

# Annual Performance Plan 2020/21

Presentation to the Portfolio Committee on Mineral Resources and Energy: 12 May 2020  
Venue: Virtual Meeting



**mineral resources  
& energy**

Department:  
Minerals Resources and Energy  
REPUBLIC OF SOUTH AFRICA

*A proud entity of the Department of Mineral Resources and Energy*



**Council for Geoscience**

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# Outline

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1. Introduction
2. Governance Structure
3. Response to the Covid-19 National lockdown
4. Strategic Focus and alignment to the MTSF 2019-2024
5. Geoscience Technical Programme
6. Annual Performance Plan 2020/21
  - a) Balanced Scorecard
  - b) Finances
  - c) Human Resources
7. Stakeholder Engagement Programme
8. Scientific Prowess



# Introduction: Council for Geoscience

- The Council for Geoscience (CGS) is one of the National Science Councils of South Africa.
- The CGS is the legal successor of the Geological Survey of South Africa, which was formed in 1912 by the amalgamation of 3 former Surveys, the oldest of which - the Geological Commission of the Cape of Good Hope - was founded in 1895.
- The **Geoscience Act, Act 100 of 1993**, as amended, established the CGS in its present form.
- The CGS is listed as a **Schedule 3A Public Entity** in terms of the Public Finance Management Act (**PFMA**) (Act No. 1 of 1999).



# Introduction: Vision, Mission and Values



## Our Vision

- A prosperous and transformed society enabled by geoscience solutions



## Our Mission

- Providing integrated, systematic and thematic maps and conducting research on the onshore and offshore geology of South Africa, as mandated, to:
- Facilitate mineral, energy and agricultural development;
- Contribute to the assessment and sustainable management of mineral, geohydrological and geoenvironmental resources;
- Support infrastructure development.
- Discharging the mandate in a manner that supports transformation and national developmental imperatives.

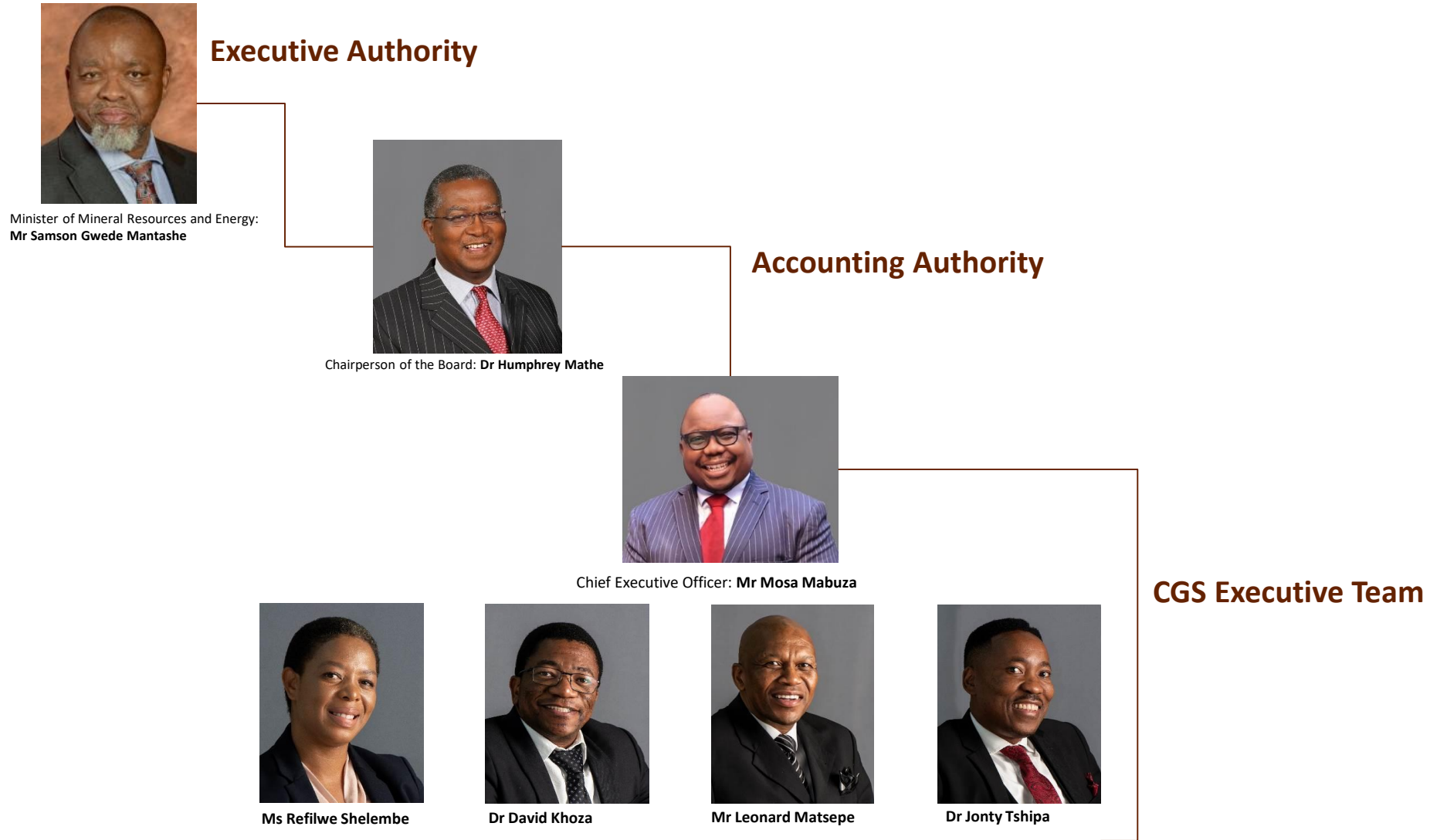


## Our Values

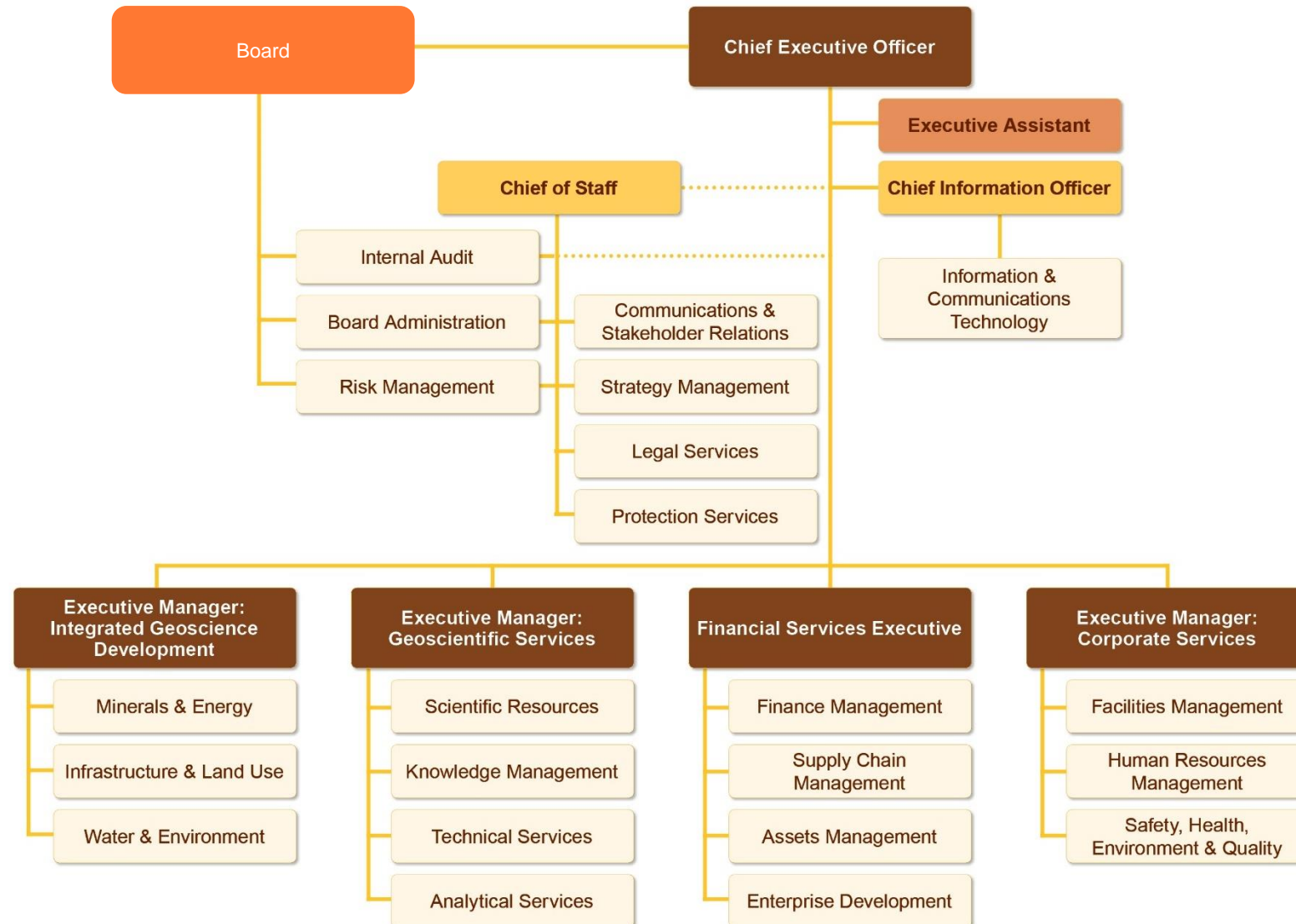
- Innovation
- Diversity
- Excellence
- Accountability
- Learning
- **Safety, Health, and Environment**
- **Transparency**

