

ANNUAL PERFORMANCE PLAN 2023–2024



Very oxidised impression of an ophiuroid and an internal impression of the bivalve Palaeoneilo from the Devonian-aged Waboomberg Formation, Theronberg Pass.



**mineral resources
& energy**

Department:
Minerals Resources and Energy
REPUBLIC OF SOUTH AFRICA



Council for Geoscience

ANNUAL PERFORMANCE PLAN

COUNCIL FOR GEOSCIENCE

2023 -2024

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Cover Image: Very oxidised impression of an ophiuroid and an internal impression of the bivalve Palaeoneilo from the Devonian-aged Waboomberg Formation, Theronberg Pass

Photo credit: Mr Louis Willem Jonk, Council for Geoscience

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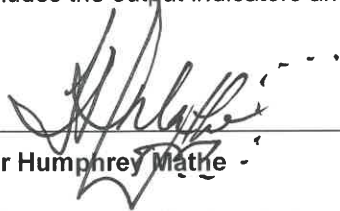
4IR	Fourth Industrial Revolution
AI	Artificial Intelligence
AMD	Acid Mine Drainage
APP	Annual Performance Plan
AU	African Union
BSC	Balanced Scorecard
CCUS	Carbon Capture Utilisation and Storage
CGS	Council for Geoscience
Covid-19	Coronavirus disease 2019
CTBTO	Comprehensive Nuclear-Test-Ban Treaty Organisation
DALRRD	Department of Agriculture, Land Reform and Rural Development
DFFE	Department of Forestry, Fisheries and Environment
DDM	District Development Model
DHET	Department of Higher Education and Training
DHS	Department of Human Settlements
DIRCO	Department of International Relations and Cooperation
DMRE	Department of Mineral Resources and Energy
DPME	Department of Planning, Monitoring and Evaluation
DPWI	Department of Public Works and Infrastructure
DSI	Department of Science and Innovation
DTIC	Department of Trade, Industry and Competition
DWS	Department of Water and Sanitation
EME	Exempted Micro Enterprise
ERRP	Economic Reconstruction and Recovery Plan
ESG	Environmental, Social and Governance
EXCO	Executive Committee
GDP	Gross Domestic Product
GTP	Geoscience Technical Programme
ICT	Information and Communications Technology
IMMP	Integrated and Multidisciplinary Geoscience Mapping Programme
IRP	Integrated Resource Plan
IYPT	International Year of the Periodic Table of Chemical Elements
MPRDA	Mineral and Petroleum Resources Development Act
MTEF	Medium Term Expenditure Framework
MTSF	Medium Term Strategic Framework
NDP	National Development Plan
NGO	Non-Governmental Organisations
OAGS	Organisation of African Geological Surveys
OECD	Organisation for Economic Cooperation and Development
PFMA	Public Finance Management Act
PGM	Platinum Group Metal
PPPFA	Preferential Procurement Policy Framework Act
QSE	Qualifying Small Enterprise
REE	Rare Earth Element

SA	South Africa
SADC	Southern African Development Community
SANDF	South African National Defence Force
SDG	Sustainable Development Goal
SP	Strategic Plan
UN	United Nations

BOARD CHAIRPERSON'S STATEMENT

The Council for Geoscience's (CGS's) Annual Performance Plan (APP) provides a roadmap for the implementation of the **Integrated and Multidisciplinary Geoscience Mapping Programme (IMMP)** through the Geoscience Technical Programme (GTP) for the Medium Term Expenditure Framework (MTEF) period (2023/24 – 2025/26). The GTP has adopted an integrated and multidisciplinary approach to optimise delivery of the geoscience mandate.

The APP outlines the strategic programmes, which state the intended outcomes and outputs of the CGS for the MTEF period (2023/24 – 2025/26); the associated key risks and mitigation plans; financial and human resources allocations and the materiality framework, which indicates material threshold values for transactions and processes to be initiated if thresholds are exceeded. The APP further includes the output indicators and targets.



Dr Humpfrey Mathe

Chairperson of the Board: Council for Geoscience

31 January 2023

CHIEF EXECUTIVE OFFICER'S STATEMENT

The CGS presents this plan to affirm the refocus of the functions of the organisation to its legislatively prescribed mandate. This refocus of the CGS strategy was primarily determined to provide a framework that seeks to optimise the delivery of the CGS programme (i.e. the IMMP at a scale of 1:50 000) which is sufficiently aligned with the intent of "science applications responding to current and future societal challenges" as well as national imperatives.

This document presents the APP of the CGS for the MTEF period 2023/24 – 2025/26, which operationalises the five-year Strategic Plan of the CGS. The APP of the CGS outlines the outputs and related deliverables for the MTEF period 2023/24 – 2025/26, which are aligned with the outcomes reflected in the CGS Strategic Plan 2020 – 2025. The APP further provides an indication of financial and human resources allocations, as well as the output indicators and targets.

We are delighted to present the APP of the CGS for FY2023/24 in support of accelerating the delivery of our mandate, as inscribed in the Geoscience Act, Act No. 100 of 1993 and the Geoscience Amendment Act, Act No. 16 of 2010. This APP is closely aligned to the CGS strategy integrating all critical aspects of the geosciences.



Mr Mosa Mabuzza

Chief Executive Officer: Council for Geoscience

31 January 2023

OFFICIAL SIGN-OFF

It is hereby certified that this Annual Performance Plan:

- Was developed by the Management of the CGS under the guidance of the Board.
- Considers all the relevant policies, legislation and other mandates for which the CGS is responsible.
- Accurately reflects the outcomes and outputs which the CGS will endeavour to achieve over the financial period 2023/24.

Signature  _____

Ms Refilwe Monoko

Executive Manager: Geoscientific Services

Signature  _____

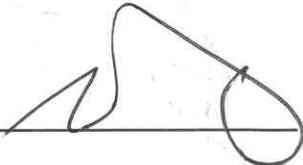
Dr David Khoza

Executive Manager: Integrated Geoscience Development

Signature  _____

Ms Michelle Grobbelaar

Executive Manager (Acting): Corporate Services

Signature  _____


Mr Leonard Matsepe

Chief Financial Officer

Signature  _____

Dr Valerie Nxumalo

Manager: Strategic Management

Signature  _____

Mr Mosa Mabuza

Chief Executive Officer

Signature  _____

Dr Humphrey Mathe

Chairperson of the Board

Signature _____

Mr Samson Gwede Mantashe

Executive Authority

PART A: OUR MANDATE

1. Updates of the relevant legislation and policy mandates

1.1 Constitutional Mandate

The **South African Constitution** is the Supreme Law that underpins the democratic dispensation within the Republic of South Africa.

The CGS is listed as a **Schedule 3A Public Entity** and is established in terms of the **Geoscience Act No. 100 of 1993, as amended**. This Act enunciates the Constitution in defining the mandate of the CGS. Accordingly, Chapter 10 of the South African Constitution titled Public Administration makes reference to basic values and principles governing public administration requiring that public administration be governed by the democratic values and principles enshrined in the Constitution, including the following principles:

- a) A high standard of professional ethics must be promoted and maintained.
- b) Efficient, economic and effective use of resources must be promoted.
- c) Public administration must be development-oriented.
- d) Services must be provided impartially, fairly, equitably and without bias.
- e) People's needs must be responded to, and the public must be encouraged to participate in policy-making.
- f) Public administration must be accountable.
- g) Transparency must be fostered by providing the public with timely, accessible and accurate information.
- h) Good human-resource management and career-development practices, to maximise human potential, must be cultivated.
- i) Public administration must be broadly representative of the South African people, with employment and personnel management practices based on ability, objectivity, fairness and the need to redress the imbalances of the past to achieve broad representation.

1.2 Legislative and Policy mandates

Legislative Mandate: The Geoscience Act (Act No. 100 of 1993) and the subsequent Geoscience Amendment Act (Act No. 16 of 2010) establish the CGS, which is listed as a Schedule 3A Public Entity in terms of the Public Finance Management Act (PFMA) (Act No. 1 of 1999). The mandate of the CGS includes, albeit not limited to:

- i) The **systematic onshore and offshore** geoscientific mapping of South Africa.
- ii) **Undertake geoscientific research** and related technological development.
- iii) The **collection and curation** of all geoscience data and act as a national geoscience repository.
- iv) The **compilation and development of comprehensive and integrated geoscience knowledge** and information, such as geology, geophysics, geochemistry, engineering geology, economic geology, geochronology, palaeontology, geohydrological aquifer systems, geotechnical investigations, marine geology, geomagnetism, seismology, geohazards, environmental geology and other related disciplines.
- v) **Bring to the notice of the Minister any information in relation to the prospecting for and mining of mineral resources**, which is likely to be of use or benefit to the Republic.
- vi) Promote the search for and the exploitation of any minerals in the Republic.
- vii) Study (i) the **distribution and nature of mineral resources** and (ii) geoenvironmental aspects of past, current and future mineral exploitation.

- viii) Study the use of the surface and the **subsurface of the land and the seabed**, and from a geoscientific viewpoint advise government institutions and the general public on the judicious and safe use thereof with a view to facilitate sustainable development.
- ix) Develop and maintain the **national geoscientific library**, the national geoscientific information centre, the **national borehole core depository**, the **national geophysical and geochemical test sites**, the **national geoscience museum**, the national seismological network and the national geoscience analytical facility.
- x) Conduct investigations and render prescribed specialised services to public and private institutions.
- xi) Undertake –
 - a) research of its own accord;
 - b) research on **behalf of the State or any other government institution**, or on behalf of **any person or institution**, or support such research financially; or
 - c) **any reconnaissance operation, prospecting** and other related activities with a view to **attracting investment to the mineral resource sector**; and
 - d) do anything that is necessary for or conducive to the achievement of the said objects.
- xii) Render geoscience knowledge services and **advice to the State**.

In terms of the amendments made to the Geoscience Act, sections 4(c), 4(eA), 4(f), 5(b) and 8 that deal with, inter alia, the custodianship of geoscientific information, the review and evaluation of geotechnical reports, the maintenance of certain national geoscientific facilities and the appointment of a Geotechnical Appeal Committee were held in abeyance. Synchronously, the Mineral and Petroleum Resources Development Act (MPRDA) explicitly provides for the CGS to receive, validate and curate geological information from prospecting rights and mining rights holders as part of their regulatory compliance requirement. These amendments constitute organic growth and significantly broaden the mandate of the CGS.

1.2.1 Key policy developments and legislative changes

There have been no key policy amendments to the Geoscience Amendment Act (Act No. 16 of 2010) since it took effect on the 1st of July 2012. The Geoscience Act Regulations 2022, which elaborate the modalities of implementation of the empowering provisions in the Act were published as law in March 2022 after extensive consultations and engagements with various stakeholders. The Regulations intend to, among others, streamline the efficacy of the CGS's custodianship of the geoscience data, information and knowledge in terms of the founding legislation. In addition, a provision enabling the CGS to undertake exploration is being expanded to establish sustainable modalities for the organisation to do so while balancing implementation with its broader mandate.

The Policy Mandate: The Minerals and Mining Policy for South Africa (1998) affirms the CGS as a science council that supports research and development underpinning the sustainable development of the mining industry. This further enunciates the Constitutional mandate, as elaborated in the founding prescripts of the CGS.

This APP is aligned to the CGS's Strategic Plan 2020 – 2025, which primarily gives effect to the Policy Mandate.

2. Updates to Institutional policies and strategies governing the five-year planning period

In addition to the legislative mandate, the CGS APP, which is aligned to the Strategic Plan 2020 -2025 also implements other national policies and frameworks including, but not limited to, the following:

2.1 National Development Plan (NDP) 2030

In realising the urgent need to address the national imperatives, the CGS ensures that its business model and all its activities address the following strategic national outcomes as per the NDP 2030.

- **Decent employment through inclusive economic growth:** Delivering spatial geoscience information and services that attract local and international investment to develop mineral and upstream petroleum resources.
- **A skilled and capable workforce to support an inclusive growth path:** Build capacity in respect of geoscientific, administrative and managerial/leadership skills while also developing innovative outputs, systems and services.
- **An efficient, competitive and responsive economic infrastructure network:** Geoscience information and services input to infrastructure development in support of South Africa's economic development of mineral and upstream petroleum resources.
- **Vibrant, equitable and sustainable rural communities with food security for all:** The provision of geoscientific information that enables agricultural development and groundwater exploration, amongst others.
- **Environmental assets and natural resources which are well protected and continually enhanced:** Conducting research regarding, inter alia, Acid Mine Drainage (AMD) and Carbon Capture and Storage technologies and establishing environmental baselines for possible future shale gas development.
- **An efficient, effective and development-oriented public service and an empowered fair and inclusive citizenship:** Strengthening the CGS to optimise delivery of the mandate and effect the transformative programme of Government.

2.2 Government's Medium Term Strategic Framework (MTSF) 2019-2024

The MTSF reflects the Government-wide set of delivery commitments made in an administrative cycle of five years. This framework delineates strategic areas of focus for Government entities to dedicate resources and effort in order to plan, implement and fulfil the afore-mentioned commitments, all of which contribute to the overarching National Visions popularly known as the NDP. In this regard, the CGS develops its strategy as guided by the MTSF and supported by an APP, which incorporates relevant **actions, indicators and targets** that seek to incrementally support the national developmental imperatives. The CGS strategy gives effect to six of the seven MTSF priorities, which include:

- A capable, ethical and developmental state
- Economic transformation and job creation
- Education, skills and health
- Spatial integration, human settlements and local government
- Social cohesion and safe communities
- A better Africa and World

The CGS's APP also addresses the **cross-cutting focus areas** of **women, youth and persons with disabilities**.

