

Council for Geoscience

Annual Report 2020/21

Presentation to the Portfolio Committee on Mineral Resources and Energy
05 November 2021



**mineral resources
& energy**

Department:
Minerals Resources and Energy
REPUBLIC OF SOUTH AFRICA

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Council for Geoscience

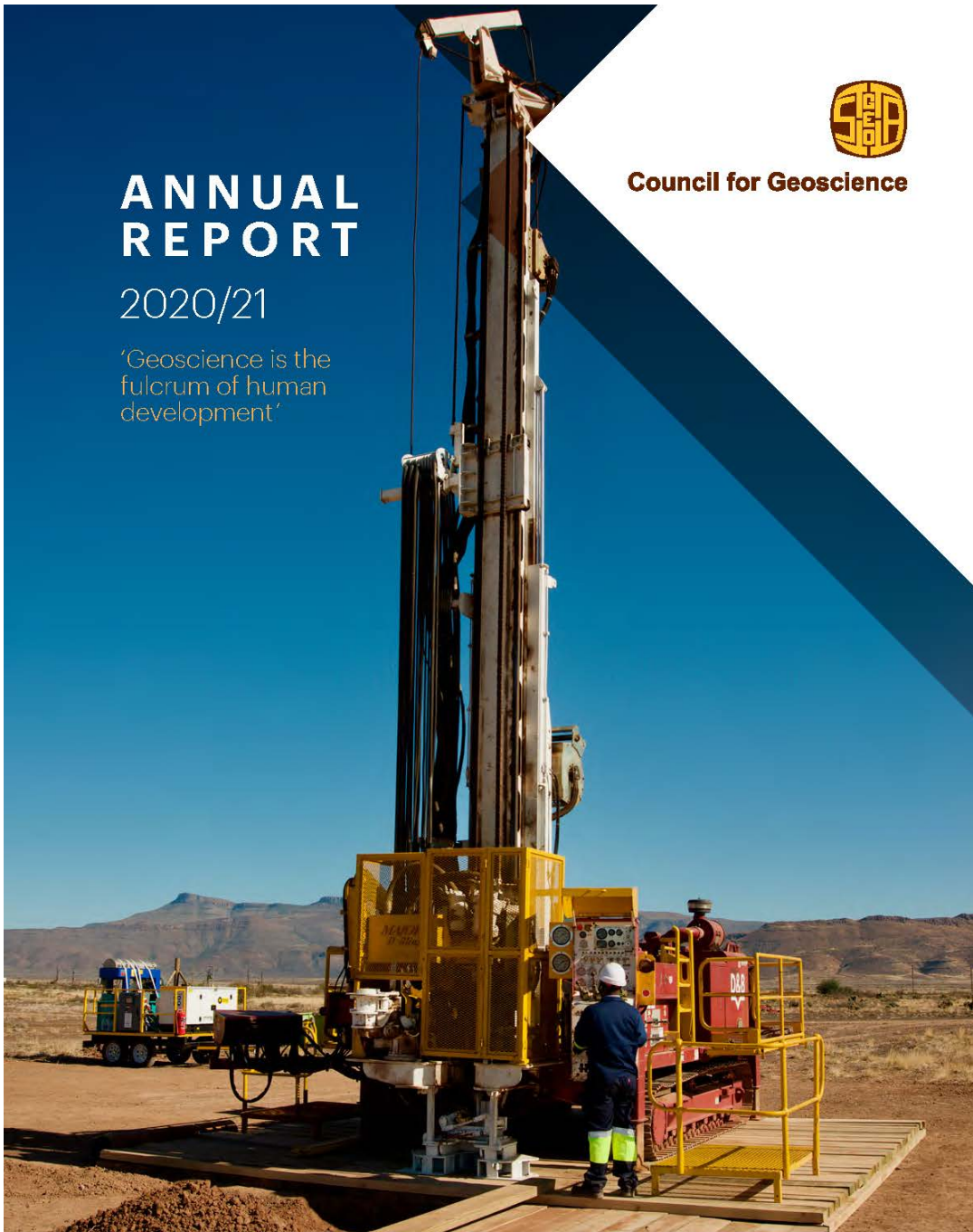
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Outline

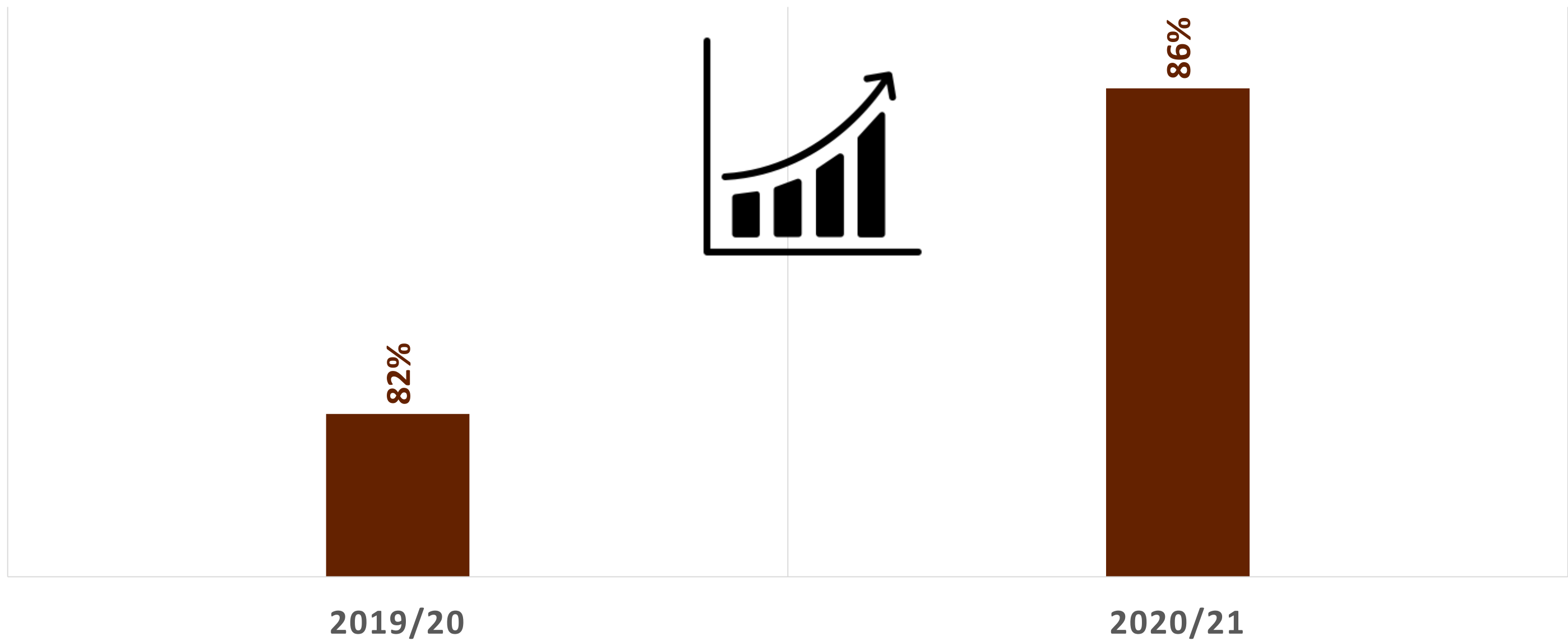
- CGS Annual Report 2020/21 Highlights
 - Organisational Performance
 - Organisational Performance per Strategic Programme
 - Operational Highlights
 - Financial Performance Information
- Strategic outlook of the CGS
- Concluding remarks

The CGS Annual Report 2020/21



Organisational Performance at a glance (FY2020/21)

PERFORMANCE AGAINST PLANNED TARGETS (MTSF 2019-2024)



The CGS corporate performance for FY2020/21 achieved 19 Key Performance Indicators (KPIs) targets out of 22 KPIs targets.

