

# A Diversified Portfolio Including its Diamond and the Significant Iron (XIF) Projects

### **Forward-looking statement**

National Instrument 43-101 - Standards of Disclosure for Mineral Projects, Form 43-101F1 and Companion Policy 43-101CP requires that the following disclosure be made: All references contained herein with respect to the potential quantity and grade derived by any method is at this stage of development conceptual in nature. At the present time, there has been insufficient exploration to define a mineral resource and it is uncertain if further exploration will result in the target being delineated as a mineral resource.

This presentation contains forward-looking statements. All statements, other than statements of historical fact, that address activities, events or developments that the Company believes, expects or anticipates will or may occur in the future (including, without limitation, statements relating to the development of the Company's projects) are forward-looking statements. These forward-looking statements reflect the current expectations or beliefs of the Company based on information currently available to the Company. Forward-looking statements are subject to a number of risks and uncertainties that may cause the actual results of the Company to differ materially from those discussed in the forward-looking statements, and even if such actual results are realized or substantially realized, there can be no assurance that they will have the expected consequences to, or effects on the Company. Factors that could cause actual results or events to differ materially from current expectations include, among other things, changes in equity markets, political developments in Botswana and surrounding countries, changes to regulations affecting the Company's activities, uncertainties relating to the availability and costs of financing needed in the future, the uncertainties involved in interpreting exploration results and the other risks involved in the mineral exploration business. Any forward-looking statement speaks only as of the date on which it is made and, except as may be required by applicable securities laws, the Company disclaims any intent or obligation to update any forward-looking statement, whether as a result of new information, future events or results or otherwise. Although the Company believes that the assumptions inherent in the forward-looking statements are reasonable, forward-looking statements are not quarantees of future performance and accordingly undue reliance should not be put on such statements due to the inherent uncertainty therein.

- Corporate
- Prospecting Licences
- Update on projects
  - 1a Mike de Wit (Tsodilo)
    - Diamonds (Newdico, Gcwihaba)
    - Uranium (Gcwihaba)
  - **1b** Alistair Jeffcoate (Tsodilo)
    - Iron Exploration (Gcwihaba)
  - 2 Simon Jones (FQM)
    - Metals (Gcwihaba)



## **Corporate**

#### **Tsodilo Resources Ltd (TSD)**

Toronto TSX-V Listed

#### **Newdico (Pty) Ltd**

**PLs - Precious stones** 

#### **Gcwihaba Resources (Pty) Ltd**

PLs – Metals, Radioactive, Precious Stones

Botswana Operating Companies

TSODILO RESOURCES LIMITED

- Canadian Registered: TSX listed 1995: TSX.V listed 2001
- 31,194,171 shares issued and outstanding (5 June 2014)
- 41,196,671 fully diluted common shares
- Principal Shareholders (Beneficially Owned, Controlled or Directed):

Azur LLC (Private Investment Fund)	15.9 %
IFC International Finance Corp. (Part of World Bank)	14.5 %
First Quantum Minerals Ltd	7.6 %
Directors, Officers and Employees	20.0 %

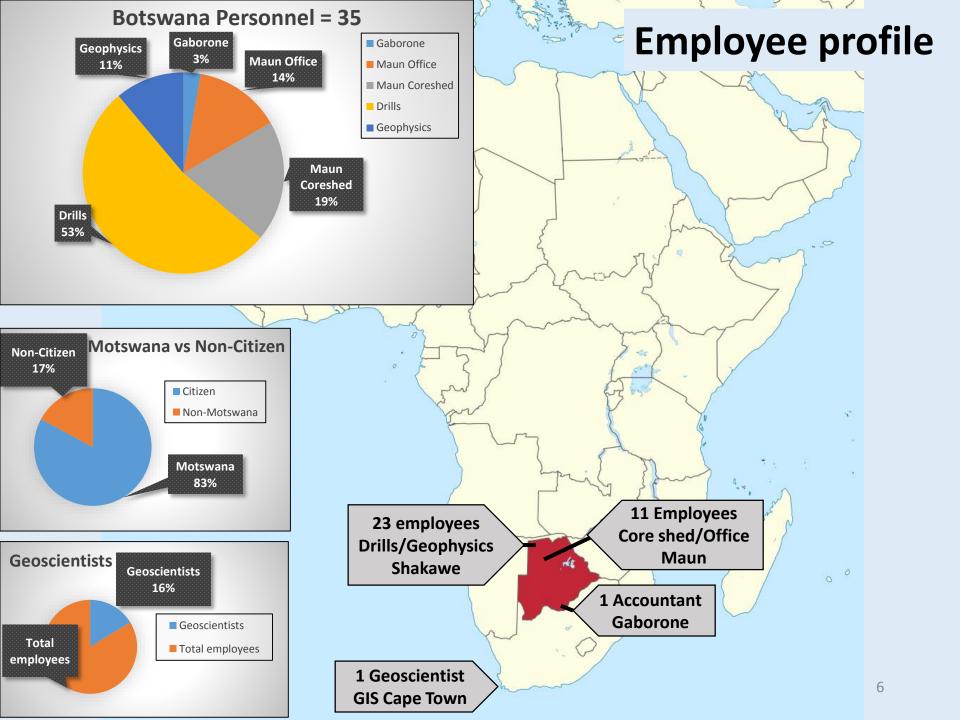
Market Capitalization ~\$42M CAD (5 June 2014)

## **Board**

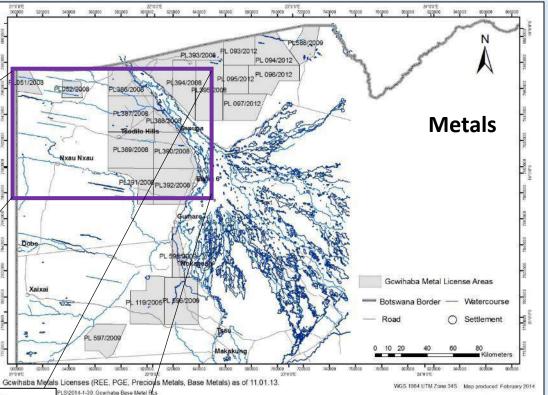
James M. Bruchs, JD	Director, Chairman & CEO
Patrick C. McGinley, JD	Director
David J. Cushing, JD	Director
Thomas S. Bruington, MSc (Mineral Economics)	Director
Jonathan R. Kelafant, MSc (Geology)	Director
Mike de Wit, PhD (Geology)	Director, President & COO