2.3 Government's Revised MTSF 2019-2024

The implementation of the MTSF 2019-2024 (see section 2.2 above) was largely disrupted by the outbreak of the Covid-19 pandemic and the declaration of a National State of Disaster on the 15 March 2020. This necessitated the Government to reprioritise its plans and budgets in response to the pandemic, which has had a devastating impact on the health, social and economic aspects of the lives of South Africans. The MTSF 2019-2024 was therefore revised to include critical interventions that are part of government relief and recovery efforts.

The Revised MTSF 2019-2024 continues to reflect government's plan of action over the remaining term of the sixth administration. The Revised MTSF 2019-2024 also prioritises Government commitments to prevail over the coronavirus pandemic and to work towards economic recovery. These commitments were outlined in the 2021 State of the Nation Address and include the following focus areas:

- 1) To defeat the coronavirus pandemic
- 2) To accelerate South Africa's economic recovery [e.g. through the implementation of Economic Reconstruction and Recovery Plan (ERRP)]
- 3) To implement economic reforms to create sustainable jobs and drive inclusive growth; and
- 4) To fight corruption and strengthen the capacity of the State.

2.4 The South African Economic Reconstruction and Recovery Plan

The ERRP of 2020 aims to build a new economy and unleash South Africa's true potential. The overarching goal of the plan is to create sustainable, resilient and inclusive economy. The ERRP focuses on the following priority areas:

- Energy security.
- Industrial base to create jobs.
- Mass public employment programme.
- Infrastructure development.
- Macro-economic interventions.
- Green economy.
- Food security.
- Reviving the tourism sector.

The CGS APP is developed to support the priority areas listed in the ERRP.

2.5 The Exploration Strategy for the Mining Industry of South Africa and South Africa's Exploration Implementation Plan

The Exploration Strategy for the Mining Industry of South Africa and its Implementation Plan 2022 were published in April 2022 by the Minister of Mineral Resources and Energy. These policy documents seek to attract investment in the mineral exploration sector and aim to secure a 5% share of global exploration expenditure in the next five years. The Exploration Implementation Plan recognises that in order to catalyse the industry, a conducive and enabling environment is required wherein synergies exist amongst the exploration activities, regulatory policies, systems and processes, financial/fiscal instruments, research and development as well as exploration investment. To this end the plan identifies existing barriers to exploration investment and proposes apposite interventions sought to enable this industry to perform at the apex of its potential, allocated resources and timeframes. These interventions constitute quintessential ingredients to the economic recovery programme. The Exploration Strategy has identified focus areas to aid in the change of the trajectory of the Country's exploration sector and these critical areas include;

- The CGS to increase 1:50 000 mapping footprint from 9% to 14% in the next five years. This means that the strategy targets 1% extra 1:50 000 mapping coverage each year for a duration of five years. This exercise will improve the country's geoscience data and information and encourage investment in the exploration space. In the past 3 to 5 years, the country has moved from 5% to 9% coverage in the public funded mapping sphere.
- Through the strategy, the exploration sector commits to increasing the number of exploration drilling projects in the country. The sector aims to implement at least 25% of active prospecting rights with the remaining period of 3 years or more in the next five years. Accordingly, this step seeks to re-introduce the 'use it or lose it' principle to fast-track use of licenses at the same time encouraging investment in the sector.
- Collaborative research between relevant research institutions in the field of exploration geoscience.
- Improved availability of geoscience data, information and innovative technology.
- Increased Exploration investment.
- Accelerated exploration activities.

2.6 Department of Mineral Resources and Energy (DMRE) Strategic Priorities and Outcome-Oriented Goals

Further to the NDP 2030 and MTSF 2019-2024, the objectives of the CGS have been formulated to also support the objectives of the DMRE, whose core focus revolves around regulation, transformation and promotion of the minerals and energy sectors as well as provision of sustainable and affordable energy for growth and development to all South Africans. Other objectives of the DMRE to which the CGS aligns and supports include, but not limited to contributing to:

- A just transition to a low carbon economy
- Unlock South Africa's high potential mineral and energy resources
- Diversify supply of mineral resources in support of both mining and energy sectors
- Increased investment in mineral and petroleum sector, onshore and offshore
- Increase in South Africa's share of the global minerals and energy market
- Increase in South Africa's share of the Global exploration budget
- Diversify energy sources through implementing Integrated Resource Plan (IRP) 2019
- Increased infrastructure investment by both public and private sectors
- Inclusive, equitable and competitive exploration
- Ensure sufficient and relevant skills in the mining and energy sector

In furtherance of sustainable mining, the CGS also undertakes environmental studies that seek to attain appropriate stewardship in the sector, in accordance with the Constitutional prerogatives. In this regard, studies on Acid Mine Drainage (AMD), strategic mine water management programmes and integrated research into legacy mines are undertaken to support the DMRE.

The contribution towards upliftment of rural communities remains one of the focal points of Government and geoscientific interventions have been developed to positively impact the intended development of those communities.

2.7 Department of Science and Innovation (DSI) Strategic Priorities and Outcome-Oriented Goals

The strategic priorities and outcome-oriented goals of the DSI mainly focuses on research and a technology development environment that supports attainment of the national socio-economic development imperatives. Accordingly, the afore-stated goals are underpinned by a deliberate investment in the generation of knowledge and human capital development through direct investment as well as partnerships. The CGS, as a science council, is one of the key entities that, through its functions, collaborates with and supports the work of the DSI and the 2019 White Paper on Science, Technology and Innovation.

In this regard, the applications of *Fourth Industrial Revolution (4IR)* and *Artificial Intelligence (AI)* are finding expression in the geosciences in furtherance of improving service delivery and significantly enhancing the response to addressing societal challenges. The CGS welcomes the establishment of the 4IR as chaired by the President of the Republic of South Africa.

3. Updates to relevant court rulings

The CGS has no court rulings that have a significant or ongoing impact on its operations or service delivery obligations.

PART B: OUR STRATEGIC FOCUS

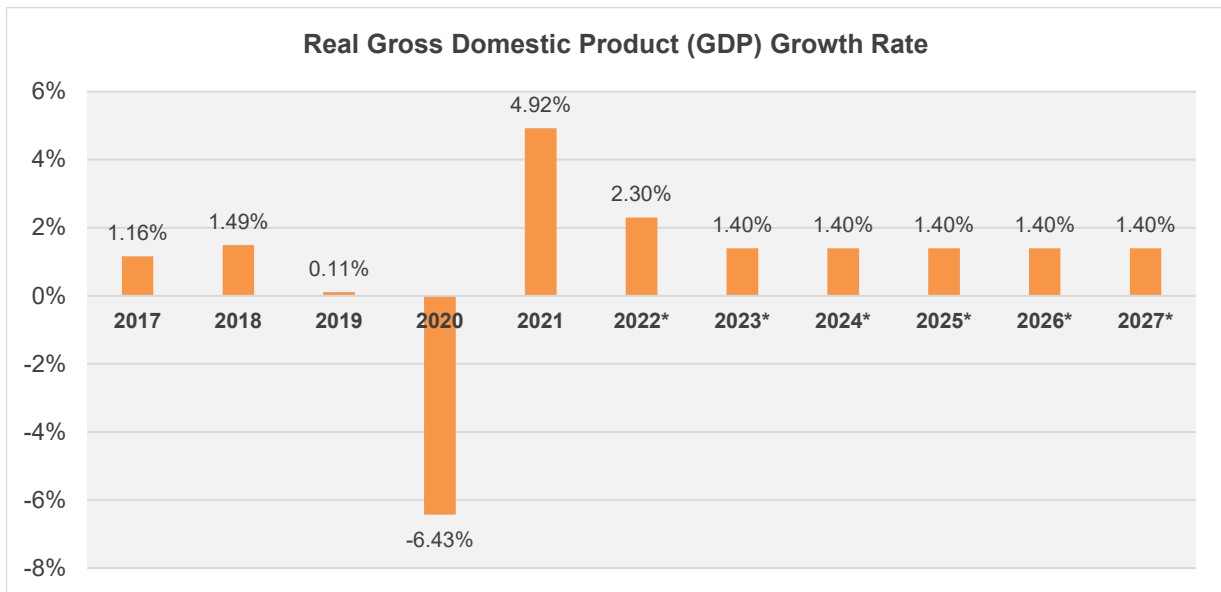
4. Updated situational analysis

4.1 External Environmental Analysis

4.1.1 Micro Socio-Economic Trends – South Africa

¹Over the last two decades, South Africa has accomplished enormous social progress by bringing to millions of citizens access to key public services, notably education, health, housing and electricity. Enrolment in primary schools is universal for both boys and girls. ²Between 2002 and 2019, the proportion of households with access to an improved source of water increased by less than four percentage points (growing from 84,4 percent to 88,2 percent). The number of households linked to the supply of electricity from the mains rose from 76.7% in 2002 to 85.0% in 2019 (Statistics South Africa, 2019).

In 2020, the South African economic growth rate plummeted, due to the Covid-19 pandemic. ³Despite the pressures of tighter lockdown restrictions and the civil disorder of July 2021 the real GDP picked up as predicted reaching 4.9% in 2021, this growth was attributed to an increase in demand for goods and services. ⁴In the first quarter of 2022 the GDP expanded by 1.9% returning to pre-pandemic levels. ⁵The economic growth for 2022 is currently projected to be 2.3%, and for 2023 the projections remain low at 1.4% (Figure 1).



⁶Figure 1: South Africa's real gross domestic product (GDP) growth rate from 2017 to 2027 (*projected growth rate)

¹ OECD Economic Surveys — South Africa

² http://www.statssa.gov.za/?page_id=1856&PPN=P0318&SCH=72766

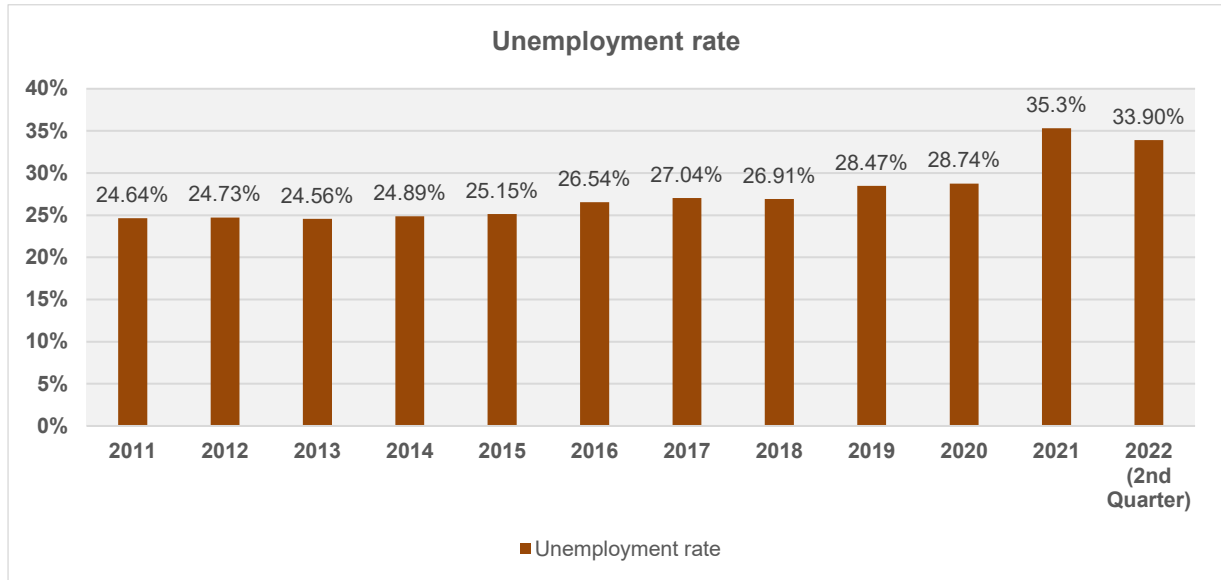
³ <https://www.statssa.gov.za/?p=15214>

⁴ <https://www.statssa.gov.za/?p=15440>

⁵ <https://www.imf.org/en/Countries/ZAF>

⁶ <https://www.statista.com/statistics/370514/gross-domestic-product-gdp-growth-rate-in-south-africa/>

The Covid-19 pandemic impaired an economic outlook that was already fragile. ⁷Despite an improvement in the GDP South Africa currently has one of highest unemployment rates in years at 33.9% (Figure 2). Youth in South Africa continue to be disadvantaged in the labour market with an unemployment rate higher than the national average of 34.5%. The first quarter on 2022, showed unemployment rate of 63,9% for those aged 15-24 and 42,1% for those aged 25-34 years⁸.



⁹Figure 2: South Africa's unemployment rate 2011 to 2022 (2nd Quarter).