Organisational Performance per Strategic Programme – 2020/21

CGS Impact Statement: A prosperous and transformed society enabled by geoscience solutions				
	CGS Programmes	CGS Outcomes	CGS Strategic Response to the MTSF Priorities	CGS Corporate Scorecard
1	Financial Sustainability	1. Effective and efficient financial resources management	1. A capable ethical and developmental state	Economic/Financial Growth Perspective
	Organisational Effectiveness and Efficiency			Effective Systems (Organisational) Perspective
	An Empowered, Transformed, Motivated and Capacitated Workforce	2. Compliance		World-Class People Perspective
		3. Capable human capital	3. Education, skills and health	
	Delivery of the Mandate	4. Enhanced applications of geoscience information and knowledge and to secure a minimum of 5% share of the global exploration expenditure	2. Economic transformation and job creation	Market (Stakeholder/ Customer) Perspective
4		5. Enhanced geoscience diplomacy	5. Spatial integration, human settlements and local government	
	Advisory, Stakeholder Engagement and Knowledge Management	6. Improved awareness of the CGS brand, services and products	6. Social cohesion and safe communities	
		7. Improved geoscience domain through effective knowledge management	7. A better Africa and World	

Performance per programme (Financial Sustainability)

Economic/Financial Growth perspective

Programme 1: Financial sustainability

Purpose: To ensure effective and efficient delivery of financial management services, to secure funding from the exploitation of collaborative activities and partnerships as well as to generate grant funding

Institutional outcomes of programme 1: Effective and efficient financial resource management

Outcome	Output	Output indicator	Planned annual target 2020/2021	Actual achievement 2020/2021	Status of Achievement
Effective and efficient financial resource management	Audited financial reports	Percentage of overhead costs to total costs	≤66%	63.00%	Target achieved
	Audited financial reports	Percentage of personnel costs to total costs	≤70%	64.03%	Target achieved

Performance per programme (Financial Sustainability), continued

Economic/Financial Growth perspective

Programme 1: Financial sustainability

Purpose: To ensure effective and efficient delivery of financial management services, to secure funding from the exploitation of collaborative activities and partnerships as well as to generate grant funding

Institutional outcomes of programme 1: Effective and efficient financial resource management

Outcome	Output	Output indicator	Planned annual target 2020/2021	Actual achievement 2020/2021	Status of Achievement	Corrective action where targets were not achieved
Effective and efficient financial resource management	Audited financial reports	Revenue from collaborative activities/partnerships	R30m	R23.2m	Target not achieved	Development and implementation of a model to expand the commercial revenue generation streams to augment and strengthen commercial activities/partnerships while sustaining its contribution to national developmental imperatives.
	Audited financial reports	Grant revenue	R520.9m	R486.2m	Target not achieved	Some activities on GTP, especially the outsourced ones such as drilling, could not be secured during the high levels of COVID lockdown. The lockdown level has been reduced and services are being sourced. CGS is also developing its internal capacity in this regard to expedite these activities.

Performance per programme (Organisational Effectiveness and Efficiency)

Effective Systems (Organisational) perspective

Programme 2: Organisational effectiveness and efficiency

Purpose: To develop and implement effective and compliant policies, procedures and business processes in support of the CGS integrated service-delivery model, adhere to best practice to achieve sustainable governance as well as to provide and operate flexible, expandable and secure ICT solutions

Institutional outcomes of programme 2: Effective and efficient financial resource management and compliance with governance protocols/regulations

Outcome	Output	Output indicator	Planned annual target 2020/2021	Actual achievement 2020/2021	Status of Achievement
Effective and efficient financial resource management and	Audited annual report	Percentage of total Procurement spend on goods and services from small, medium and micro enterprises (QSE and EMEs) in terms of PPPFA of 2017	≥30%	40.75%	Target achieved
Compliance with governance protocols/regulations	Audited annual report	Number of audit qualifications	0	0	Target achieved
	Availability report	Availability of key enterprise services	≥99%	100%	Target achieved

Performance per programme (An Empowered, Transformed, Motivated and Capacitated Workforce)

World-Class People perspective

Programme 3: An empowered, transformed, motivated and capacitated workforce

Purpose: To attract and retain highly skilled scientific personnel in the geoscience industry, To build capacity in respect of geoscientific, administrative and managerial/leadership skills while also developing innovative products, systems and services, To promote and invest in human resources transformation and diversity.

Institutional outcomes of programme 3: Capable human capital

Outcome	Output	Output indicator	Planned annual target 2020/2021	Actual achievement 2020/2021	Status of Achievement
Capable human capital	Human resources reports	Percentage of scientific staff with Master's or Doctoral degrees	≥35%	40.47%	Target achieved
	Human resources reports	Staff turnover rate	≤10%	5.48%	Target achieved
	Human resources reports	Percentage of training expenditure to leviabale amount of payroll	≥1%	1.20%	Target achieved
	Human resources reports	Percentage of staff living with disability	≥1.5%	2.25%	Target achieved
	Human resources reports	EE statistics, scientific cohort (female:male)	≤49:≥51	39:61	Target achieved
	Human resources reports	EE statistics, EXCO (female:male)	≤20:≥80	20:80	Target achieved

Performance per programme (Delivery of the Mandate)

Market (Stakeholder / Customer) perspective

Programme 4: Delivery of the mandate

Programme 4 purpose: Execute the integrated and multidisciplinary geoscience mapping programme

Institutional outcomes of programme 4: Enhanced applications of geoscience products and capture 5% global share exploration expenditure and Enhanced geoscience diplomacy

Outcome	Output	Output indicator	Planned annual target 2020/2021	Actual achievement 2020/2021	Status of Achievement	Corrective action where targets were not achieved
Enhanced application of geoscience products and capture 5% global share exploration expenditure, and Enhanced geoscience diplomacy.	Onshore geoscience maps	Onshore geoscience map coverage	9%	9.03%	Target achieved	
	Offshore geoscience maps	Offshore geoscience map coverage	0.1%	0.05%	Target not achieved	CGS will deploy the marine vessel it acquired during quarter 3 of the FY2020/21 to accelerate the marine mapping programme, particularly the near shore. Collaborations will be intensified with State organs with vessels suitable for the deep-sea environment.