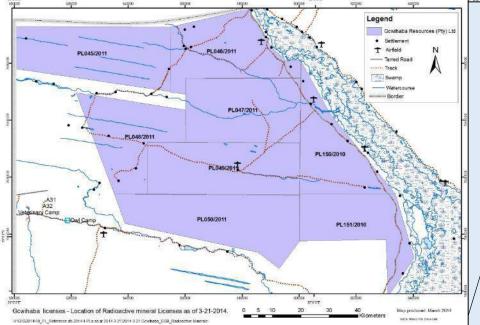
## **Officers**

James M. Bruchs, JD	Director, Chairman & CEO
Mike de Wit, PhD (Geology)	Director, President & COO
Gary A. Bojes, CPA, PHD	CFO
Gail McGinley	Corporate Secretary



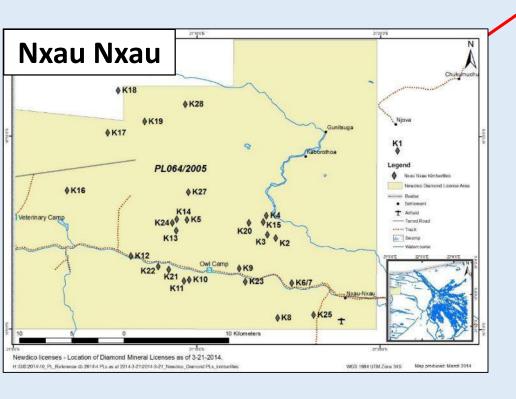
## Prospecting Licences: Metals & Radioactive

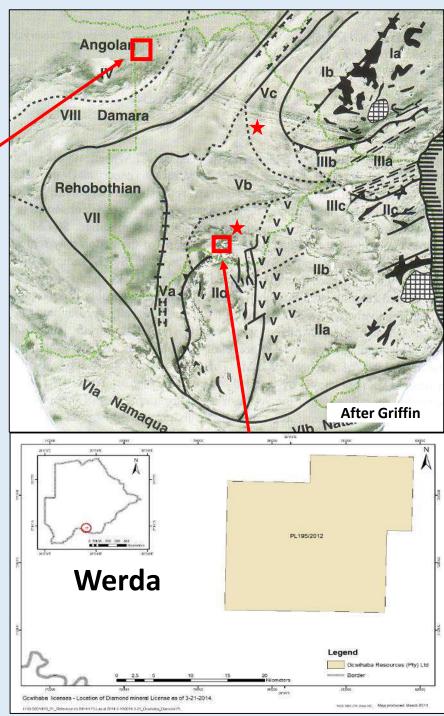




Metal (incl. Iron) rights with overlapping radioactive permits

## **Prospecting Licences: Diamonds**



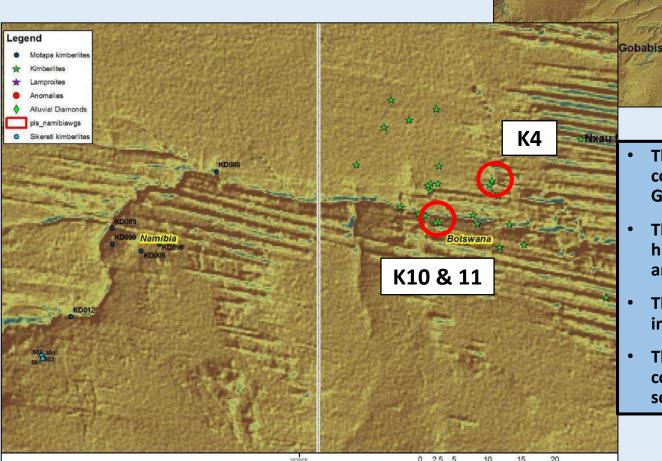


## **Diamond**Nxau Nxau project Xaudum Kimberlite province

K10 Group

GIS\2012\Tsodilo 25 May PL Namibia\2012-05-04-kimberlites Namibia-Bots3

K4 Group



 The Xaudum kimberlite province comprises the Gr 1 Xaudum (39) and Gura (2) clusters.

Ghanzi

Maun

Letlhakane Kimberlites

Botswana

Orapa Kimberlite

- The diamondiferous source of two high interest garnet and diamond anomalies still to be discovered.
- The K4 and K10 Group most interesting targets

**Ironstone** 

Kaudom Kimberi <mark>res u Nxau Kimberlites u Nxau Kimbe</mark>

Tsumkwe Anomaly Gura 1 Kimberlite

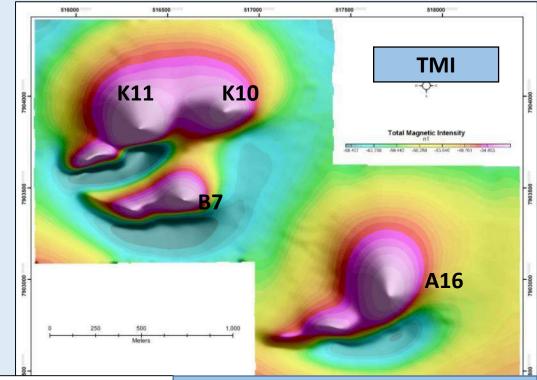
Angola

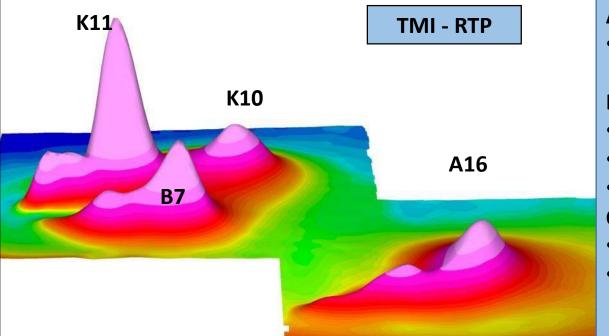
**Omatako Anomaly** 

 The Xaudum cluster is 83 Ma old and contains Xenoliths of Kalahari Group sediments.

## K10 Group (Nxau Nxau)

- **Group 1 Kimberlites**
- Sizes
  - K10 1.1 ha
  - o K11 2.9 ha
  - **B7 1 ha**
  - o A16 0.4 ha





#### A. Mineral Chemistry

- Garnets Lherzolitic & Eclogitic population
- B. Mida
- K10 positive (Ashton 1990s)
- K11 not tested
- All samples from RC drilling
- C. Drilling
- B7 Not drilled
- A16 Drilled but no kimberlite

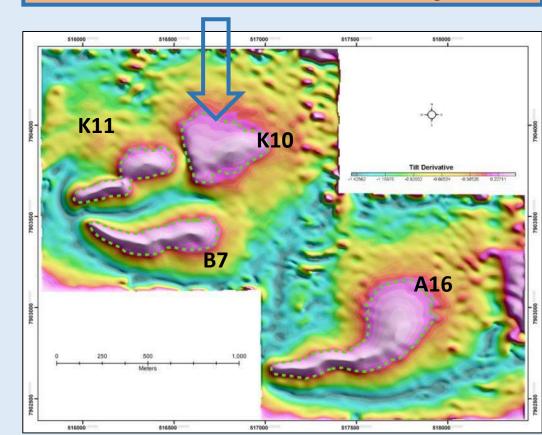
### K10 Group (cont)