Despite a challenging economic environment and limited fiscal space in South Africa, the government has maintained a highly redistributive policy. Approximately 68% of government spending goes towards social objectives, including education, health, social grants and basic services. The government continues to augment all social grants and to extend benefits to some uncovered categories such as informal workers. A temporary caregiver grant was also introduced. Moreover, the government has swiftly put in place an income replacement scheme through the Unemployment Insurance Fund. Nonetheless, the Covid-19 pandemic hit employment hard, threatened livelihoods of millions of individuals and affected the social achievements of government policies.

The levels of poverty, unemployment and inequality remain unacceptably high, threatening to reverse the gains of a democratic dispensation over the past 28 years. However, South Africa continues on its path, by restoring confidence and opening routes for long-term stable growth. Investment in infrastructure, education and skills is therefore crucial to boost potential growth ¹⁰

The impact of the Covid-19 pandemic coupled with increasing fuel prices and imported foods saw inflation at 5.9% in December 2021, as fuel prices broke through the R20 per liter mark. The Average consumer inflation for 2021 was 4.5% (Figure 3), higher than the averages recorded for 2020 (3.3%) and 2019 (4.1%)¹¹. The inflation rate continued its upward trajectory in 2022 reaching a 13 year high of 7.8% in July¹². Fuel prices increased by 56.2% compared to the previous year with the price of a liter of inland 95-octane petrol costing R26.74 (July)¹³.

⁷ <https://www.statssa.gov.za/?p=15685>

⁸ <https://www.statssa.gov.za/?p=15407>

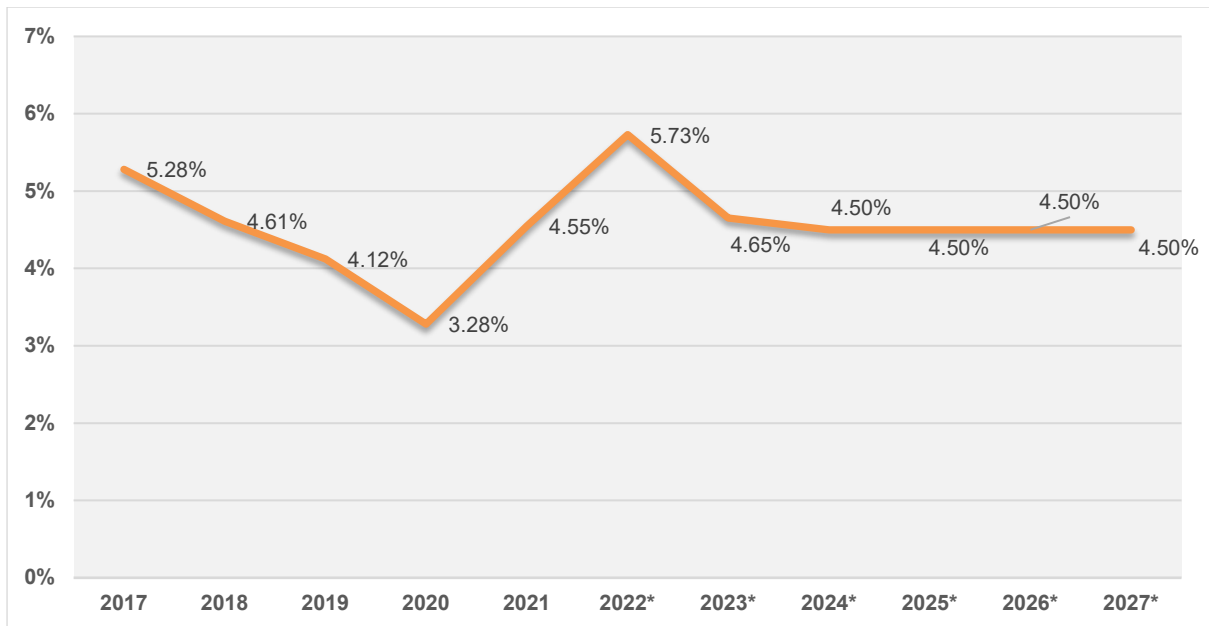
⁹ <https://www.statista.com/statistics/370516/unemployment-rate-in-south-africa/>

¹⁰ OECD Economic Surveys: SOUTH AFRICA, 2020

¹¹ <https://www.statssa.gov.za/?p=15080>

¹² <https://www.sabcnews.com/sabcnews/inflation-to-stay-above-6-until-end-of-2022-economists>

¹³ <https://www.statssa.gov.za/?p=15678>



¹⁴Figure 3: South Africa - Inflation trend from 2017 to 2027 (*projected inflation rate)

South Africa continues to implement several interventions to improve investor confidence, which are critical to reverse weak investment and employment growth. These are also part of the South African Economic Reconstruction and Recovery Plan and include aggressive infrastructure investment, energy security, green economy interventions, support for tourism recovery and growth; employment orientated strategic localization, reindustrialization and export promotion and strengthening food security, amongst others.

4.1.2 Mining Industry Overview

In 2021 the mining industry exceeded its expectations in terms of financial performance, and was the strongest contributor to growth among all sectors in South Africa in the second quarter. The growth was attributed to an increase in the production of platinum group metals (PGMs), iron ore, manganese ore and diamonds as well as strong commodity prices¹⁵. The total market capitalisation for companies such as Anglo American Platinum, Kumba Iron Ore, Impala Platinum and Sibanye Stillwater increased to R1, 470 billion from R1, 047 billion in 2021. This total is a R423 million (40%) year-on-year increase from 2020 mainly attributed to the increase in market capitalisation of companies within the diversified, iron ore and PGMs sectors.

¹⁶ For the 2021 financial year the overall sales in mining increased from R557, 9 billion to R792, 9 billion. The total revenue generated by the South African mining industry for the year ended June 2021 grew by 42%. This was mainly driven by PGMs and iron ore. PGM generated the largest portion of revenue generating 38% of the total revenue¹⁶. Coal slightly dropped due to lower demands from Eskom during lockdown periods and challenges with Transnet Freight rail limitations¹⁶. Companies and investors have increasingly been recognising the importance of prioritising environmental, social and governance (ESG) matters on the corporate agenda. Mining companies with higher ESG ratings outperformed the broader market during the peak of the Covid-19 crisis, delivering 34% average total shareholder return over the past three years, 10% points higher than the general market index¹⁷.

¹⁴ <https://www.statista.com/statistics/370515/inflation-rate-in-south-africa/>

¹⁵ <https://www.pwc.co.za/en/publications/sa-mine.html>

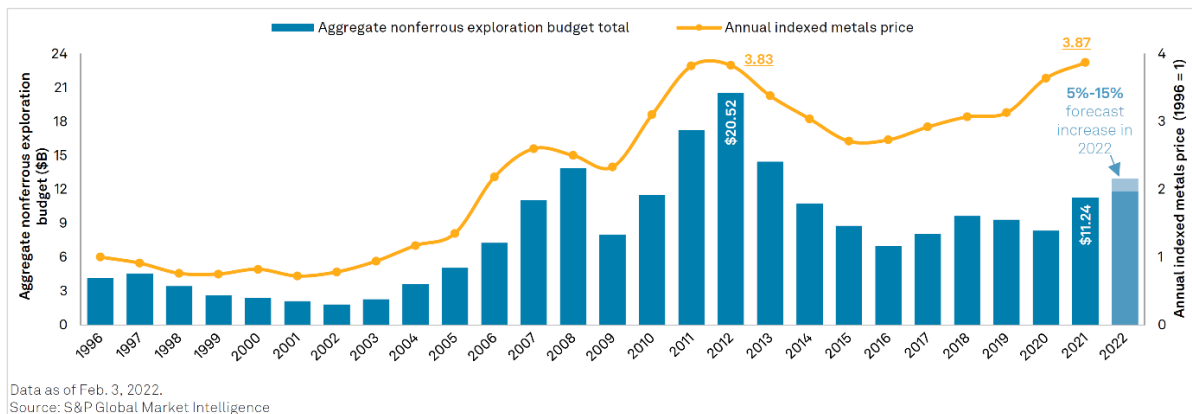
¹⁶ <https://www.pwc.co.za/en/assets/pdf/sa-mine-2021.pdf>

¹⁷ <https://www.pwc.co.za/en/press-room/mine-2021.html>

Although the entire country has been mapped at the scales 1:1 million and 1:250 000, the detailed geological published map coverage of South Africa at 1:50 000 scale remains un-competitively at 10.7%. Consequently, the country has fallen out of the global top-ten exploration expenditure against peer jurisdiction whose comparative detailed geological mapping is correlatively highest. South Africa’s exploration budget in 2021 was recorded to be \$86 million, which is 0.8% of the total global exploration budget (\$11.2 billion)¹⁸. The South African Government has re-affirmed its commitment to investment in the implementation of the integrated and multidisciplinary geoscience mapping programme (the IMMP) by the CGS, which seeks to significantly enhance the knowledge and understanding of the geosciences in the country. The geoscience outputs generated from the IMMP will encourage investment in the exploration space and will also contribute towards the achievement of the target of 5% share of global exploration expenditure in South Africa.

4.1.3 Recovery of Minerals Exploration and Mining Post Covid-19 pandemic

The mining industry proved to be profitable in 2021 despite the challenges posed by the Covid-19 pandemic. The recently released global exploration budget data from S&P Global Market Intelligence’s Corporate Exploration Strategies series, illustrates that the aggregate annual global nonferrous exploration budget has increased by 35% year over year to \$11.24 billion from \$8.35 billion in 2020 (Figure 4). Driven by higher metals prices, increased financing activities and the decline of pandemic-related shutdowns, the exploration sector’s recovery was faster-than-expected¹⁸.



¹⁸Figure 4: Global Aggregate Nonferrous Exploration Budget 2021, highlighting 2022 forecast.

As one of the very few commodities to have higher budget allocations in 2020, the gold budget increased by 42%, or \$1.84 billion year over year in 2021. The gold increase accounts for almost 64% of the total increase across all commodities in 2021. Base metals budgets were hit the hardest in 2020, declining 21% year over year to \$2.5 billion. Buoyant industrial metals prices since the middle of 2020 have allowed base metals budgets to mostly recover in 2021, with allocations up 26% to \$3.2 billion but still short of the 2019 total (Figure 4)¹⁹.

The grassroots exploration budget increased 45% year over year to \$2.91 billion in 2021. It was the largest percentage increase since 2011, the junior sector increased its grassroots budget 85% year over year, as elevated metals prices fuelled bullish capital markets. The surge in the grassroots was across most commodity types: gold (52%), silver (129%), platinum group metals (355%), base metals copper (31%) and nickel (84%). Targets in Australia and Canada accounted for almost two-thirds of the grassroots increase, with a combined total budget growth of \$556 million over 2020¹⁸.

¹⁸ <https://www.spglobal.com/marketintelligence/en/news-insights/blog/world-exploration-trends-2022>

The energy transition is shaping current trends in the mining industry and sector today, in which the cornerstone is a proliferation of renewable resources. Understanding the drivers of the buildout of renewable generation is key to managing the risks and realizing the opportunities that come together at the intersection of policy, regulation and markets. The evolution also includes broader shifts, such as reducing carbon emissions and deploying advanced technologies that change the way energy users interact with the grid and their local utilities¹⁹.

The importance of State’s investment in geosciences to improve South Africa’s attractiveness as an exploration jurisdiction cannot be overstated. The CGS has therefore adjusted its plans to concentrate the GTP to projects that will yield immediate impact to the economic recovery and reconstruction plan. To this end, the CGS will be characterising the mineral potential over several base metal prospects in addition to the “minerals of the future” that include Lithium and REE, which will play a critical role in the renewable energy space.

4.1.4 PESTEL Analysis

The external environment consists of variables/forces that are outside the sphere of influence of the CGS and therefore are not typically within the control of the organisation. These variables shape the context within which the organisation exists and present it with threats and opportunities that have the potential to either retard or stimulate strategic success. The variables include, albeit not limited to diverse factors such as rapid technological change, evolution of policies, the socio-economic climate and energy. The following factors were assessed by means of the PESTEL analysis:

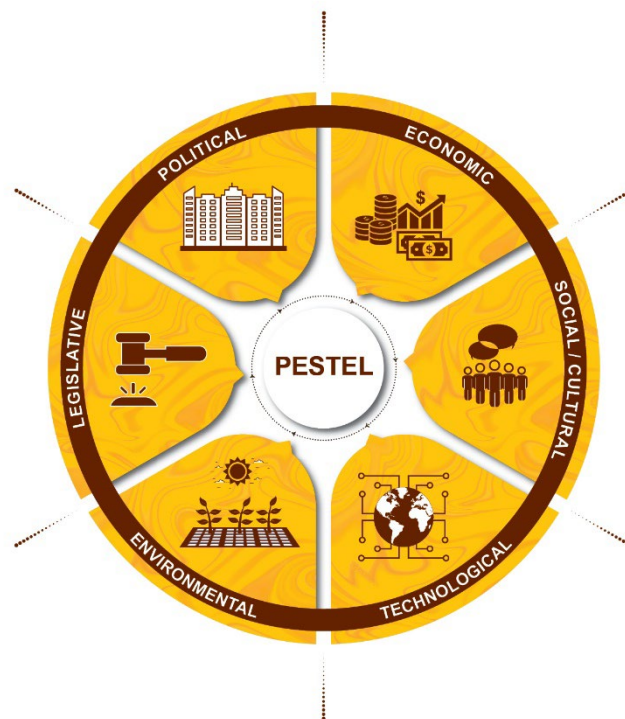


Figure 5: PESTEL analysis

- Political:** The CGS reports to and supports the Ministry of Mineral Resource and Energy (DMRE) in executing its mandate and priorities. The CGS takes direction from the strategic goals of the DMRE in developing its own strategies. As a science council, the CGS also reports on scientific research and innovation to the Department of Science and Innovation (DSI). Other Government

¹⁹ <https://www.spglobal.com/marketintelligence/en/news-insights/blog/six-trends-shaping-the-industries-and-sectors-we-cover-in-2021>

policies and priorities such as transformation are central to the normalisation of the longstanding irregularities of society, in keeping with the democratic values of the country. To this end, the CGS subscribes to the transformation agenda in respect of, inter alia, broad-based black economic empowerment, employment equity and economic growth. The timeframe for implementation of the geoscience programmes is often inconsistent with the tenure of the shareholder executive and by extension introduces some vagaries in the priority areas of the incumbent executive.