# **Governance Structure**

# Governance Structure



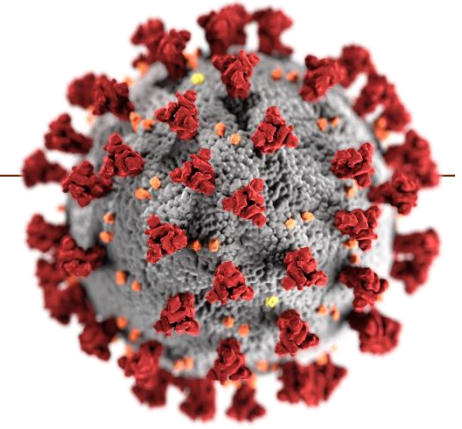
# Organisational Structure





# Response to the Covid-19 National lockdown

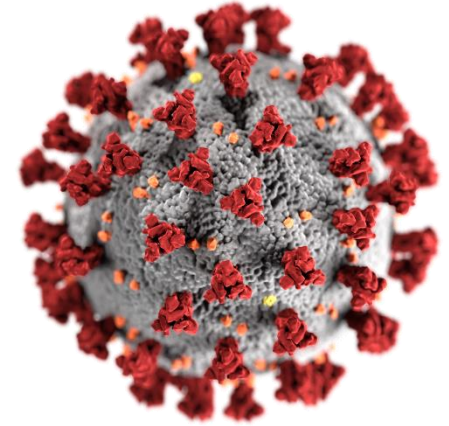
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- CGS established a Covid-19 Task Team to, *inter alia*;
  - fully maintain the National Key Point status
  - safeguard business continuity
  - develop the implementation plans to curb the spread of the Corona Virus (COVID-19) in the work place
  - to provide tools of trade for staff to enable work from home
- Inclusion of the CGS in the National Disaster Management Act Regulations (published on the 16<sup>th</sup> April 2020).
  - The amended Chapter 4, S11(K)(3): **“The monitoring and impact assessment of seismicity through the Council for Geoscience must be intensified with immediate effect”**

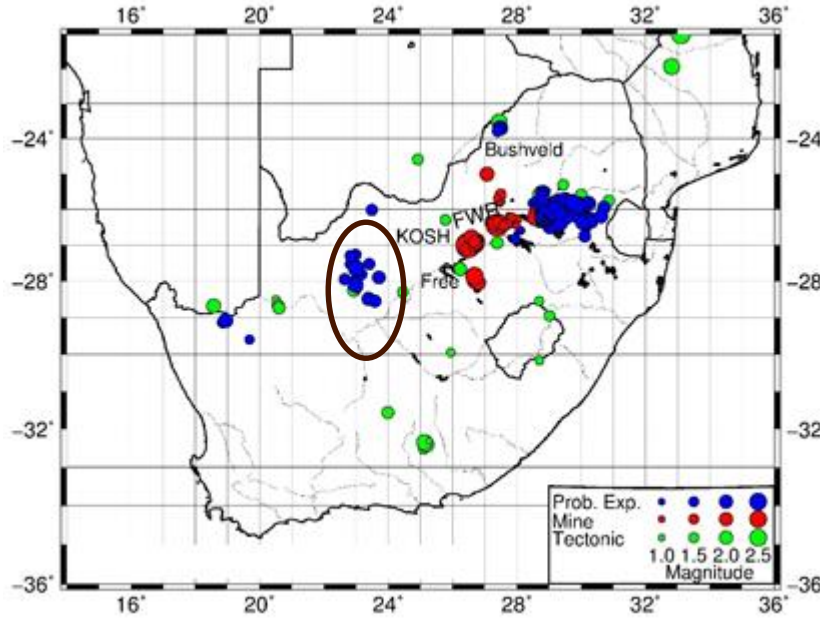
# Response to the Covid-19 National lockdown

- Deep cleaning and sanitisation were conducted prior to the re-opening on 4 May 2020.
- During Level 4: the CGS partially resumed onsite business with no more than 33% staff complement.
- PPE were provided, the practise of safe social distancing and all other health and safety measures are being observed during this period.
- CGS currently has zero infections of Covid-19.

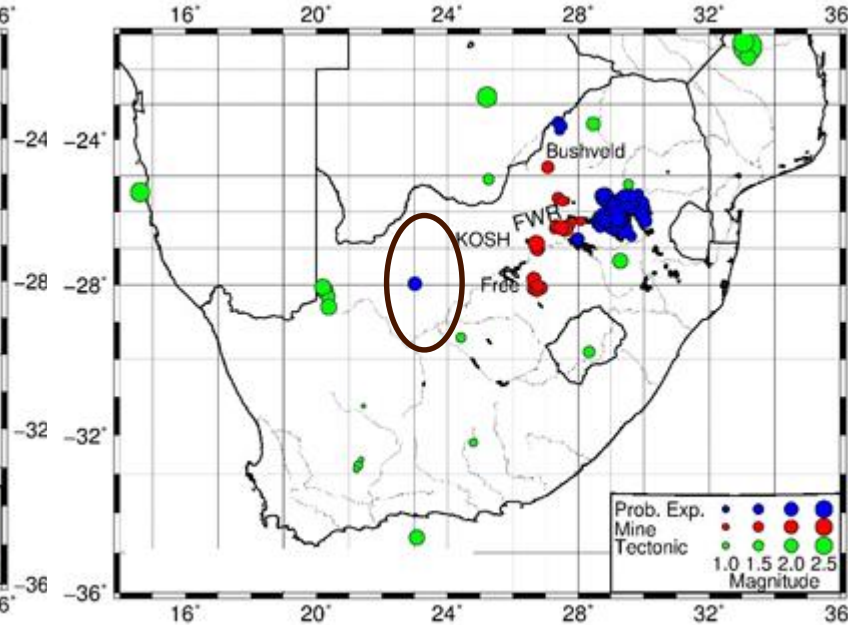


# Response to the Covid-19 National lockdown – Seismic monitoring

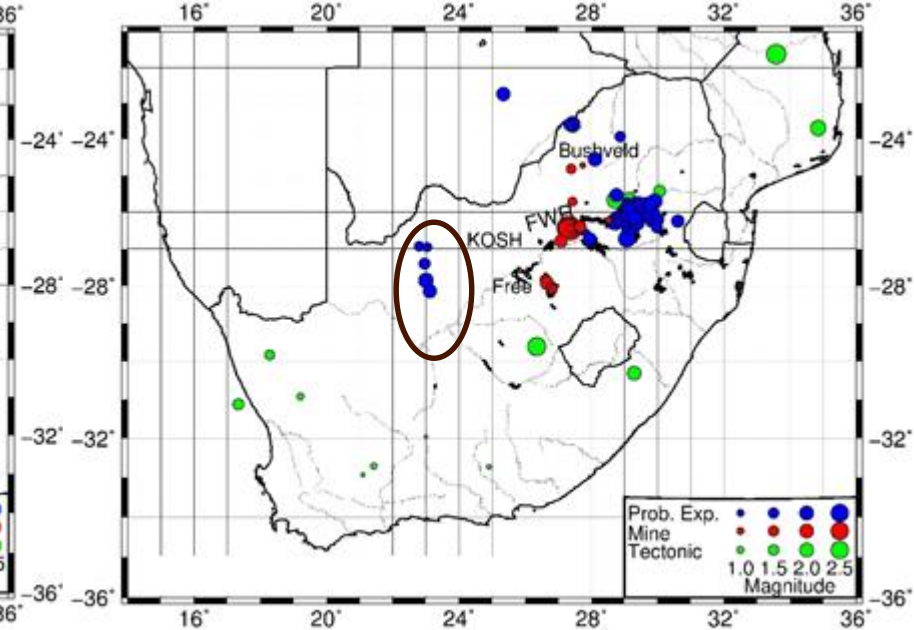
Before lockdown



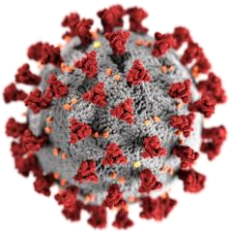
Level 5 lockdown



Level 4 lockdown



- **Before lockdown:** Mining operations permitted at full capacity- **Seismic energy release 100%.**
- **Level 5 lockdown:** Only coal mines were permitted to operate: **Seismic energy release 8%.** Other probable explosions during this time might be due to illegal mining, slope failure. **Mine events during this time are due to stress build up and release. This supports the decision to gradually open mining operations.**
- **Level 4 lockdown:** Underground mining operations at 50% capacity – **Seismic energy release 40%.** Increase in controlled explosions (blasting) in Iron/Manganese mines.
- Mining activity resumed on 17<sup>th</sup> April 2020 at 50% capacity for underground and 100% for opencast.



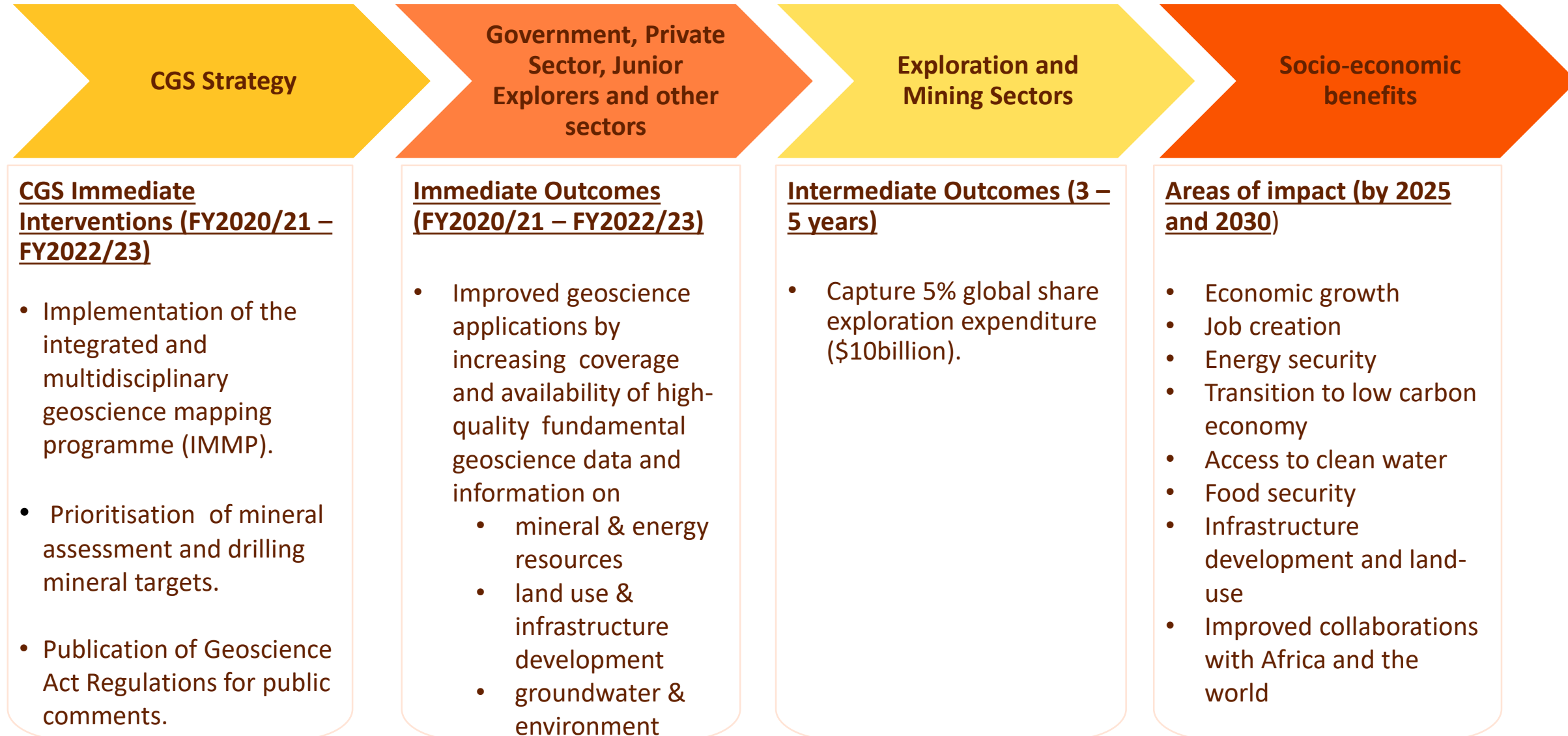
# **Strategic Focus and Alignment to the MTSF 2019-2024**