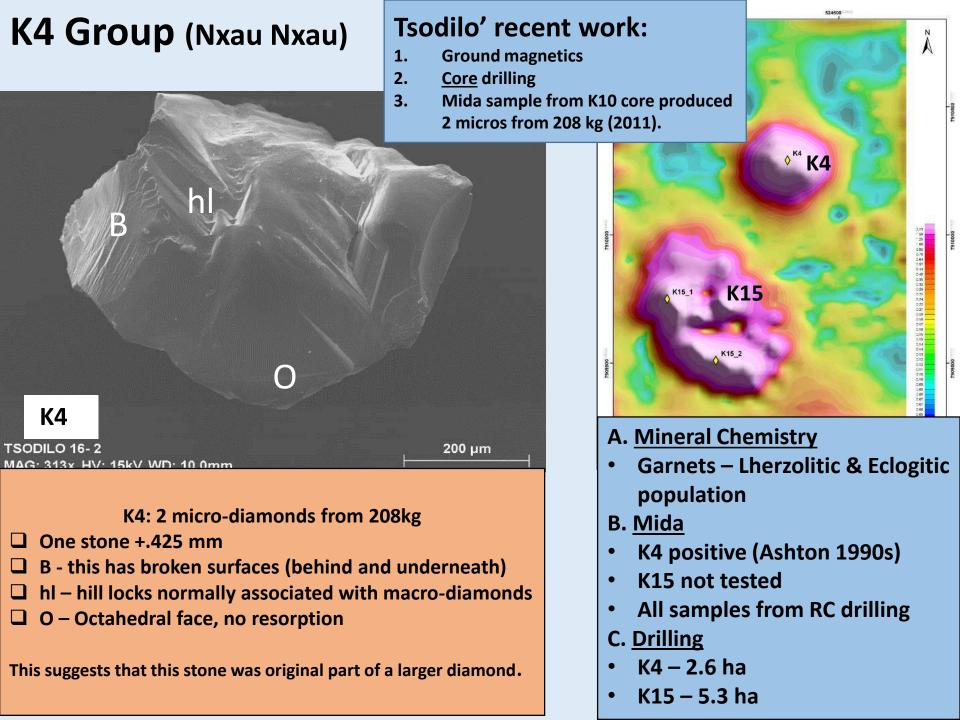
#### **Tsodilo exploration:**

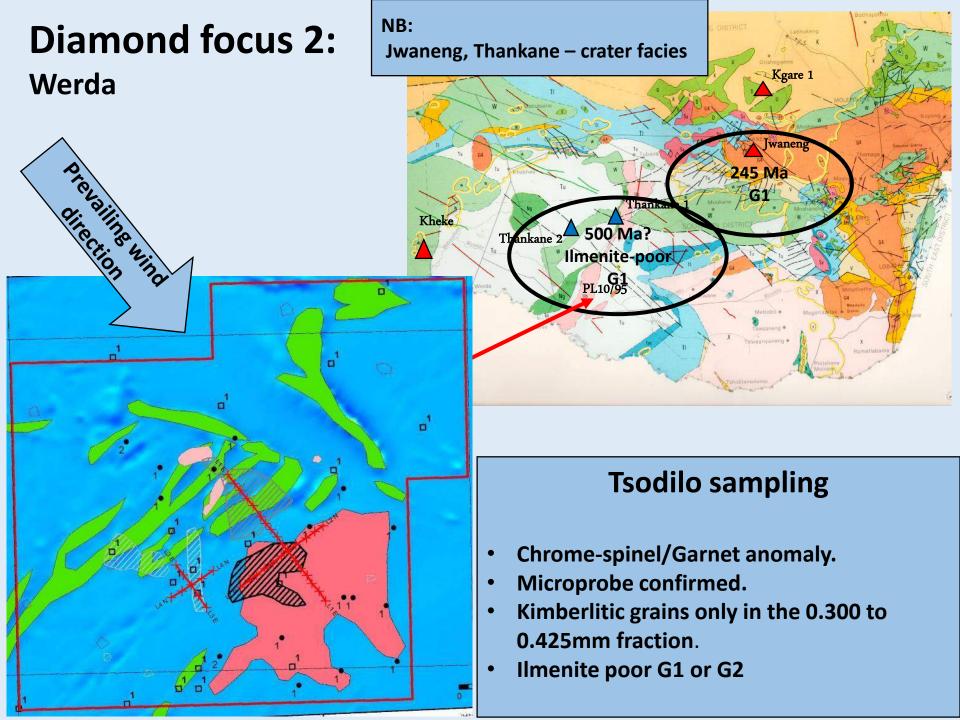
- 1. Ground magnetics
- 2. <u>Core</u> drilling
- 3. Mida sample from K10 core produced 14 micros from 221 kg (2011).
- 4. Next steps
  - Kimberlites K10 & K11
    - K10: select more core for micro-diamond sample.
    - K11: Submit micro-diamond sample from core.
  - Targets B7 & A16
    - Drill and submit core of kimberlite for microdiamond analysis.