- **Economic:** The Covid-19 pandemic in 2020 led to massive disruptions in the world economy, through restrictive public health measures, massive government spending to support individuals and businesses, and severe impacts to supply chains. In 2022 as the economy was rebounding from the pandemic the Russia-Ukraine conflict brought about more disruptions and created uncertainty in the broader global economy that could persist for some time²⁰. This has hindered global growth and aggravated inflation, putting even more strain on the weakened government fiscal²⁰.

The CGS appreciates this possible constraint, but mitigates it in presenting a strategy that seeks to provide requisite quality data with profound impact on long term national developmental and investment decisions. Further, the slow recovery has the potential to limit Government's ability to fund the delivery of the CGS mandate due to other pressing and competing socio-economic priorities.

The growing demand for geoscientific information in Africa, the Middle East and other jurisdictions presents an avenue for the CGS to collaborate with other protagonists in its various fields of expertise and supplement the Government grant.

Exploration for mineral commodities: The global exploration expenditure has increased to \$11.2 billion (refer to section 4.1.3 of this document) as a result of demand in key commodities such as gold, PGMs, base metals and silver as well as the declined of Covid-19 pandemic-related shutdowns and increasing financial services²⁰. It has been established that jurisdiction with major investment in geoscientific programmes (e.g. Canada and Australia) secure a lion's share of the annual exploration budget²⁰, while the corollary remains valid. South Africa's share of this budget has shrunk to a fraction of a percent²¹. The President of the Republic has affirmed the importance of the mining industry as a sunshine industry, which signifies its importance in revitalisation of the economy. Accordingly, the Minister of Mineral Resources and Energy has pronounced on measures to increase South Africa's share to 5% in the next five years, including the State's deliberate investment in the geoscience knowledge.

- **Social/Cultural:** The CGS, as a science council, takes cognizance of its social and cultural environment and ensures that it responds accordingly. The increased participation and advocacy of society on issues relating to, amongst others, incremental demand for economic growth and jobs, infrastructure development, mineral resources development, energy security as well as the preservation of the natural environment and cultural heritage influence the approach of the CGS. As a socially responsible organisation, the CGS recognises the increased importance of ESG principles and the potential impact on both the profile and the value of services provided by the CGS to society.
- **Energy Security:** As the global population continues to rise, the demand for cost competitive energy will also rise. Energy security is vital in every society because it is largely the basis for

²⁰ <https://www.spglobal.com/marketintelligence/en/news-insights/blog/world-exploration-trends-2022>

²¹ <https://www.mining.com/web/south-africa-sets-900-million-annual-mineral-exploration-target/>

social and economic development, health, food security and poverty alleviation. South Africa's increased demand for cost competitive security of energy has never been more pronounced. In this regard, an energy basket comprising traditional as well as new sources of energy is needed. This results in unprecedented growth in the demand for alternative minerals that support renewable energy, such as battery minerals. Accordingly, South Africa adopted a low-carbon economic growth trajectory that requires urgent attention to sustainable and cost-effective sources of energy. Such energy sources potential as geothermal energy, battery minerals, uranium/thorium, REE, coal, etc. are a subject of the programme of the CGS, all of which are located within the context of the climate change paradigm.

- In December 2017, the General Assembly of the United Nations (UN) proclaimed 2019 as the International Year of the Periodic Table of Chemical Elements (IYPT2019). The UN recognised the importance of raising global awareness of how chemical elements in the periodic table can promote sustainable development and how their application can provide solutions to global challenges in energy, education, agriculture and health sectors²². Clean energy technologies such as wind, solar and batteries require large amounts of minerals and metals (e.g., cobalt, nickel, manganese, lithium, copper and rare-earth metals also known as REEs)²³, therefore the CGS programmes will focus on the search for such critical minerals.
- **Food Security:** The NDP Vision 2030, SDGs 2030 and Agenda 2063 identify food security as key in addressing both poverty and inequality and make reference to a number of requisite steps to improve food security by including sustainable agriculture, expansion of the use of irrigation, security of land tenure, especially for women, and the promotion of nutrition education. Food security, is however, threatened by various factors such as globalisation, urbanisation, international trade regimes, climate change, and the poor storage and distribution of food.

The strategy of the CGS further focuses on geoscience programmes that will contribute towards land use, groundwater and the environment, all of which are contributory to the national food security programme.

- **Technological:** Technological advancement enables the CGS to respond to the expectations and requirements of its stakeholders in order to ensure service delivery. The utilisation of emerging innovative mapping technologies for the gathering and interpretation of geoscience data improves the effectiveness and efficiency of the CGS in delivering on its mandate. The rapid development of technology provides the CGS with major opportunities in the areas of research, innovation, skills development and service delivery.

Investment in scientific research and technological development is a catalytic imperative for innovation. This will enable the organisation to be responsive, competitive and relevant.

The dawn of the Fourth Industrial Revolution presents opportunities for application in the geosciences to enhance data collection accuracy, and improve the speed and quality of data interpretation. The introduction of artificial intelligence and machine learning in geoscience presents opportunities for the CGS to, not only be current, but substantially improve the quality of geoscience outputs in real time.

²⁴The President of South Africa established a Presidential Commission on the Fourth Industrial Revolution (4IR) to identify and recommend policies, strategies and plans that are needed to position South Africa as one of the leading countries in the evolution and development of the 4IR.

²² <https://iupac.org/united-nations-proclaims-international-year-periodic-table-chemical-elements/>

²³ <https://www.carbonbrief.org/explainer-these-six-metals-are-key-to-a-low-carbon-future>

²⁴ No. 42078 Government Gazette, 4 December 2018

The President indicated that Government would prioritise interventions to take advantage of rapid technological changes. The main focus will be the development of an integrated national strategy and plan to respond to the 4IR to include detailed interventions to be carried out in achieving competitiveness of the key economic sectors, including agriculture, finance, mining, manufacturing, ICT and electronics, and business with science, technology and innovation as a cross-cutting enabler.

- **Environmental:** Natural environmental and man-made hazards create a need for geological information and solutions to mitigate these hazards, e.g. infrastructure development on ground that is prone to landslides, sinkhole formation, tsunamis, earthquakes, acid mine drainage, groundwater pollution, air pollution and global warming. The natural environmental challenges dictate the programmes and mitigating strategies that the CGS should address.

Changes in climatic conditions, i.e. when conducting fieldwork, will mostly affect the CGS operationally in terms of the effective and timely delivery of projects and services.

- **Climate change:** Climate change is referred to as a change in average weather conditions or in the time variation of weather within the context of longer term average conditions and it is caused by various factors such as biotic processes, variations in solar radiation received by Earth, plate tectonics and volcanic eruptions. Greenhouse gas emissions from human activities are also believed to accelerate the rate of climate change. The members of the global nations have formed a coalition of the willing and are in agreement to work towards limiting global temperature rise to well below 2 degrees Celsius.

In 2021 world leaders participating at the UN Climate Change Conference of the Parties (COP26), in Glasgow, committed to accelerated climate change action. South Africa secured a multi-billion deal at COP26 aimed to reduce the country's reliance on coal and curb its high-carbon emissions. The funding will be allocated to renewable energy investments, the development of new sectors such as green hydrogen and electric vehicles, and other activities ²⁵.

- **Rapidly growing cities and ongoing effects of climate change** are making more people vulnerable to rising sea levels. Two-thirds of the global population is expected to live in cities by 2050 and already an estimated 800 million people live in more than 570 coastal cities vulnerable to a sea-level rise of 0.5 metres by 2050. In a vicious circle, urbanisation not only concentrates people and property in areas of potential damage and disruption, it also exacerbates those risks — for example by destroying natural sources of resilience such as coastal mangroves and increasing the strain on groundwater reserves. Intensifying impact will render an increasing amount of land uninhabitable.

The CGS is implementing the Carbon Capture Utilisation and Storage (CCUS) project, which aims to curb the emissions of CO₂ and therefore reduce the nation's carbon footprint. Most importantly, the CGS is assessing the utilisation options where CO₂ and its outputs could be used for, among other, enhancement of geothermal energy generation, development of construction materials, enhanced coal-bed methane. This approach not only is consistent with the stated intentions of the NDP2030, but also the IRP 2019.

The CGS will continue investigating interventions to reduce the quantities of greenhouse emissions such as possible storage options for carbon dioxide and identifying alternative sources of energy.

²⁵ <https://www.pwc.co.za/en/press-room/cop26-south-africa-2021.html>

- **Legislative:** The CGS is a creature of statutes and any changes to the legislative framework (see Section 3.2) will have a direct impact on the strategy and operations of the organisation. In developing the five-year strategy of the CGS, these factors have been considered to enable the organisation to take full advantage of opportunities to adjust and navigate within the legislative framework to contribute to the creation of a prosperous society for all within South Africa. Table 1 summarises the major strengths and weaknesses of the CGS as well as the major threats and opportunities facing the organisation.

Table 1: CGS SWOT Analysis

	Strengths	Weaknesses
INTERNAL	<ul style="list-style-type: none"> • Support through Government grant funding through line Departments (i.e. DMRE) • A sound historical heritage, investible geoscience data and information accumulated over a 110-year period as major strategic asset that can be leveraged to develop the economy of South Africa. • Scientific research experience and strong knowledge base (generator of knowledge). • Good understanding of the South African natural resources and environmental landscape. • Empowering legislative mandate. • Developer and incubator of pipeline of geoscience expertise through the bursary and internship programmes – contribution to human capital development and expansion of knowledge enterprise. • Capacity to strengthen commercial/collaborative and Intellectual Property revenue generation 	<ul style="list-style-type: none"> • A limited capacity of highly qualified, experienced and skilled scientists. • Inadequate access to external exploration data. • Limited utilisation of vast historical geological information. • Semi-digital and disparate internal systems – delayed technical advancements. • A very low coverage of high-quality, integrated, multidisciplinary maps in South Africa for mineral exploration and infrastructure development.
EXTERNAL	<ul style="list-style-type: none"> • Collaboration opportunities with various Government departments, science councils, and international entities in geoscientific research as well as universities to facilitate regional integration and leverage on resources including human capital building, etc. • Innovative utilisation of geoscientific information in various emerging fields such as medical geology, geometallurgy, artificial intelligence and machine learning. • Transformation, growth and development of world-class scientists. • Implement geoscience programmes to give effect to the National Developmental priorities. • Leverage on programmes to support the just energy transition to low carbon economy. • Enhancing the advisory position of the CGS through Policy/legislation interventions. 	<ul style="list-style-type: none"> • Disruptive events in the dynamic global geopolitical landscape. • Increased criminality that leads to slow implementation of projects and increased operational costs. • Slow economic growth that threatens sustainable revenue generation. • Funding of geoscience programmes across multiple state entities can lead to duplicative and uncoordinated work being performed). • Inadequate integration and coordination across Government entities. • Challenges of access to land to implement the geoscience programmes. • Breaches to data and information security. • Paucity of energy supply.

4.1.5 Stakeholder Analysis

An effective stakeholder engagement strategy is a key requirement for the CGS: (1) to fulfil its legislative mandate and (2) to leverage optimal delivery through collaborative relationships that enhance and nurture the development of the geosciences.

The CGS is accountable to, and has to align with a wide network of internal and external stakeholders. The various functions within the organisation, both core and support, are interdependent and have to be aligned internally and across stakeholder groupings in order for the CGS to operate effectively in the execution of its mandate. Primary stakeholders include, but are not limited to Parliament of the Republic of South Africa, the DMRE, the National Treasury, the DSI, the employees, organised labour, service providers, communities and the broader South African public. The secondary stakeholders critical for the CGS include, amongst others, international geological survey organisations, geoscience organisations, institutions of higher learning, mining companies, media, and Non-Government Organisations. The CGS is a state-owned entity and, by extension, an instrument of Government that has been established to execute aspects of national foreign policy through bilateral agreements with other countries. Table 2 summarises the various stakeholder groupings of the CGS. In this regard, the Geoscience Diplomacy Programme of the CGS has been developed and implemented to coordinate strategic partnerships with stakeholders outside South Africa.

