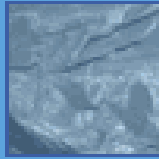
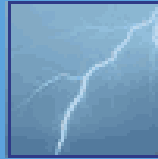


Minerals



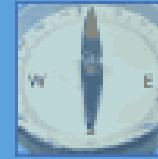
Energy



Water



Map



# “Challenges in Mineral Exploration”: Botswana Perspective

**Department of Geological Survey**

**11<sup>th</sup> June 2009**

**By Johannes O. Tsimako**

**Botswana Resource Sector Conference, GICC, Gaborone**

## Outline

- **Introduction**
- **Prospecting update**
- **Challenges**
- **Areas of Growth in the sector**
- **Conclusion**

# RESPONSIBILITY

- ***“I believe that every right implies a responsibility; every opportunity an obligation, every possession, a duty” by.....***

## Introduction

- **The Minister responsible for minerals is charged with ensuring that minerals resources of the Republic are, in the public interest, investigated in the most efficient, beneficial and timely manner**
  - **Mining is the mainstay of the economy of Botswana**
  - **Mining contributes more than a third of GDP and about half of Government Revenues**
  - **Minerals are the main foreign exchange earner for Botswana**

## Today Challenges: Exploration and Mining Sector

- **Adverse effects of the global economic downturn being felt**
  - **Early surrender of prospecting licenses**
    - ✓ None Development
  - **Temporary Closure**
    - ✓ Diamond Mines
  - **Mowana mine and Tswapong mine on care and maintenance**
  - **Staff reductions**
  - **Transitioning from exploration to mining very difficult due to difficulty in raising capital**

## Benefits of Exploration and Mining to the Nation

- **Foreign Direct Investment**
- **Wealth creation**
- **Government revenue**
- **Foreign exchange and reserves**
- **Employment creation**
- **Skills development**
- **Social investment**

## PROSPECTING UPDATE: MINERAL CATEGORIES

- ✓ Metals (Base Metals, Precious Metals, PGMs, REE)
  - ✓ Precious Stones (Diamonds, Emeralds etc)
  - ✓ Energy (Coal, Coal Bed Methane)
  - ✓ Industrial Minerals (Granite, calcrete, Sandstone, Marble, Limestone etc)
  - ✓ Radio Active Minerals (Uranium and Thorium)
  - ✓ Petroleum (Oil and natural gas)
- 
- **No Overlaps allowed for same category**
    - ✓ No overlaps for coal and coalbed methane
  
  - **Avoids conflict with associated minerals (Indicators, path finders etc)**

# Update: Service Delivery: Turn Around Time

## Update: Applications Processed within 60 Days (under normal Circumstances)

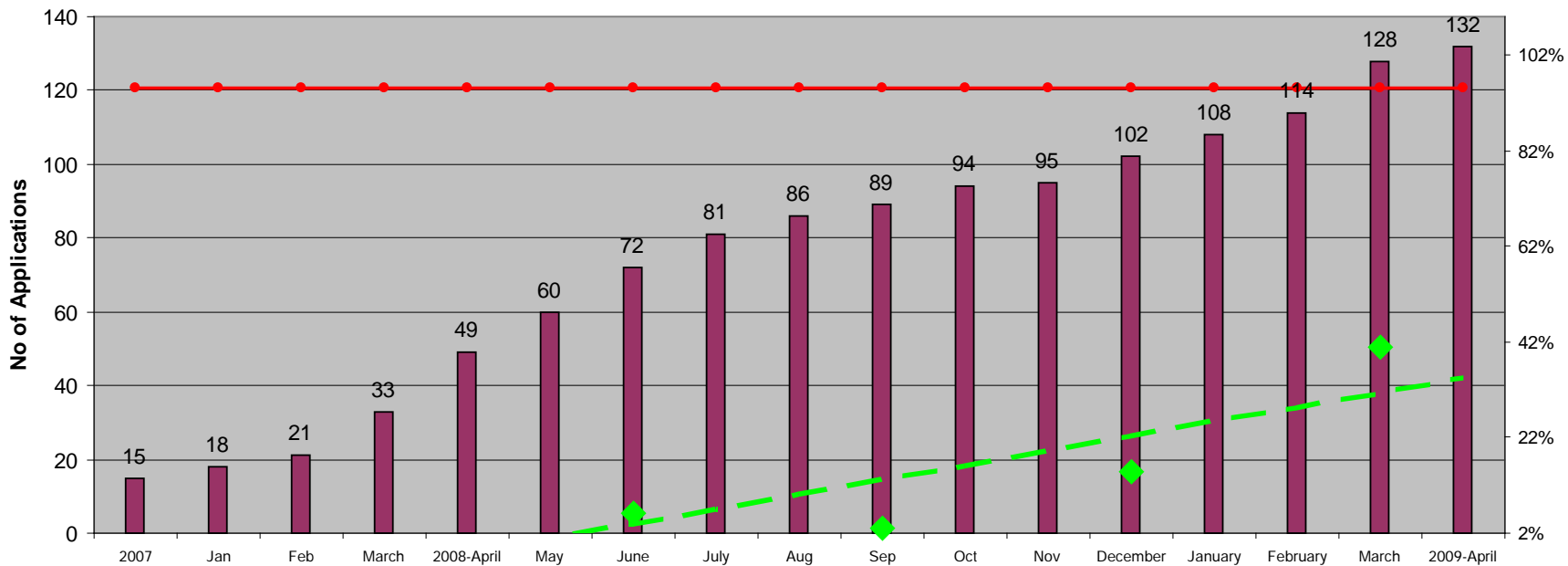
Q1 April June 2008	Q2 Jul-Sep 2008	Q3 Oct-Dec 2008	Q4 Jan-Mar 2009
<b>6%</b>	<b>3%</b>	<b>15%</b>	<b>41%</b>

<b>Inadequate Applications: Customer took more than 21 Days to respond</b>		Status Sep 2008	Status March 2009
	Total Applications	<b>33</b>	<b>19</b>
	Technical Assessment	<b>19</b>	<b>16</b>
	Overlaps	<b>14</b>	<b>3</b>

<b>Applications waiting for more information from applicants for more than 21 days</b>	<b>20</b>	<b>13%</b>
<b>% processed within standard (60 days)</b>	<b>21</b>	<b>13%</b>
<b>Total applications pending</b>	<b>68</b>	<b>43%</b>
<b>Total Processed</b>	<b>92</b>	<b>58%</b>

