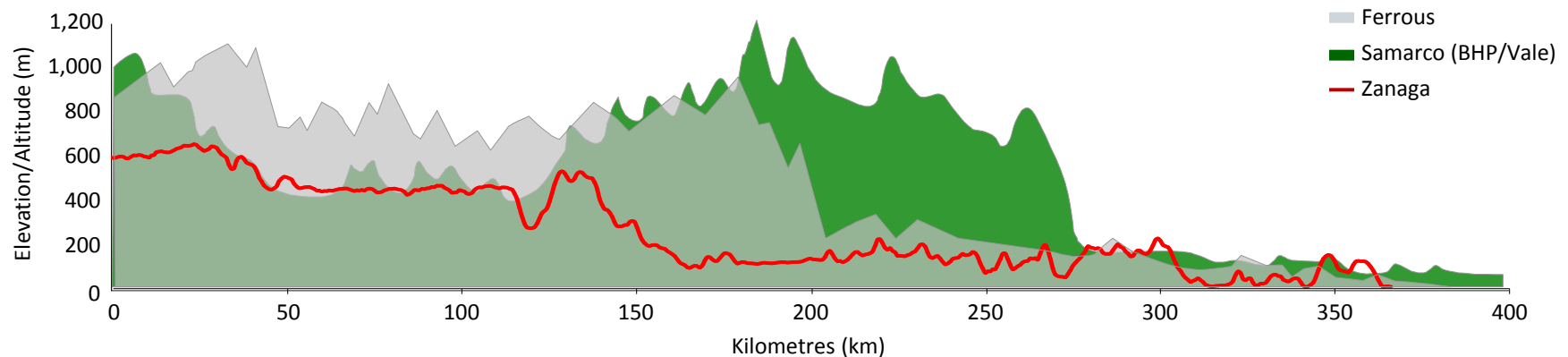
*Flow sheet, product and reserve will be confirmed in further studies*



# Stage One – 12Mtpa capacity pipeline

- 370km pipeline to transport pellet feed from mine site to port at Pointe-Noire
  - Two pumping stations (intermediate station required due to scale reduction)
  - Very low opex
  - Maximum pipeline gradient 12%
  - Well defined process for securing required land
    - Appropriate consultation
    - Single central government approval (contrast to Brazil)

## Indicative topographical profile – easier terrain than Brazil



Source: Company, Samarco and Ferrous company data

# Stage One - Port and Power

## Port

- Stage One based on owner-built service harbour and offshore trans-shipper
- Optionality:
  - Third party built similar or deep water port
  - Early low tonnages via existing Pointe-Noire port facilities
- Stage Two expansion expected through construction of deep water port

## Power

- Stage One based on use of national grid
  - Significant reduction in power requirements
  - Emergency back up diesel generators
- Stage Two power options include dedicated power station

## Example of self unloading vessel



## ENI Power Station in Pointe-Noire



# High Quality Product characteristics maintained

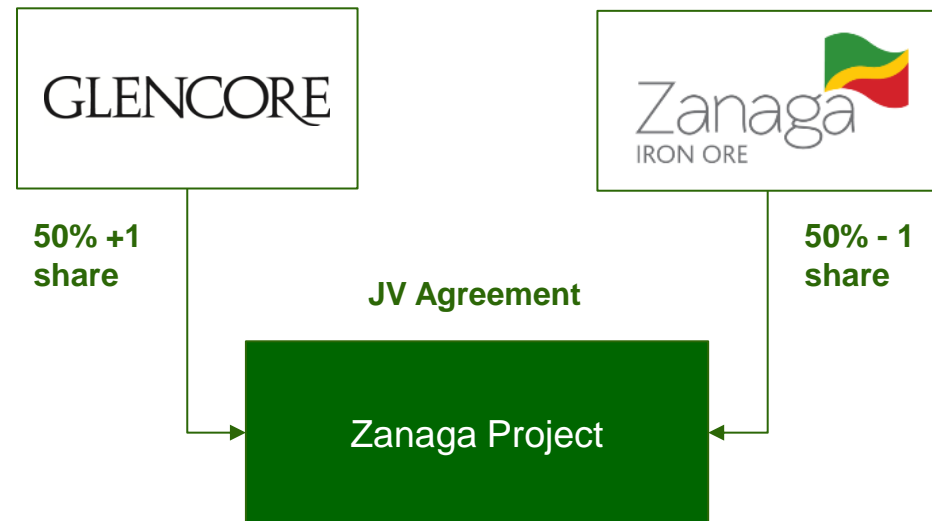
- Attractive Stage One products
  - Initial indications suggest a 60-62% DSO product
  - 66% Fe pellet feed with low impurities
- Price premium expected compared with 62% Fe benchmark product
- Premium supported by:
  - High Fe
  - Low impurities
- Post 20 year life extension and Stage Two expansion achieve 2% Fe grade improvement through magnetite processing

## Indicative product specification – Pellet Feed

	Stage One	Stage Two
Fe	66%	68%
SiO <sub>2</sub>	3.0%	3.0%
Al <sub>2</sub> O <sub>3</sub>	0.5%	0.4%
P	<0.03%	<0.03%
S	<0.02%	<0.02%
Moisture	8%	8%

# Joint Venture with Glencore

- Supplemental Agreement signed in Sept 2013 to reflect move to a staged development project
  - ZIOC contributing \$17m to work programme (to December 2014)
- Glencore maintains management control
- Glencore Call option & ZIOC Texas auction right removed
- Glencore and ZIOC to work together in seeking development finance
  - Objective to attract debt and equity financing for potential project implementation



