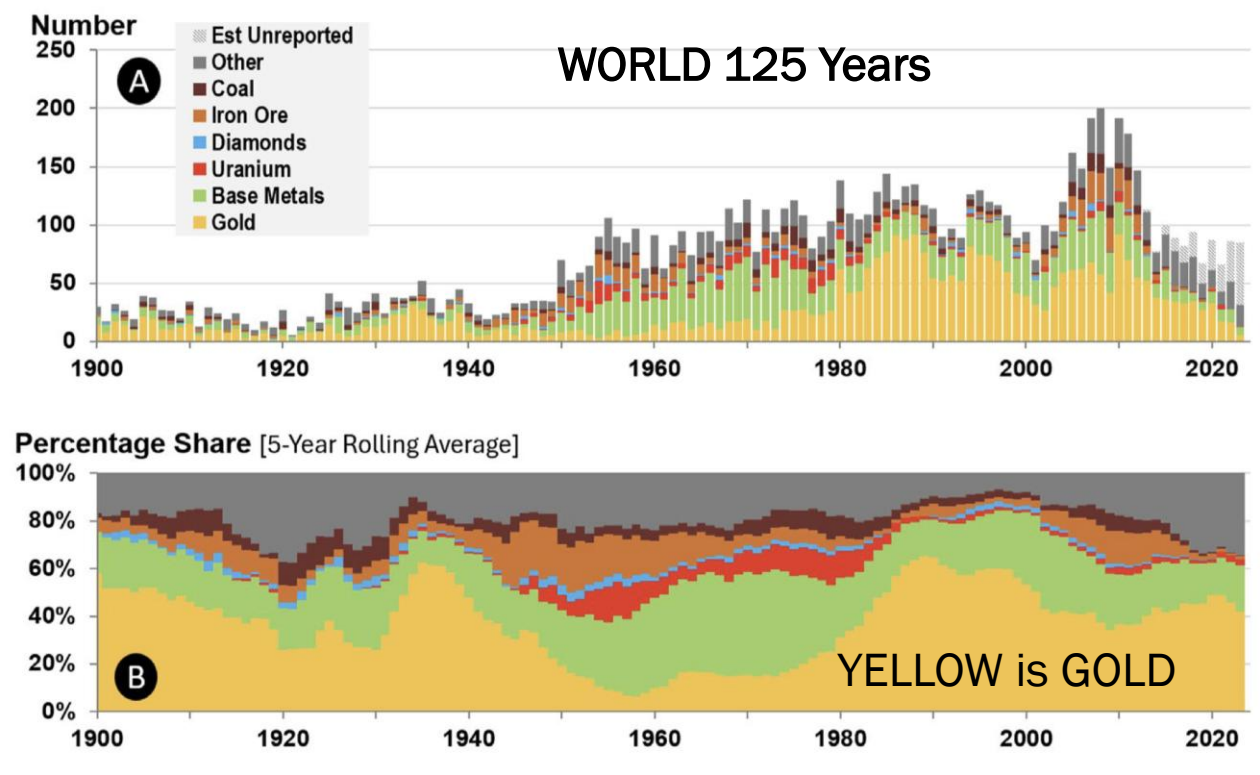
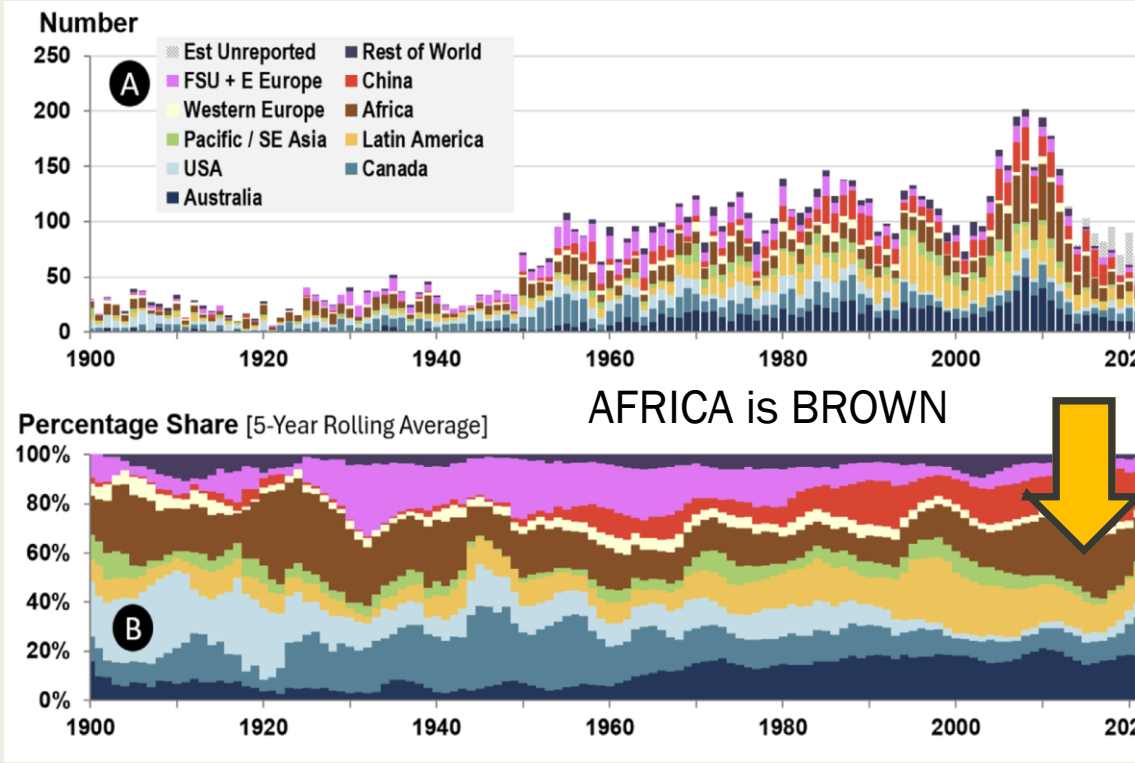
HOW TO FIND THE NEXT BIG ONE WORLD WIDE TRENDS AND ZIMBABWEAN OPPORTUNITIES

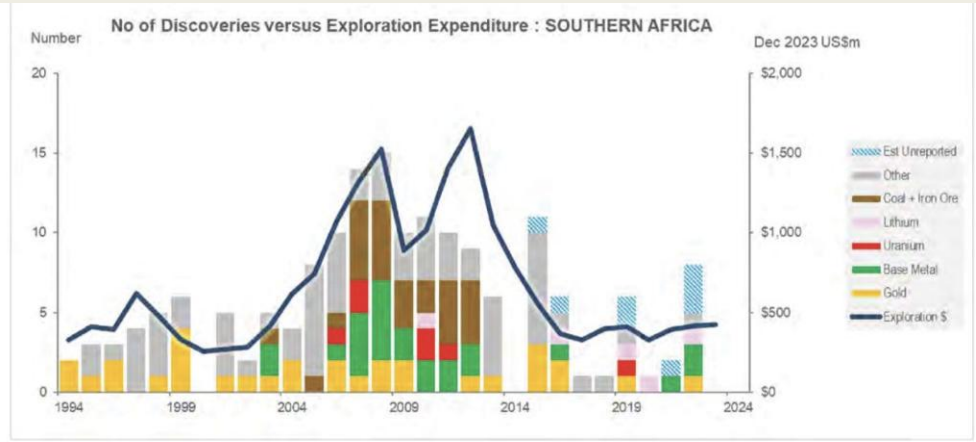
with information taken from RICHARD SCHODDE World Bank Report May 2025
Article in SEG Discovery July 2025
OCTOBER 2026
SUMMER SYMPOSIUM 2026