# Update: Age Analysis 2008/2009

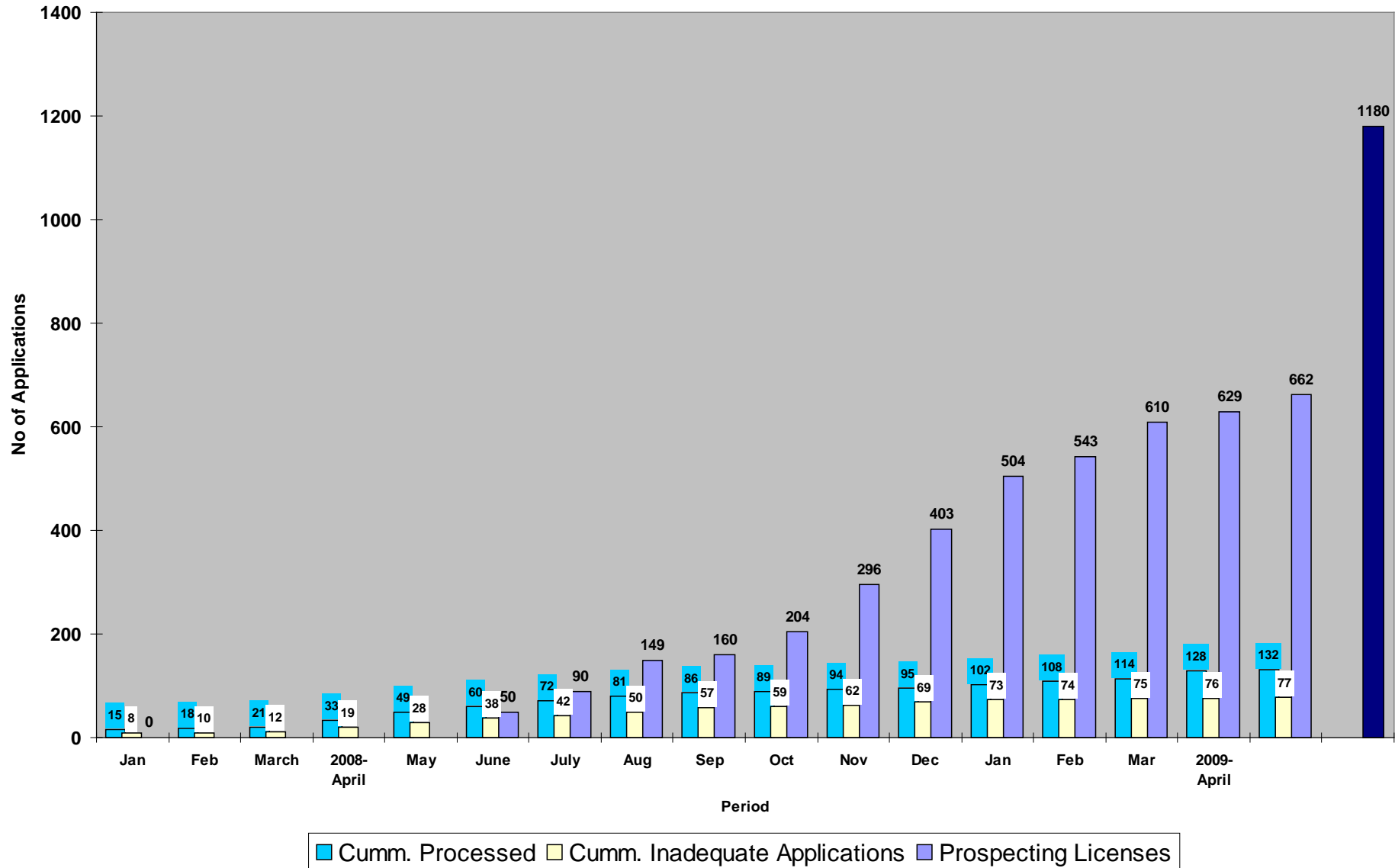
Age Analysis of Prospecting Licenses 2008/2009/2010



- Cumm. Processed
- TARGET
- ◆ % Processed Within Standard (Per Quarter)
- Linear (% Processed Within Standard (Per Quarter))