# Strategic Outlook

		CGS Strategic Objectives	CGS Strategic response to National outcomes	CGS Strategic response to the MTSF priorities
A prosperous and transformed society enabled by geoscience solutions	1	<b>Financial Sustainability</b>	Build capacity in respect of geoscientific, administrative and managerial/leadership skills while also developing innovative products, systems and services	<b>1. A capable, ethical and developmental state</b>
	2	<b>Organisational Effectiveness and Efficiency</b>		
	3	<b>An Empowered, Transformed, Motivated and Capacitated Workforce</b>		
	4	<b>Delivery of the Mandate</b>	Delivering spatial geoscience information and services that attract local and international investment to develop mineral and upstream petroleum resources	<b>2. Economic transformation and job creation</b>
	5	<b>Advisory, Stakeholder Engagement and Knowledge Management</b>	<p>Geoscience information and services input to infrastructure development in support of South Africa's economic development of mineral, upstream petroleum (such as oil and gas) and water resources.</p> <p>Conducting research regarding Acid Mine Drainage (AMD) and Carbon Capture and Storage (CCS) technologies and establishing environmental baselines for possible future shale gas development.</p> <p>The provision of geoscientific information that enables agricultural development and groundwater exploration.</p>	<b>3. Education, skills and health</b>  <b>5. Spatial integration, human settlements and local government</b>  <b>6. Social cohesion and safe communities</b>  <b>7. A better Africa and World</b>



# Interventions, Desired Outcomes and Impact (MTSF 2019-2024)



# Minerals exploration landscape and current challenges

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## S&P Global Intelligence's latest report (May 2020) shows:

- Aggregate market value of the industry's listed mining companies, based on 2,333 firms, was down 16% month over month (at US\$1.06T, off 29% from a 19-month high of US\$1.49T in Dec 2019 the lowest aggregate market value for the sector since May 2016).
- Aggregate market cap of the top 100 mining companies was down 15% in March to US\$898B.
- Exploration Price Index fell to 128 from 131. The price index has eight constituents, namely: Au, Ag, Pt, Cu, Ni, Zn, Co & Mo.
- Junior explorers budgets forecast to decrease 42%.
- Global exploration budgets to fall 29% in 2020 to a total of US\$6.9B.
- **This emphasises the importance of State's investment in geosciences to improve South Africa's attractiveness as an exploration jurisdiction.**

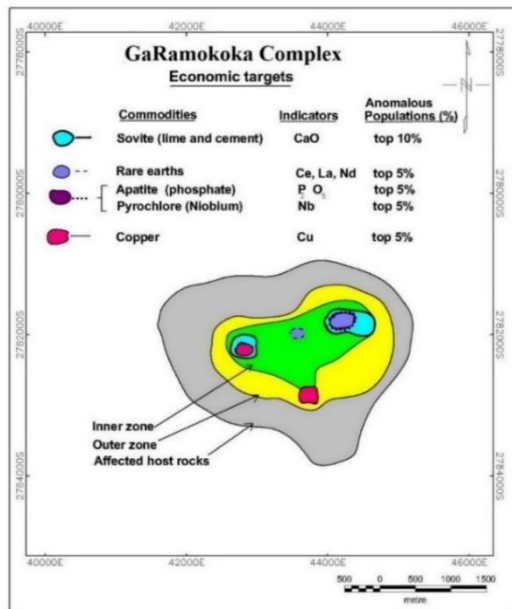


# **Geoscience Technical Programme**



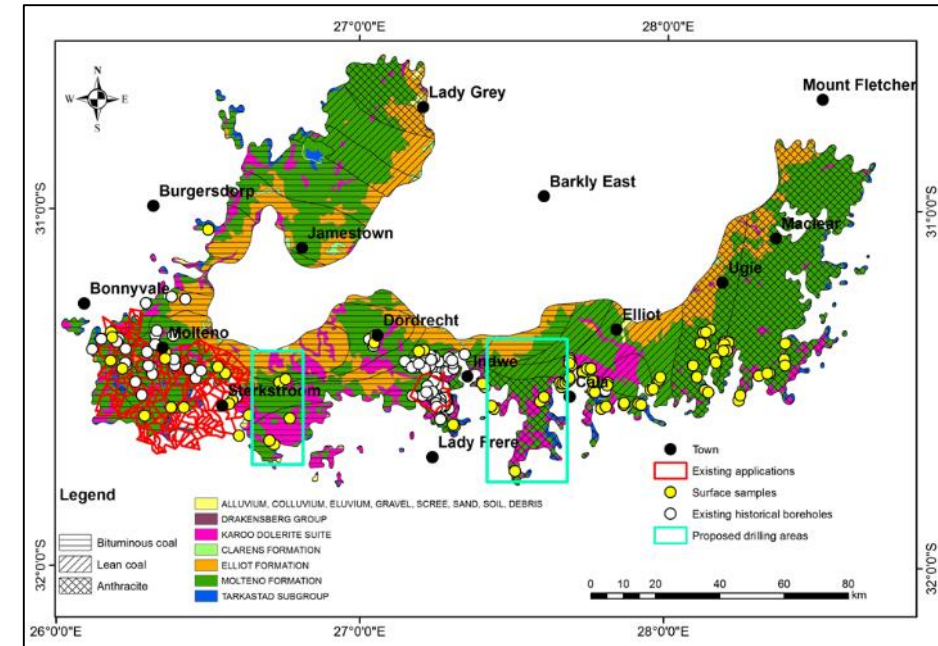
# High priority mineral assessments targeted for drilling

- Renewable energy minerals (e.g. REEs etc.) – to support the IRP 2019 and the battery industry.
- Base metals (e.g. Copper, Lead, Nickel, and Zinc) - commercial and industrial **applications**, such as construction and manufacturing.
- Fluorspar deposits – for the pharmaceutical industry.
- Phosphates – production of fertilisers needed in the agricultural purposes.
- Precious metals such as Gold.



# Just Transition (Molteno-Indwe Coalfield Project)

- Project is assessing the quality and quantify the coal resources in the Molteno-Indwe Coalfields (Eastern Cape Province)
- Indicative 527 Mt at 0 cut-off grade (321 Mt –at 0.8 cut off (68% economic value) bring about R122 billion of direct value (at R350 per tonne)
- Average CV of ~16 MJ/Kg, Sulphur up to 0.3%, volatiles average 8% (*REE potential to be confirmed*).
- Consideration of a customised modular power station with clean coal technology applications. Furthermore, it may be possible to target the geothermal energy production to offset the energy demand of running the Carbon Capture Utilisation and Storage (CCUS) plant.



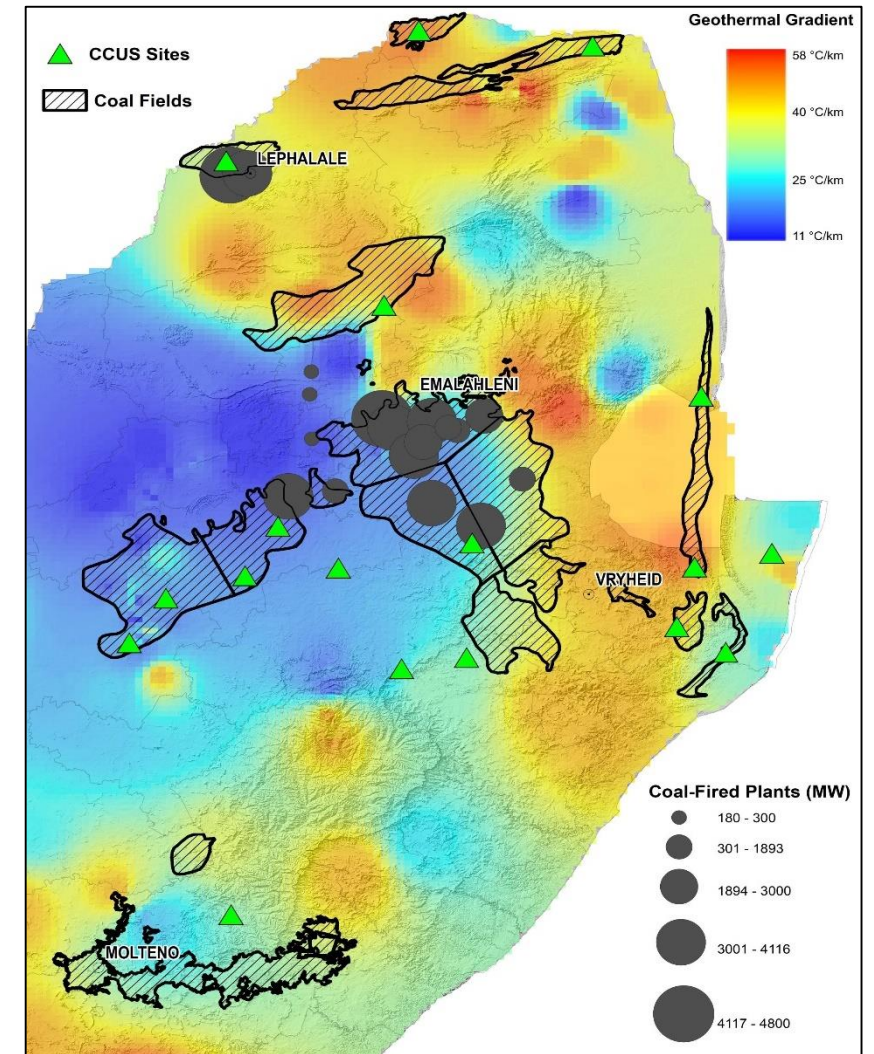
The Proposed drilling sites for Molteno Indwe areas to fill gaps of geoscientific information.