Performance per programme (Delivery of the Mandate), continued

Market (Stakeholder / Customer) perspective					
Programme 4: Delivery of the mandate					
Programme 4 purpose: Execute the integrated and multidisciplinary geoscience mapping programme					
Institutional outcomes of programme 4: Enhanced applications of geoscience products and capture 5% global share exploration expenditure and Enhanced geoscience diplomacy					
Outcome	Output	Output indicator	Planned annual target 2020/2021	Actual achievement 2020/2021	Status of Achievement
Enhanced application of geoscience products and capture 5% global share exploration expenditure, and Enhanced geoscience diplomacy.	Value-added geoscience products such as integrated reports, 3D models, innovative solutions, mineral systems and emplacement models	Applied geoscience products for minerals and energy	6	7	Target achieved
	Value-added geoscience products such as integrated reports and 3D models, innovative solutions	Applied geoscience products for infrastructure, land use, health, groundwater and the environment	6	10	Target achieved

Performance per programme (Advisory, Stakeholder Engagement and Knowledge Management)

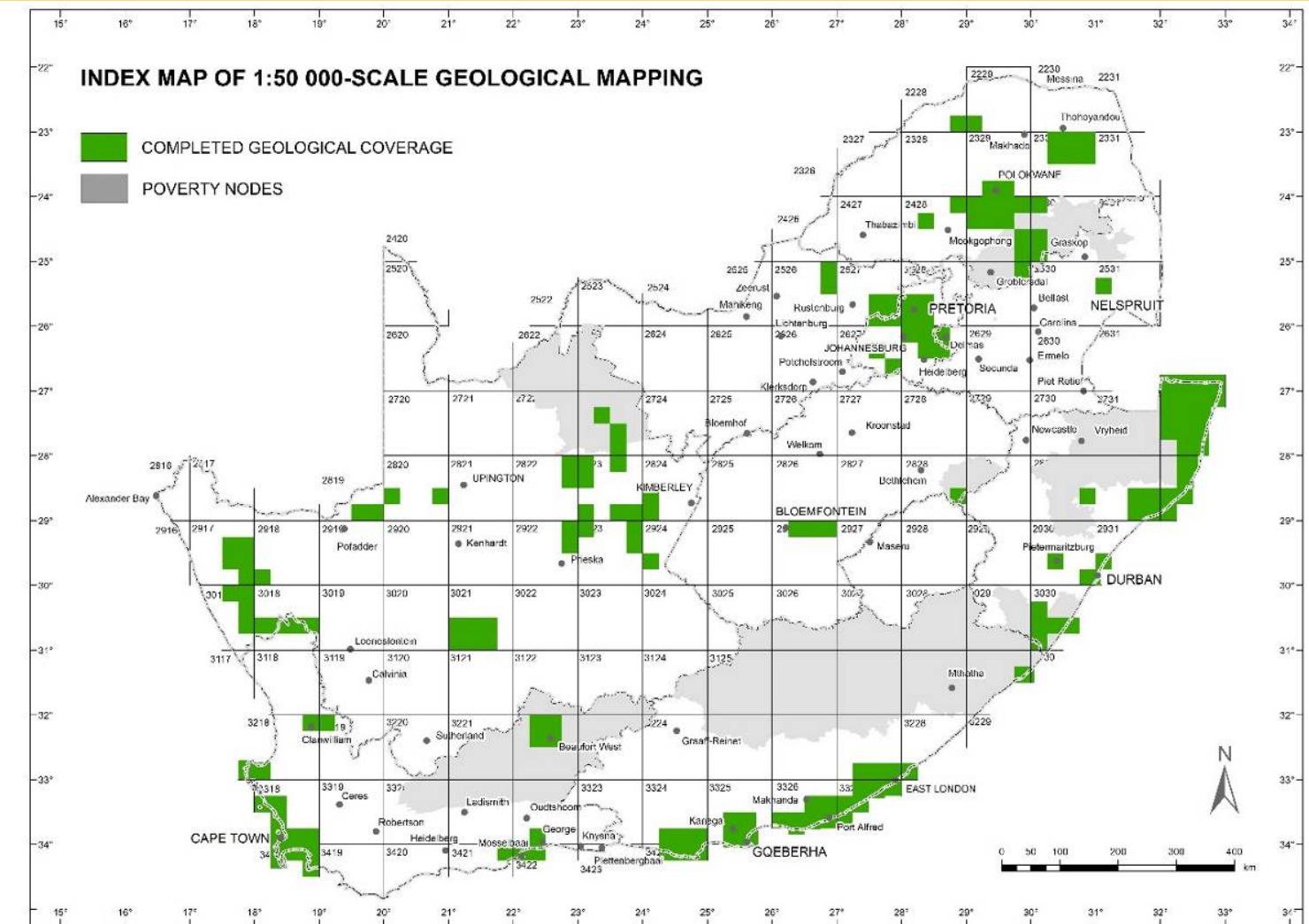
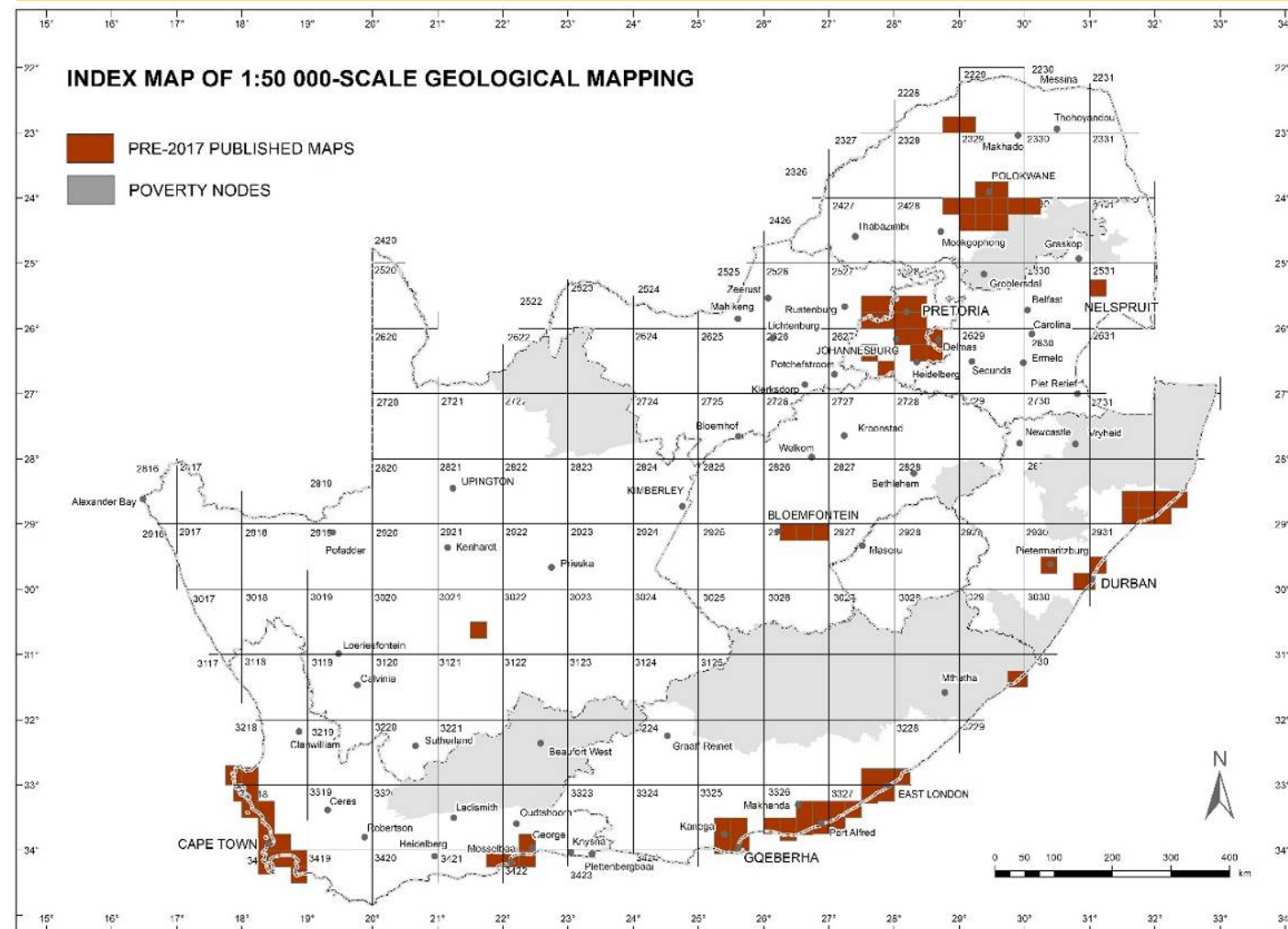
Market (Stakeholder / Customer) perspective					
Programme 5: Advisory, Stakeholder Engagement and Knowledge Management					
Purpose: To improve stakeholder relations through collaborations with strategically aligned institutions, the private sector and the general public.					
Institutional outcomes of programme 5: Improved awareness of the CGS brand, services and products as well as Improved knowledge management.					
Outcome	Output	Output indicator	Planned annual target 2020/2021	Actual achievement 2020/2021	Status of Achievement
Improved awareness of the CGS brand, services and products. and Improved knowledge management	Media articles	Number of articles published on media platforms	24	25	Target achieved
	Stakeholder survey report	Stakeholder satisfaction level	≥70%	88.48%	Target achieved
	Peer-reviewed Articles published in scientific journals, book chapters and edited volumes	Number of peer-reviewed articles published	30	33	Target achieved
	Examples: memoirs, bulletins, books and atlases.	Number of CGS publications	7	10	Target achieved
	Examples: Conference Abstracts, extended abstracts, papers and keynotes	Number of conference proceedings	40	66	Target achieved