Table 2: Stakeholder Analysis

External and Internal Stakeholders					
Stakeholder List	Characteristics/ Attributes	Influence	Interest	Action Point to deliver on	*Linkages with other stakeholders (Direct / Indirect)
CGS Board	Social, Strategic and Political Partners	H	H	Keep Satisfied, Manage and inform	Direct
Parliament of South Africa		H	H	Keep Satisfied and Inform	Direct
DMRE		H	H	Keep Satisfied, Manage and Inform	Direct
Government and related Departments (e.g. DSI, National Treasury, DPME, DWS, DFFE, DALRRD, DHS, DTIC, Department: Tourism, DPWI, DIRCO, Economic Development Department), DHET), SANDF)		H	H	Keep Satisfied	Direct
Provincial Departments,		H	L	Manage Closely	Direct
Municipalities		H	L	Keep Satisfied, Manage Closely	Direct
Traditional Councils		H	L	Keep Satisfied, Manage Closely	Direct
Communities (Direct projects)		H	L	Keep Satisfied, Manage Closely	Direct
General Public		H	L	Keep Informed	Indirect
Media		H	H	Manage Closely and Inform	Direct
NGOs and Chapter 9 Institutions		H	L	Manage Closely	Direct
Nature Conservation Institutes		H	L	Manage Closely	Indirect
Regional Integration Partners, e.g. the African Union (AU) and the Organisation of African Geological Surveys (OAGS)		L	L	Keep Informed	Indirect
CGS Employees and Organised Labour		H	H	Keep Satisfied and Inform	Direct
Geological Surveys		Public and Private Institutions	L	H	Manage Closely
AU and Regional Structures, such as SADC	L		H	Keep Informed	Indirect
Spatial Planning and Development Companies, Science Councils, Minerals Council South Africa (former Chamber of Mines), etc.	H		L	Keep Satisfied	Direct
Development Bank	Financial Resources Structures	L	H	Manage Closely	Direct
Insurance Companies	Financial Resources Structures	L	H	Manage Closely	Direct
Universities	Professional Institutions	L	H	Manage Closely	Direct
Research Institutions		L	H	Manage Closely	Direct
Geological Society of South Africa and similar Institutions		L	H	Manage Closely	Direct

Various opportunities exist to strengthen stakeholder relations and to establish opportunities for networking, learning, alignment and integration. An initiative that the CGS could explore to strengthen stakeholder relations is the consideration of bi-annual stakeholder interventions — national, continental or international. These interventions would provide marketing platforms for the CGS to create visibility and awareness of the CGS, to disseminate information, and to showcase the current and planned work of the CGS.

The Intergovernmental Relations Framework Act (Act No. 13 of 2005) prescribes principles for the national government, provincial and local governments, and all organs of state to facilitate coordination in the implementation of policy and legislation, including, but not limited to the effective provision of services, monitoring the implementation of policies and legislation, and the realisation of national priorities. The Act makes provision for the establishment of intergovernmental structures for coordinating actions across government departments when implementing policies or legislation, for the execution of statutory functions (taking into account the circumstances, material interests and budgets of other government departments) and to consult, cooperate and share information to achieve the objectives of the Act. The Act gives credence to the District Development Model, which aims to ameliorate the coherence and impact of government service delivery with a focus on 44 District Municipalities and 8 Metros around the Country.

An opportunity presents itself for the CGS to explore the potential for establishing an intergovernmental forum comprising key stakeholders (e.g. DMRE, DSI, DFFE, etc.). This forum would have the authority to establish rules and principles for the endorsement of cross-government departmental projects and programmes, and the approval of the transfer or allocation of resources (financial or otherwise) across departments in the execution of the integrated and multidisciplinary geoscience mapping programmes. The identified projects/programmes would support the achievement of national objectives, considering the collective mandates and functions of various Government departments. This would allow the CGS to access and/or share resources with other Government departments for projects and programmes that have to be funded and executed in national interest, enabling the optimal use of grant funding and other resources across departments, without additional demands on the fiscus.

4.2 Internal Environment Analysis

4.2.1 Overview of the CGS

The strategically re-oriented Integrated and Multidisciplinary Geoscience Mapping Programme (IMMP) was adopted by the CGS Board in June 2017. The IMMP is developed to encourage the sustainability of the organisation in a changing state of ideologies, economy, and technological landscape. It is intended to maintain an impactful delivery of the core mandate of the CGS and provides innovative and responsive geoscience solutions to support the National Development Plan 2030 and other government plans that address such national development imperatives as economic growth, poverty, inequality, job creation, education, food security, optimal land use, environmental stewardship, clean water, affordable and clean energy, and safer communities, among others.

The IMMP strategy aims to map the land surface (both onshore and offshore) of South Africa at a greater level of detail (e.g. 1: 50 000 scale), not only geologically, but also geophysically, geochemically and geotechnically to produce a new generation of more detailed maps to serve as a base to advise the State and various stakeholders, including the public. Marine geoscience mapping (offshore mapping) also feature prominently, in line with the objectives of marine Operation Phakisa. The IMMP priorities contributes to the ERRP as well as the Exploration Strategy and include but not limited to:

- Digitally migrate all geoscience data (Contributions to the digital economy)
- Facilitate growth of the exploration activities in SA to secure a minimum of 5% of the global exploration budget (Building South Africa's Minerals Resource Wealth)
- Catalysing the blue economy development, in line with the Oceans Operation Phakisa (through management of South Africa's Marine Jurisdictions)
- Securing future Energy resources (implementation of the IRP 2019)
- Contribute to an improved carbon capture technologies (for the reduction of greenhouse gas emissions and transition to a low carbon growth trajectory)

- Geoscience research that contributes to food security, infrastructure development, water and environment (Ensuring Community Safety, Land and Infrastructure Development and Securing South Africa's Water Resources).
- Improve African collaborations (contributions to African Continental Free Trade priority)
- Grow scientific skills (embracing the cross-cutting areas: **women, youth and people with disabilities**) to execute the IMMP.
- Embrace applications of the 4IR and AI in geosciences (leading geoscience innovation)

The GTP represents the technical programme model of the CGS that covers integrated projects taking into cognizance the interconnectivity of various geoscientific disciplines for an impactful contribution to the broad government mandated programmes. The CGS GTP is subdivided into five core themes, which include the following:

Theme 1: Geoscience for Minerals and Energy

The South African Government announced its bold plan to capture a minimum of 5% of the global exploration budget of approximately US\$10 billion per annum in the next three to five years. The CGS is privileged to be at the leading edge of rejuvenating and reimagining the exploration landscape, consistent with the quality of geology that suggests that the country remains a proverbial exploration frontier. Accordingly, the CGS provides necessary geoscientific/technical support in a number of DMRE-led initiatives such as South Africa's ERRP, the geo-environmental baseline studies for shale gas development in the Karoo region, mine environment and water management programme as well as the Exploration Strategy.

The CGS's contribution to energy security and the just energy transition resides in the numerous projects that constitute its GTP. These include geothermal research potential, the early positive results of which will augment the sustainable renewable energy programme in the medium to long term. The CGS is also an implementing agency for the CCUS Project, which is critical to test the carbon capture and utilisation in South Africa to reaffirm the commitment to clean energy.

Progress on implementation of this aspect of the CGS GTP, albeit at an early stage, gives sufficient confidence that the much-needed inclusive economic growth, coupled with the energy security needs of the country, can be re-catalysed and attained.

Theme 2: Geoscience for Health, Groundwater and Environment

Mineral exploration and exploitation activities are shifting their focus towards an increased emphasis on environmental stewardship. The balance between mining development and environmental conservation has become one of the primary research focus for the CGS. In this regard, the notion of co-existence of the two seemingly conflicting phenomena is a subject of research that seeks to reconcile co-existence thereof on the balance of scientific research. Furthermore, understanding water resources, particularly in view of the fact that South Africa is a water-scarce country is also a priority research area under this theme. Data and information generated from this theme is intended to improve the understanding of the local and regional aquifer systems to guide the sustainable use of ground- and surface water resources.

Theme 3: Geoscience for infrastructure and land use

The CGS is legislatively mandated to provide professional and technical advice on infrastructure development in dolomitic terrains. This mandate was expanded with the Geoscience Amendment Act No. 16 of 2010 to engulf assessment and review of all infrastructure development in areas deemed susceptible to landslide. The CGS has started engagements with the National Department of Cooperative Governance and Traditional Affairs and a handful of district municipalities to explore

practical modalities of applications of geoscience to inform spatial land use and optimal infrastructure development in the context of the DDM. The CGS continues to effect its mandate of maintaining the national seismic network, which detects continuously natural and mining-induced earthquakes in South Africa.

Theme 4: Geoscience for innovation

The CGS is steadily strengthening its scientific innovation capacity in all geosciences. Drone technology has now been adopted to advance the mandate of the CGS and to provide a novel way of capturing geoscience data to gain a perspective of the Earth to augment instruments that are ground based. The CGS has embarked on research into the use of artificial intelligence in geoscience through the creation of instruments to address, among others, complex regional mineral and groundwater potential mapping challenges.

Theme 5: Geoscience for Diplomacy

The CGS recognises and implements its role as a geo-scientific instrument for foreign policy predisposition of the Republic of South Africa. In this regard, the CGS has assumed a role of permanent Secretariat of the Organisation of African Geological Surveys (OAGS), which promotes close relations among African member states in geoscience research. The OAGS represents the interests of African geological surveys and collaborates closely with, inter alia, the European Geological Surveys to implement the PanAfGEO (Pan-African Support to the Geological Sciences) Partnership programme on capacity building across the African continent.

The CGS has renewed its collaboration with the Namibian and Malawian geological surveys for the implementation of high-resolution geological mapping projects. In recent years (i.e. financial year 2021/22), the CGS has signed an agreement with the Kingdom of Eswatini to conduct a regional airborne geophysical survey for geoscience mapping. Other collaborative opportunities are a subject of continuous assessment with counter parts from peer jurisdictions, while existing partnerships sustained with partners such as the United States Geological Survey, Chinese Geological Survey, Geological Survey of Canada and Nigerian Geological Survey Agency, amongst others are sustained.

Geoscience mapping coverage: Geoscience mapping at various scales is a core discipline at the CGS. The GTP of the CGS continues to focus on accelerated economic recovery projects that include the on-going detailed geoscience mapping at a scale of 1:50 000 and key projects focusing on the critical minerals of the future including base and precious metals (for example, nickel, cobalt, chromium and gold), rare-earth elements and coal. The onshore map coverage has increased to 10.7% from below 5% since implementation of the IMMP. The **onshore mapping programme** presents opportunities for discovery of tier-1 mineral deposits needed to support the demand of critical minerals needed to support local and global economic growth. The CGS published the one-of-a-kind Orange River Pegmatite Prospectivity Map in the Northern Cape Province. Pegmatites in this region are known to be the source of lithium and rare earths, which are critical for just transition to a low carbon economy.

The importance of the marine environment is recognised as part of the Oceans Phakisa Blue Economy. The marine mapping programme is critical to development of the marine economy and the CGS has accordingly prioritized the multi-disciplinary geoscience mapping of the Economic Exclusion Zone in the short term. This work aims to gain a clear understanding of marine geoscientific processes on the continental shelf (in selected deep seabed strategic areas) as they relate to energy, mineral, climate change initiatives and matters related to ocean governance. The CGS officially launched its survey boat known as the R/V (Research Vessel) Nkosi in financial year 2021/22. The boat was acquired to augment the CGS's **marine geoscience (offshore mapping) programme** which aims to map the South African continental shelf (offshore) in the highest resolution based on modern technology, at various depth scales. The marine geoscience programme in 2021/22 has mapped the

outer parts of 1:50 000 sheet 3318CD between Melkbosstrand and Llandudno in the Western Cape Province. The high-resolution data collected will contribute towards the improvement of **offshore geoscience** map coverage which is currently at 0.05%.

4.2.2 Business of the CGS

The CGS not only implements its mandate, but also collaborates on:

- Agency projects sourced from other government departments/institutions and public entities.
- Private sector projects.

The CGS continued to implement mandatory projects specified in the Geoscience Act No. 100 of 1993 as amended (e.g. development and maintenance of the national core library, geophysical reference sites) and to manage:

- The national seismic network, which monitors seismic activity locally and links with regional and global networks;
- Monitoring of global infrasound activity as part of its collaboration with the Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO);
- The National Borehole Core Depository, which provides a comprehensive collection of valuable geological materials and now boasts hyperspectral scanning capability;
- The National Geoscience Museum, which provides information and preserves rare, scientifically valuable and geological heritage samples;
- The National Geoscientific Library and bookshop, which provide geological publications and maps to the public; and
- The national geoscience analytical facility, which is available to analyse, among others, geological samples, water samples and industrial raw materials.

4.2.3 CGS Operating Model

The CGS operating model is informed by the preceding sections of this document and summarises the integrated approach required for the effective execution of the CGS mandate. It summarises the core functions in line with the mandate of the CGS, business model that allows both statutory and collaborative activities as well as other streams of revenue generation, legislative processes, procedures and conventions (triggers) that have to be complied with, enablers that will mobilise execution of the work of the CGS and established interfaces that direct, provide focus and support the work of the CGS.