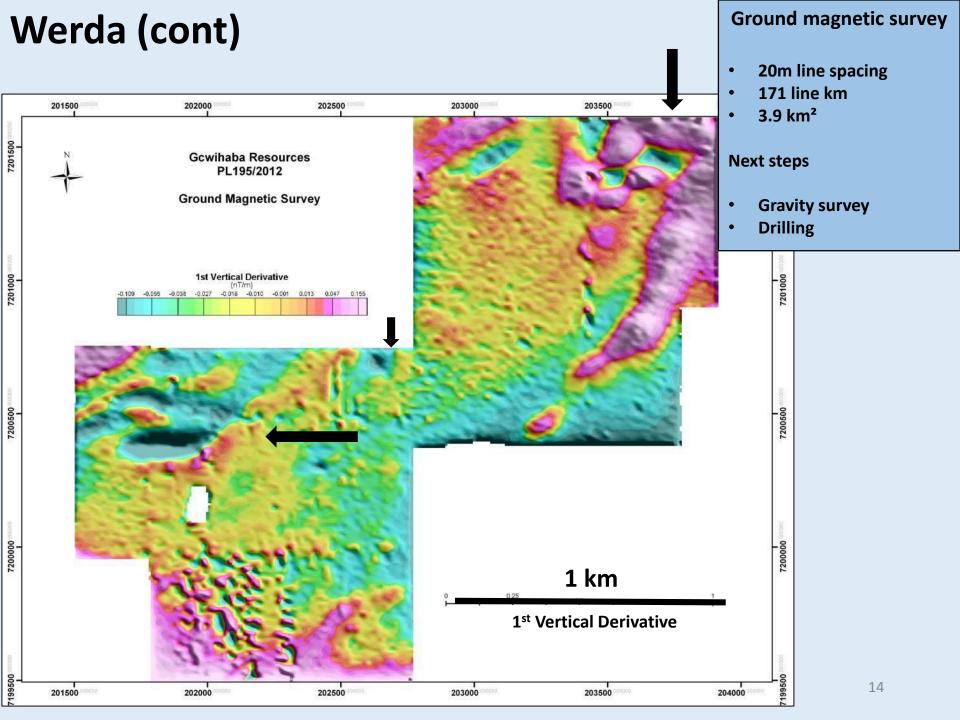


K10: 14 micro-diamonds from 221kg

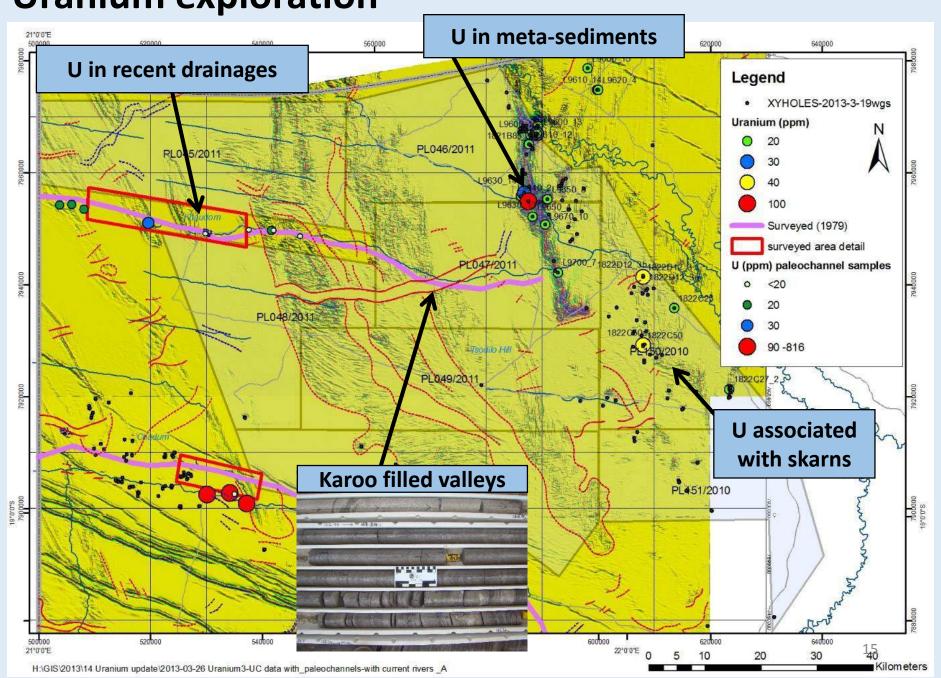






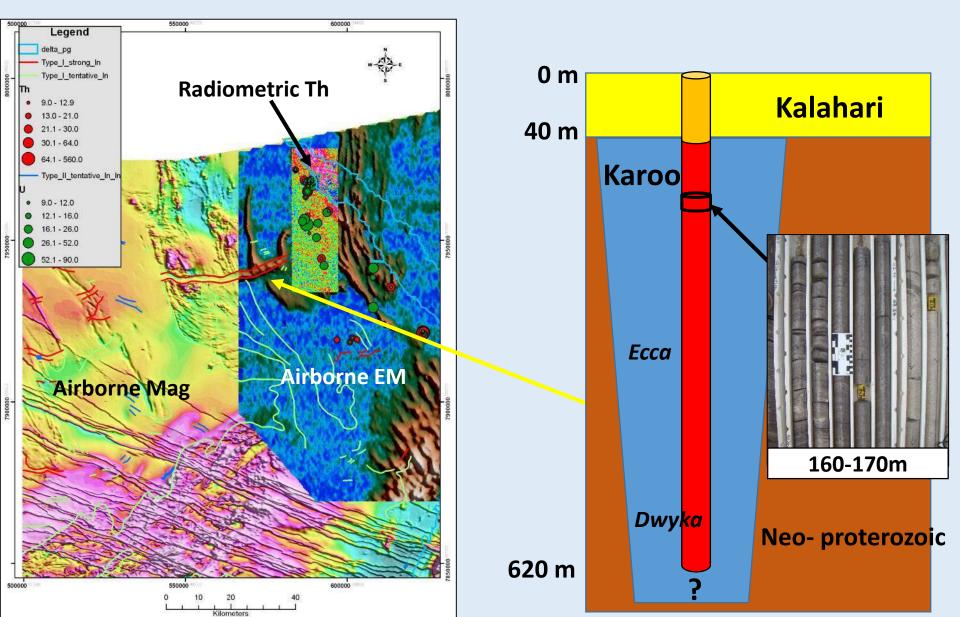


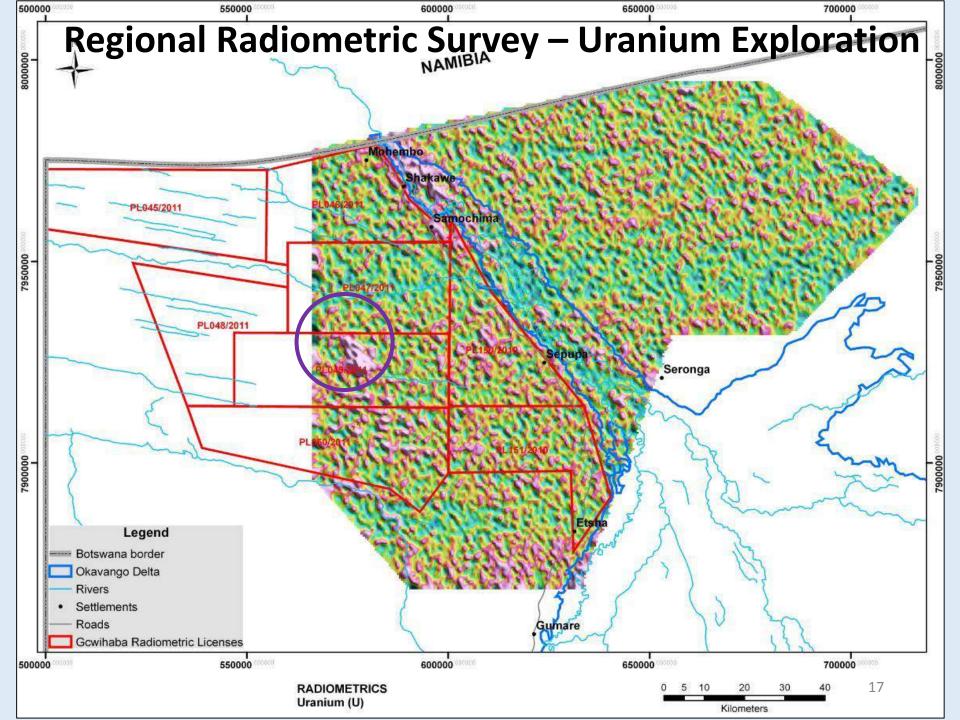
**Uranium exploration** 



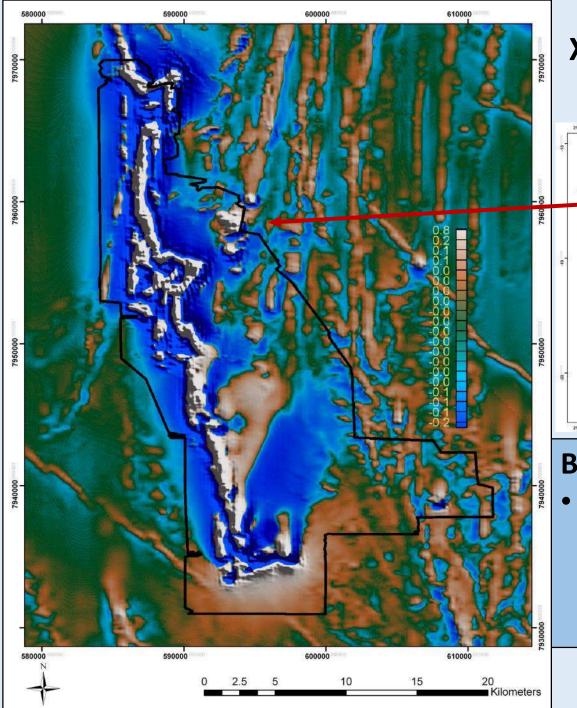
## Uranium exploration

#### **U – hosted Karoo sediments**

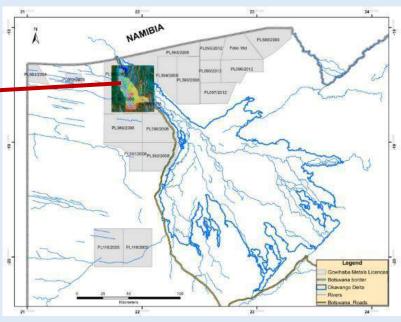






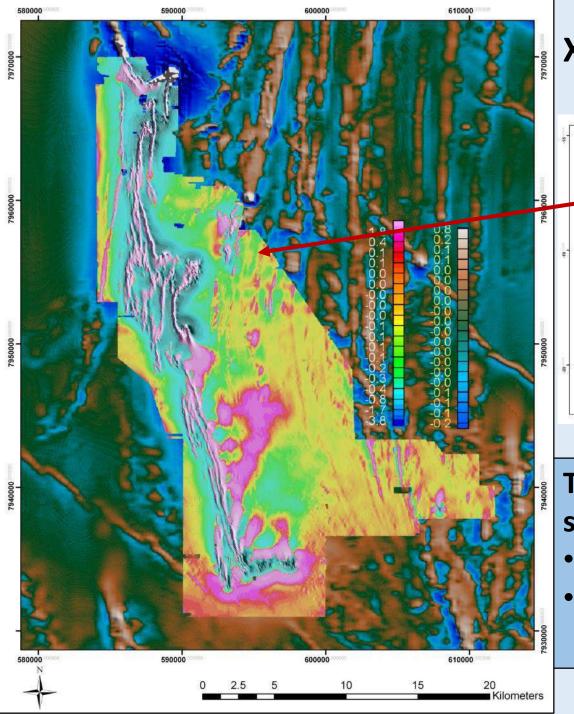


#### **XIF – Airborne Magnetics**

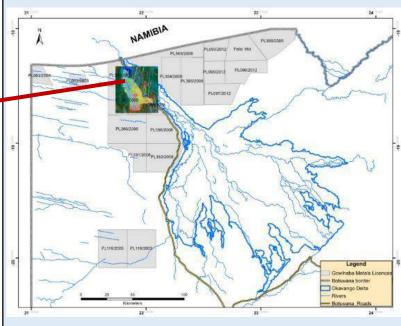