CGS Response to Covid-19 Pandemic



- The CGS played a critical role in intensified monitoring and impact assessment of seismicity in mining areas as a precursor to the phased reopening of mining operations during the national lockdown in accordance with the amended Chapter 4, S11(K)(3) of the National Disaster Management Act Regulations published on 16 April 2020.
- The CGS instituted structures and processes to mitigate the impact of Covid-19 on staff, stakeholders and projects in accordance with the National Disaster Management Act Regulations.

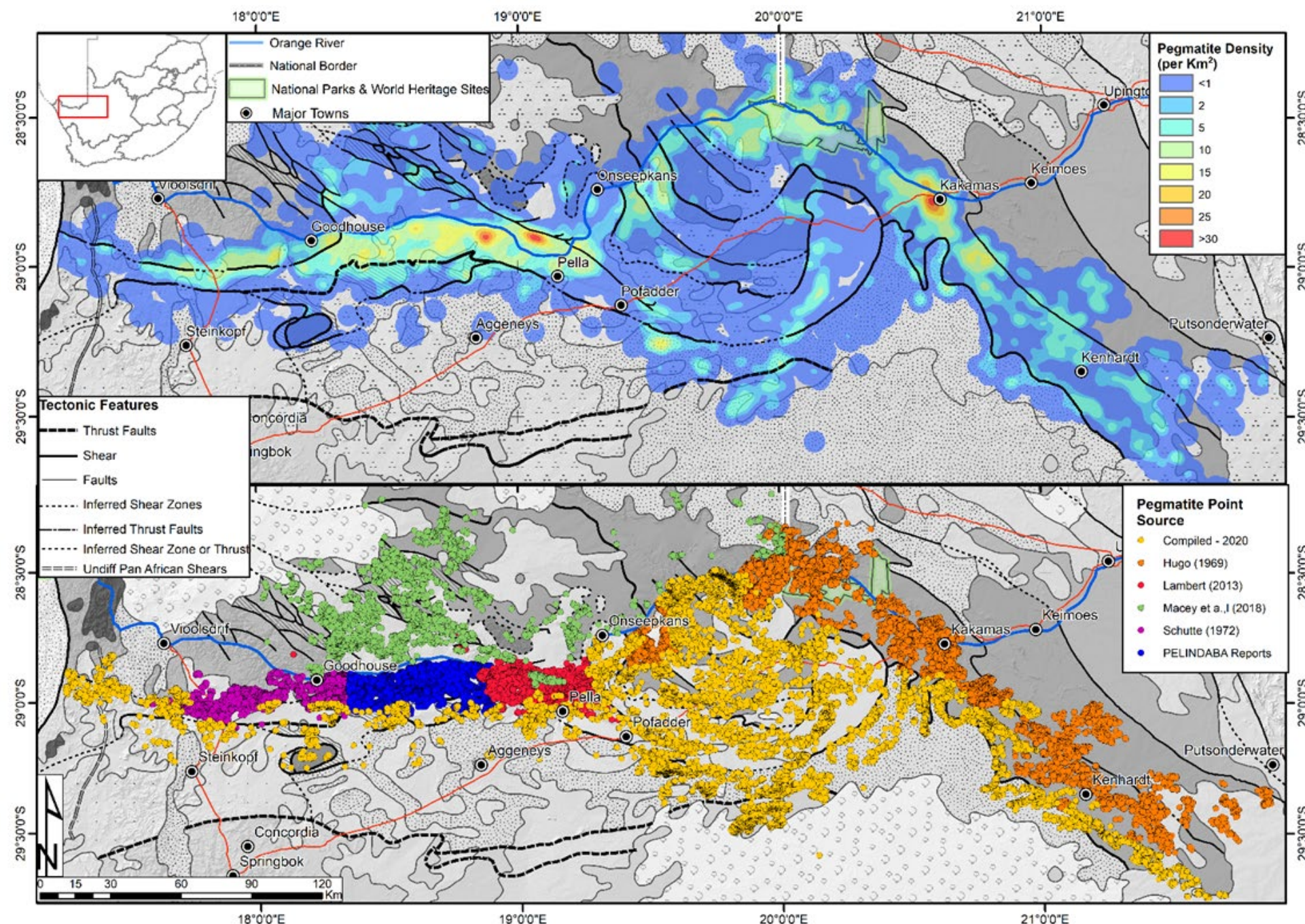
Operational Highlights: Contributions to the Economic Reconstruction and Recovery Plan



- The CGS streamlined the Geoscience Technical Programme to respond to the post-COVID-19 economic recovery programme, continuing its detailed mapping programme at a scale of 1:50 000 and increasing onshore map coverage to **9.03%** computed from **18 high-quality geological maps** produced.
- The partnerships developed with the South African Navy and the coastal division of the Department of Environment, Forestry and Fisheries are intended to augment the capacity to enable attainment of 0.3% offshore coverage in the next financial year.

Operational Highlights: Contributions to the Economic Reconstruction and Recovery Plan

- Economic recovery projects focused on the **minerals of the future**, including **base and precious metals, rare earth elements (REEs) and coal**.



- Through the mineral systems approach, new areas were found to host widespread metals and minerals in the **Orange River Pegmatite Belt (Northern Cape Province)**, which is **about 67% larger** than previously predicted.

Operational Highlights: Contributions to the Economic Reconstruction and Recovery Plan

- The CGS responded to the post-COVID-19 economic recovery and reconstruction plan by supporting the Department of Mineral Resources and Energy (DMRE), working with the Minerals Council, to draft an ‘**Exploration Implementation Plan**’ as the lifeblood of the mining industry’s growth.

Operational Highlights: Contributions to the Economic Reconstruction and Recovery Plan

- As part of the Karoo Deep Drilling Programme, the CGS has now started drilling a 3 500m ultra-deep vertical stratigraphic research borehole. In the year under review, 2 412.06m were drilled, with methane gas (CH_4) detected at depths of 1 734m and at 2 325m.



Operational Highlights: Contributions to the Economic Reconstruction and Recovery Plan

- Following the application of artificial intelligence techniques for groundwater mapping, several boreholes were selected and drilled in Phuthaditjhaba. All boreholes were targeting geological faults thought to represent an unidentified block fault system. One high-yielding borehole provides an estimated 12 litres/second, making it a sizeable groundwater source for the water-scarce community of Phuthaditjhaba.