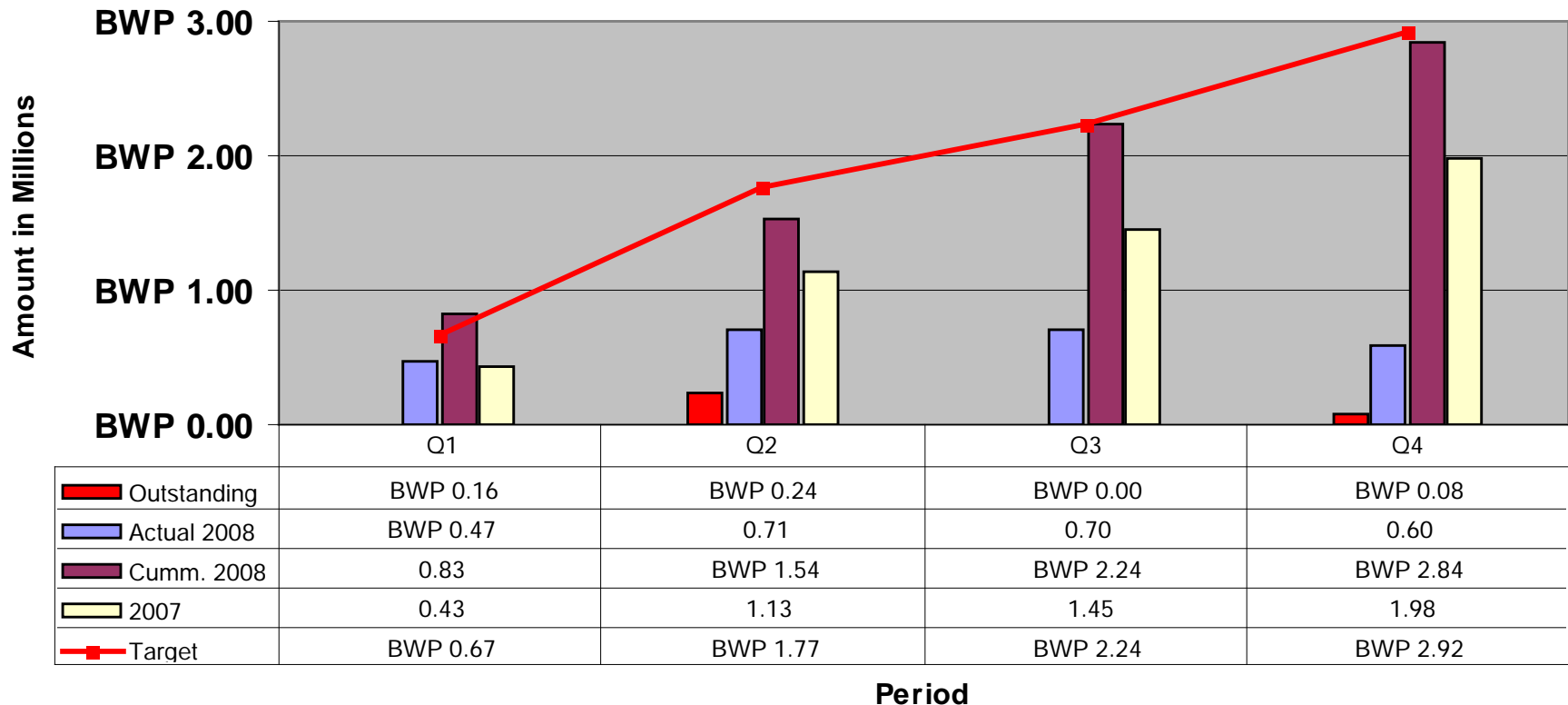
# Update: Age Analysis 2008/2009

Age Analysis of Prospecting Licenses 2008/2009/2010



# Update: Annual Rental Revenue

## Annual Rental Revenue From Companies

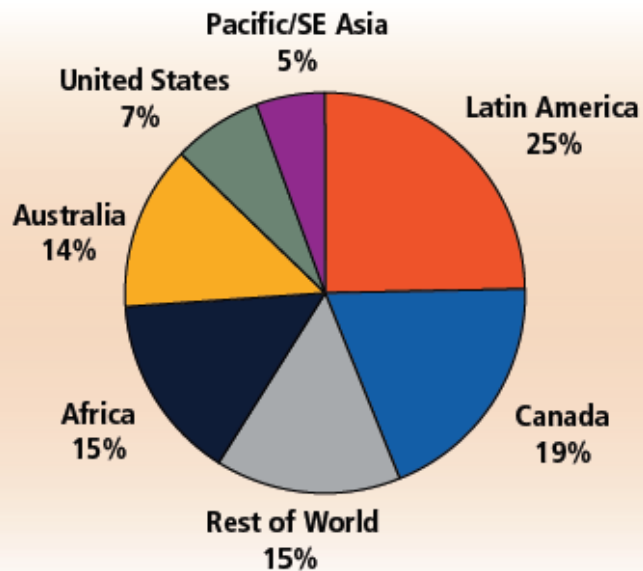


■ Outstanding 
 ■ Actual 2008 
 ■ Cumm. 2008 
 ■ 2007 
 —■— Target

# Global Overview: Metals Economic Group, 2009

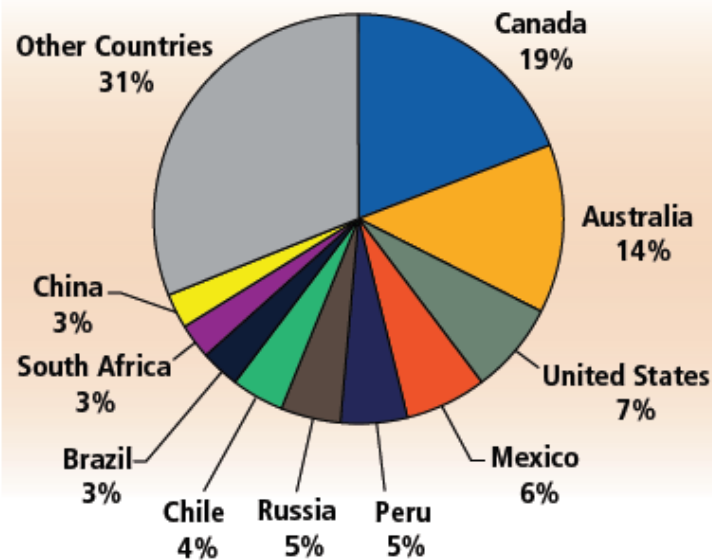
**Figure 4: Worldwide Nonferrous Exploration Budgets by Region, 2008**

Worldwide Exploration Budgets by Region  
(1,912 companies' budgets totaling \$12.6 billion)



**Figure 5: Exploration Budgets for the Top Ten Countries, 2008**

(top ten countries' budgets account for 69% of 2008 total budgets of \$12.6 billion)