#### **Botswana Aeromagnetic**

 Data obtained from the Department of Geological Surveys of Botswana



#### **XIF – Ground Magnetics**

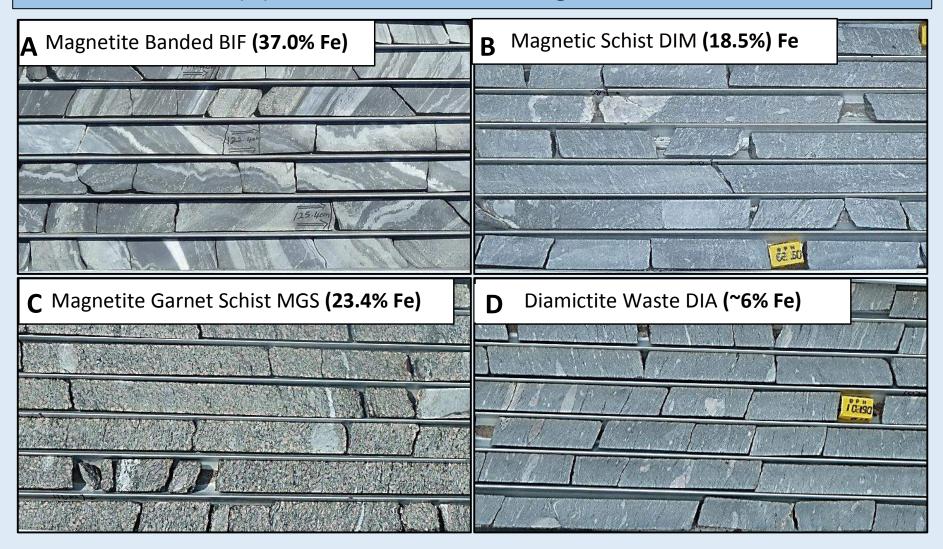


## Tsodilo ground magnetic survey over XIF since 2010:

- 15,000 meters
- 1,800 km<sup>2</sup>

#### **Mineralization**

- Mineralized Material (A,B C) with average grades of its drill intersections.
- Diamictite DIA (D) Waste which is non-magnetic.