1900 to 2023 – some graphs of the World Vs Africa DISCOVERIES

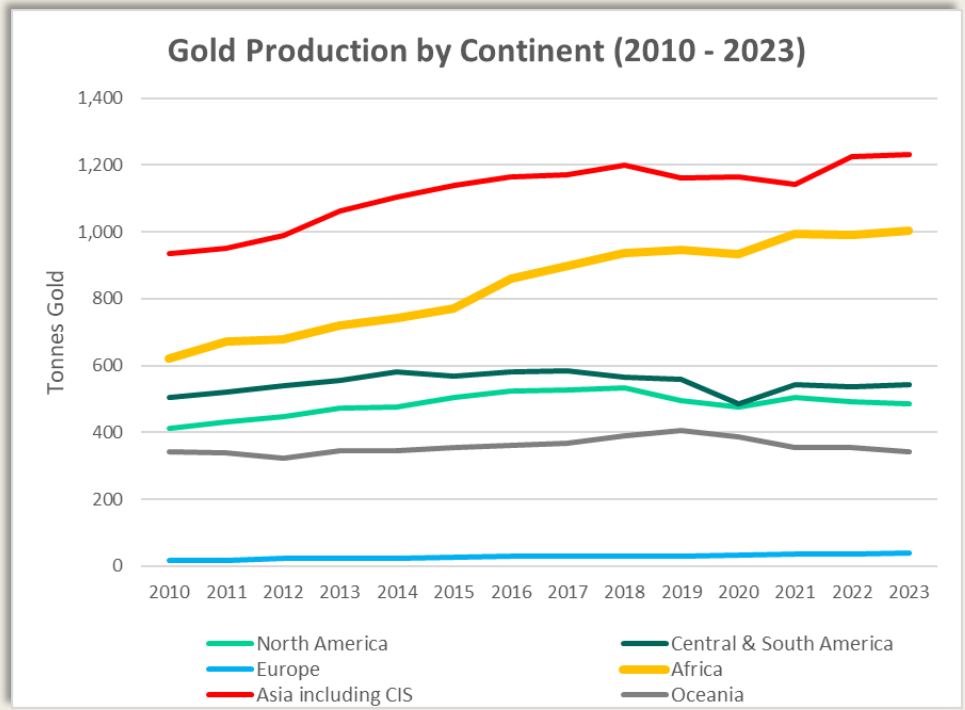


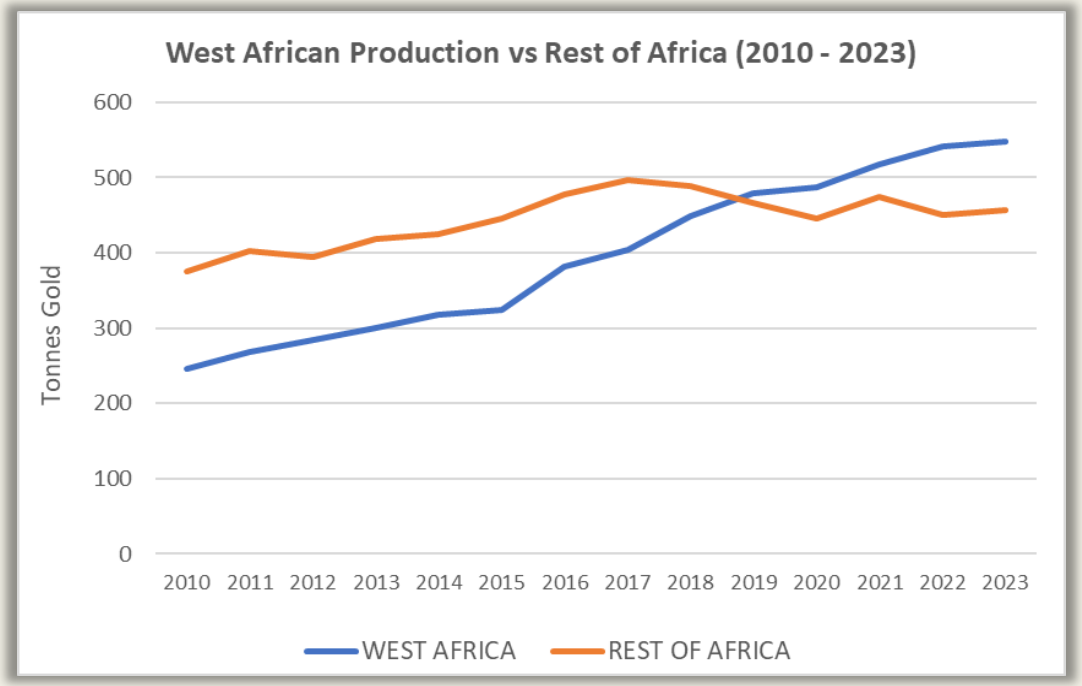


- There has been a decline in Africa's participation – possibly linked to a sharp decline in exploration expenditure – which is more marked in Africa and in particular Southern Africa (we have lost a lot of this investment to West Africa based on big discoveries.



AFRICA's GOLD – LAST 15 YEARS





- Africa's Production is growing – but so it Asia's
- The growth is driven by the steady 20 year increase in gold from West Africa
- Surely Zimbabwe can add to this, and influence the continent wide growth.

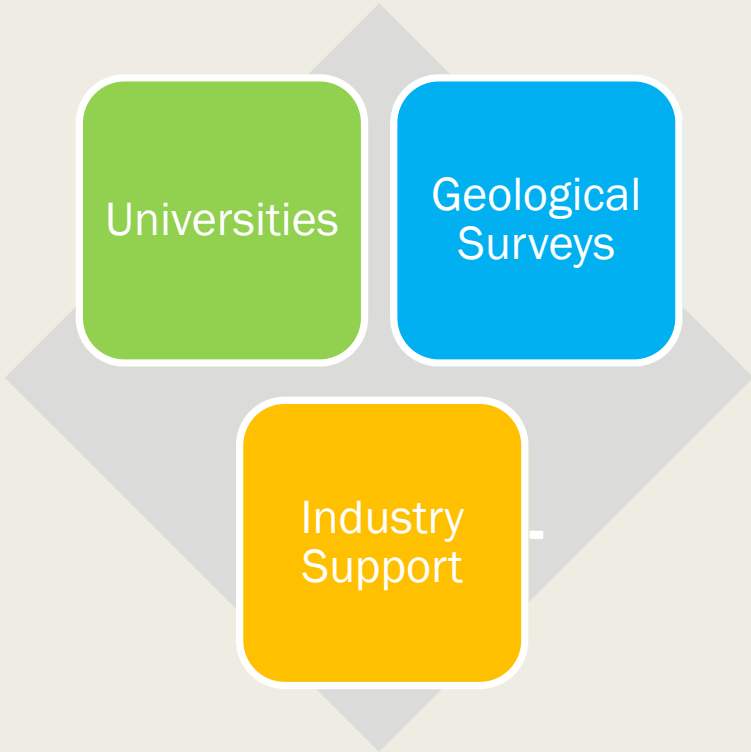
KEY FACTORS

We all have resources to greater or lesser degree

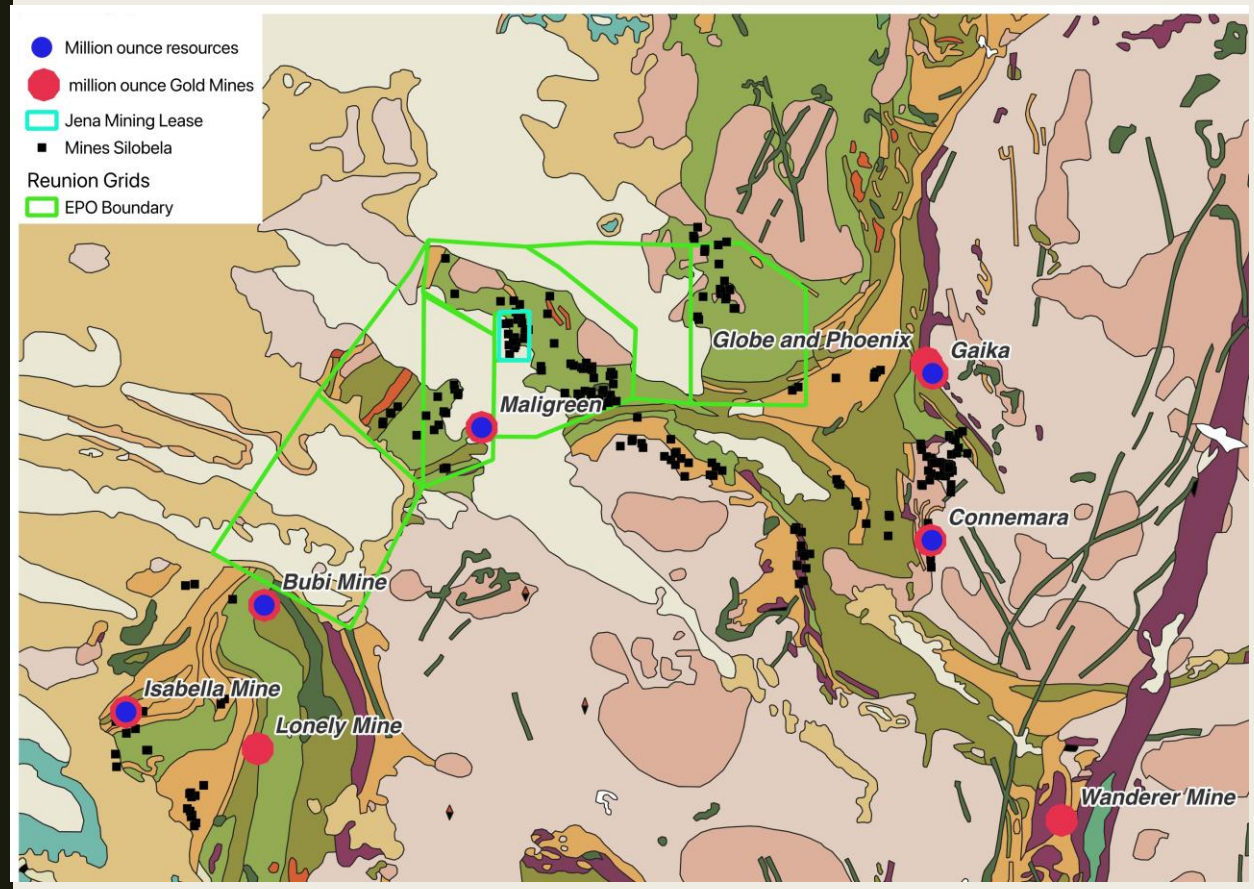
Ground Tenure and ease of doing business – Government's Role