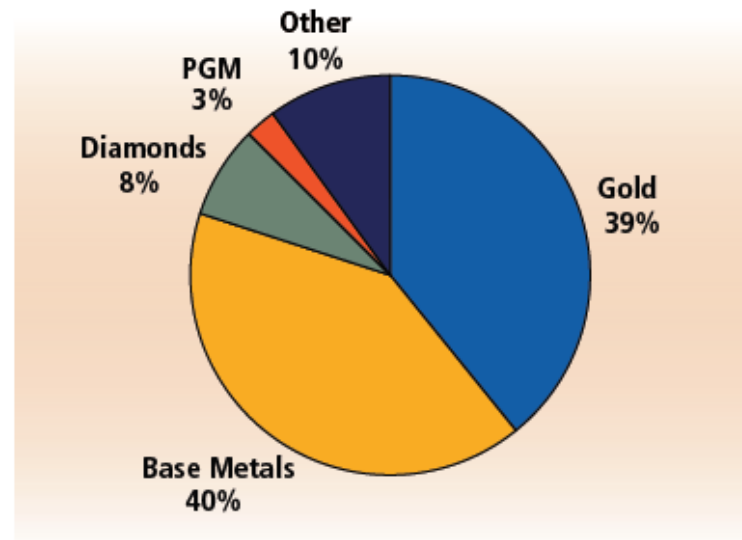


© Metals Economics Group, 2009

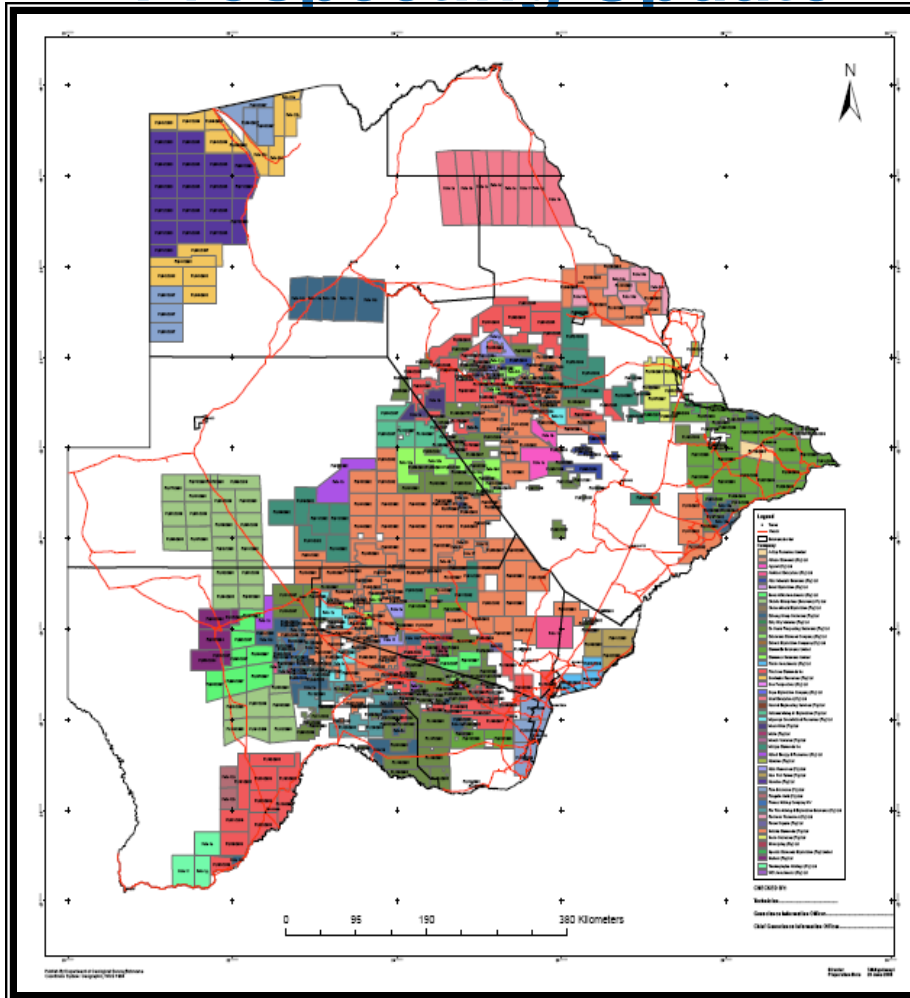
## Global Overview: Metals Economics Group, 2009

Figure 6: **Worldwide Nonferrous Exploration Budgets by Target, 2008**

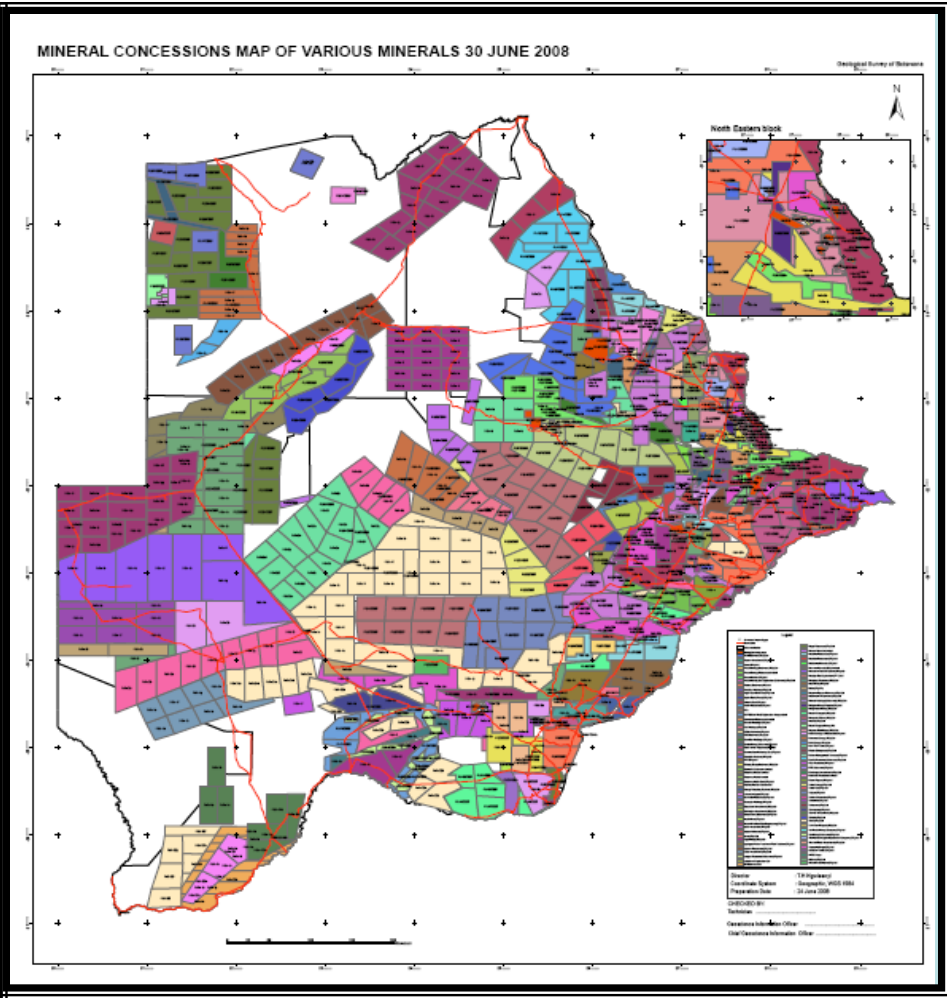
Worldwide Exploration Budgets by Target,  
(1,912 companies' budgets totaling \$12.6 billion)