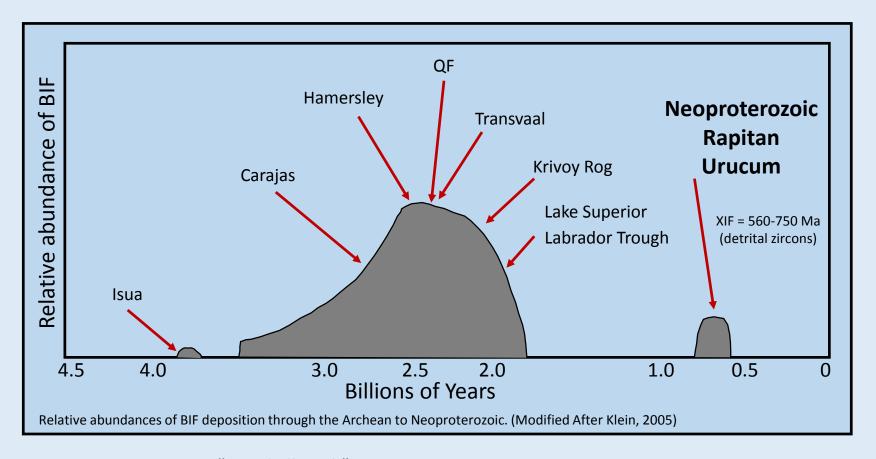


## XIF Drill hole average grades

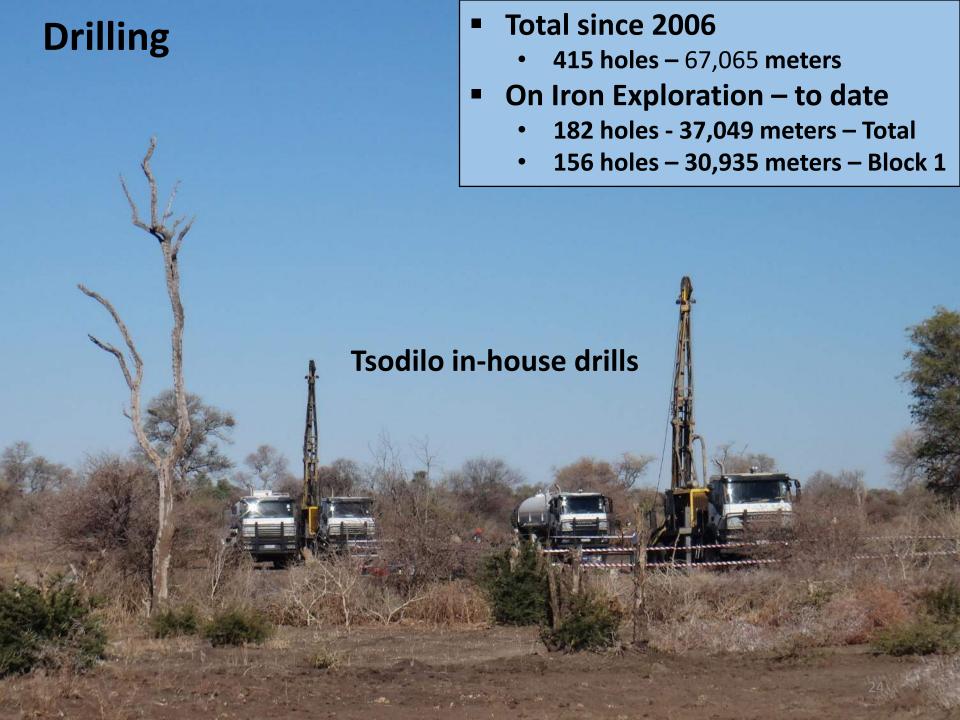
#### **Current interval weighted drill hole intersection average Geodomain grades**

Number	Total Meters	Mineralized	<b>Fe</b> Sic	SiO	Al <sub>2</sub> O <sub>3</sub>	Р	LOI	Density
of Holes	Intersected	Material		3102				g/cm³
79	4403	Magnetite BIF	37.0	32.9	3.3	0.28	1.6	3.6
		(MBA and MBW)	37.0					
48	3010	Magnetite Schist	18.5	46.9	9.3	0.23	0.9	3.1
		(DIM and DMW)	10.5					2.1
8	128	Magnetite Garnet	22.0	<b>23.8</b> 50.3	8.8	0.29	-0.5	3.3
		Schist (MGS)	23.0					
135	7541	All Mineralized	20.4	38.8	5.8	0.26	1.3	2.2
		Material	29.4					3.3

## The XIF is a Neoproterozoic Rapitan Style BIF



- Neoproterozoic BIF "Snowball Earth"
  - Iron precipitation caused by oxidation after retreat of ice-sheets from previously covered, anoxic water bodies
- Neoproterozoic BIF Resources of Note
  - Rapitan Group northwest Canada (18.6 billion tonnes at 47% Fe)
  - Jacadigo Group, Brazil, Urucum district (~30 billion tonnes at 20-25% Fe)
  - Yudnamutara Subgroup, Braemar Iron Formation, Australia (1.4 billion tonnes at 15.5% Fe)
  - Chuos Formation, Namibia (~2-3 billion tonnes at 20-28% Fe)



#### **Data Procedure**



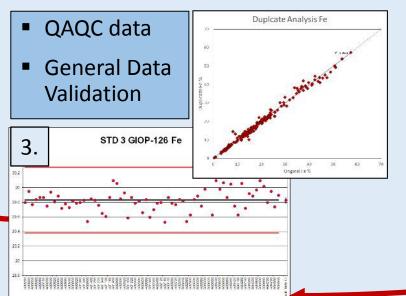
ALM S ATE

Management of the second of the s

- 2m intervalshalf core
- Log Core

WESTERNEY

Upload all data into Database



- 2.
  - Assayed at ALS Johanesburg
    - XRF (X-Ray Florescence) Iron Ore Assay Suite

## **DTR Test Work Confirms Premium Grade Magnetite Product Potential**

100011001116			P80 in Microns			
Fe %	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	P %	<b>S</b> %	P80 (Grind Size)	
*168.55	2.87	0.33	0.046	0.019	60 microns	
* <sup>2</sup> 31.05	38.05	5.10	0.258	0.040	*2Interval Averaged Composite Head Grade	

<ul> <li>*1 Interval averaged DTR sizing test work results for all composites</li> <li>*2 Interval Averaged Head Grade of Starting material</li> <li>Total Composites Interval = 101.7m</li> </ul>			20 10 0 0 50		150 200 250 300 35 P80 in Microns	SiO2 % Concentrate	
Fe %	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	P %	S %	P80 (Grind Size)		
*¹68.55	2.87	0.33	0.046	0.019	60 microns		
* <sup>2</sup> 31.05	38.05	5.10	0.258	0.040	*2Interval Averaged Composite Head Grade		

% 70

60

50

40

30

Composite 7 - Magnetite BIF (MBA)

- All mineralized units capable of producing premium grade magnetite >68 % Fe
- Moderate grind sizes needed
- Good relative mass recoveries achieved