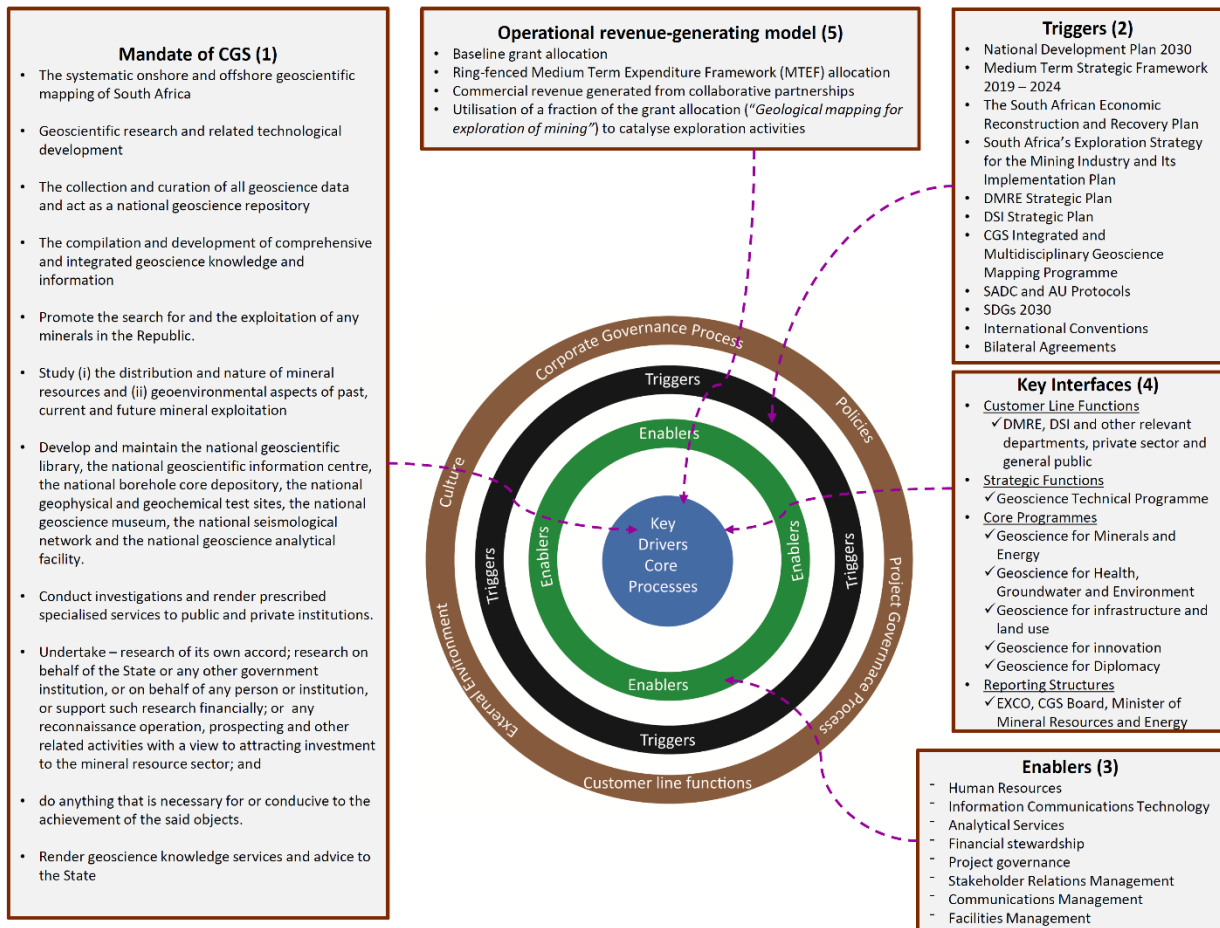


Figure 6: CGS Operating Model

4.2.4 CGS Organisational Environment

The CGS started to implement its organisational structure (Figure 7) to improve efficiency and service delivery as per the adopted strategy. The organisational structure is intended to achieve its institutional outcome of enhanced applications of geoscience products, which span the five thematic strategic focus areas (see previous section 4.2.1).

In respect of Information Communications Technology (ICT), the CGS is continuously implementing a cost-effective and efficient data centre and infrastructure, which is a crucial element of the CGS’s digital transformation.

Compliance with governance protocols and regulations and other prescripts is crucial for the CGS to contribute to the achievement of Priority 1 of the MTSF, namely ‘a capable, ethical and developmental state’. In order to achieve an acceptable level of compliance, the CGS aims to improve and further develop compliance management maturity by putting the necessary policies and procedures in place to achieve the target of a fully compliant organisation by 2025. The CGS operates in a complex, diverse and extensive environment and regulatory universe, and has to comply with numerous prescripts. Compliance will be achieved in a structured and systematic manner integrated into operations. In terms of the status of compliance with the Broad-Based Black Economic Empowerment (BBBEE) Act 53 of 2003, as amended, the CGS is compliant with the BBBEE Act regulations and submits its status annually to the BBBEE commission.

Competitive advantage resides in the competence of the workforce. To attract, retain, engage and develop the right talent in the right positions, the CGS is currently developing a talent management framework that is aligned with the strategy of the CGS. This framework aims to build, nurture and sustain a capable workforce by the end of the MTSF period. The talent management framework will respond to the short-, medium- and long-term exigencies of the business informed by workforce planning which takes into consideration the MTSF priorities in relation to women, youth and people with disabilities. The CGS has made significant strides in terms of the representation of females, youth and people living with disabilities. Notably, female staff represent 41.01% in the quarter under review against 39% as at March 2022, there is increase of 2.01%.of the scientific cohort with African females making up 69.66% in the quarter under review against 71% as at March 2022, there is a decrease 1.34%. The representation of people living with disabilities is at 1.84% in the quarter under review against 1.86%, there is a decrease of 0.02%. Youth (defined as those who are 18 to & including 35 years) represent 26% in the quarter under review against 21% as at March 2022. Previously we were counting youth from 23 - 34 instead of 18 – 35 as per youth definition hence the increase of the workforce.

4.2.5 CGS Governance

4.2.5.1 The Board

The CGS Board which is the Accounting Authority appointed by the Minister of Mineral Resources and Energy approves the strategies, goals, operating policies and priorities of the organisation and monitors compliance with the policies and achievements with respect to scientific, administrative and financial objectives. The Board Members bring independent counsel on strategic decisions. Moreover, Board Members are fully conversant with their fiduciary duties, as outlined in section 50 of the PFMA (Act No. 1 of 1999). Four Board Committees underpin the Board:

1) Finance Committee

The Finance Committee of the CGS is mandated to consider and recommend for the Board's approval the following matters:

- Significant financial activities;
- Liquidity and financial condition of the CGS;
- Write-off of bad debts;
- Material variances in the approved annual and/or revised budgets in accordance with the Materiality and Significance Framework Plan;
- Proposed capital and operating budget for capital expenditures;
- Financial statements for the annual report;
- All policies that have financial implications, and
- Corporate performance information management against the approved budget.

2) Technical Committee

The Technical Committee of the CGS is mandated to consider and recommend for the Board's approval the annual report, evaluate the scientific and technical output and oversee the implementation of the ICT strategy as well as the End-term evaluations.

3) Personnel, Remuneration and Transformation Committee

The Personnel, Remuneration and Transformation Committee is mandated to consider and recommend for the Board's approval the human resources strategies and policies of the CGS. It also considers and recommends for the Board's approval the organisational remuneration model, remuneration for executive management and annual salary increases, and evaluates and makes recommendations on the payment of performance bonuses. The committee also considers organisational performance reports on labour-related matters, employment equity, and employee training and development matters.

4) Audit and Risk Committee

The Audit and Risk Committee was established in terms of Section 77 of the PFMA and National Treasury Regulation 27. The Audit and Risk Committee discharges its responsibilities in terms of the Audit and Risk Committee Charter, which sets out its committee composition, roles and responsibilities. The Audit and Risk Committee continually monitors the quality and reliability of CGS financial information used by the Board, financial statements issued by the CGS and various functions in the organisation. The Audit and Risk Committee ensures that emerging risks are timeously identified and that appropriate and effective control measures are put in place to mitigate these risks.

4.2.5.2 *The Management*

Managers are responsible for the following functions in the organisation:

- Development of the strategic plans and annual performance plans of the CGS for approval by the Accounting Authority;
- Implementation of annual performance plans;
- Management of legal, regulatory, ethical and other compliances;
- Management of CGS operations and service delivery;
- Management of corporate administration;
- Management of corporate performance;
- Management of finances;
- Management of personnel;
- Management of transformation;
- Promotion of the CGS.

In terms of the Code of Ethics and Conduct, all persons serving on behalf of the CGS are required to uphold the highest standard of business ethics and integrity. Furthermore, all staff, contractors, consultants and others acting on behalf of the organisation are required to accurately and honestly represent the organisation and to refrain from engaging in any activity or scheme intended to defraud anyone of money, property or services. The reputation and integrity of the CGS are central to its ability to operate as an effective state-owned organisation.

4.2.6 *CGS Organisational Structure*

Figure 7 depicts the organisational structure of the CGS that was developed to support the efficient, effective, robust functioning of the organisation as well as service delivery.

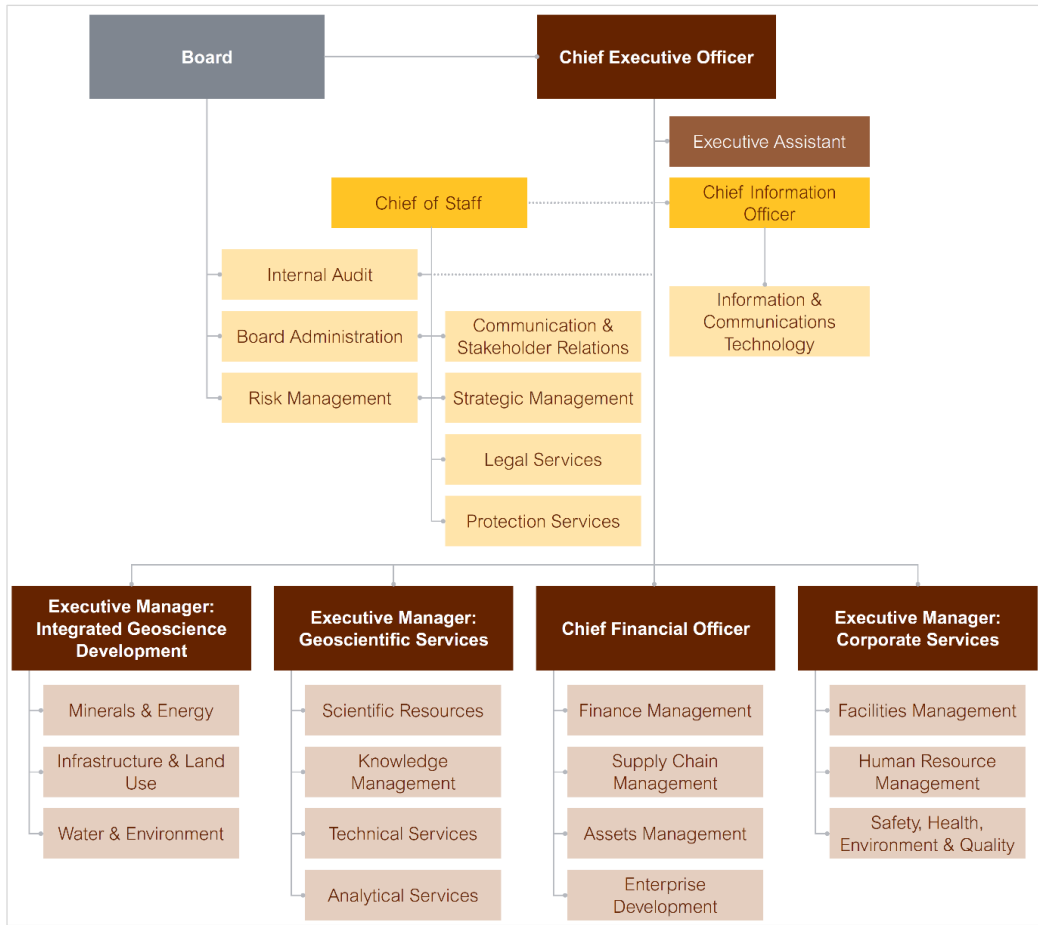


Figure 7: CGS's Organisational Structure

PART C: MEASURING OUR PERFORMANCE

5. CGS Programmes

5.1 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.

Goal: CGS financial growth through integrated geoscience services delivery, partnerships and innovation.

Table 3: Programme 1 outcomes, outputs, performance indicators and targets for the MTEF period 2023/24 - 2025/26

Outcome	Outputs	Output indicators	Audited performance			Estimated performance	MTEF period		
			2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
1) Effective and efficient financial resources management	Audited financial reports	1. Percentage of overhead costs to total costs	61.04%	63.00%	54.90%	66%	66%	66%	66%
	Audited financial reports	2. Percentage of personnel costs to total costs	65.86%	64.03%	57.18%	70%	70%	70%	70%
	Audited financial reports	3. Revenue from collaborative activities/partnerships	R29m	R23.2m	R107.9m	R122.3m	R130.2m	R142.4m	R153.8m
	Audited financial reports	4. Grant revenue	R422.4m	R486.2m	R464.3m	R355.7m	R559.4m	R675.6m	R705.9m

Table 4: Programme 1 annual and quarterly targets for FY2023/24

Output indicators	Annual targets	Q1	Q2	Q3	Q4
1. Percentage of overhead costs to total costs	66%*	66%	66%	66%	66%
2. Percentage of personnel costs to total costs	70%*	70%	70%	70%	70%
3. Revenue from collaborative activities/partnerships	R130.2m*	R30m	R50m	R80m	R130.2m
4. Grant revenue	R559.4m*	R110m	R200m	R310m	R559.4m

* Tracking and monitoring will be done on quarterly basis.