# Prospecting Update

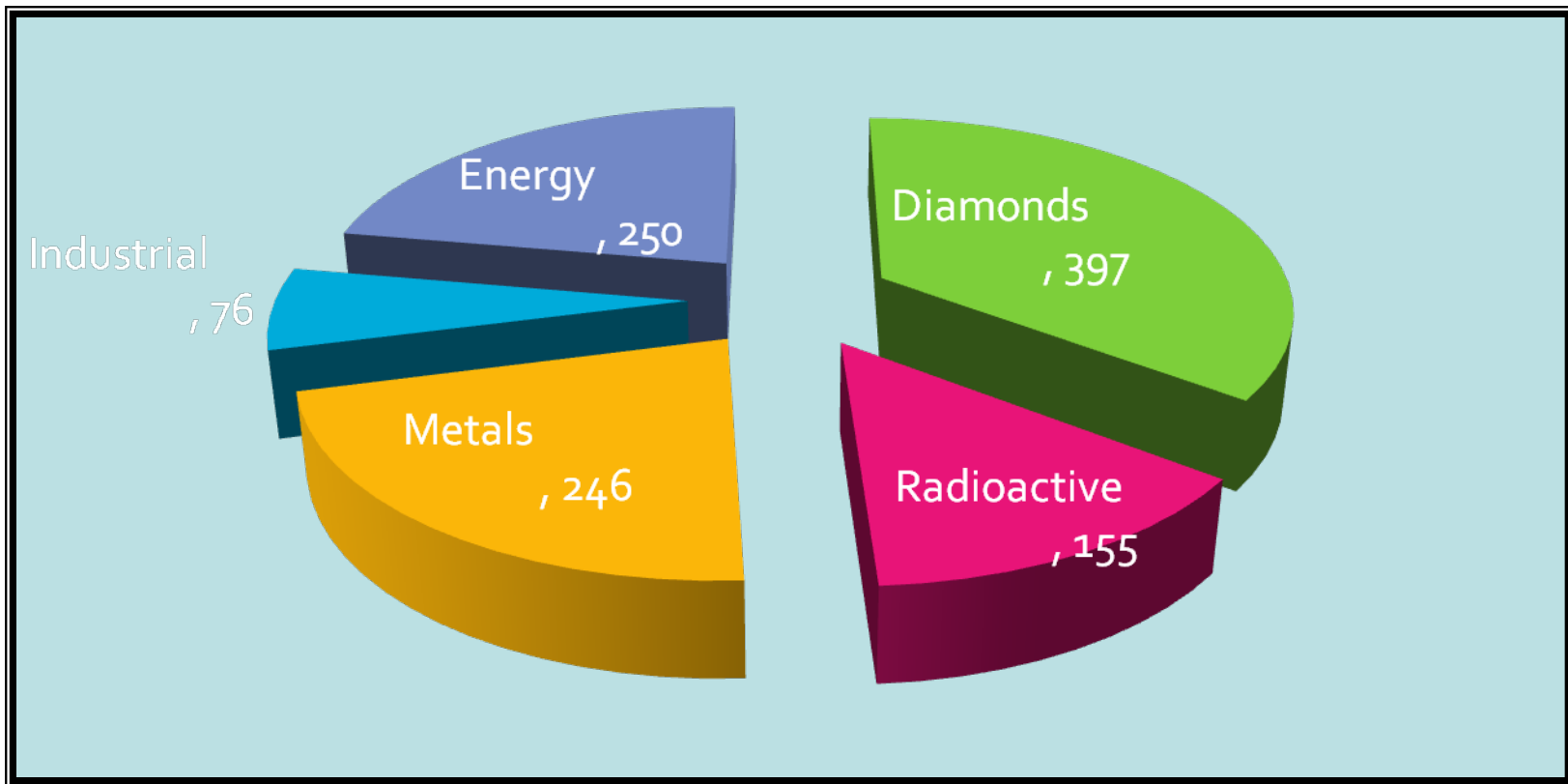


**Precious Stone Licenses**



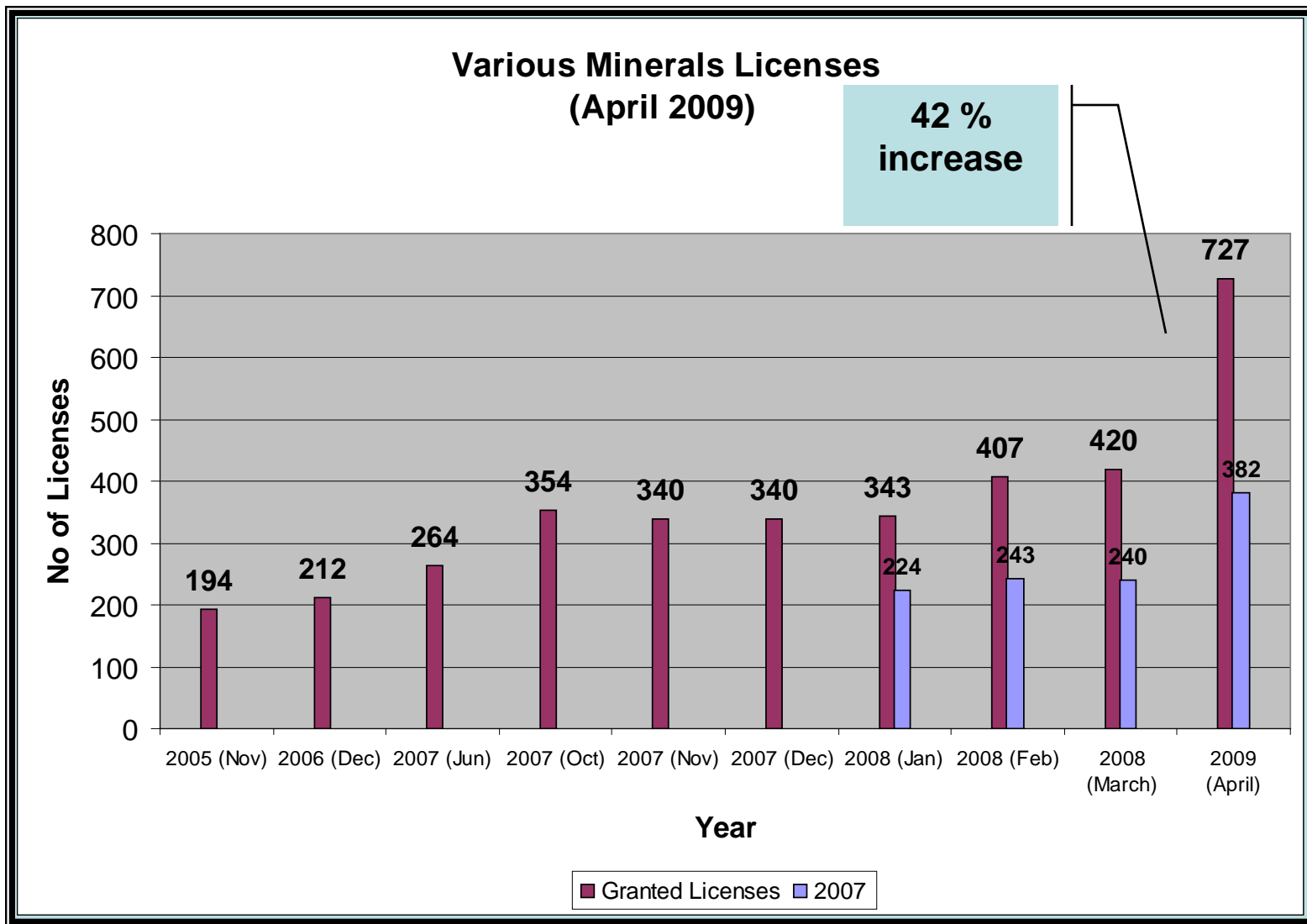
**Various Minerals: Metals, Radioactive Minerals, Industrial Minerals and Energy Minerals**

## Distribution of the 1124 licenses valid during April 2009



- Significant few are not performing well against the approved program mainly due;
- Funding problems
- Speculative trading of licences