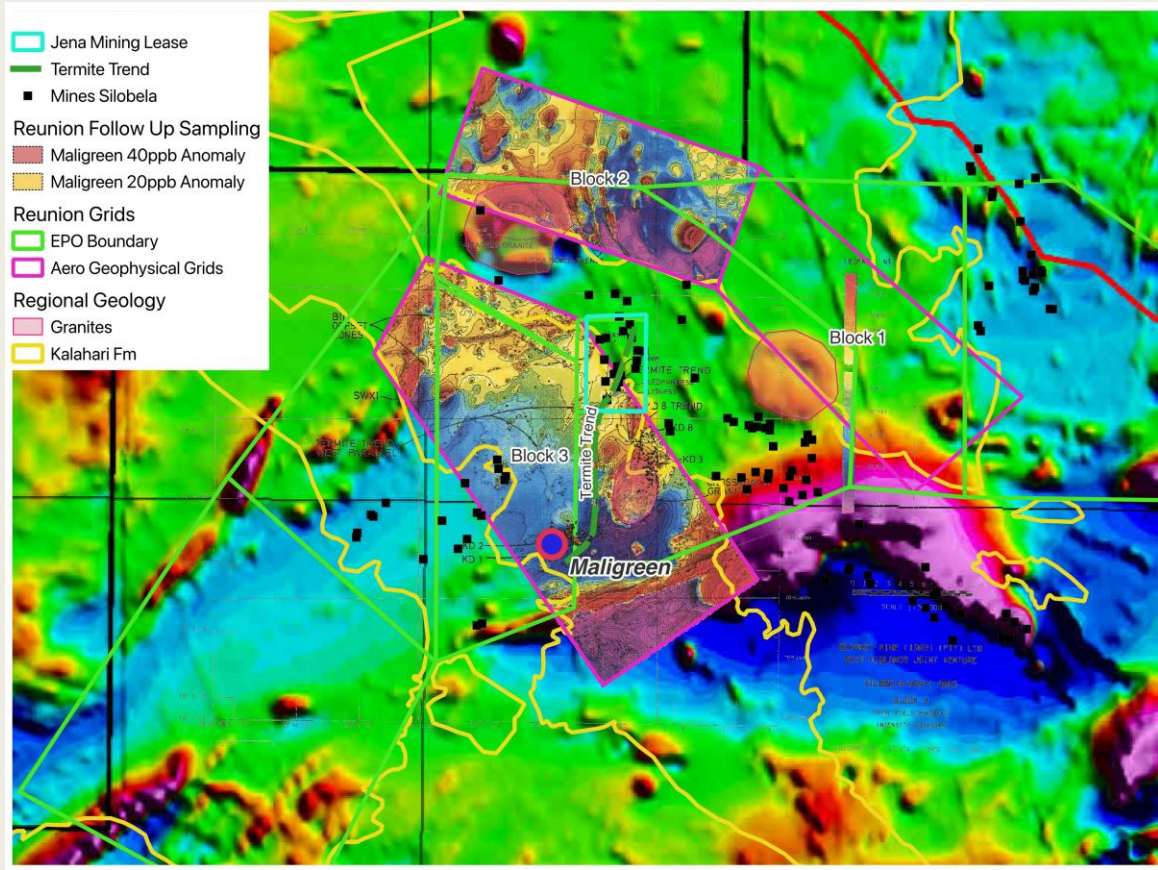
Finance – this is the role of Industry

Research and Development to allow the discoveries to happen



HOW WE DID IT IN THE 1990s - MALIGREEN





Selection based primarily on 2 criteria

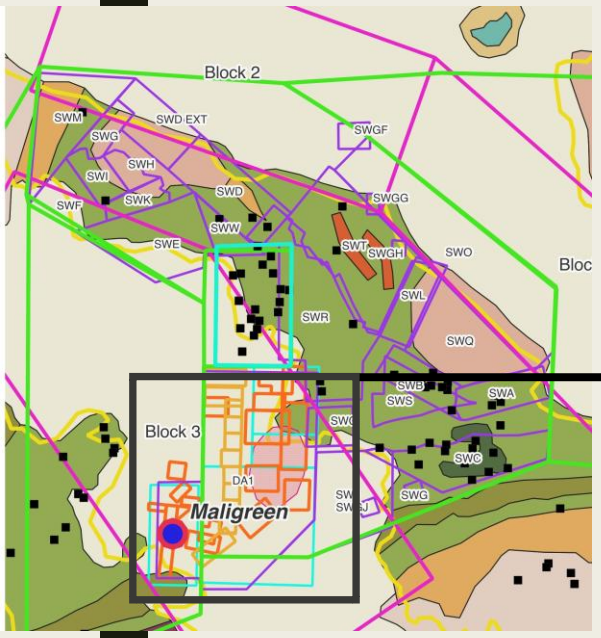
- Geological Formation – Archean – but this time beneath Kalahari
- Country wide CIDA Aeromagnetic Survey