Operational Highlights: Contributions to the Economic Reconstruction and Recovery Plan

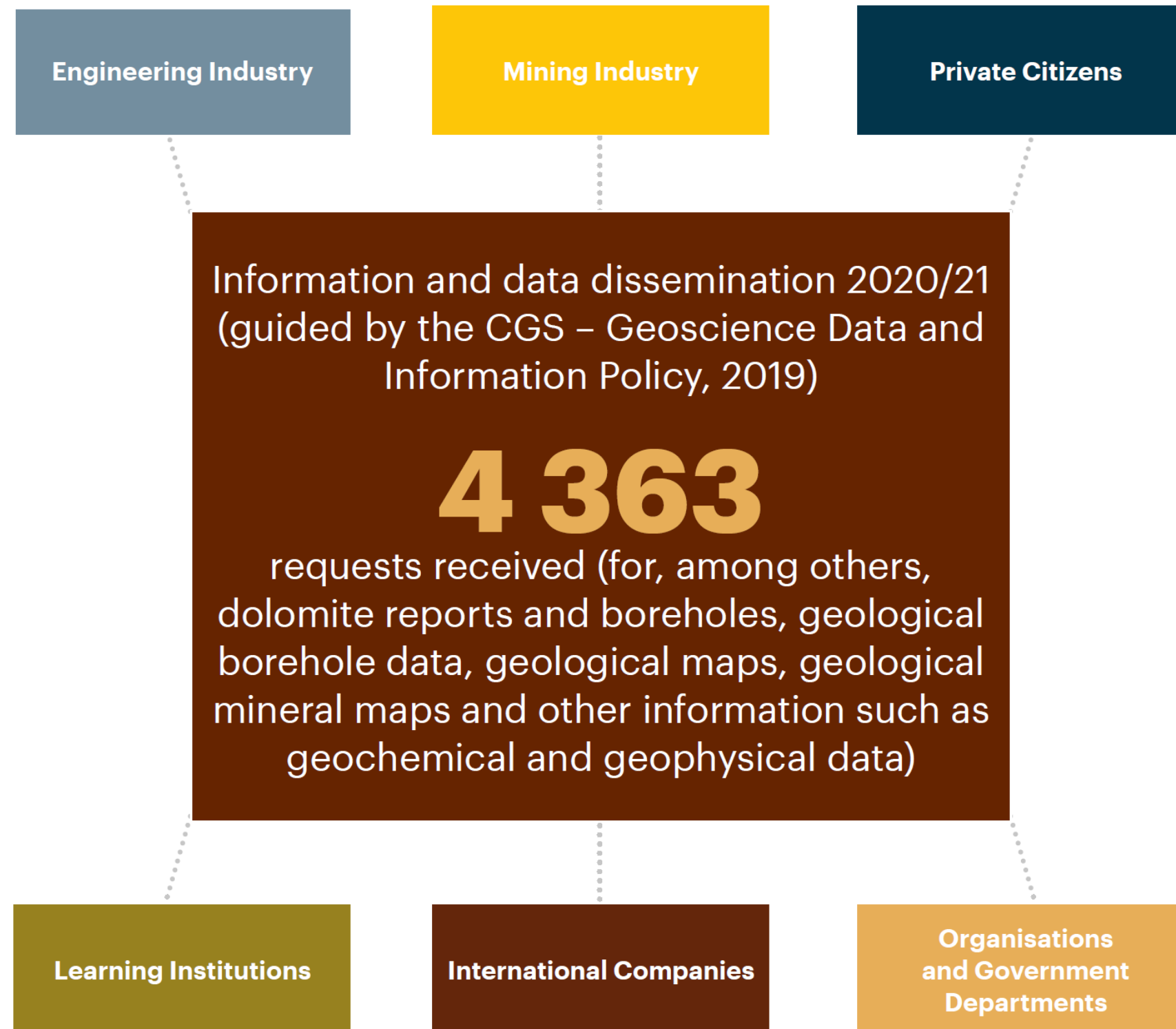
Support for Just Transition to low carbon economy

- The CGS assumed the responsibility of Implementing Agency for the **Carbon Capture, Utilisation and Storage (CCUS)** project, a partnership of the South African Government and the World Bank. The CCUS project used extensive existing geological information test sites proximate to major carbon emitters in Mpumalanga. The recently identified storage sites include deep saline aquifers, post gasification deep coal seams and basalt storage.



- In support of Medium-Term Strategic Framework (MTSF) **priority 5 on spatial integration**, human settlements and local government, and the District Development Model, the CGS executed projects such as aggregate mapping to compile the crushed aggregate quality map of the Eastern Cape Province.

Operational Highlights: Geoscience Data and Information



Data or information requests can be obtained at
data@geoscience.org.za or info@geoscience.org.za

Operational Highlights: Dissemination of Information

10 CGS publications, including bulletins, geochemical synthesis reports, geological explanations and Geoclips



66 Conference Proceedings were published

33 Peer-reviewed articles published in both local and international journals and bulletins



25 Media articles were published to enhance and grow the Brand of the CGS

Operational Highlights: The Geoscience Act 100 of 1993 Draft Regulations



The CGS dedicated its resources to working with the Department of Mineral Resources and Energy (DMRE) to draft the Geoscience Act Regulations, which clarify the provisions of the Geoscience Act of 1993, as amended, that established the CGS. The regulations were gazetted for public comments during 2020/21 and stakeholders will be consulted in 2021/22 once all inputs and comments have been received.

STAATSKOERANT, 4 MAART 2021

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GENERAL NOTICES • ALGEMENE KENNISGEWINGS

DEPARTMENT OF MINERAL RESOURCES AND ENERGY

NOTICE 84 OF 2021

PUBLICATION OF THE GEOSCIENCE ACT 100 OF 1993 DRAFT REGULATIONS FOR PUBLIC COMMENT


I, SAMSON GWEDE MANTASHE, MP, Minister of Mineral Resources and Energy, hereby publish the Geoscience Act 100 of 1993 Draft Regulations in terms of section 25(1) read with the provisions of section 14 of the Interpretation Act, 1957 (Act No. 33 of 1957), for public comment. Interested and affected parties are hereby invited to submit written representations on the Draft Regulations. The representations must be marked for the attention of Ms Sibongile Malie and can be hand delivered, emailed or sent by post, on or before 19/04/2021 to the following details:

70 Meintjies Street
Sunnyside
0001

or

Private Bag X 59
Arcadia
0007

Written representations may also be sent by email to: representations@dmre.gov.za must reach the Department of Mineral Resources and Energy by not later than 30 days from the publication of this notice. A copy of the Geoscience Act Regulations 2020 Draft Regulations is attached hereto.



MR S.G. MANTASHE, MP
MINISTER OF MINERAL RESOURCES AND ENERGY

This gazette is also available free online at www.gpwonline.co.za

Operational Highlights: Strategic Partnerships Established for a Better Africa and the World



The CGS, in partnership with the African Exploration Mining and Finance Corporation, is providing technical support to the DMRE in advancing the bilateral cooperation between South Africa and the Central African Republic (CAR). To this effect, the CGS concluded a strategic and technical partnership with its CAR counterpart, the Office of Geological Research and Mining, in January 2021.

The CGS has embraced the intergovernmental relations framework to enhance coordination with all three spheres of Government. In 2020/21, meetings were held with key stakeholders in all three spheres, which allowed CGS scientists access to public and private land to conduct planned research (implementation of the Geoscience Technical Programme). Engagement with local government was strengthened through participation in the strategic planning sessions of the **District Municipalities of Mopani and Waterberg** in Limpopo in support of the **District Development Model**.

Operational Highlights: Building a Capable Human Capital at the CGS



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employees registered as bursars for the 2021 academic year, 53% of whom are women, with six of the eight registered for PhDs being females.