# Just Transition (CCUS Project)

- SA established partnership with the World Bank.
- The Minister commissioned the CGS as an implementation agency for the CCUS.
- This is a priority project to test the carbon capture and utilisation in SA to safeguard the nations commitment to clean energy.



Petra Nova CCUS plant, USA. Captured CO<sub>2</sub> is extracted during the generation of 4,600 MA of energy and the captured CO<sub>2</sub> is utilised toward enhanced oil recovery.



South Africa's coalfields, CO<sub>2</sub> emission hot spots relative to geothermal potential sites and possible CCUS implementation sites.

# Support for extension of Koeberg operating license

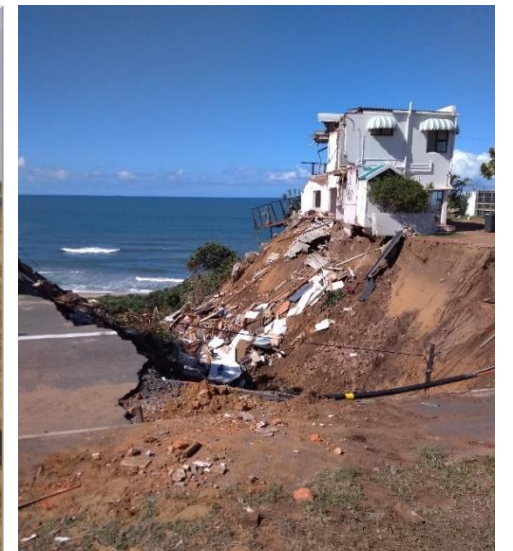
- Koeberg Operating License renewal due in 2024.
- An updated seismic hazard analysis is one of the critical requirements for renewal.
- The CGS is executing a **Probabilistic Seismic Hazard Analysis** (PSHA) in support of Eskom's renewal application.
- The CGS also supports a **Tsunami Hazard Analysis** for Koeberg
  - CGS will develop a Tsunami Source Model – to be used by coastal engineering firm PRDW to develop a Tsunami Risk Model
  - Project to be completed by 2021



# Infrastructure and Land-Use Projects

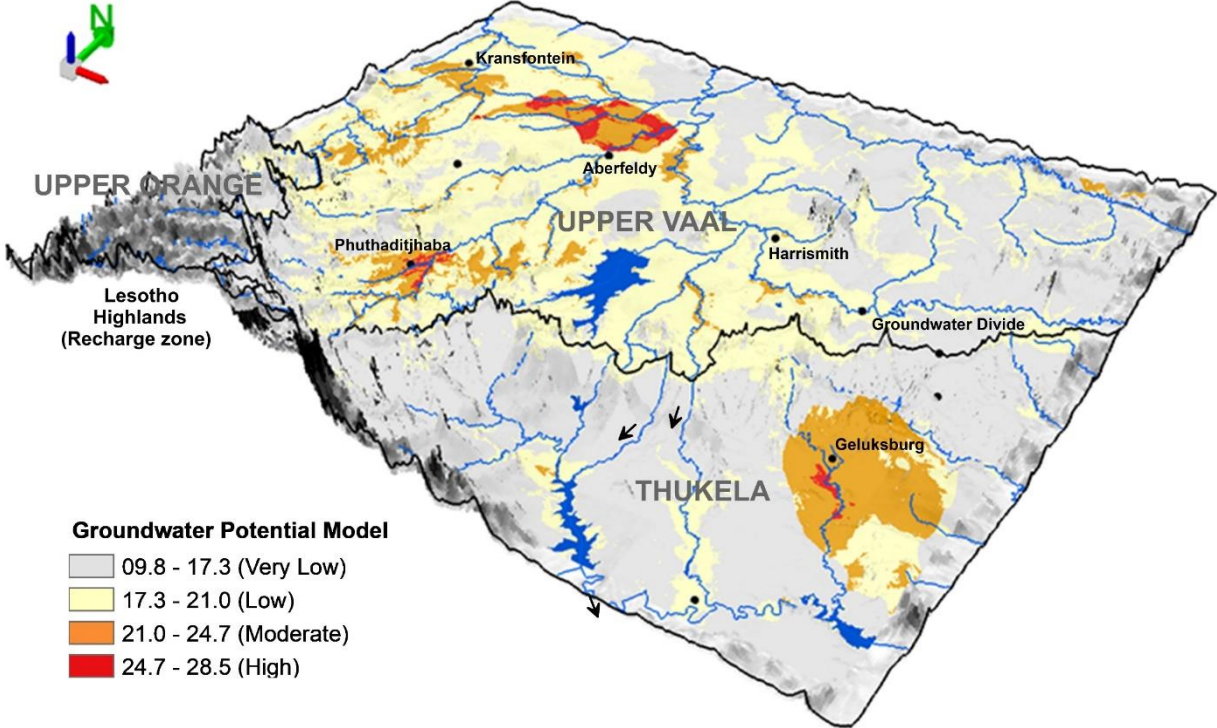
## Possible savings in infrastructure development

- Custodian of the national seismic network, geotechnical information, and geotechnical report reviews.
- CGS will intensify comprehensive seismic hazard mapping and risk-based **ground stability assessments** in shallow mining areas, dolomitic and non-dolomitic areas to avoid expenditure on **infrastructure development** on susceptible ground (and possibly save lives).



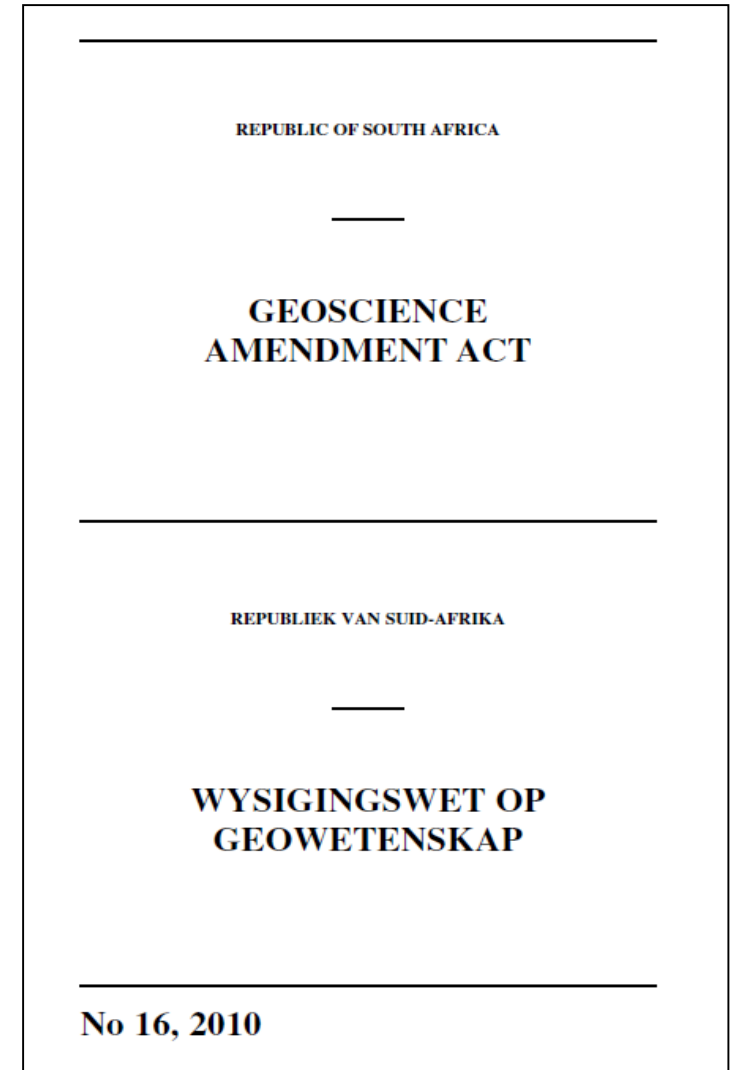
# Artificial Intelligence for Groundwater resources

Application of **artificial intelligence techniques** and **hydrogeological modelling** to locate additional **water sources** in the Free State and Eastern Cape Provinces.



# Legislative Matters

- Technical amendments of the Geoscience Act.
- The **finalisation of the Geoscience Act Regulations** will result in the full implementation of the Geoscience Act; the geoscience data and information policy as well as availing geoscientific data and information to relevant stakeholders in order to grow the economy.
  - To seek access to all land (private, public and protected areas).
  - Ensure lodgement of all geoscientific information to the CGS.
- Enable exploration activities in terms of NDMA.