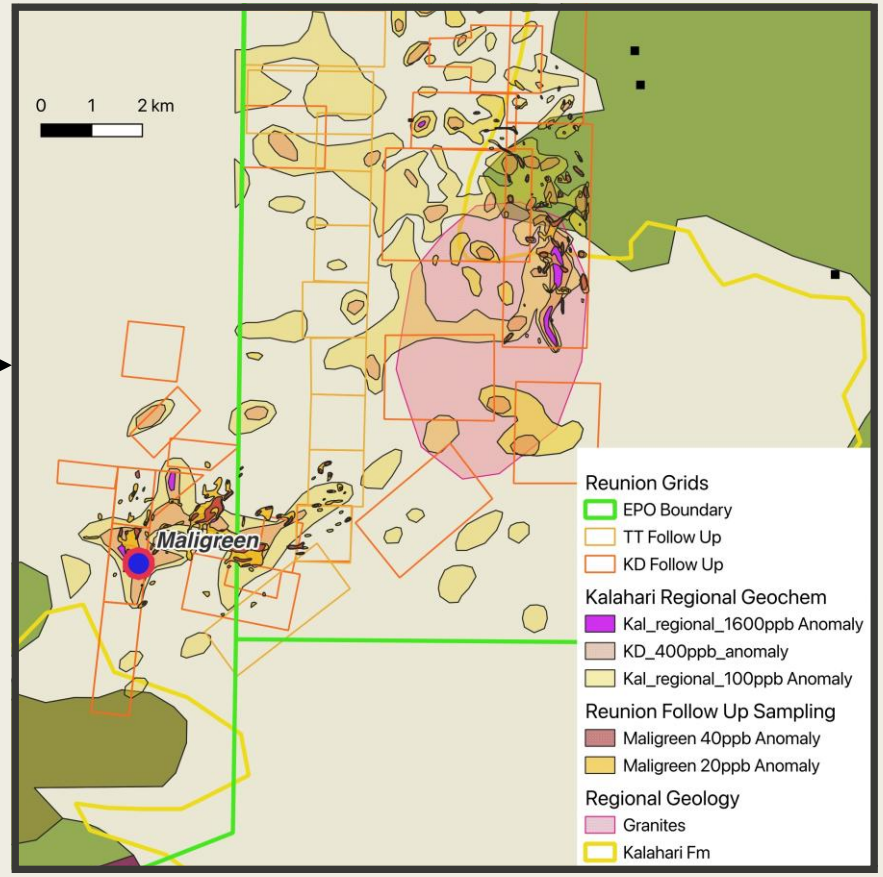
AEROMAGNETICS

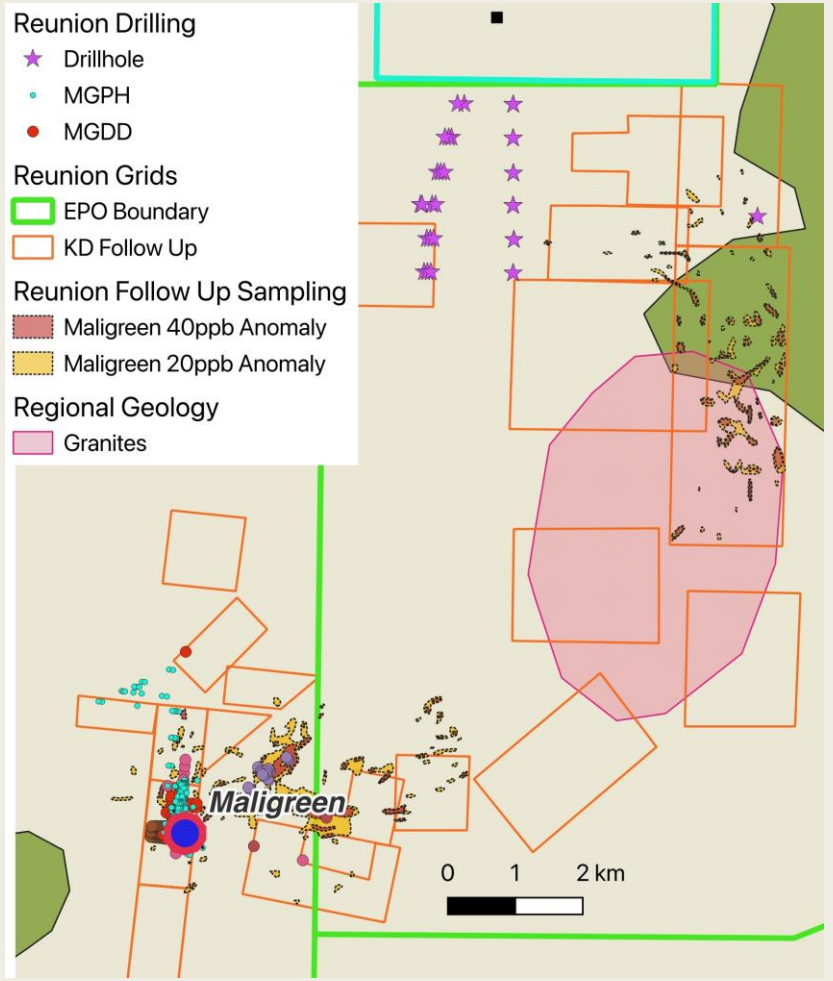
10 x improvement on Regional with 100m line spacing – airborne

REASON – to define the major structures

HOW WE DID IT IN THE 1990s - MALIGREEN







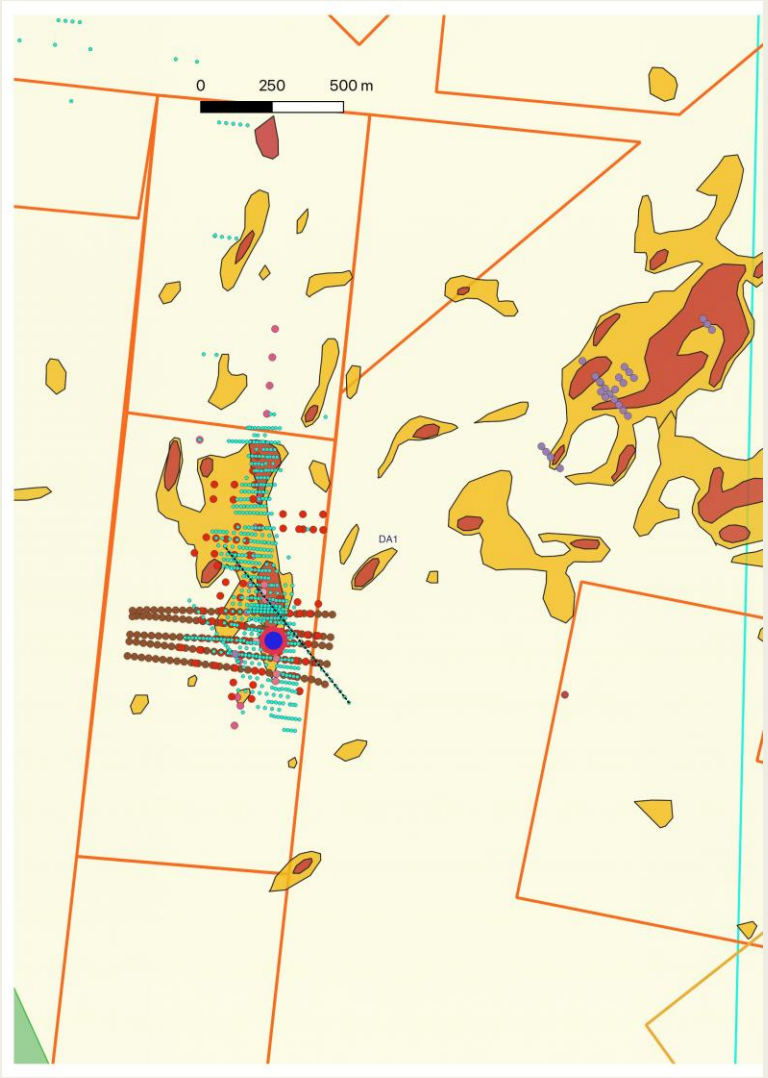
GEOCHEMISTRY

Develop techniques for Sampling over cover with SGS laboratory chemist at the time who had experience in Australia – develop Targets

DRILLING

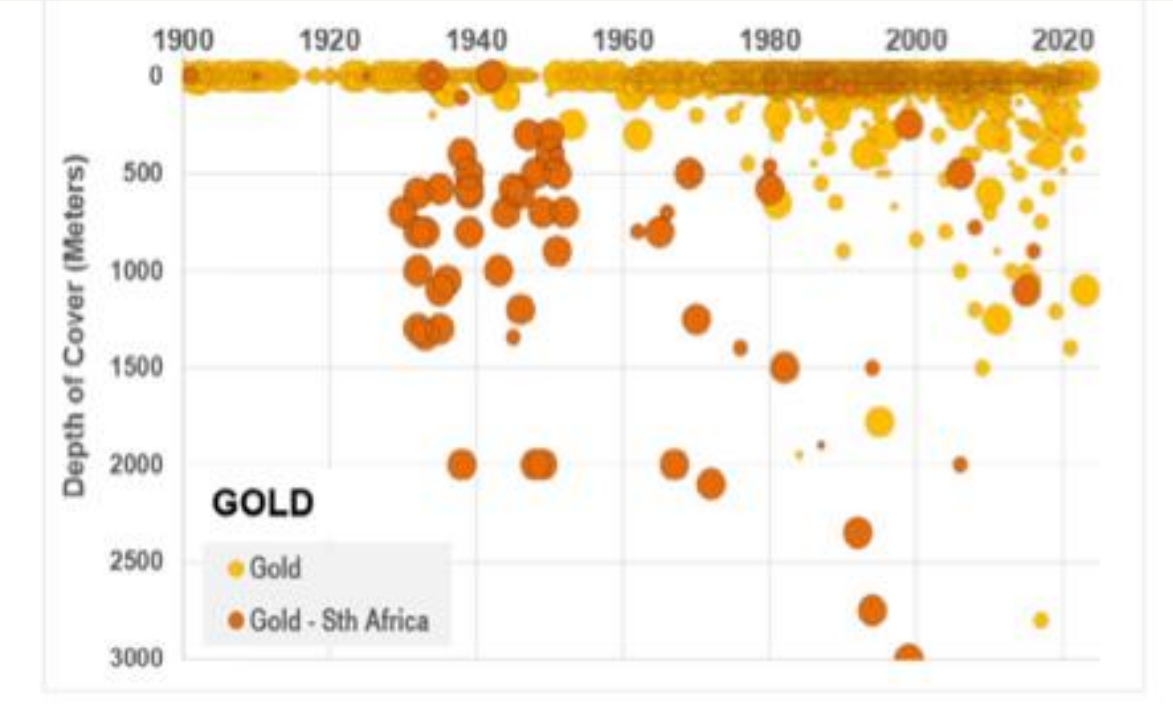
ONLY after 4 years of Geochemistry and Geophysics to develop targets

FINALLY, and within claims after 9 years



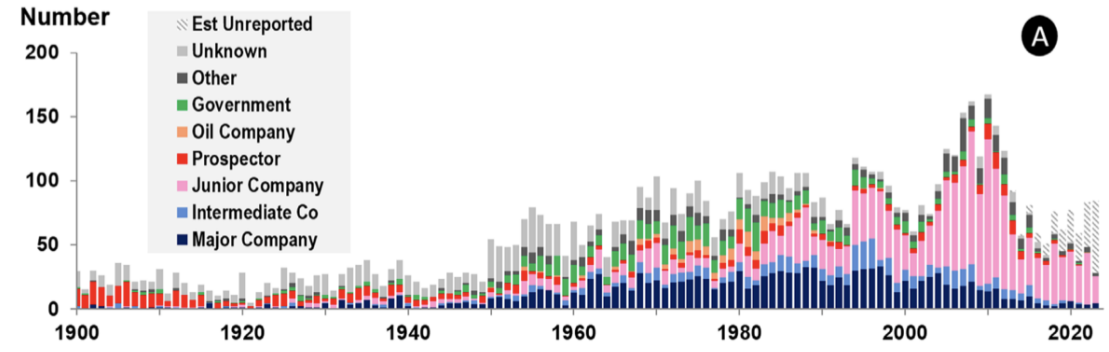
DECLARED A RESOURCE OF 1 MILLION OUNCES UNDER 6M OF KALAHARI SAND