Overall, the organisation has almost gender parity at an organisational level, with 48% of the workforce being females. Youths constitute 30% of the workforce.

Two of our female scientists (Dr Maphuthi Kwata and Dr Valerie Nxumalo) have attained their Doctoral degrees. Mr Litshedzani Mutele, Ms Thato Kgari, Ms Noluvuyo Dudumashe and Mr Melvin Sethobya attained their Master's degrees.



Dr Asinne Tshibubudze and Dr Cameron Penn-Clarke were admitted as fellows of the Geological Society of South Africa (GSSA) in recognition of their concerted efforts to grow the country's geoscience knowledge base.

Financial Performance Information



Audited Actuals FY2020/21 and Budget FY2021/22– FY2022/23

Income/Funding Model				
Income (Rands)	2020/21 Budget x 1000	2020/21 Actuals x 1000	2021/22 Budget x 1000	2022/23 Budget x 1000
Government grant - Baseline	202 388	202 388	212 800	228 209
Government grant – Baseline Increase Geological Mapping	70 000	51 305	128 000	147 815
National Treasury 2020 AENE and 2021 MTEF Budget Reductions	(18 695)		(16 696)	(22 930)
Government grant - MTEF	354 515	224 346	52 958	54 984
**CCUS Project	90 000	8 182	—	—
Sales and contracts	29 282	23 215	32 210	35 431
Sundry income	4 072	16 443	4 276	4 490
TOTAL INCOME - A	731 562	525 879	413 548	447 999
Budget fluctuations are resulting from conditional grant allocation (MTEF projects)				

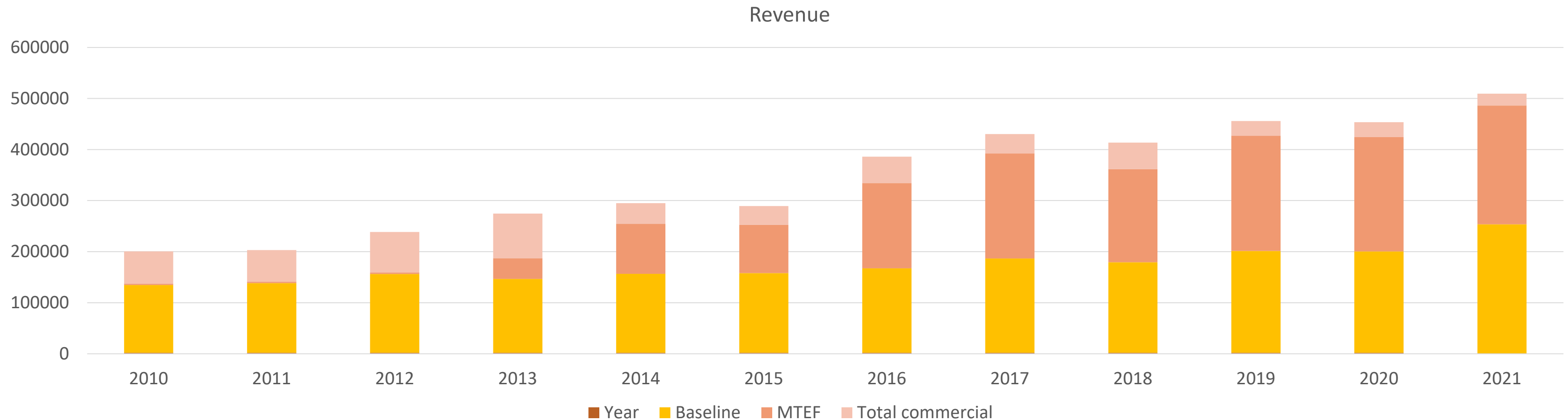
Audited Actuals FY2020/21 and Budget FY2021/22– FY2022/23

Expenditure (Rands)	2020/21 Budget x 1000	2020/21 Actuals x 1000	2021/22 Budget x 1000	2022/23 Budget x 1000
Personnel costs	336 594	333 691	316 946	342 117
Bursaries and Training	4 074	3 610	4 481	4 930
Commercial project costs	13 177	5 710	14 495	15 944
Overheads and operating costs	305 921	183 641	62 126	69 508
SUBTOTAL - B	659 766	526 652	398 048	432 499
SURPLUS(LOSS) A-B	-	(773)	-	-
Budgeted Capital Expenditure (vehicles; equipments;etc)	71 796	*49 343	15 500	15 500
TOTAL EXPENDITURE	731 562	526 652	413 548	447 999
*Balance Sheet				

Analysis of Government Grant Allocations from FY2021/22 to FY2024/25

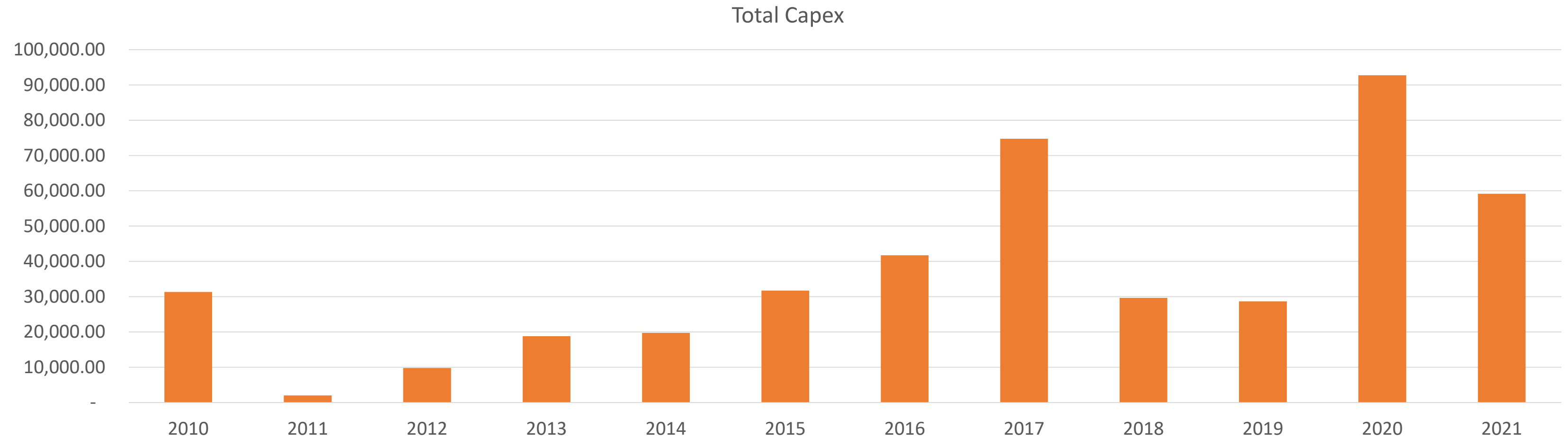
ITEM	2021/22	2022/23	2023/24	2024/25
Baseline allocation	R212.8m	R228.2m	R238.4m	R214.2m
Water Ingress Project	R30.7m	R31.8m	R33.2m	R30.9m
Rehabilitation of D&O Mines (Research Portion)	R22.3m	R23.2m	R24.2m	R21.5m
Economic Competitiveness and Support Package (ECSP)	—	—	—	—
Analytical and Research work for the Geoscience Laboratory	—	—	—	—
Baseline Increase : Geological Mapping for Exploration of Mining	R128.0m	R147.8m	R154.5m	R161.4m
Baseline Reduction : Current Transfers (Operational)	(R14.6m)	(R20.2m)	(R33.5m)	* (?)
Baseline Reduction : Rehabilitation of D&O Mines	(R2.1m)	(R2.7m)	(R3.6m)	* (?)
Baseline Reduction : Water Ingress Project	—	—	(R3.6m)	* (?)
Total Government Grant (2021 MTEF DMR Final Allocation letter 5 February 2021)	R377.1m	R408.1m	R409.6m	R428.0m
The Shale gas project is no longer funded. *2024/25 budget reductions will be confirmed as part of the upcoming 2022 MTEF				