# Update: Various Minerals

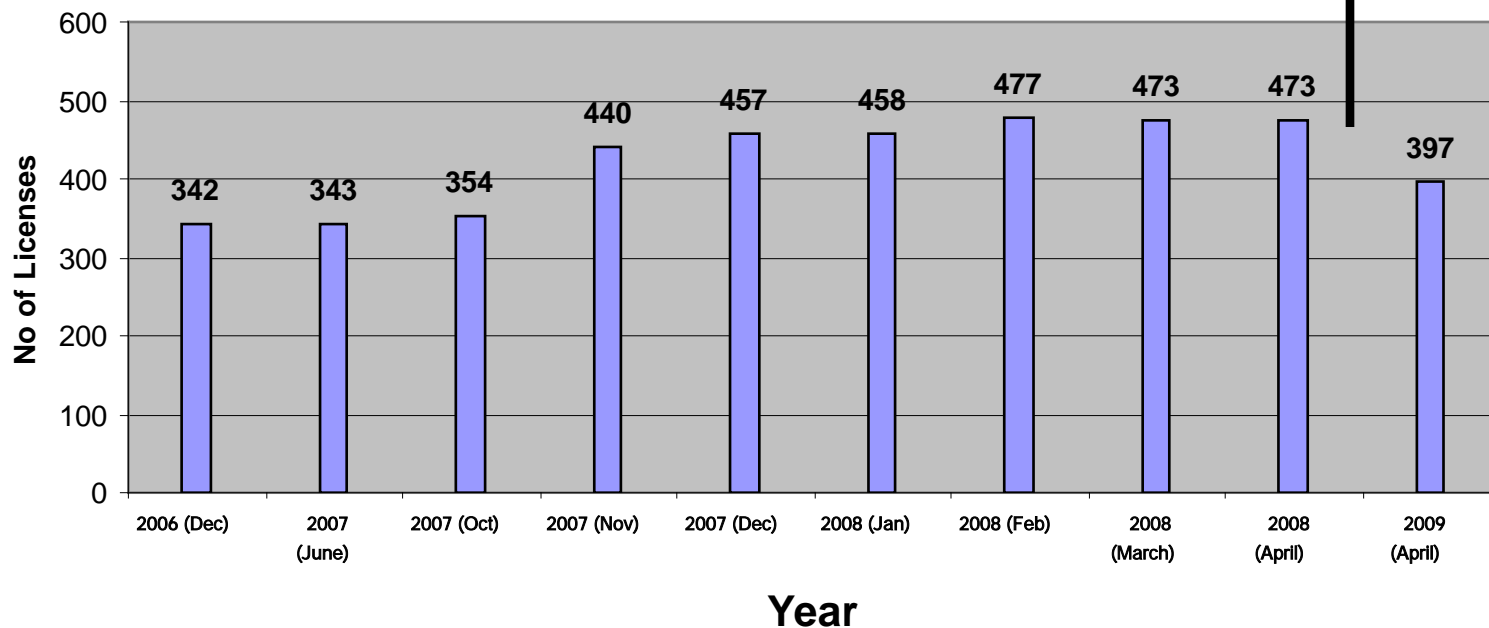


	2003	2004	2005	2006	2007	2008	2009 (April)
<b>Energy</b>	15	19	50	41	115	118	250
<b>Metals</b>	77	99	143	143	173	176	246
<b>Radioactive</b>	0	1	13	19	51	72	155
<b>Industrial Minerals</b>	33	32	39	35	43	61	76
<b>Diamonds</b>	449	436	529	341	358	473	397

# Update: Precious Stones

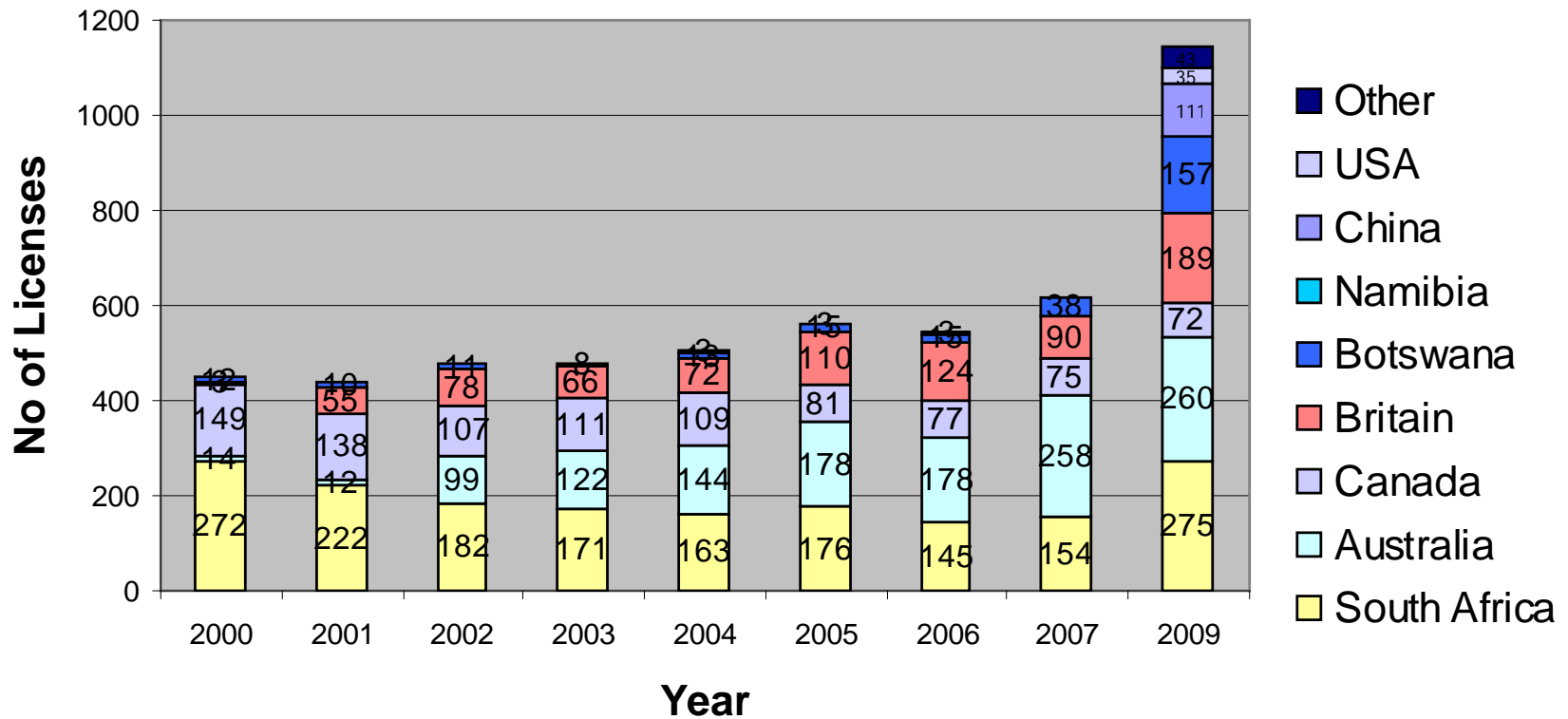
16%  
drop

**Distribution of Precious Stone Licenses  
(April 2009)**



# Update: Nationality of Companies: 2009

Distribution of Licenses by Country of Origin of Holder  
(As at May 2009)