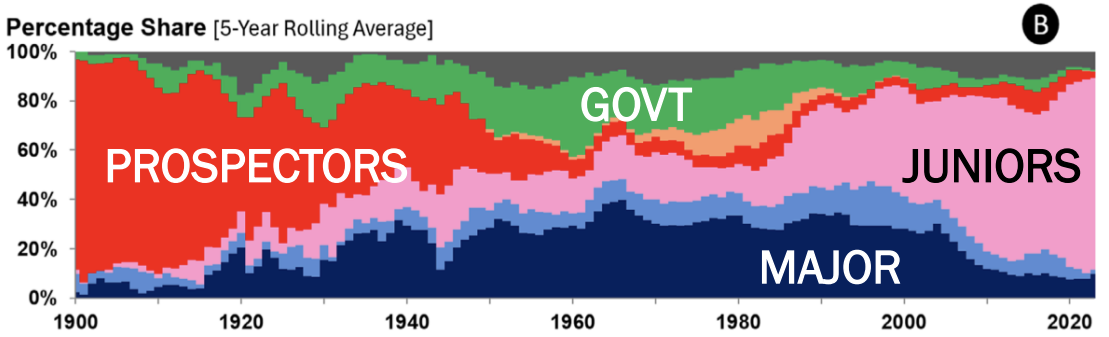
SO WHAT DOES THE 21ST CENTURY LOOK LIKE?



The depth of deposits to discover is increasing

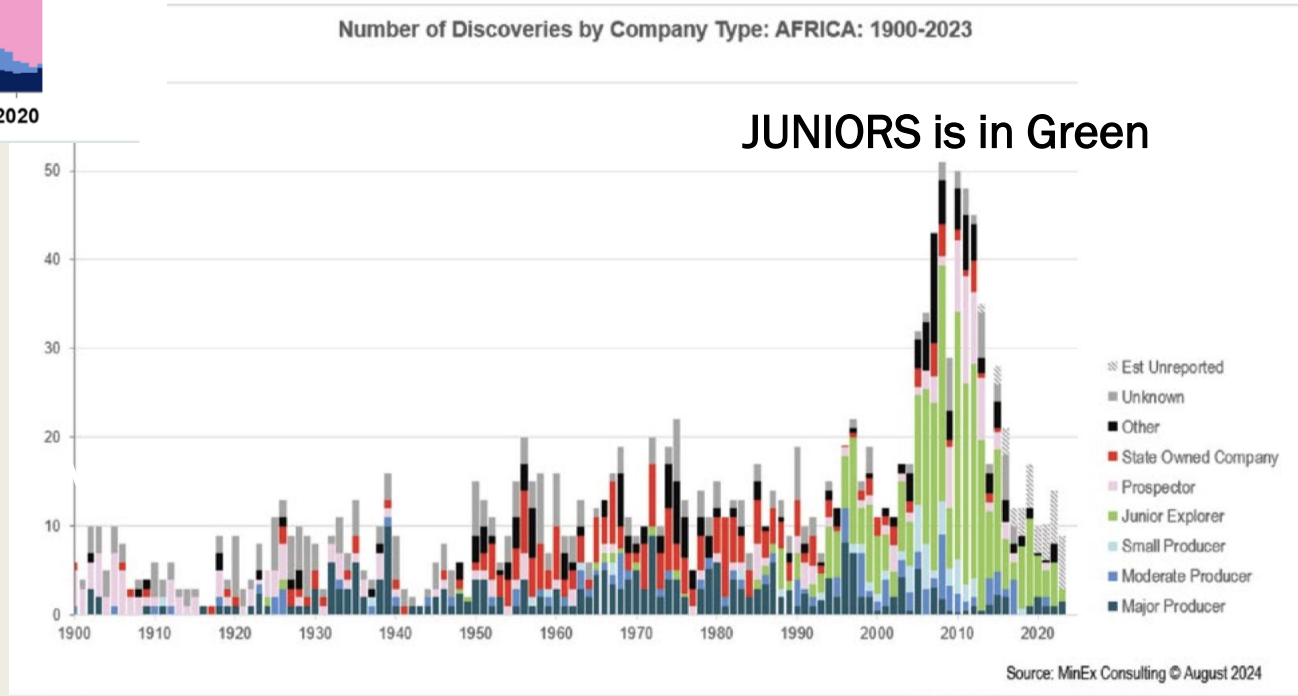
Who is responsible for these discoveries over 125 years?



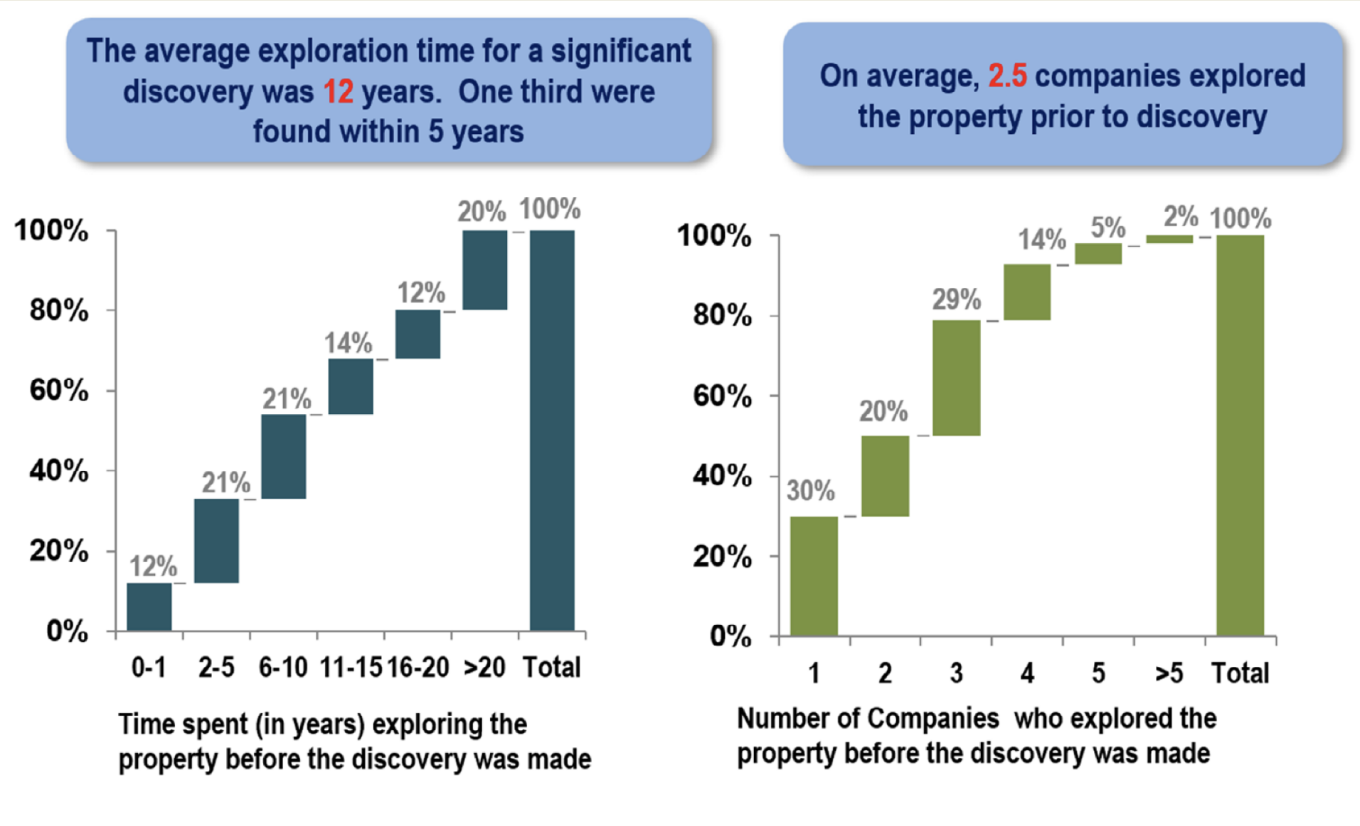


WORLD

AFRICA



How long does it take – and how many companies to look at the ground?