Financial Sustainability



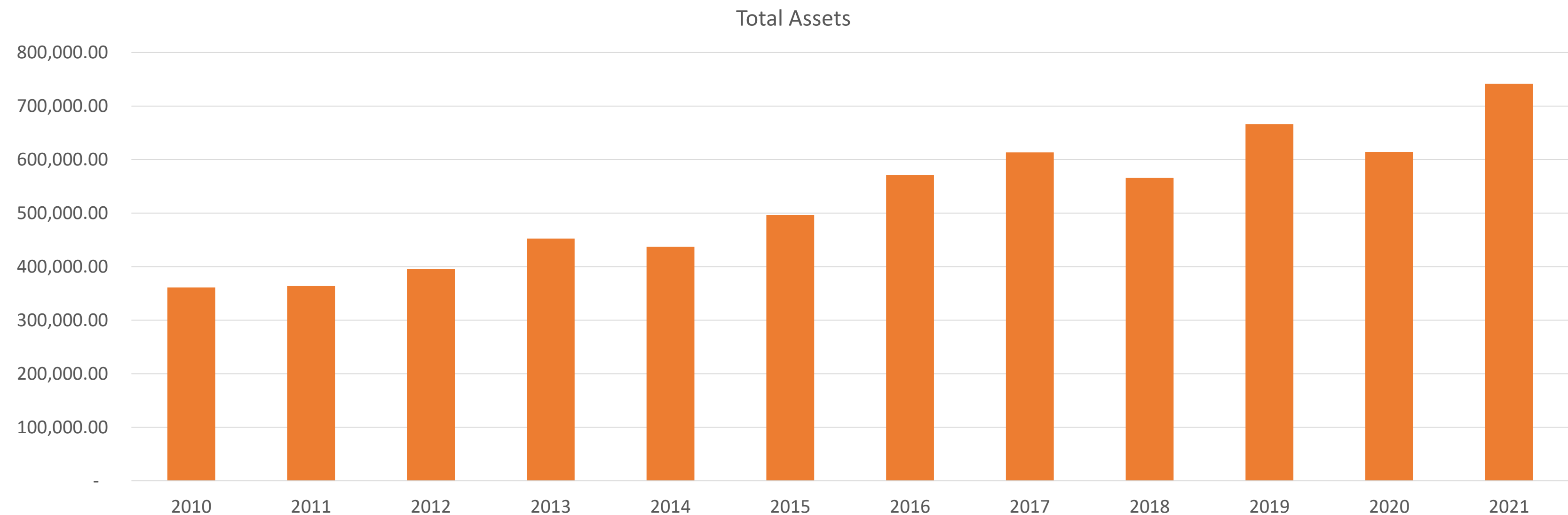
- There has been no real growth in the baseline grant over the period. The marginal increase in the grant is meant to address inflation. Baseline revenue has increased with an average of 4 % over the period.
- **An additional Baseline grant funding of R345.8m has been allocated for Geological mapping for exploration of mining over the MTEF.**
- **An amount of R66.6m has been reallocated for the D&O research portion over the MTEF.**
- **R18.7m budget reduction in the 2020 AENE and R80.3m budget reductions in the 2021 MTEF**
- CGS is securing the Development of Carbon Capture Storage Project with the World Bank.

Financial Sustainability, continued



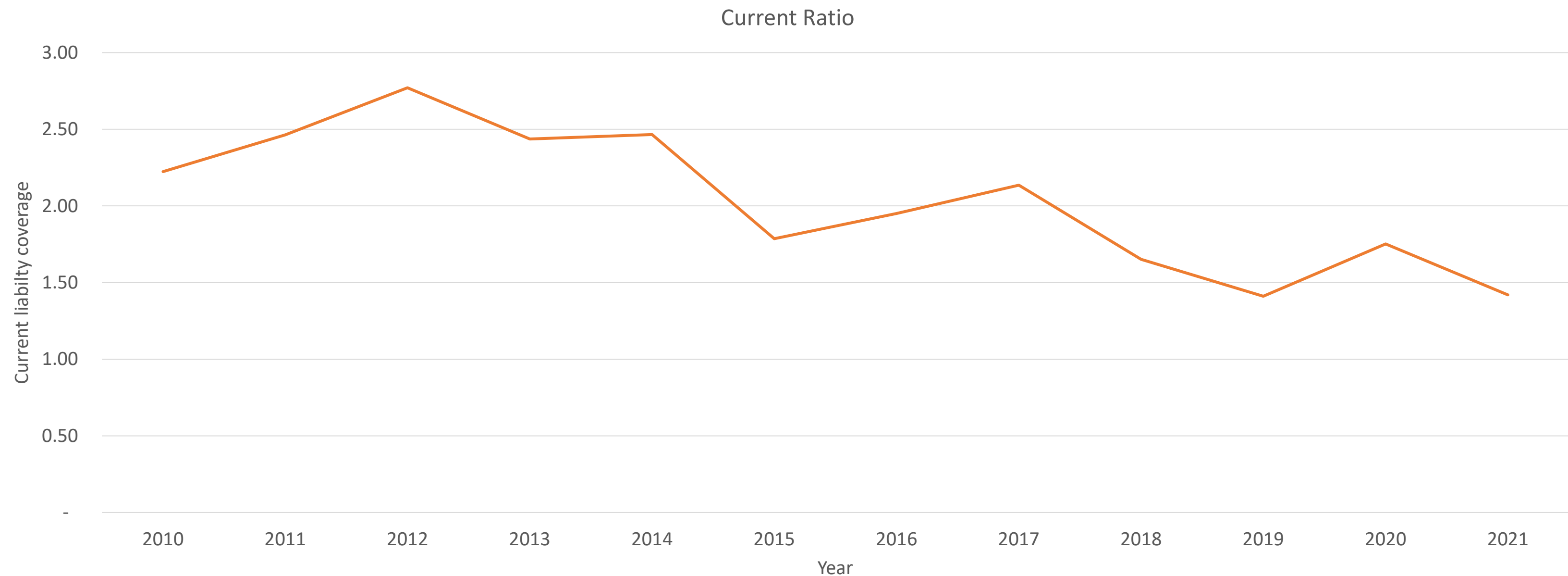
- A capital renewal plan is developed annually to address the infrastructure requirements.
- In 2020, additional funding was spent in respect of lab infrastructure and implementation of an ERP system.
- **The aging research infrastructure of the CGS is of great concern to the organization and attention is given to the replacement of infrastructure.**

Financial Sustainability, continued



- A steady balance sheet position has been maintained over the last 12 years and total assets have increased by an average of 7% over the period.

Financial Sustainability, continued



- The CGS is in good financial standing over the next MTEF. This means that the CGS will meet its current financial obligations as they become due.

Current challenges with CGS Funding and Model

- Insufficient Baseline grant allocation. The **baseline allocation covers only 66%** of the personnel costs and does not cover Operational costs and Mandatory functions. These costs are defrayed through earnings from ring-fenced **MTEF projects and Collaborative/ commercial projects**.
- With the Government moving to a zero-based budget to control expenditure - some of the CGS MTEF/Ring - fenced funding may be further reprioritised. This presents challenges with regards planning as the CGS depends largely on its scientific personnel and external services providers.
- Decreasing Baseline grant allocation over the past 10 years in real terms.
- Ring-fenced funding, even when secured, has no certainty as it is often subject to the control and unilateral retrieval by the Shareholder (DMR&E). This presents challenges with regards planning as the CGS depends largely on its scientific personnel and external services providers.
- The Collaborative/commercial revenue generation is dependent on global economic factors. It is **not dependable or guaranteed** -The Covid-19 pandemic, impacts negatively on the Collaborative revenue generation capability.