**Annual Performance Plan 2020/21  
(Balance Scorecard)**



# Financial Perspective

Strategic Objective	MTSF Priorities	Strategic Initiatives	Measures (KPI)	Medium-term Targets		
				FY2020/21	FY2021/22	FY2022/23
1. Financial sustainability	1. A Capable, ethical and developmental state	To ensure effective and efficient delivery of financial management services	1. Percentage of overhead costs to total costs	≤55%	≤55%	≤55%
			2. Percentage of personnel costs to total costs	≤60%	≤60%	≤60%
		To secure funding from the exploitation of collaborative activities and partnerships	3. Revenue from collaborative activities/partnerships	R30m	R33m	R36m
		Generate grant funding	4. Grant revenue	R520.9m	R393.7m	R431.0m

# Organisational Efficiency and Effectiveness Perspective

Strategic Objective	MTSF Priorities	Strategic Initiatives	Measures (KPI)	Medium-term Targets		
				FY2020/21	FY2021/22	FY2022/23
2. Organisational effectiveness and efficiency	1. A Capable, ethical and developmental state	To develop and implement effective and compliant policies, procedures and business processes in support of the CGS integrated service-delivery model	5. Percentage of total Procurement spend on goods and services from Small, Micro and Medium Enterprises (QSE and EME's) in terms of PPPFA of 2017	≥30%	≥30%	≥30%
		Adhere to best practice to achieve sustainable governance	6. Number of audit qualifications	0	0	0
		Provide and operate flexible, expandable and secure ICT solutions	7. Availability of key enterprise services	≥99%	≥99%	≥99%

# Learning and Growth Perspective

Strategic Objective	MTSF Priorities	Strategic Initiatives	Measures (KPI)	Medium-term Targets		
				FY2020/21	FY2021/22	FY2022/23
3. An empowered, transformed, motivated and capacitated workforce	1. A Capable, ethical and developmental state	To attract and retain highly skilled scientific personnel in the geoscience industry	8. Percentage of scientific staff with Masters or Doctoral degrees	≥35%	≥35%	≥35%
		To build capacity in respect of geoscientific, administrative and managerial/leadership skills while also developing innovative products, systems and services	9. Percentage of training expenditure to leviable amount of payroll	≥1%	≥1%	≥1%
			10. Staff turnover rate	≤10%	≤10%	≤10%
	3. Education, skills and health	To promote and invest in human resources transformation and diversity	11. Percentage of staff living with disability	≥1.5%	≥1.5%	≥1.5%
			12. EE Stats, Scientific cohort (Female:Male)	≤49:≥51	≤50:≥50	≤51:≥49
			13. EE Stats, EXCO (Female:Male)	≤20:≥80	≤20:≥80	≤40:≥60

# Stakeholder/Market Perspective

Strategic Objective	MTSF Priorities	Strategic Initiatives	Measures (KPI)	Medium-term Targets		
				FY2020/21	FY2021/22	FY2022/23
4. Delivery of the mandate	<b>2. Economic transformation and job creation</b>  <b>5. Spatial integration, human settlements and local government</b>  <b>6. Social cohesion and safe communities</b>  <b>7. A better Africa and World</b>	Execute the integrated and multidisciplinary geoscience mapping programme	14. Onshore geoscience map coverage	9%	9.5%	11%
			15. Offshore geoscience map coverage	0.1%	0.3%	0.4%
			16. Applied geoscience products for minerals and energy	6	4	4
			17. Applied geoscience products for infrastructure, land use, health, groundwater and the environment	6	5	5



# Stakeholder/Market Perspective, continued

Strategic Objective	MTSF Priorities	Strategic Initiatives	Measures (KPI)	Medium-term Targets		
				FY2020/21	FY2021/22	FY2022/23
5. Advisory, stakeholder engagement and knowledge management	<b>2. Economic transformation and job creation</b>  <b>5. Spatial integration, human settlements and local government</b>  <b>6. Social cohesion and safe communities</b>  <b>7. A better Africa and World</b>	To improve stakeholder relations through collaborations with strategically aligned institutions, the private sector and the general public	18. Number of articles published on media platforms	24	24	24
			19. Stakeholder satisfaction level	≥70%	≥70%	≥70%
			20. Number of peer-reviewed articles published	30	30	32
			21. Number of CGS publications	7	8	8
			22. Number of conference proceedings published	80	25	80



# Finances

# Budget FY2020/21 – FY2022/23

## Income/Funding Model

Income (Rands)	2020/21 Budget x 1000	2021/22 Budget x 1000	2022/23 Budget x 1000
Government grant - Baseline	*202 388	*212 800	*228 209
Government grant – Baseline Increase Geological Mapping	*70 000	*128 000	*147 815
Government grant - MTEF	*248 537	*52 958	*54 984
Sales and contracts	29 282	32 210	35 431
Sundry income	4 072	4 276	4 490
<b>TOTAL INCOME - A</b>	<b>554 279</b>	<b>430 244</b>	<b>470 929</b>

(\* 2020 MTEF DMRE Adjusted Indicative allocation 15 January 2020)



# Expenditure FY2020/21 – FY2022/23

Expenditure (Rands)	2020/21 Budget x 1000	2021/22 Budget x 1000	2022/23 Budget x 1000
Personnel costs	336 594	318 253	343 713
Bursaries	4 074	4 481	4 930
Commercial project costs	13 177	14 495	15 944
Overheads and operating costs	184 934	*77 515	90 842
<b>SUBTOTAL - B</b>	<b>538 779</b>	<b>414 744</b>	<b>455 429</b>
<b>Surplus Before Capital Expenditure (A-B)</b>	15 500	15 500	15 500
* This is huge decrease of R107million.			



# Expenditure FY2020/21 – FY2022/23, continued

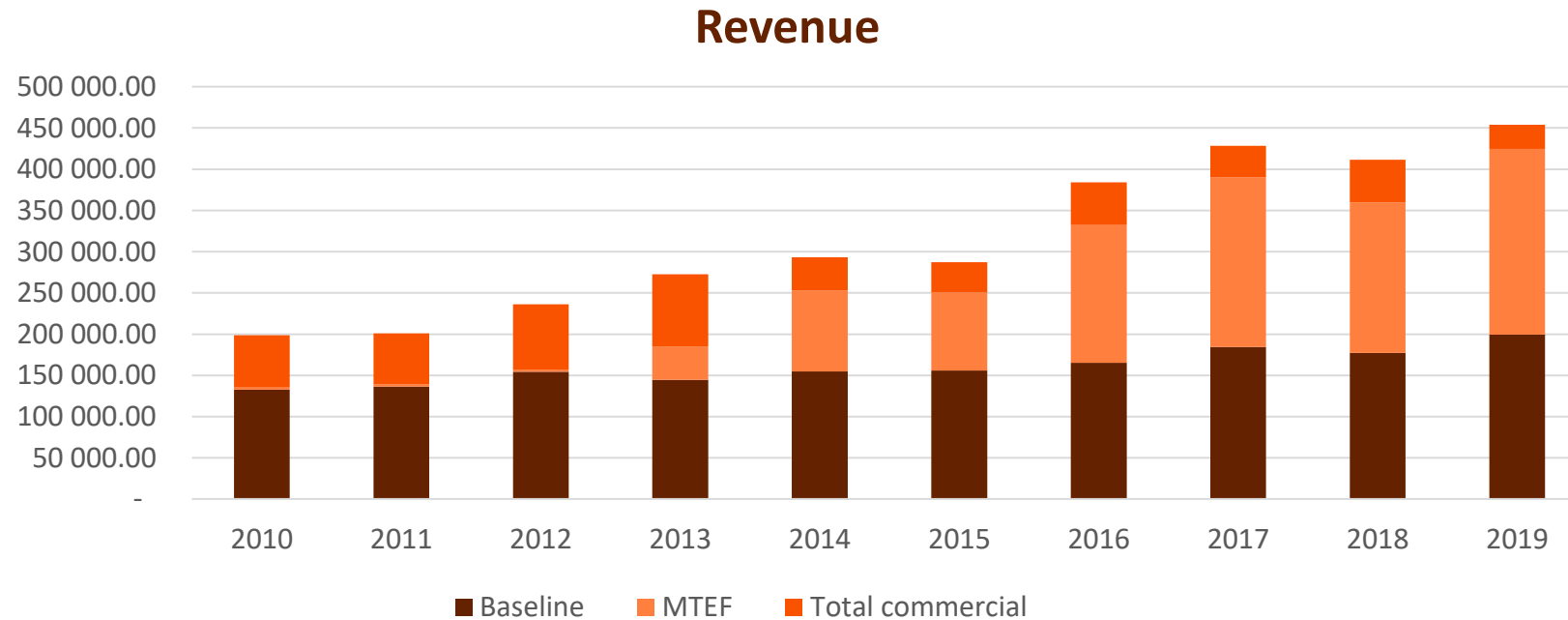
Application of Surplus	2020/21 Budget x 1000	2021/22 Budget x 1000	2022/23 Budget x 1000
Capital Expenditure			
Vehicles & Aircrafts	3 500	3 500	3 500
Equipment	12 000	12 000	12 000
<b>SUBTOTAL</b>	15 500	15 500	15 500
<b>TOTAL EXPENDITURE</b>	<b>554 279</b>	<b>430 244</b>	<b>470 929</b>
<b>SURPLUS (LOSS)</b>	-	-	-

# Analysis of Government Grant Allocations from FY2019/20 to FY2022/23

ITEM	2019/20	2020/21	2021/22	2022/23
Baseline allocation	R198.6m	R208.4m	R220.8m	R229.4m
Water Ingress Project	R27.5m	R29.0m	R30.6m	R31.8m
Rehabilitation of D&O Mines (Research Portion)	—	R21.1m	R22.3m	R23.2m
Economic Competitiveness and Support Package (ECSP)	R188.0m	R198.3m	—	—
Analytical and Research work for the Geoscience Laboratory	R188.0m	R198.3m	—	—
<b>Total Indicative Government Grant (2020 MTEF DMRE adjusted Indicative allocation 15 January 2020)</b>	<b>R414.1m</b>	<b>R456.8m</b>	<b>R273.7m</b>	<b>R284.4m</b>
Baseline Increase : Geological Mapping for Exploration of Mining	—	R70.0m	R128.0m	R147.8m
Baseline Reduction : Current Transfers (Operational)	—	(R5.9m)	(R7.9m)	(R1.2m)
<b>Total Government Grant (2020 MTEF DMRE adjusted Indicative allocation 15 January 2020)</b>	<b>R414.1m</b>	<b>R520.9m</b>	<b>R393.8m</b>	<b>R431.0m</b>