## Update: High lights, Energy Category

- **High number of Inactive Prospecting activities for Coal and CBM**
  - Total 118 Licenses as at June 2008
    - ✓ Less than 30% Active (19 000 square kilometers)
      - Held by eight (8) companies (out of 28 companies)
    - ✓ 70 % Inactive (68 000 square Kilometers)
      - Held by twenty (20) companies
- **Active Companies (Drilling reporting of work done)**
  - Coal Only
    - Held by Four Companies
    - 5500 km<sup>2</sup>
  - Coal and CBM
    - Held by four Companies
    - 13 500 km<sup>2</sup>
- **Potential conflict of Radioactive vs Coal and CBM**
  - companies have already highlighted their concerns
- **Companies have applied for Petroleum over existing Coal and CBM licenses**
- **One company has reported the discovery of conventional gas**
- **No Petroleum Prospecting licenses issued so far**

# Technical and Information Relation Challenges

## Generation & Grassroots Exploration

## Drilling

## Feasibility Studies

- **Competition for developable land**
- Access to technology
  - GIS and remote sensing technology
- **Availability and cost of experienced technical personnel**
  - Grassroots geology
  - Desktop research
  - Exploration programme design**
- Physical access to land
- **Finance**
- **Risk management advice**

- **Availability of drillers & equipment**
- **Cost of drilling**
- **Experienced technical personnel**
- **Pre-feasibility expertise**
- **Access to technical support services**
  - Accurate data management and quality assurance**
  - Compliant reporting**
  - Project management
- **Legal Compliance**
- **Access**

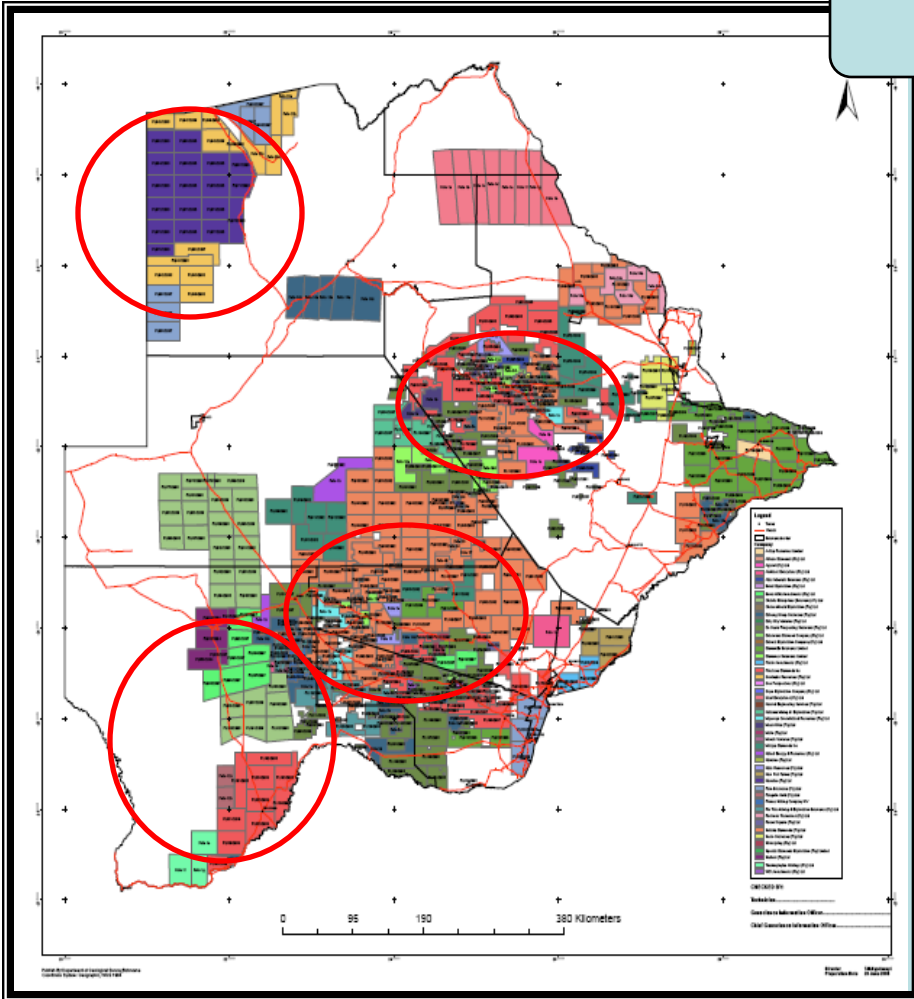
- **Access to technical support services**
  - Compliant reporting**
    - 3D Modelling
    - Acceptable valuation methods
    - Accounting standards
- **Legal Compliance**
  - SLPs
  - EMPs
  - IAP
  - HDSA Charter
- **Financial Advisory**
  - Risk management
- Provision for mine closures**