Current challenges with CGS Funding and Model

- The CGS mandate is **long-term in nature** and needs a more sustainable funding that covers a period longer than an MTEF cycle. This observation was one of the factors that lead to the conception of the Integrated Multidisciplinary Mapping Program, which has a time-span longer than ten years.
- The IMMP requires funding to the amount of **R20 billion rand** for the **first ten** years.. This program received support and was allocated funding to the amount of **R386m**. This funding was in tranches of R188m and R198m for the 2019/20 and 2020/21 financial years respectively. The support for the mapping program is then discontinued from the 2021/2022 financial year.
- The baseline was adjusted upward to the amount of **R345m** over the next MTEF period and not to the requested additional **R300m** per annum adjustment.

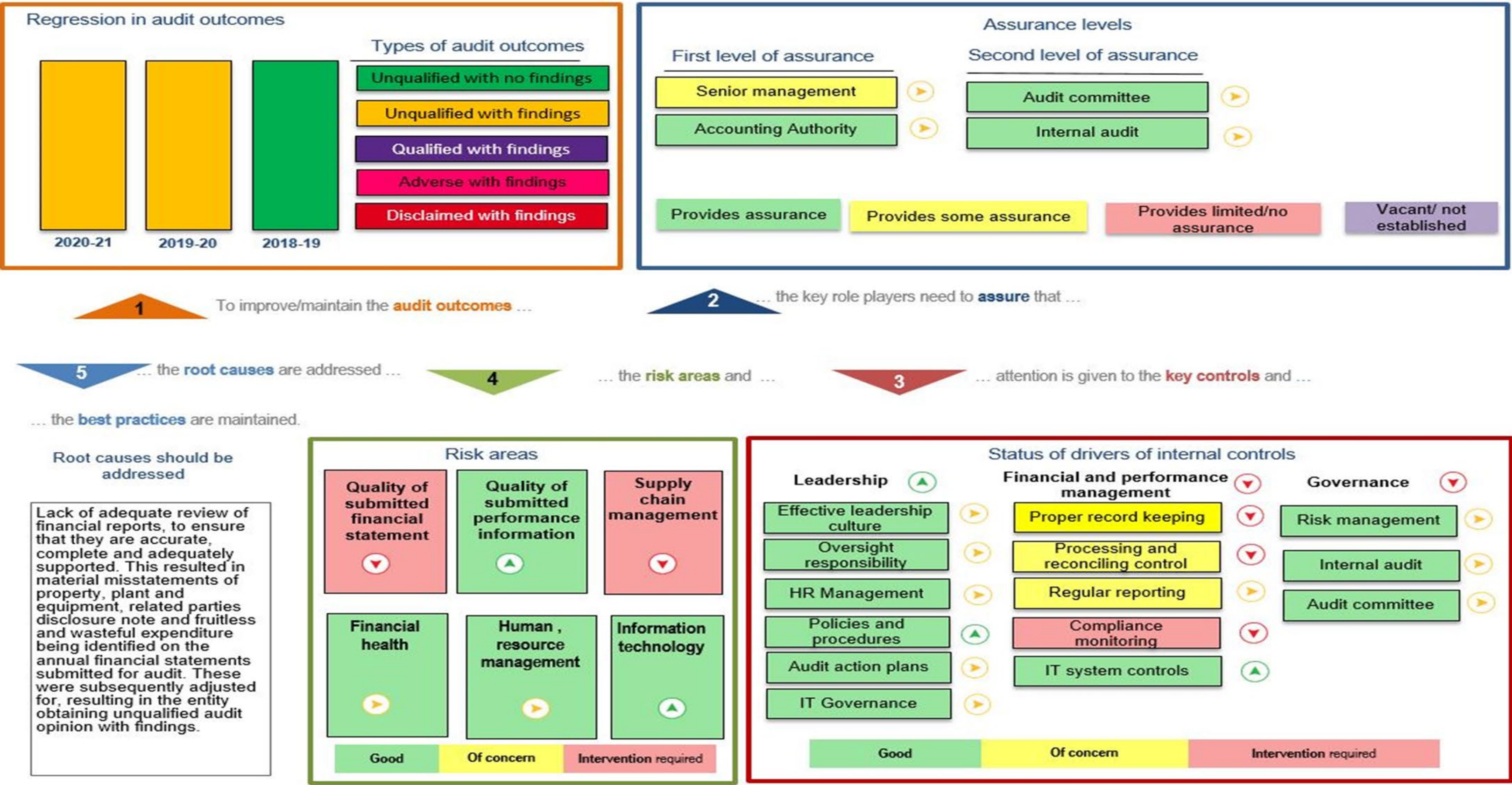
Long-Term Financial Sustainability Strategies

- In the long-term, the CGS must build its **competitive advantage** by exploiting the **data accumulated over a period longer than a century, through latest technologies** to add value and **generate new products and services**.
- **Reinsurance and Insurance Industry-** The engineering and geohazards unit collects information that could be used to **assess geotechnical risks** . The information could be used to assist the insurance and re-insurance sector in developing products for geohazard **risk to infrastructure (roads, buildings, power stations, etc.)** at a fee.
- The CGS has embarked on an aggressive collaborative revenue generation drive to strengthen its financial sustainability.

2020/21 Audit Outcomes

- The CGS has achieved an unqualified audit for the financial year 2020/2021 and has never had an audit qualification over the past 19 years.
- Controls are constantly being reviewed for enhancement and we are continuously striving to obtain a clean audit status.

AG summary of 2020/2021 Audit outcome



Key anticipated challenges that may hamper the delivery of key priorities and possible mitigations

Key risks	Risk mitigations
1. Inadequate funding to implement the mandate	<ul style="list-style-type: none"> Increased investment in geosciences to promote sustainable mineral and energy development. Development of a hybrid financial model to sustain the Organisation
3. Overlap and Duplication of geoscience initiatives in a constrained funding environment	<ul style="list-style-type: none"> Streamlining of projects, collaboration and clear understanding of mandates
3. Lack of access to historical geological data and information from the private sector	<ul style="list-style-type: none"> Urgently process the Geoscience Act Regulations.
4. Access to land to execute the geoscience mapping mandate	<ul style="list-style-type: none"> Institute a technical amendment to the Geoscience Act to provide for unimpeded access to land, in line with international best practice for geological surveys.
5. Possibilities of another variant, or a series thereof, for a protracted period	<ul style="list-style-type: none"> Appropriate tools of trade secured to augment remote working capacity, as far as possible for the business of geosciences.

Concluding Remarks

“CGS Vision and Impact Statement: A prosperous and transformed society enabled by geoscience solutions”

CGS’s Short-term and Long-term interventions

- Secure a long-term sustainable funding model for the CGS
- Optimise the contribution of CGS to National Developmental imperatives, MTSF and the The South African Economic Reconstruction and Recovery Plan.
- Give tangible expression of geosciences to addressing societal challenges
- Create a critical mass of young, diversified World Class geoscientists at the CGS
- Find a healthy balance of implementing the mandate and executing income generating projects
- Produce innovative geoscience products for commercial and knowledge purposes.
- Continue collaborations with key stakeholders.

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