## Progress and Next Steps

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- ✓ Staged Development Scope Feasibility Study in progress
- ✓ Regulatory approvals in progress
- Application for Mining Licences exploitation in Q2 2014, supported by FS & SEIA
- Glencore and ZIOC to work together on Joint Project Funding Round
  - Objective to raise debt and equity financing for potential project implementation
  - Exploring value enhancing partnerships including third party infrastructure options
- Any investment decision for the Project would follow the conclusion of the Feasibility Study

# Summary

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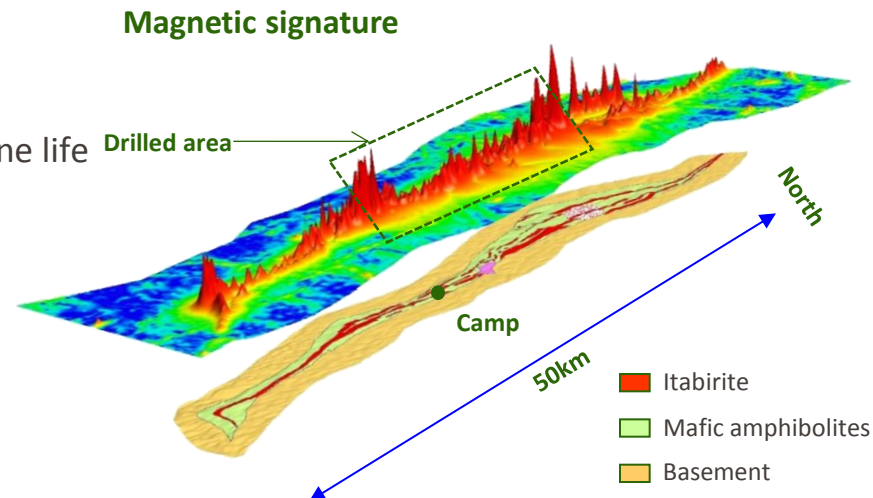
- World class resource
  - Resource – 6.8Bt (32% Fe)
  - Reserves – 2.5Bt (34% Fe)
- Staged Development scope reduces risk profile and enhances project financeability & deliverability
  - Potential to deliver early cashflows
  - Lower capital intensity and quantum
  - Significant optionality with respect to port & power infrastructure
- High quality products and attractive operating costs
- Glencore partnership
- Application for Mining Licence on schedule for Q2 2014, supported by FS & SEIA
- Glencore and ZIOC to work together in seeking development finance

*Note: (1) Reserves & Resources announced by ZIOC in Nov-12 and Sept-12 respectively – all reported in accordance with the JORC code*



# Appendix : Reserves and Resources

- **6.8 billion tonne Mineral Resource (32% Fe)**
  - 69% in Measured & Indicated category
  - Potential for higher production levels & longer mine life
  - Resource underpinned by >176,000m of drilling
  - Feasibility Study drilling now complete
- **2.5 billion tonne Probable Ore Reserve (34% Fe)**
  - Supports >30 year mine life
  - The largest Iron Ore Reserve in West Africa
- **Upside resource potential along strike and at depth**
  - Only 25km of 50km magnetic anomaly drilled to date



## Ore Reserve Statement

Classification	Tonnes (Mt)	Fe (%)
Probable Ore Reserves	2,500	34
Proved Ore Reserves	-	-
<b>Total Ore Reserves</b>	<b>2,500</b>	<b>34</b>




## Revised Mineral Resource Statement (September 2012)

Classification	Tonnes (Mt)	Fe (%)	SiO <sub>2</sub> (%)	Al <sub>2</sub> O <sub>3</sub> (%)	P (%)	Mn (%)	LOI (%)
Measured	2,400	34.0	43.0	3.3	0.048	0.106	1.403
Indicated	2,290	30.8	46.6	3.0	0.052	0.116	0.701
Inferred	2,100	31	46	3	0.05	0.12	0.90
<b>Total</b>	<b>6,800</b>	<b>32</b>	<b>45</b>	<b>3</b>	<b>0.05</b>	<b>0.11</b>	<b>1.01</b>

Mineral Resources and Reserves reported in accordance with the JORC Code, as presented in ZIOC announcement on 4 Sept 2012. Reported at a 0% Fe cut-off grade within an optimised Whittle shell representing a metal price of 130 US\$/dmu.

# Shallow rippable enriched hæmatitic itabirite resource

Photo	Graphic Log	Regolith Classification	Lithology Classification	Lith Code	Lithology Definition
		Soil	Soil	SOL	Clayey soil, few if any clasts. This portion can be purely alluvial in nature
		Cemented bedrock	Canga	CAN	Hematite clasts cemented by goethite
		Colluvium	Colluvium	COL	Unconsolidated clasts with a clay matrix
				ITG	Amorphous to weakly layered unconsolidated hematite/goethite/quartz
		Weathered bedrock	Itabirite	ITF	Itabirite, highly weathered, friable
				ITC	Itabirite, moderately weathered, consolidated
				ITT	Itabirite, weakly weathered
		Unweathered bedrock (Protore)	Unaltered Itabirite	BIF	Magnetite unweathered itabirite

-  Friable itabirite – COL, ITG, ITF
-  Compact itabirite – ITC
-  Magnetite itabirite – ITT, BIF