This timeline is steadily increasing

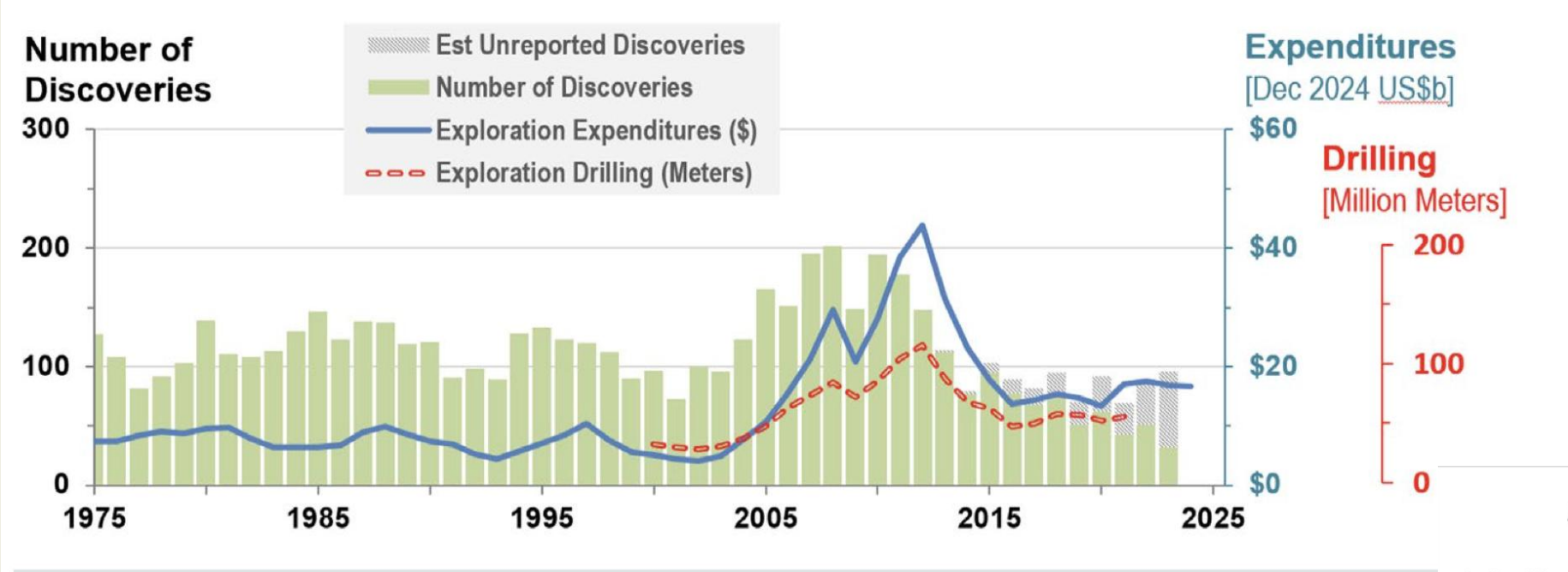
- 1969 7 years
- 2025 14 years
- In Maligreen's case it would be until a declared resource of 1 million ounces – so that would be 8 years (1998) – so very much industry average.

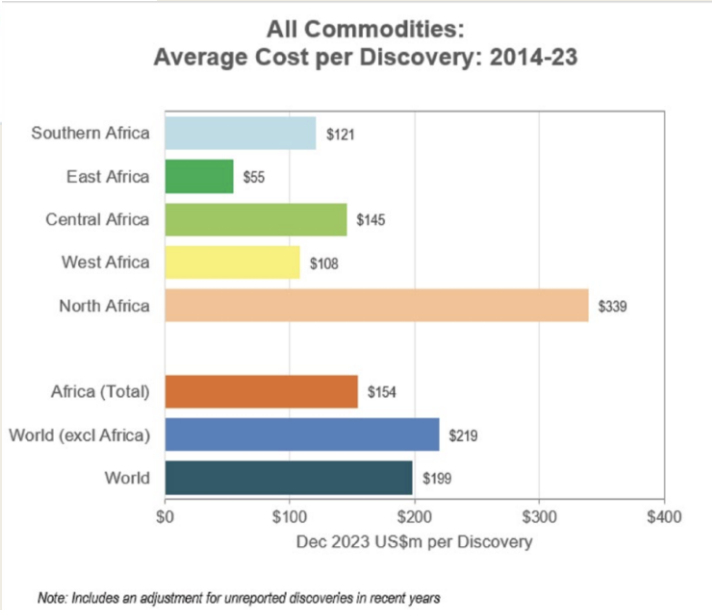
- An interesting statistic in Zimbabwe would be looking at how many times and EPO has been over the same ground – in general
- On average EPO tenure of 9 years (the old format) only half of the discoveries would be made – so very important to peg claims and continue the work

EXAMPLE : Maligreen

- Discovery Hole 1994, 5 years into EPO
- Resource declared in 1998 – end of EPO tenure
- Minor mining in early 2000s – open pit
- Waiting to be mined as a 1MOz deposit

AND MOST IMPORTANTLY – WHAT IS THE COST OF DISCOVERY?