Mass

Fe Mass

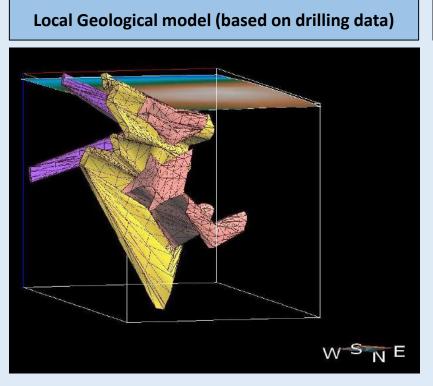
→ Fe %

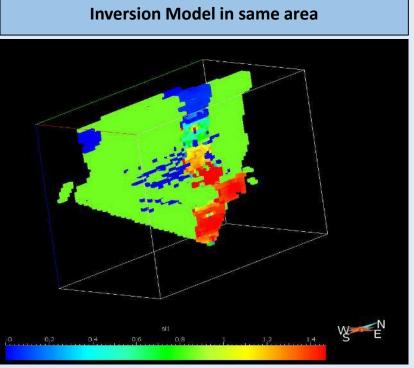
Recovery %

Recovery %

Concentrate

## **Turning Inversion Model to an Exploration Target**



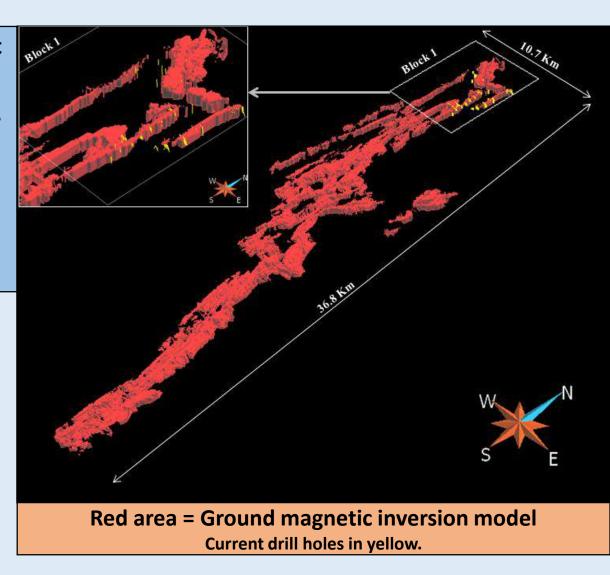


- Inversion model overestimates volume iron mineralization
- Adjust Volumes
  - Compare Volumes from Local model to Inversion Model Volumes
  - Create conversion factors for Inversion Model Pick most conservative
- Apply volume conversion factors to all Inversion Model
- The volumes into tonnes using average density 3.3 g/cm<sup>3</sup>.

### **Exploration Target of 5 to 7 Billion Tonnes**

- Conservative exploration target
   of 5 7 Bt
- Grade ranging of 15 40 % Fe\*.
  - Grade range based on general observed mineralization range
- Only fraction of total magnetic signature has been drilled to date

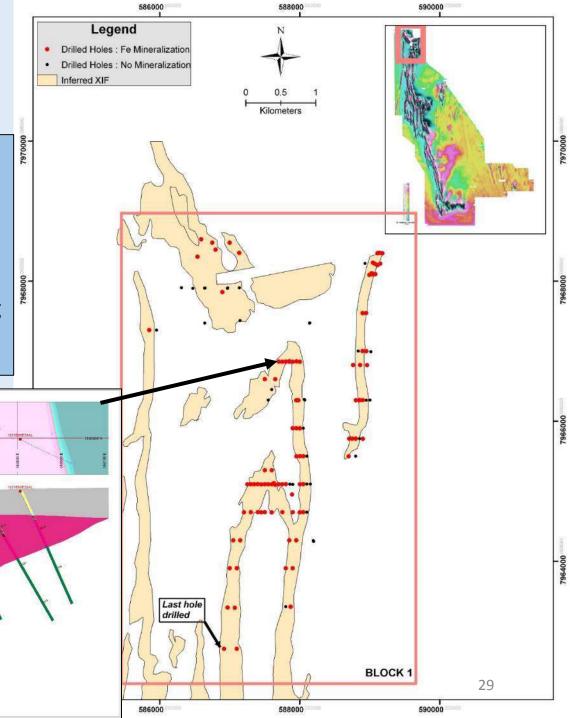
\*It is important to note that the tonnages and grade quoted in this exploration target is conceptual in nature, there has been insufficient exploration to define a mineral resource and that it is uncertain if further exploration will result in the target being delineated as a mineral resource as defined by NI 43-101.



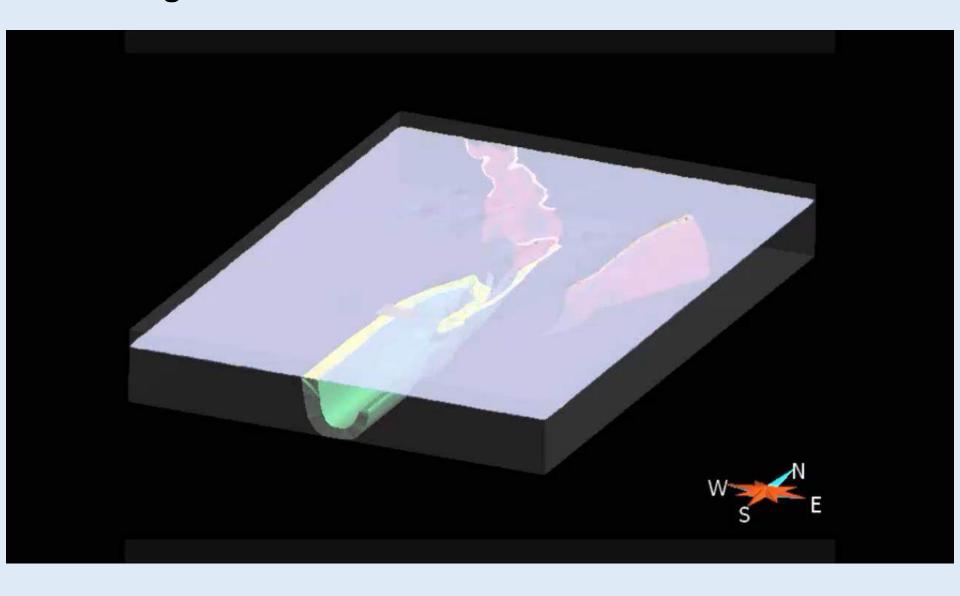
## **Cross sectional Interpretation**

- East West sectional drilling across main strike of mineralization
- Fold hinges best for large areas of mineralization
- Sections are scanned and georeferenced into GOCAD 3D modeling software