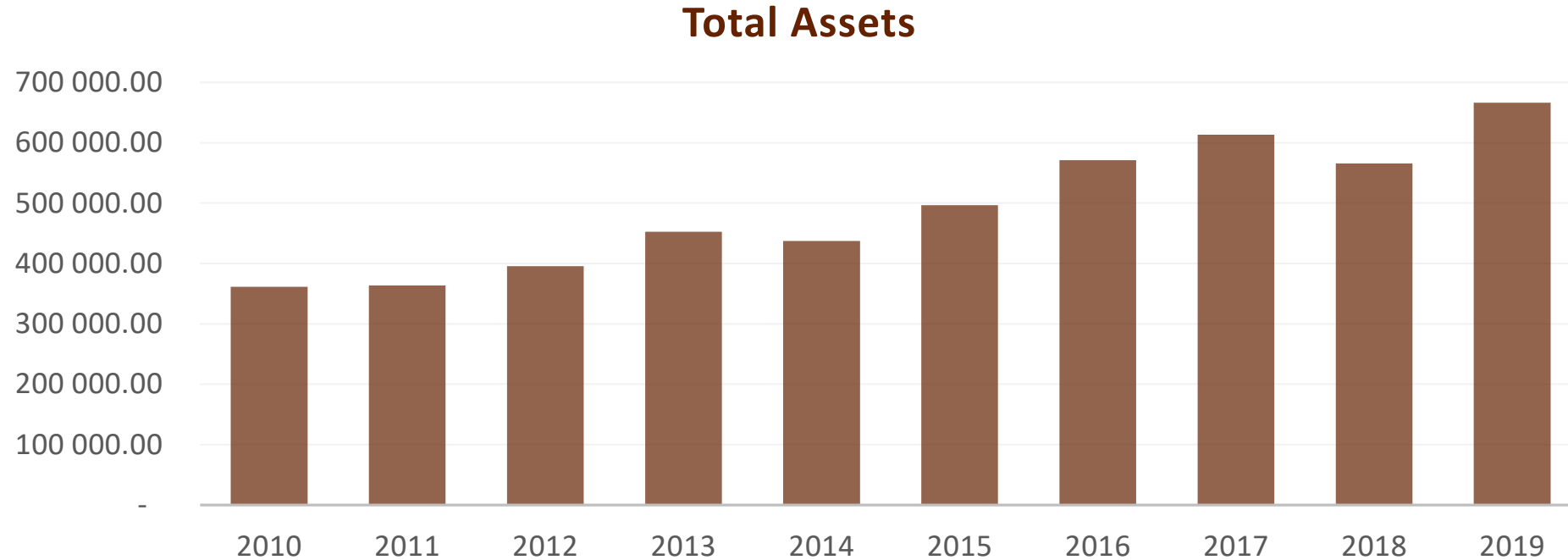


# Financial Sustainability



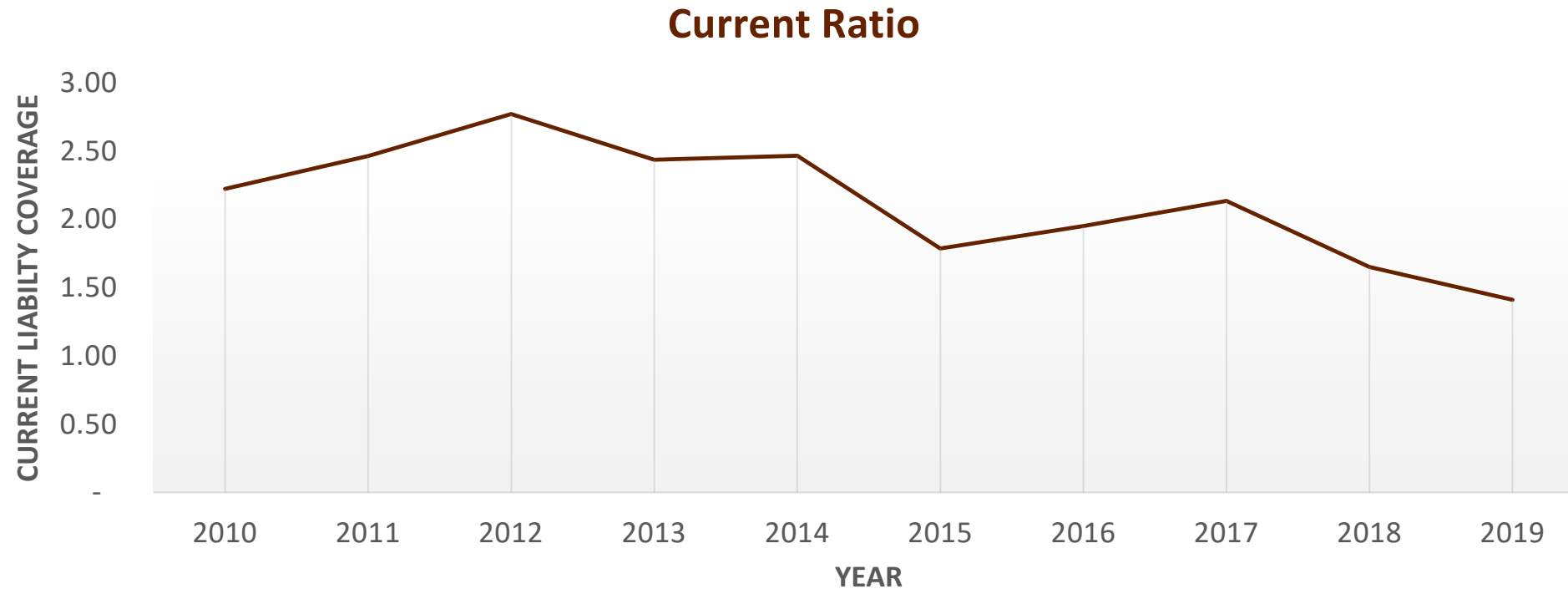
- There has been no real growth in the baseline grant over the period. The marginal increase in the grant is meant to address inflation. Baseline revenue has increased with an average of 4 % over the period.
- An additional Baseline grant funding of R345.8m has been allocated for Geological mapping for exploration of mining over the MTEF.
- An amount of R66.6m has been reallocated for the D&O research portion over the MTEF.
- Financial sustainability strategies are being explored to secure continued funding.

# Financial Sustainability, continued



- A steady balance sheet position has been maintained over the last 10 years and total assets have increased by an average of 7% over the period.

# Financial Sustainability, continued



- The CGS is in good financial standing currently with a healthy Liquidity Ratio. This means that the CGS will meet its current financial obligations as they become due.

# Financial Sustainability, continued

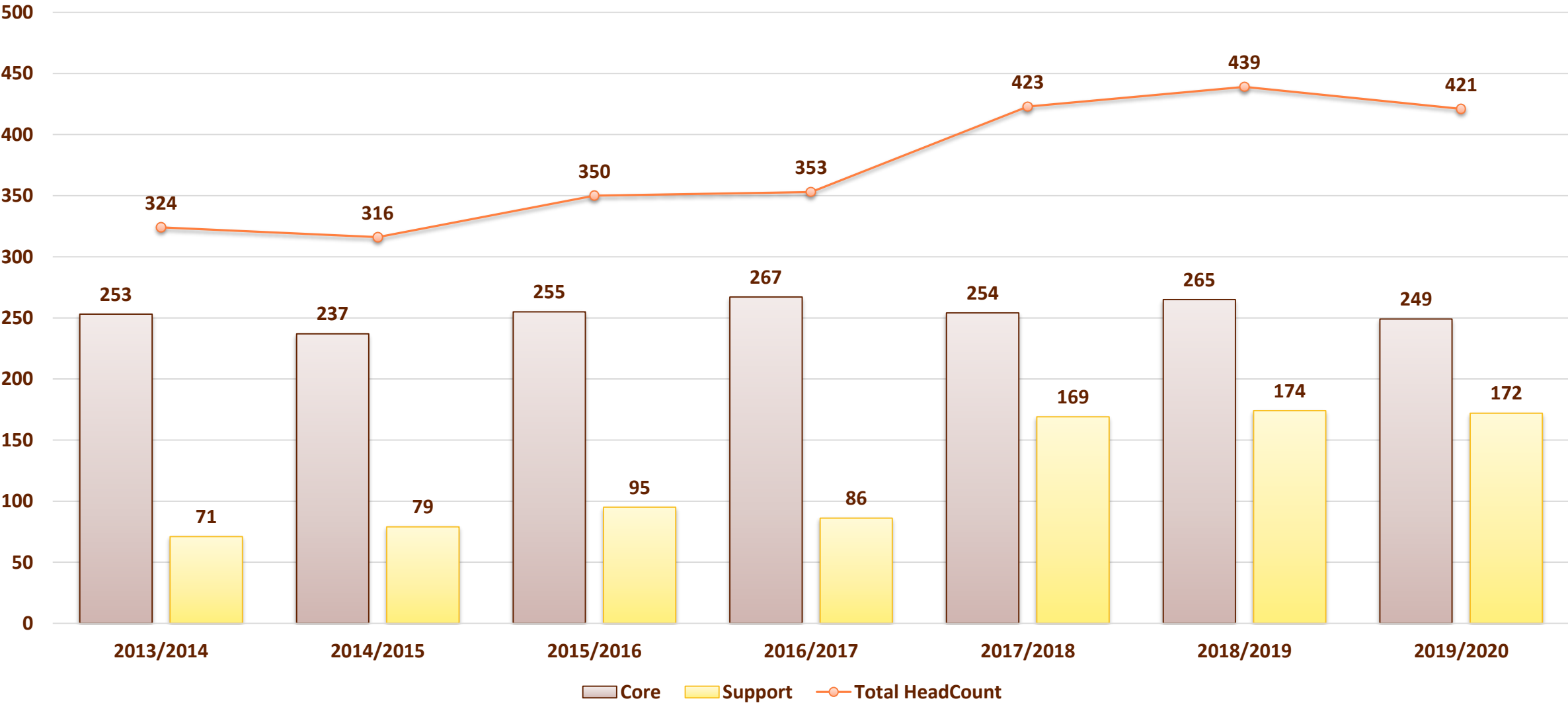
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- Based on the above the CGS is able to continue its operations over the next MTEF period.
- The CGS requested a sustained additional baseline grant allocation of R300m. An amount of R345.8m additional baseline grant allocations have been made for the 2020 MTEF. This amount does not address the funding challenges in their entirety, however the support by the PPC is greatly appreciated.