Courtesy of MSA Group



# Areas of Growth and Potential: From Selected few performers

Diamonds and Metals



Precious Stone Licenses

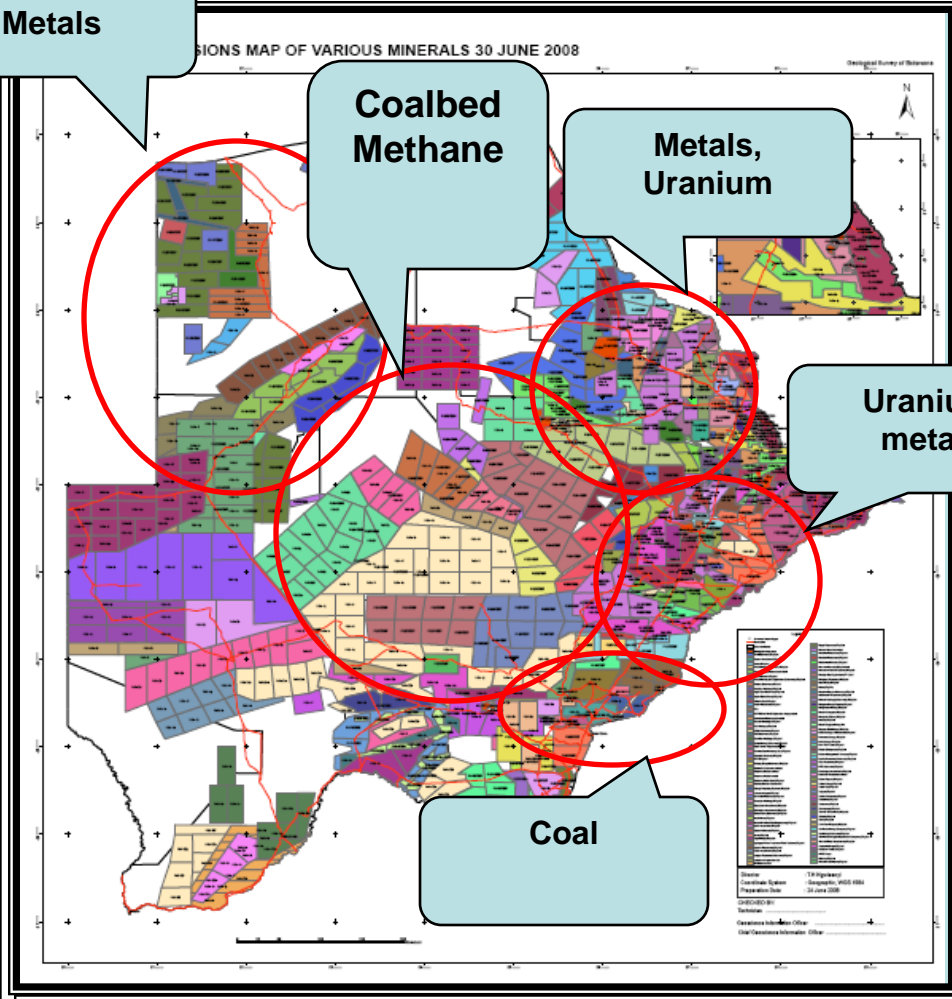
REGIONS MAP OF VARIOUS MINERALS 30 JUNE 2008

Coalbed Methane

Metals, Uranium

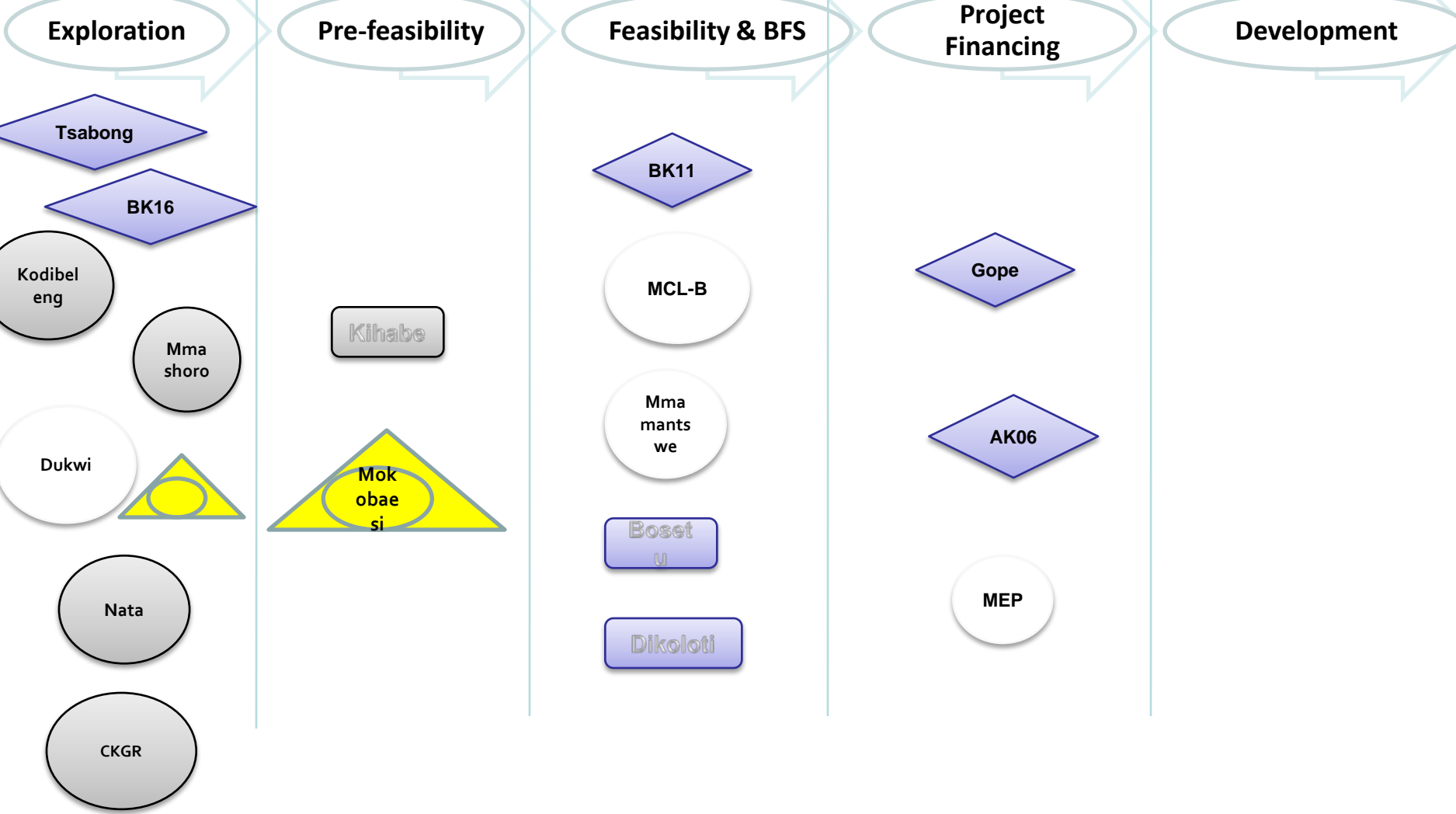
Uranium metals

Coal



Various Minerals, Metals, Radioactive Minerals, Industrial Minerals and Energy Minerals

# Project Update:



Diamonds
 Coal
 CBM
 Cu/Ni
 Zn/Pb
 Uranium

## Conclusions

- **Besides the current global economic downturn the fundamentals for exploration and mining in Botswana are very strong**
- **Mining is the mainstay of the economy of Botswana and will remain so for a foreseeable future**
- **Few companies exercise good stewardship in mineral resources exploration**
- **Legislation and regulations for associated mineral categories is a challenge and is receiving attention**

## RESPONSIBILITY

- ***“I believe that every right implies a responsibility; every opportunity an obligation, every possession, a duty”*** ”

**Nelson Rockefeller**

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- [www.geoscience.gov.bw](http://www.geoscience.gov.bw)

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**Private Bag 0014**

- Lobatse