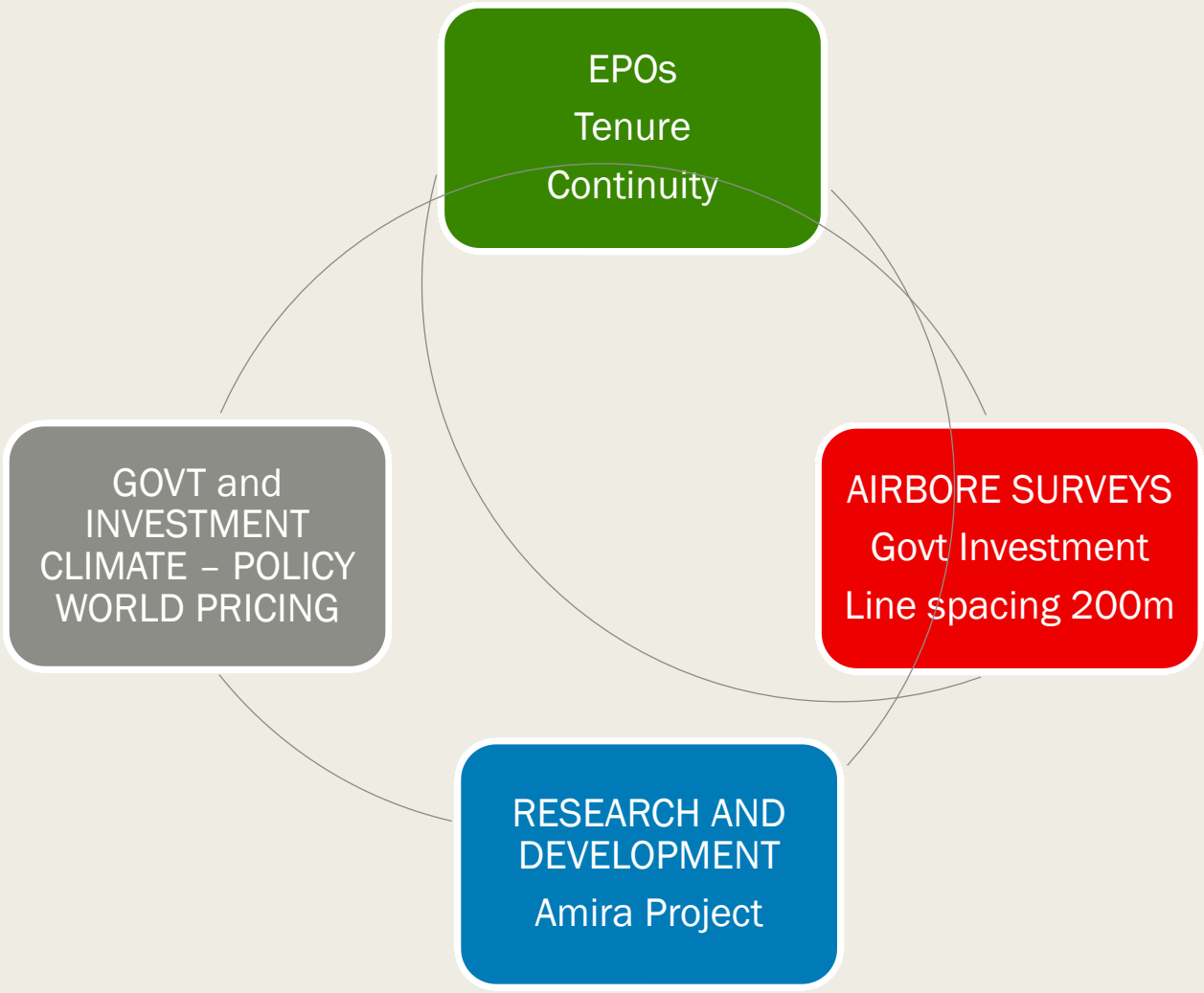




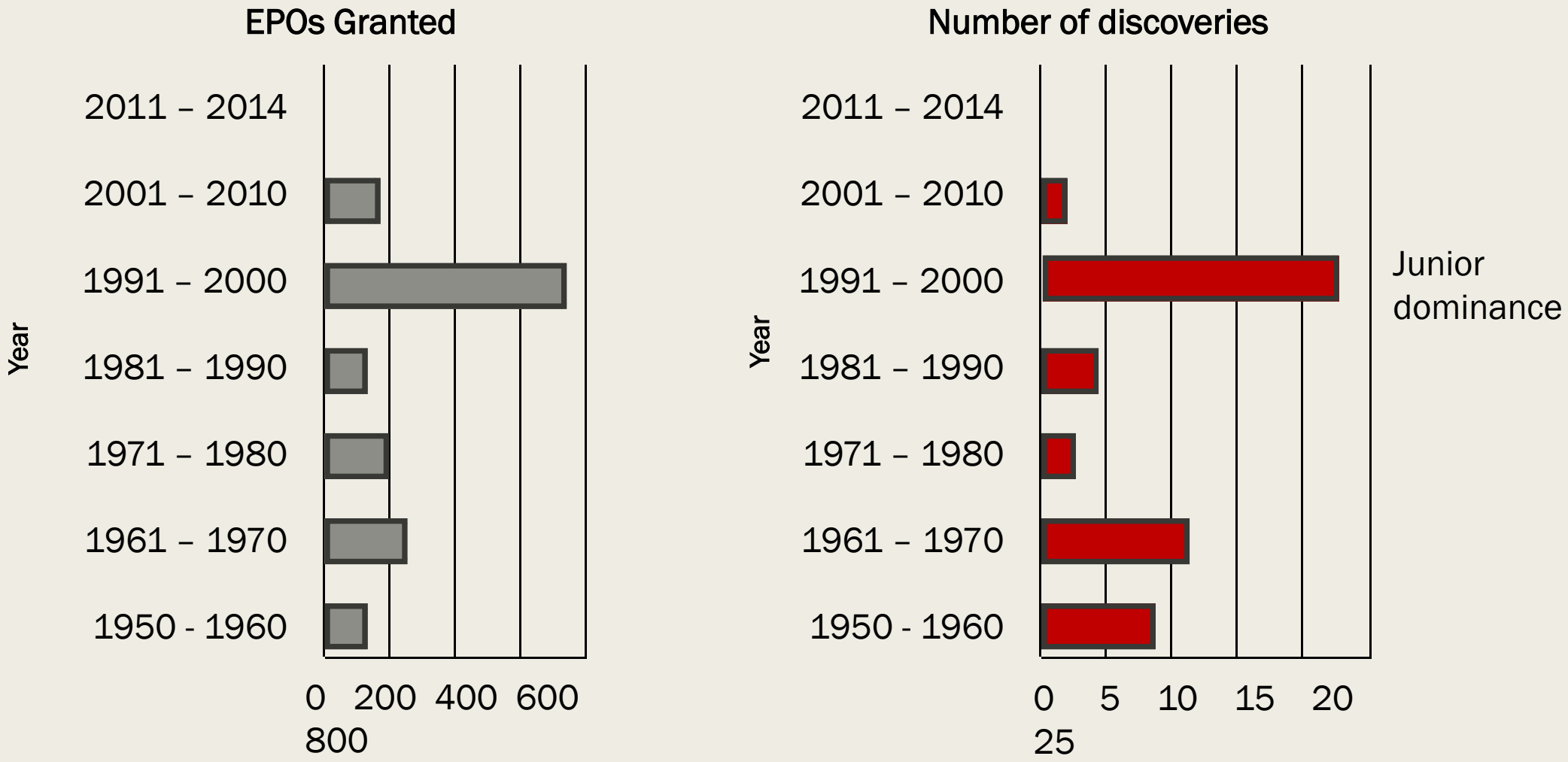
- 1981 – significant discovery cost $86million
- 2003 – significant discovery cost $51 million
- 2015 – Peak at $248 million
- Currently around $170 – 190million

- This is a result of both the increase in costs – around the world due to an exploration boom
- AND – the fact that is now harder to find deposits that are buried etc.

We need more discoveries in Zimbabwe

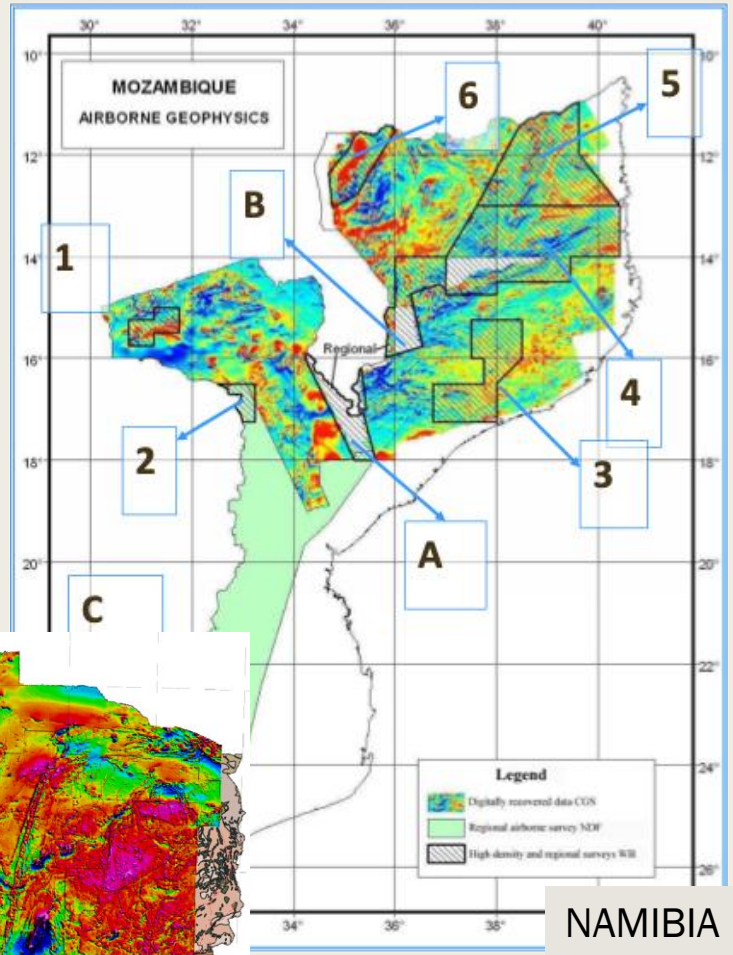


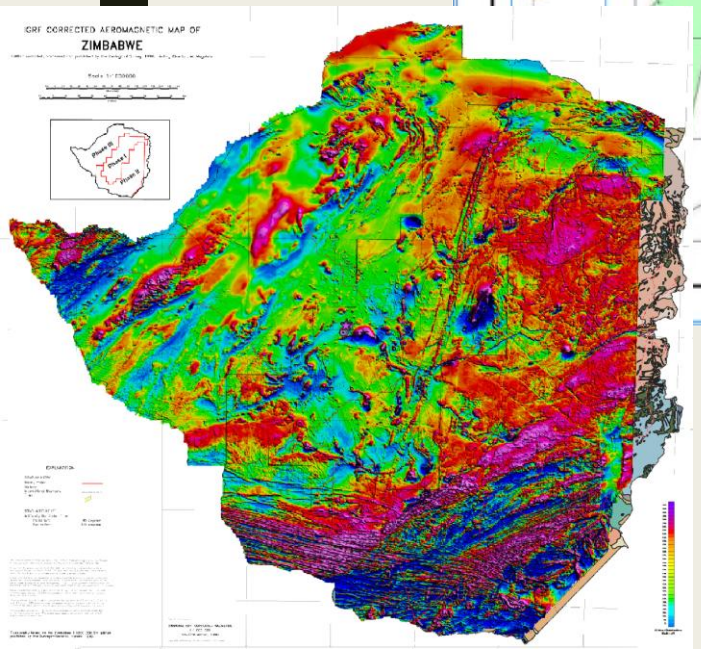
Historical EPOs vs New Mineral Discoveries



(From Manda 2015)