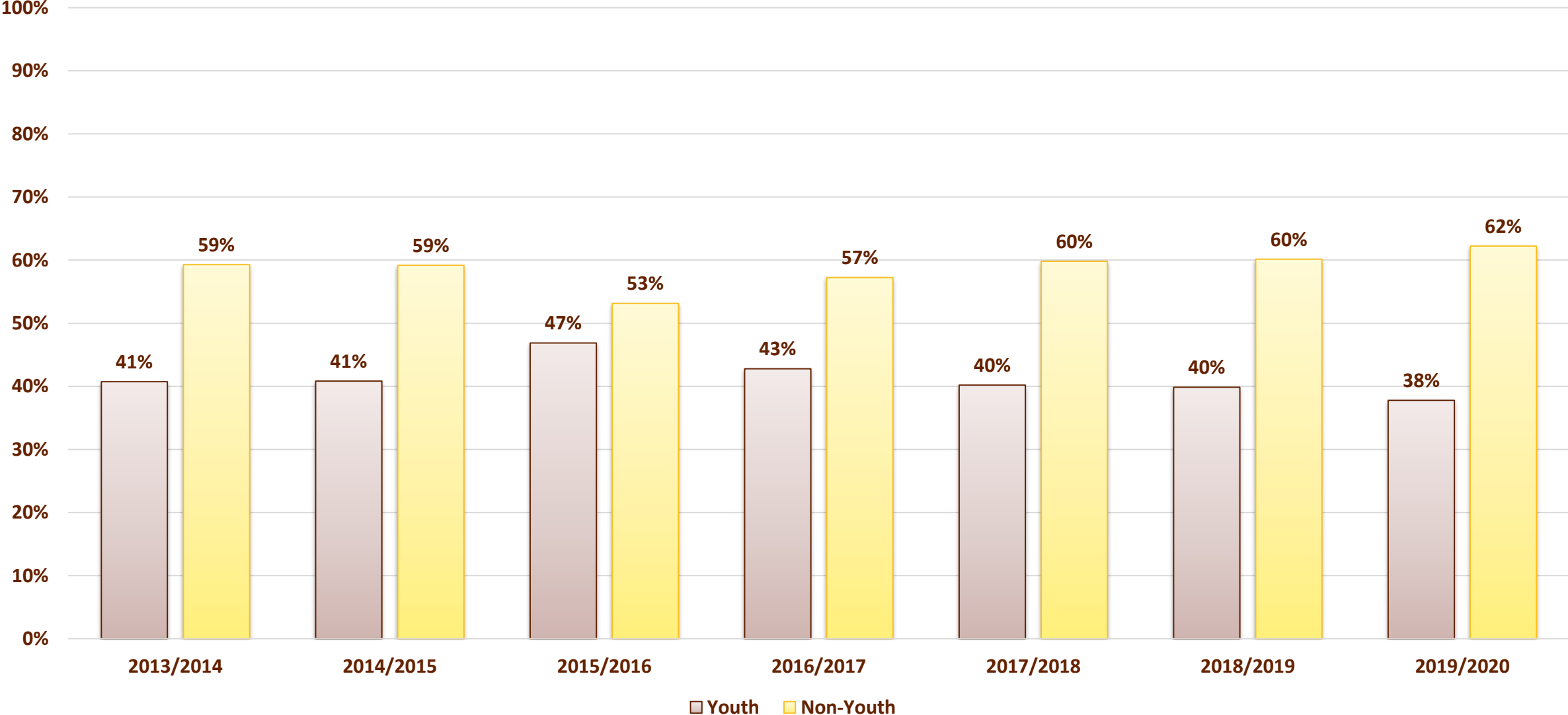
# Human Resources

# Staff Distribution over 7 years: Core versus Support





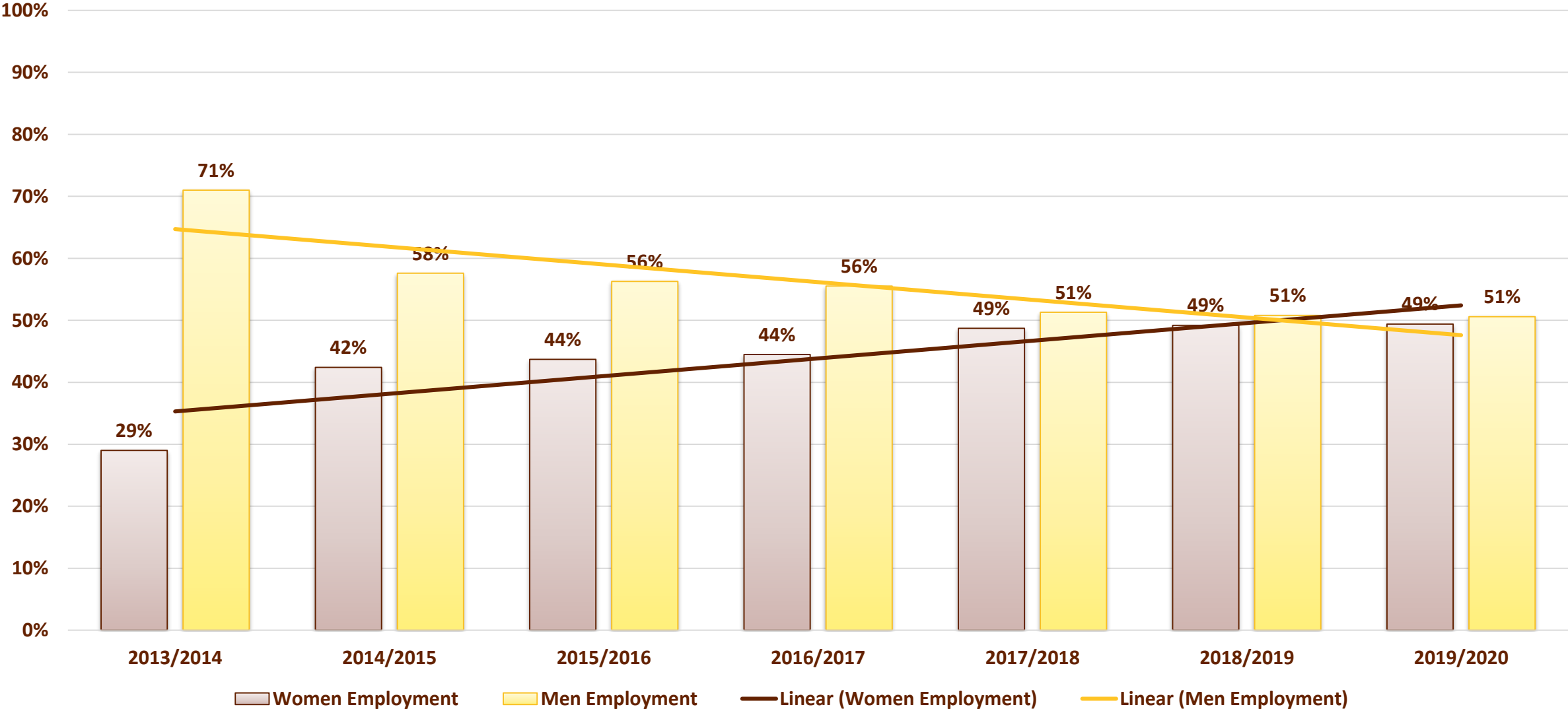
# Staff Distribution over 7 years: Youth versus Non-Youth (%)



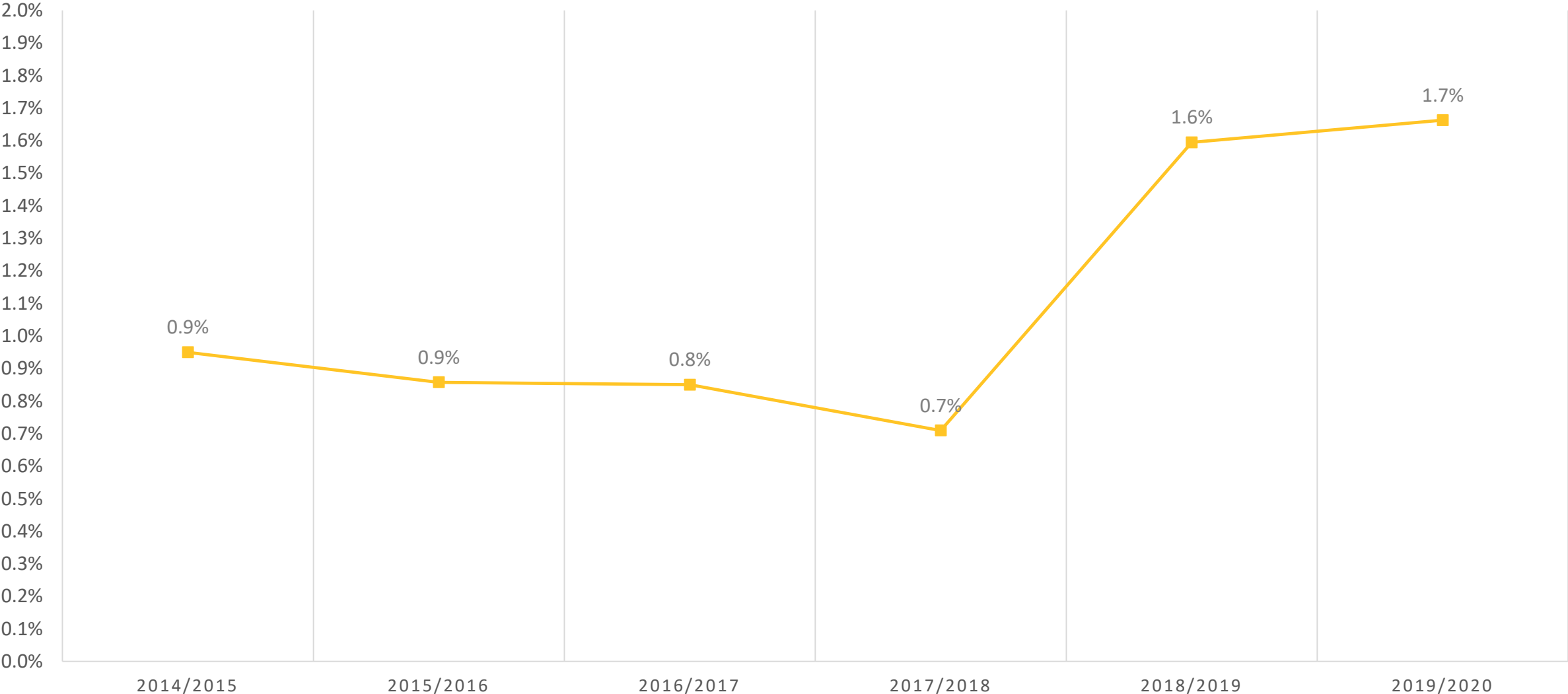
# Bursary Programme

Race & Gender		PhD	MSc	BSc Hons	BSc	Totals
African	Female	3	7	9	0	19
	Male	2	8	3	0	13
Coloured	Female	0	7	0	0	7
	Male	0	0	1	0	1
Indian	Female	0	0	1	0	1
	Male	0	1	0	1	2
White	Female	2	1	0	1	4
	Male	0	2	0	2	4
<b>Totals</b>		<b>7</b>	<b>26</b>	<b>14</b>	<b>4</b>	<b>51</b>