1821B90 fence

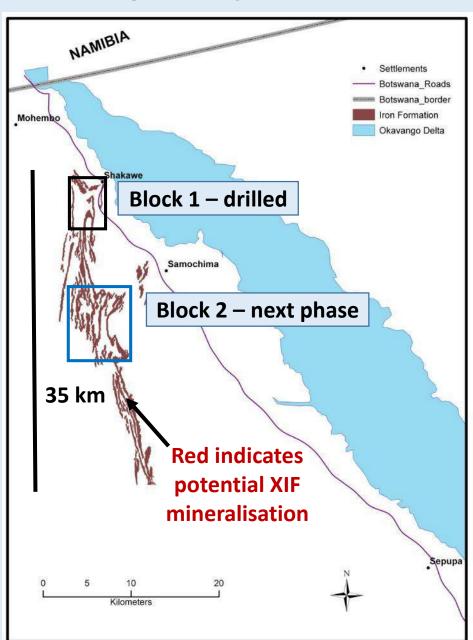


#### Modeling in GOCAD for NI 43-101 Maiden Resource Estimate



## **Summary - Potential Mega Project**

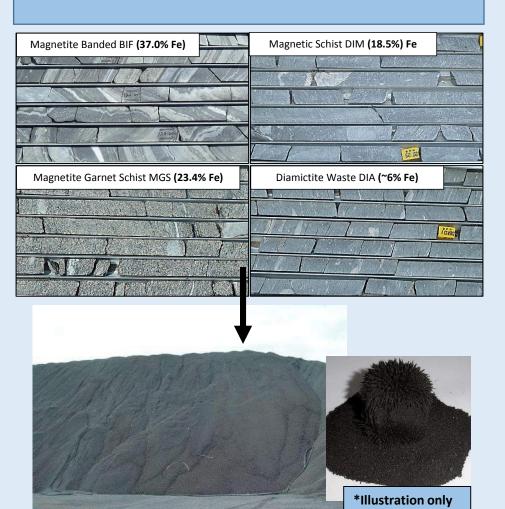
- Block 1 drilled fraction of the total potential "The tip of the Iceberg"
- Exploration Target of 5 to 7 Billion
   Tonnes at 15-40% Fe
- Average grade of all mineralized drill intersections = 29.4% Fe
- All mineralized units capable of producing premium grade magnetite product of >68% Fe
- Maiden NI 43-101 compliant mineral resource estimate of Block 1 scheduled for end Q2 2014
- Next phase drilling on Block 2 to start Q3 2014, but still only part of the larger whole
- Bottom Line Huge potential development for Botswana
  - Major infrastructure project possible
     +50 year mine life



## **Magnetite Iron Ore: Options**

A. Washing of Botswana's 221B Tons of coal

## **B1.** Direct Shipment of Magnetite Ore ~68% Iron Fines



B2. Shipment of higher value metallic Iron produced on site with new roasting technology ~ 99.9% Iron

#### Magnetite roasting (IMBS process)

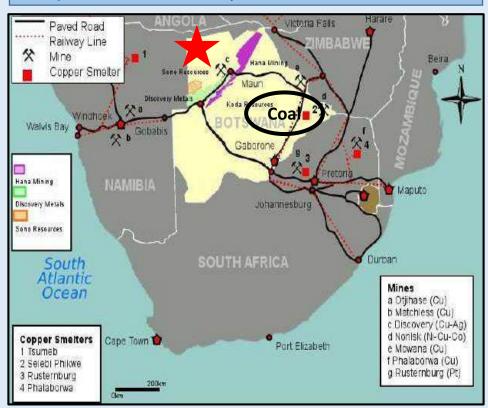
- Relatively simple modular plants
- Uses thermal coal e.g. from Morupule
- Being used in Phalaborwa



#### Trans-Kalahari Railway line

## Walvis Bay port gets R2.7bn upgrade, corridor seen as alternative trade route

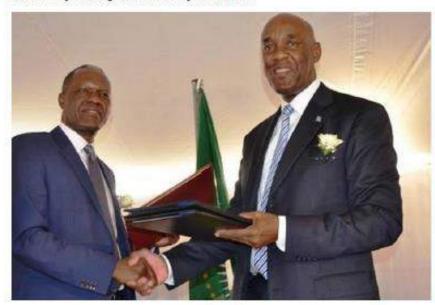
The Namibian Ports Authority, <u>Namport</u>, would invest R2,7-billion on upgrading the <u>port of Walvis Bay</u> over the next three to four years, <u>Walvis Bay Corridor Group</u> (WBCG) CEO <u>Johny Smith</u> said on Tuesday. Oct2010



#### Trans-Kalahari Railway Line agreement signed and sealed

Posted by Namib Times on March 20, 2014 at 12:20 in News

The signing ceremony of the bilateral agreement between Namibia and Botswana for the construction of the Trans-Kalahari Railway (TKR) Line Project took place on Thursday morning near Walvis Bay Bird Island.



The proposed TKR will link Botswana's Mmarnabula coalfields with the Walvis Bay Port in Namibia. The 1 500 km heavy duty railway line will boost trade in Botswana and turn it into a regional trade hub.

The estimated capital expenditure for the project amounts to approximately N\$100 billion and construction work is expected to stretch over the 2014-2019 period. The process to

## **Challenges ahead**

#### • Transport infrastructure

- Export of Iron Ore or Metallic Iron using rail via Ghanzi or Rundu?
- Transport of Magnetite ore to Botswana coal fields to prepare (washing) coal for export
- Transport of Thermal Coal from Botswana coal fields to produce Metallic Iron

#### Power supply

Sufficient power to Shakawe for mining/beneficiation processes

#### Prospecting titles

 To complete exploration drilling of the Xaudum Iron project and copper exploration program renewals of PL's will be needed.

#### Environmental

Following IFC "best practice" standards to comply with environmental challenges

### **Global summary**

#### 1. Copper (Ni)

1.1 FQM continuing exploration.

#### 2. Iron ore

2.1 SRK to complete maiden NI 43-101 compliant Mineral Resource and Technical report near end Q2 2014 over Block 1 of Xaudum Iron ore project on behalf of Tsodilo.

#### "Tip of Iceberg"

- 2.2 DTR work ongoing.
- 2.3 A conservative exploration target of 5 to 7 Billion Tonnes of Iron ore at grades between 15 40% Fe has been calculated.
- 2.4 Average grade of all mineralized drill intersections is 29.4% Fe
- 2.5 Block 2 next XIF are to be drilled starting end Q3 2014

#### 3. Diamonds

A tight cluster of 3 Kimberlites is of interest: K10 has shown to be mineralised, K11 will be tested for micro-diamonds, and B7 to be drilled to prove kimberlite.

#### 4. Uranium

Spectrem Airborne survey data detects sub-Kalahari channels linked to calcretes with U-targets.