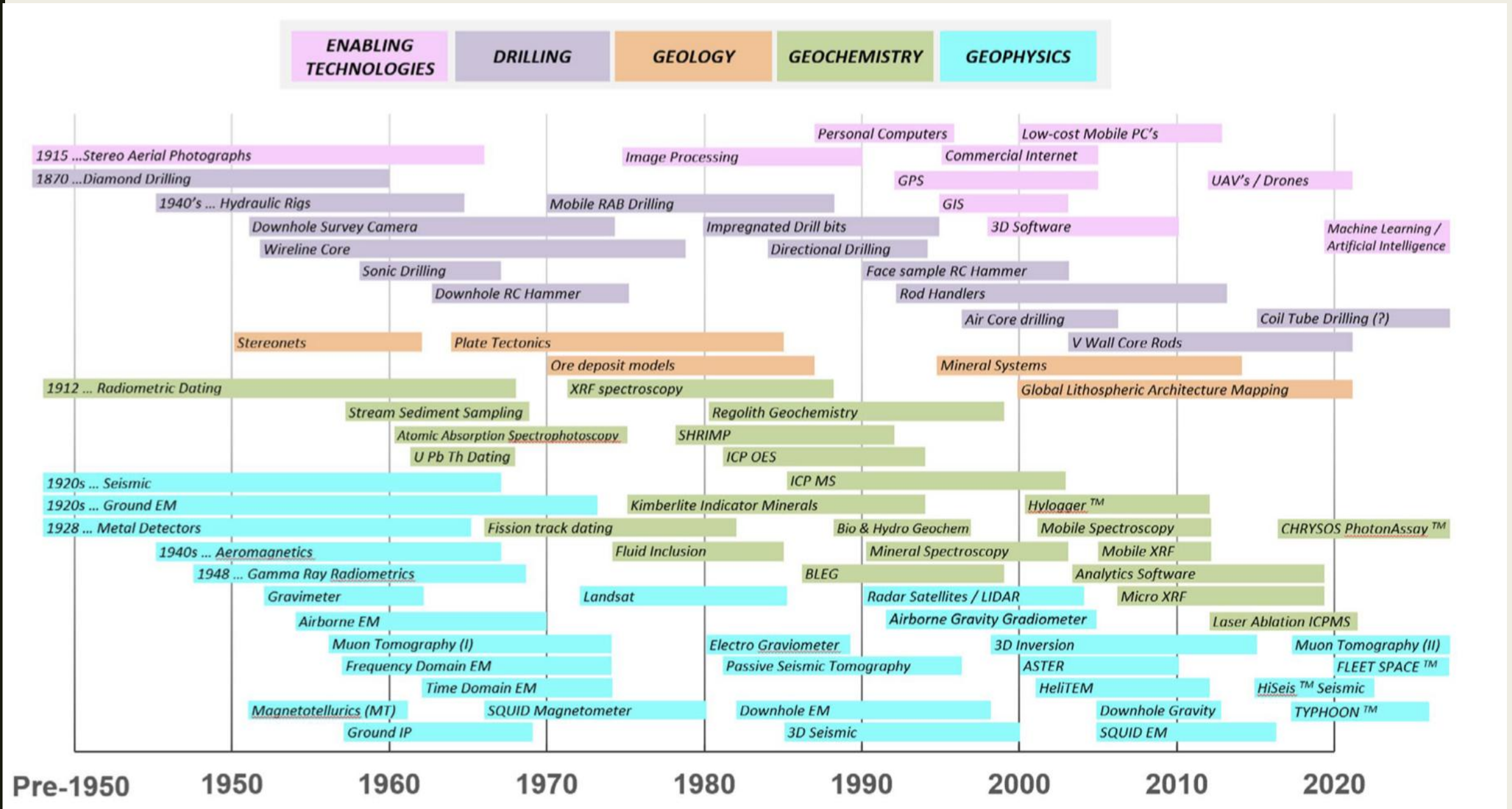
GEOPHYSICS – what our Neighbours are doing and what we have





NAMIBIA – 100m Line Spacing – resulted in large gold discoveries and a mining boom in that country (along with policy – attracting a lot of the African Investment

- XCALIBUR – a South African Company has been involved in Aeromag in 7 African Countries and 2 in the Middle East
- Angola – completed through Chinese intermediary – chose several X the Excalibur Cost
- Zambia - 65% Complete
- Congo – Currently flying Kasai Province
- Benin
- Togo
- Saudi Arabia
- Others
- LINE SPACING 250 – 300m
- (companies with update this with flying 50-100m, and can be incorporated)
- Incorporate Radiometrics overall, Gravity and EM over specific areas


ENABLING TECHNOLOGIES
DRILLING
GEOLOGY
GEOCHEMISTRY
GEOPHYSICS
Personal Computers
Low-cost Mobile PC's
1915 ...Stereo Aerial Photographs
Image Processing
Commercial Internet
1870 ...Diamond Drilling
GPS
UAV's / Drones
1940's ... Hydraulic Rigs
Mobile RAB Drilling
GIS
Downhole Survey Camera
Impregnated Drill bits
3D Software
Machine Learning / Artificial Intelligence
Wireline Core
Directional Drilling
Sonic Drilling
Face sample RC Hammer
Downhole RC Hammer
Rod Handlers
Air Core drilling
Coil Tube Drilling (?)
Stereonets
Plate Tectonics
V Wall Core Rods
Ore deposit models
Mineral Systems
1912 ... Radiometric Dating
XRF spectroscopy
Global Lithospheric Architecture Mapping
Stream Sediment Sampling
Regolith Geochemistry
Atomic Absorption Spectrophotoscopy
SHRIMP
U Pb Th Dating
ICP OES
1920s ... Seismic
ICP MS
1920s ... Ground EM
Kimberlite Indicator Minerals
Hylogger ™
1928 ... Metal Detectors
Fission track dating
Bio & Hydro Geochem
Mobile Spectroscopy
CHRYSOS PhotonAssay ™
1940s ... Aeromagnetics
Fluid Inclusion
Mineral Spectroscopy
Mobile XRF
1948 ... Gamma Ray Radiometrics
BLEG
Analytics Software
Gravimeter
Landsat
Radar Satellites / LIDAR
Micro XRF
Airborne EM
Airborne Gravity Gradiometer
Laser Ablation ICPMS
Muon Tomography (I)
Electro Graviometer
3D Inversion
Muon Tomography (II)
Frequency Domain EM
Passive Seismic Tomography
ASTER
FLEET SPACE ™
Time Domain EM
HeliTEM
HiSeis ™ Seismic
Magnetotellurics (MT)
SQUID Magnetometer
Downhole EM
Downhole Gravity
TYPHOON ™
Ground IP
3D Seismic
SQUID EM
Pre-1950
1950
1960
1970
1980
1990
2000
2010
2020

ZIMBABWE's Statistics – according to the World Bank Report

DEPOSIT SIZE	Gold (MOz)	Copper (Mt)	Nickel (Mt)	Zinc + Lead (Mt)	Silver (MOz)	Thermal Coal (Mt)	Coking Coal (Mt)	Iron (Mt)	Uranium (Kt U_3O_8)
Giant	>6	>5	>1	>12	>300	>1000	>500	>500	>125
Major	1 to 6	1 to 5	0.1 to 1	2.5 to 12	50 to 300	500 to 1000	250 to 500	250 to 500	25 to 125
Moderate	0.1 to 1	0.1 to 1	0.01 to 0.1	1 to 10	10 to 50	250 to 500	100 to 250	100 to 250	5 to 25
Minor	<0.1	<0.1	<0.01	<1	<10	<250	<100	<100	<5

DEPOSIT QUALITY/TIER		Value (US$2023)		Profitability	Mean Life
		Range		Economic Cycle	(Years)
Tier 1	Mostly Giant or Major - 'Company-making' deposits	>$1B	$2.66B	High on full cycle	>20
Tier 2	Mostly Major subordinately Giant	$200M–1B	$666M	Low at bottom of cycle	<20
Tier 3	Mostly Moderate, subordinately Major	$0–200M	$107M	Low and intermittent	Low/ variable
Tier 4	Primarily Moderate and low-quality Major		$13M	Very low or N/A	
Un-classified	Primarily Moderate		Low	Very low or N.A.	

Source: MinEx Consulting's estimates.
Note: Mt stands for million metric tons. MOz stands for million Troy ounces.

ZIMBABWE's Statistics – according to the World Bank Report

- TIER 1
  - *We only have 1 – MARANGE – Diamonds*
- TIER 2
  - *PGEs and Lithium*
    - Ngezi and Arcadia
- TIER 3
  - *11 Gold Deposits (I think there maybe a few more here, even bordering Tier 2. Some of what might be classified as Tier 2 are not longer in Operation ie. Cam and Motor and Globe and Phoenix)*
  - *PGEs -4*
  - *Nickel – 2 (might need reclassification here as well)*
- Minerals where Zimbabwe is not mentioned
  - *Copper, Iron Ore, Manganese, Graphite, Chromite, Tin and Tantalum, REE, Phosphates*
  - *Where we actually really don't have major deposits*
    - Silver, Zinc, Uranium, Heavy Sands