# Gender Breakdown over 7 years -Women versus Men (%)

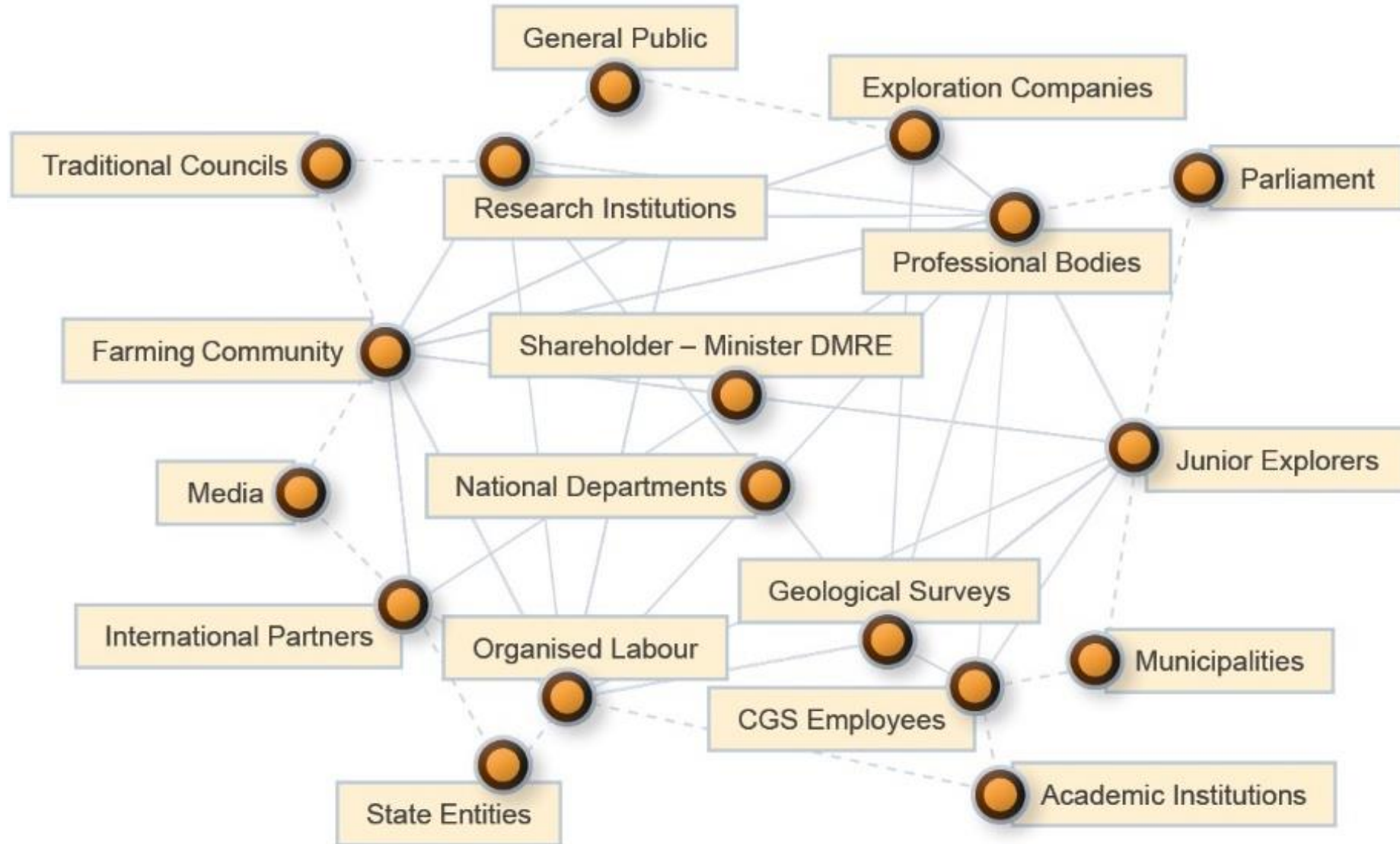


# People Living with Disabilities



# **Stakeholder Engagement Programme**

# Council for Geoscience Stakeholders



# Stakeholder Engagement Programme

- Engagement with communities and other stakeholders (delivering science to the people).
- CGS is a permanent secretariat of the OAGS and collaborations with African countries.

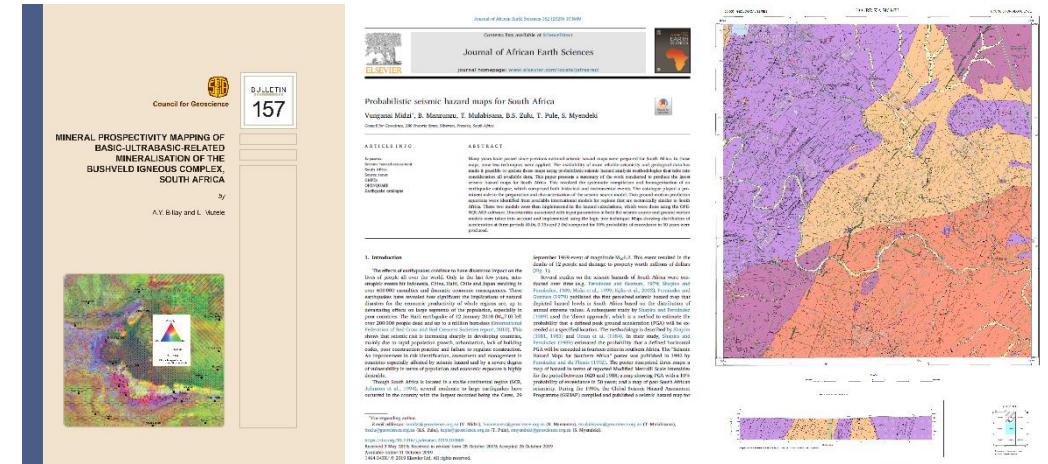
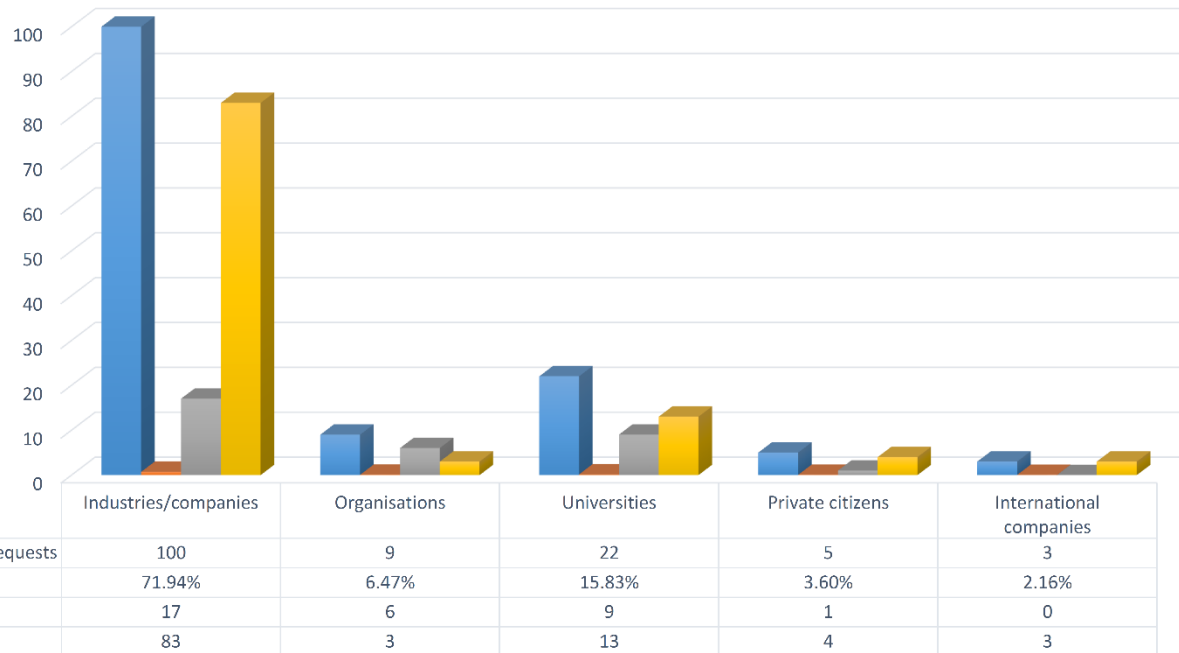


# Scientific Prowess

## Publication of:

- Peer-Reviewed Articles
- Scientific Abstracts, Bulletins, Books
- Geoscience Maps and Explanations
- Integrated Reports

## Data and Information requests (Jan – April 2020)



ScienceDirect partners with global and regional search engines to ensure Council for Geoscience research is found and utilized by researchers the world over.

102 countries have cited articles from 2016 to 2019 that Council for Geoscience authors published on ScienceDirect

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