5.2 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.

Goal: A geoscience institution that is capable, effective, efficient, compliant and responsive, through an integrated service-delivery model

Table 5: Programme 2 outcomes, outputs, performance indicators and targets for the MTEF period 2023/24 - 2025/26.

Outcome	Outputs	Output indicators	Audited performance			Estimated performance	MTEF period		
			2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
1) Effective and efficient financial resources management 2) Compliance with governance protocols/regulations	Audited annual report	5. Number of audit qualifications	0	0	0	0	0	0	0
	Audited annual report	6. Percentage of total Procurement spend on goods and services from Small, Medium and Micro Enterprises (QSE and EME's) in terms of PPPFA of 2017	48.25%	40.75%	42.48%	35%	40%	45%	45%
	Availability report	7. Availability of key enterprise services	New Measure	100%	99.89%	99%	99%	99%	99%

Table 6: Programme 2 annual and quarterly targets for FY2023/24.

Output indicators	Annual targets	Q1	Q2	Q3	Q4
5. Number of audit qualifications	0	-	-	-	0
6. Percentage of total Procurement spend on goods and services from Small, Medium and Micro Enterprises (QSE and EME's) in terms of PPPFA of 2017	40%*	40%	40%	40%	40%
7. Availability of key enterprise services	99%*	99%	99%	99%	99%

* Tracking and monitoring will be done on quarterly basis, – no quarterly breakdown of the annual target.

5.3 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.

Goal: An employer of choice, attracting, recruiting and retaining highly skilled personnel in the Geoscience industry through improved human capital and institutional knowledge management strategies.

Table 7: Programme 3 outcomes, outputs, performance indicators and targets for the MTEF period 2023/24 - 2025/26.

Outcome	Outputs	Output indicators	Audited performance			Estimated performance	MTEF period		
			2019/20	2020/21	2021/22		2022/23	2023/24	2024/25
3) Capable human capital	Human Resources Reports	8. Percentage of scientific staff with Masters or Doctoral degrees	41.56%	40.47%	41.22%	40%	42%	45%	45%
	Human Resources Reports	9. Percentage of training expenditure to leviabale amount of payroll	3.52%	1.20%	2.33%	1%	1%	1%	1%
	Human Resources Reports	10. Staff turnover rate	7.99%	5.48%	4.99%	10%	10%	10%	10%
	Human Resources Reports	11. Percentage of staff living with disability	1.66%	2.25%	1.86%	1.6%	1.8%	1.9%	2%
	Human Resources Reports	12. EE Stats, Scientific cohort (Female representation)	New Measure	39%	39%	46%	43%	45%	46%
	Human Resources Reports	13. EE-Stats, Managers (Female representation)	New Measure	New Measure	New Measure	New Measure	50%	50%	50%
	Human Resources Reports	14. EE Stats, Executive Managers (Female representation)	New Measure	20%	20%	New Measure	50%	50%	50%

Note: Executive managers in the audited performance for 2020/21 and 2021/22 were indicated as EXCO- Executive Committee members

Table 8: Programme 3 annual and quarterly targets for FY2023/24.

Output indicators	Annual targets	Q1	Q2	Q3	Q4
8. Percentage of scientific staff with Masters or Doctoral degrees	42%*	42%	42%	42%	42%
9. Percentage of training expenditure to leviabale amount of payroll	1%*	1%	1%	1%	1%
10. Staff turnover rate	10%*	10%	10%	10%	10%
11. Percentage of staff living with disability	1.8%*	1.8%	1.8%	1.8%	1.8%
12. EE Stats, Scientific cohort (Female representation)	43%*	43%	43%	43%	43%
13. EE-Stats, Managers (Female representation)	50%*	50%	50%	50%	50%
14. EE Stats, Executive Managers (Female representation)	50%*	50%	50%	50%	50%

* Tracking and monitoring will be done on quarterly basis.

5.4 Programme 4: Delivery of the Mandate

Purpose: Execute the integrated and multidisciplinary geoscience mapping programme.

Goal: An enabling environment in support of national imperatives and enhancing living conditions and creating a safe environment.

Table 9: Programme 4 outcomes, outputs, performance indicators and targets for the MTEF period 2023/24 - 2025/26

Outcome	Outputs	Output indicators	Audited performance			Estimated performance	MTEF period		
			2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
4) Enhanced applications of geoscience information and knowledge and to secure a minimum of 5% share of the global exploration expenditure	Onshore geoscience maps	15. Onshore geoscience map coverage	New Measure	9.03%	10.7%	12%	16%	19%	21%
	Offshore geoscience maps	16. Offshore geoscience map coverage	New Measure	0.05%	0.05%	0.2%	0.3%	0.5%	0.6%
	Value-added geoscience outputs such as integrated reports, 3D models, innovative solutions, mineral systems and emplacement models.	17. Applied geoscience outputs for minerals and energy	New Measure	7	4	6	9	12	14
5) Enhanced geoscience diplomacy	Value-added geoscience outputs such as integrated reports and 3D models, innovative solutions.	18. Applied geoscience outputs for infrastructure, land use, health, groundwater and the environment	New Measure	10	7	6	11	13	14

Table 10: Programme 4 annual and quarterly targets for FY2023/24.

Output indicators	Annual targets	Q1	Q2	Q3	Q4
15. Onshore geoscience map coverage	16%*	13%	14%	15%	16%
16. Offshore geoscience map coverage	0.3%*	0.21%	0.24%	0.26%	0.3%
17. Applied geoscience outputs for minerals and energy	9*	2	4	6	9
18. Applied geoscience outputs for infrastructure, land use, health, groundwater and the environment	11*	2	5	8	11

* Tracking and monitoring will be done on quarterly basis.

5.5 Programme 5: Advisory, Stakeholder

Purpose: To improve stakeholder relations through collaborations with strategically aligned institutions, the private sector and the general public.

Goal: An enabling environment in support of national imperatives and enhancing living conditions and creating a safe environment.

Table 11: Programme 5 outcomes, outputs, performance indicators and targets for the MTEF period 2023/24 - 2025/26.

Outcome	Outputs	Output indicators	Audited performance			Estimated performance	MTEF period		
			2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
6) Improved awareness of the CGS brand, services and products	Media articles	19. Number of articles published on media platforms	17	25	24	28	32	32	32
	Stakeholder survey report	20. Stakeholder satisfaction level	76%	88.48%	66.4%	70%	70%	70%	70%
7) Improved geoscientific domain through effective knowledge management	Peer-reviewed articles published in scientific journals, book chapters and edited volumes.	21. Number of peer-reviewed articles published	41	33	30	32	34	40	40
	Examples: memoirs, bulletins, books and atlases.	22. Number of CGS publications	12	10	8	8	10	12	12
	Examples: abstracts, extended abstracts and conference papers and keynotes, etc.	23. Number of papers published in a conference proceedings	47	66	32	70	40	55	40

Table 12: Programme 5 annual and quarterly targets for FY2023/24.

Output indicators	Annual targets	Q1	Q2	Q3	Q4
19. Number of articles published on media platforms	32*	8	16	24	32
20. Stakeholder satisfaction level	70%	-	-	-	70%
21. Number of peer-reviewed articles published	34*	5	10	15	34
22. Number of CGS publications	10*	2	5	7	10
23. Number of papers published in a conference proceedings	40*	5	20	30	40

* Tracking and monitoring will be done on quarterly basis, – no quarterly breakdown of the annual target.

6. Explanation of planned performance over the medium-term period

The CGS strategy (the IMMP) has been adopted to encourage sustainability of the organisation in a changing state of polity, the economy, society, as well as the scientific and technological landscape. Therefore, the strategic outcomes of the CGS are illustrated below (Figure 8), are intended to shift the strategic orientation of the CGS to maintain an impactful delivery of the core mandate that will result in the improvement in the economy and the lives of South Africans. The balanced scorecard (BSC) methodology has been embraced to provide an account of the overall performance of the organisation. The BSC essentially measures the performance of the organisation at corporate business unit and individual level. There are five strategic programmes that cover the customer, internal business process, learning and growth and financial perspectives. These strategic programmes are aligned to the seven strategic outcomes of the CGS, the NDP 2030 as well as the MTSF 2019-2024 priorities and addresses the cross-cutting areas for women, youth and people with disabilities.

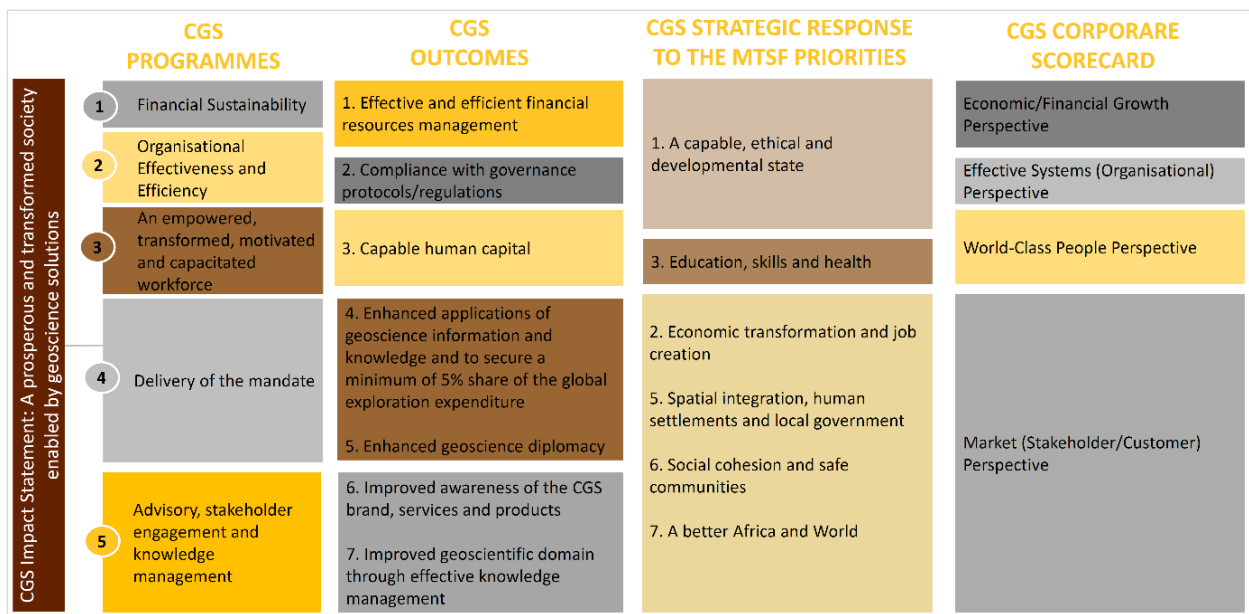


Figure 8: The alignment of CGS Strategic Programmes and Outcomes to the priorities of the MTSF 2019-2024 as well as the BSC.

The CGS plans of achieving its impact “**A prosperous and transformed society enabled by geoscience solutions**” is anchored on seven institutional outcomes [i.e. 1) Effective and efficient financial resources management, 2) Compliance with governance protocols/regulations, 3) Capable human capital, 4) Enhanced applications of geoscience information and knowledge and to secure a minimum of 5% share of the global exploration expenditure, 5) Improved awareness of the CGS brand, services and products, 6) Improved geoscientific domain through effective knowledge management as well as 7) Enhanced geoscience diplomacy] that will be pursued over the five-year period. The institutional outcomes have also been mapped with related outputs and are all outlined in Table 3, 5, 7, 9 and 11 of this document. Outputs listed in each programme (refer to section 5) will contribute in achieving the intended outcomes and impact outlined in the Strategic Plan 2020 -2025 of the CGS.

7. Programme Resource Considerations

7.1 Overview of 2022/23 Budget and MTEF Estimates

The financial resource requirements over the five-year period are summarised below. These projections consider the scope of work of the CGS, supply chain management function in support of project execution, as well as the optimisation of underutilised movable and immovable assets.

Table 13: Income Statement

INCOME (RAND)	FY - 2022/23	FY - 2023/24	FY - 2024/25	FY - 2025/26	FY - 2026/27	FY - 2027/28
	x 1 000	x 1 000	x 1 000	x 1 000	x 1 000	x 1 000
Government grant	355 761	559 458	675 602	705 869	737 633	770 679
Deferred Income	101 131					
Contracts collaborative and sales	122 317	130 188	142 441	153 790	166 145	179 599
Sundry income	4 490	4 714	4 950	5 197	5 457	5 730
TOTAL INCOME (RAND)	583 699	694 360	822 993	864 856	909 235	956 008
EXPENDITURE (RAND)	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
	x 1 000	x 1 000	x 1 000	x 1 000	x 1 000	X1 000
Personnel costs	342 117	378 065	408 065	436 630	467 194	499 897
Bursaries	4 930	5 423	5 965	6 561	7 217	7 939
Contract/Collaborative project costs	55 043	58 585	64 098	69 206	74 765	80 820
Overheads and operating costs	144 883	225 287	322 865	330 460	338 059	345 352
SUBTOTAL	546 973	667 360	800 993	842 857	887 235	934 008
Surplus before Capital Expenditure	36 726	27 000	22 000	22 000	22 000	22 000
Application of Surpluses:						
Capital expenditure						
Vehicles and Aircrafts	5 000	5 000	5 000	5 000	5 000	5 000
Equipment	12 000	22 000	17 000	17 000	17 000	17 000
Deferred: Digital information System; buildings; equipment's and facilities	19 726	-	-	-	-	
SUBTOTAL	36 726	27 000	22 000	22 000	22 000	22 000
TOTAL EXPENDITURE (RAND)	583 699	694 360	822 993	864 856	909 235	956 006

Note: Budget updated with the 2023 MTEF indicative allocation letter and the draft audit financials.

The CGS has two sources of funding, namely the Government grant and collaborative/contract revenue. These revenues determine the scope of the GTP of the CGS.

Due to the lack of certainty in the contract revenue stream, the CGS implements its programmes for each year with caution in order to avoid over-expenditure or losses. In the 2020 MTEF, an additional baseline allocation is made to the amount of R345, 8m. These allocations are being made in amounts of R70,0m; R128,0m and R147,8m for the financial years 2020/21; 2021/22 and 2022/23 respectively in respect of the Geological mapping for the exploration of mining and will continue over the medium term.

In the 2022 MTEF, the CGS has received additional baseline grant allocations of R500m (R0m in 2022/23; R200m in 2023/24 and R300m in 2024/25) over the medium term for the geoscience activities which includes the onshore and offshore map coverage in support of the National Exploration Strategy. This means that the implementation of economic recovery onshore and offshore mapping projects in the CGS will be accelerated to augment contribution towards the South African ERRP.

7.1.1 Revenue from Government Grant

The Government grant consists of the baseline grant funding for the MTEF period. In the 2022 MTEF an additional baseline allocation of R500m (R0m in 2022/23; R200m in 2023/24 and R300m in 2024/25) was made for the geoscience activities which includes the onshore and offshore map coverage in support of the National Exploration Strategy. These allocations will continue over the medium term. Technical adjustments were implemented on the MTEF projects where funding for the Rehabilitation of derelict and ownerless mines and the Water Ingress Solutions was moved to commercial revenue to align to the DMRE's budget classifications in compliance with the National Treasury budget classification circular. The Government grant allocations are R456,9m, R559,5m, R675,6m, R705,9m, R737,6m, R770,7m for the financial years 2022/23, 2023/24, 2024/25, 2025/26, 2026/27 and 2027/28 respectively.

Table 14: Analysis of Government Grant Allocation.

Item	FY - 2022/23	FY - 2023/24	FY - 2024/25	FY - 2025/26	FY - 2026/27	FY - 2027/28
	x 1 000	x 1 000	x 1 000	x 1 000	x 1 000	x 1 000
Government grant	456,9m	559,5m	675,6m	705,9m	737,6m	770,7m
Baseline allocation	207,9m	205,0m	214,2m	223,8m	233,9m	244,4m
MTEF Projects (Ring Fenced)	0	0	0	0	0	0
Deferred Income	101,2m	0	0	0	0	0
Geological mapping for exploration of mining	147,8m	154,5m	161,4m	168,7m	176,2m	184,1m
Geoscience activities including onshore and offshore activities	0	200,0m	300,0m	313,4m	327,5m	342,2m
Commercial Revenue	122,3m	130,2m	142,4m	153,8m	166,1m	179,6m
Sundry income	4,5m	4,7m	4,9m	5,2m	5,5m	5,7m
TOTAL REVENUE (RAND)	583,7m	694,4m	822,9m	864,9m	909,2m	956,0m

7.1.2 Revenue from Contract/Collaborative Activities

Revenue from collaborative activities is budgeted at R122, 3m for FY2022/23 which includes R70, 0m for commercial contracts and R52, 3m for the DMRE's MTEF projects. This revenue stream is expected to increase at an average rate of 7.8% over the next five financial years. There is a concerted effort that is directed at growing this revenue stream in order to augment the grant allocations and achieve financial sustainability.

7.1.3 Personnel Costs

The personnel costs budget includes salaries for existing and additional critical positions, fringe benefits, such as death and disability insurance, post-retirement medical aid insurance as well as recruitment-related costs. Annual salary increases are negotiated at the bargaining forum and are approved by the CGS Board. Personnel costs are budgeted at R342,1m for FY2022/23 and subsequently a 7% increase year on year has been added over the five financial years. In the FY2023/24 the personnel cost will increase to R378, 1m to cater for the increased capacity for the quantum of work related to additional allocation of resources made in the 2022 MTEF for the geoscience activities including onshore and offshore map coverage in support of the National Exploration Strategy. A recent benchmarking exercise was conducted and depicted a picture that CGS salary scales are low compared with those of industry. Both financial and non-financial strategies are implemented to sustain human capital requirements. An all-inclusive average personnel costs increases at 7%.

7.1.4 Bursaries

The bursary budget is essential for developing capacity and to expedite the training of individuals. The commercial environment in which the CGS competes for international and national tenders is extremely competitive and the only way for the CGS to be able to win tenders is by upgrading the skills of its staff members. The bursary scheme has an added advantage as it also serves as a feeder pipeline for the transformation of the staff complement. In this regard, an amount of R4,9m has been budgeted for FY2022/23, with a 10% year on year increase.

7.1.5 Cost of Contract/Collaborative Projects

The CGS invests in the commercial environment to generate the budgeted revenues. These investments are in the form of direct materials and services required to deliver the agreed commercial outputs. Commercial project expenditure is budgeted at R55, 0m for FY2022/23, which is 45% of the projected revenue for each year. The expenditure increases over the medium term due to the increase in the budgeted Contract/Collaborative revenue which will now include the two DMRE MTEF projects, the Rehabilitation of derelict and ownerless mines and the Water Ingress Solutions.

7.1.6 Overheads and Operating Costs

This budget is for the scientific programme, i.e. GTP expenditure, the operating costs of the mandatory functions such as the geoscience library, core library, laboratory, maintenance of buildings and infrastructure and administration requirements for Finance, Supply Chain, Corporate Services and Integrated Communication Technology. The budget increases proportionately to the budgeted revenue. Overheads and operating costs are budgeted at R144, 8m for FY2022/23. In FY2023/24 the budget will increase substantially to R225, 3m due to the additional baseline allocations made in the 2022 MTEF for the geoscience activities including onshore and offshore map coverage in support of the National Exploration Strategy.

7.1.7 Scientific and Technical Equipment

The rapidly aging research infrastructure of the CGS is of great concern to the organisation. Over the past few years, attention has been given to the replacement of some equipment. There is a need to increase investment in capital infrastructure in order to sustain the quality levels of service delivery and skills development.

An amount of R17, 0m has been budgeted for the replacement of vehicles, equipment, and aircraft repairs for FY2022/23. In the FY2023/24 the budget will increase to R27m to accommodate the quantum of work related to additional allocation of resources made in the 2022 MTEF for the geoscience activities including onshore and offshore map coverage in support of the National Exploration Strategy. A capital renewal plan is developed annually to address the infrastructure requirements.

7.2 Link between the Budget and Strategic Programmes

Table 15: Link between Budget and Strategic Programmes.

CGS Strategic Programmes	2022/23	2023/24	2024/25	2025/26	2026/27	2026/27
Programme 1: Financial Sustainability	53 748 906	55 062 311	58 251 483	61 417 265	64 789 213	68 364 432
Programme 2: Organisational effectiveness and efficiency	104 119 804	86 456 045	91 463 522	96 434 272	101 728 734	107 342 361
Programme 3: An empowered, transformed, motivated and capacitated workforce	12 035 167	12 329 257	13 043 360	13 752 225	14 507 253	15 307 797
Programme 4: Delivery of Mandate	400 872 365	527 273 849	646 229 331	678 485 790	712 632 639	748 556 665
Programme 5: Advisory, stakeholder engagement and knowledge management	12 922 758	13 238 538	14 005 305	14 766 449	15 577 161	16 436 745
Total Budget	583 699 000	694 360 000	822 993 000	864 856 000	909 235 000	956 008 000

7.3 Materiality framework

Table 16: Materiality Framework

Nature of Business	Circumstances giving rise to Need for Disclosure in Terms of Materiality and Significance	Material Threshold Value for Disclosure and Reporting Purposes	Process to be initiated if Threshold is reached
<p>Geophysics and Research</p> <p>Generally, research-related entities may set a materiality figure higher than for non-research-related entities, as research-related losses can be expected to be higher and more difficult to anticipate and manage within the normal accounting practices, Geoscience Act and operating procedures. Disclosure in this area is unlikely to materialise</p>	<p>Equipment and Technology</p> <p>Laboratories and Geophysics are the two main areas giving rise to the need for disclosure in terms of materiality and significance</p> <p>Laboratories</p> <p>Geophysics</p> <p><i>Consideration in terms of expenditure was given as follows: (as included within the budgeting process)</i></p> <ul style="list-style-type: none"> Irregular Expenditure consisting of spending outside of approved budget 	<p>Calculating the property and equipment threshold value at 2% of the value as indicated in the annual financial statements (R341, 983, 000)</p> <p>R6,8m</p> <p>R6,8m</p> <p>The usual accounting practices and the Geoscience Act will generally cover replacement or loss of equipment in the normal operational process and should not require disclosure</p>	<p>Management to submit a report with all relevant details and values concerned to the Executive for comment and disclosure to Treasury where required</p> <p><i>Process:</i></p> <ul style="list-style-type: none"> Information to be provided regarding event; Investigate where required: Internal Audit and Finance; Determine whether loss is due to contravention of the Act or disregard of Geoscience Act; Determine whether due to lack of due care and

Nature of Business	Circumstances giving rise to Need for Disclosure in Terms of Materiality and Significance	Material Threshold Value for Disclosure and Reporting Purposes	Process to be initiated if Threshold is reached
	<ul style="list-style-type: none"> • <i>Fruitless and Wasteful Expenditure. Equipment not suited or necessary for purpose</i> 		<p><i>diligence, gross negligence or criminal activity, and</i></p> <ul style="list-style-type: none"> • <i>Responsibility</i> <p>The Executive must direct a request for ruling or approval from Treasury or the relevant Executive Authority</p>
<p>The business needs to ensure that all financial transactions fall within the approved budget and are conducted within the normal accounting practices and Geoscience Act</p>	<p>Financial</p> <p>Operations and Capex are considered as the main areas giving rise to the need for disclosure in terms of materiality and significance:</p> <p>Operating Expenditure</p> <p><i>(Existing Budgeted Projects)</i> <i>Any irregular spending outside of approved budget</i></p> <p>New Projects</p> <p><i>Unforeseen additional expenditure due to poor project planning or early termination or cancellation of projects</i></p> <p>Capex: -</p> <p>Total Assets</p>	<p>R1,4m</p> <p>Operating threshold value calculated at 1% of budget value (R144,884,000)</p> <p>Expressed as 2% of the Project Value</p> <p>This threshold will vary according to the project value. E.g. R40m equates to R800,000 and R10m equates to R200,000</p> <p>R14,5m</p> <p>Total asset threshold value calculated at 2% of the value as indicated in the annual financial statements (R727,290,000)</p>	<p>Management to submit a report with all relevant details and values concerned to the Executive for comment and disclosure to Treasury where required</p> <p><i>Process:</i></p> <ul style="list-style-type: none"> • <i>Information to be provided regarding event;</i> • <i>Investigate where required: Internal Audit and Finance;</i> • <i>Determine whether loss is due to contravention of the Act or disregard of Geoscience Act;</i> • <i>Determine whether due to lack of due care and diligence, gross negligence or criminal activity; and</i> • <i>Responsibility</i> <p>The Executive must direct a request for ruling or approval from Treasury or the relevant Executive Authority</p>
<p>In terms of the PFMA Section 54, information will be submitted by the accounting authorities in respect of any significant change in the nature or extent of its interest in a significant business activity; and</p>	<p>Where the business has joint ventures or similar arrangements, these are strictly governed by the Geoscience Act in addition to the PFMA</p> <p>Concluding any transaction in terms of Section 54 without approval from the Executive Authority</p>	<p>Should such an event materialise it would need to be investigated and only then would the potential loss be determined</p>	<p>Management to submit a report with all relevant details and values concerned to the Executive for comment and disclosure to Treasury where required</p> <p><i>Process:</i></p> <ul style="list-style-type: none"> • <i>Information to be provided regarding event;</i>

Nature of Business	Circumstances giving rise to Need for Disclosure in Terms of Materiality and Significance	Material Threshold Value for Disclosure and Reporting Purposes	Process to be initiated if Threshold is reached
<p>A significant change in the nature or extent of its interest in a significant partnership, trust, unincorporated joint venture or similar arrangement</p>		<p>No threshold can be anticipated</p> <p>Any transgression is to be investigated and reported once all relevant details have been compiled</p>	<ul style="list-style-type: none"> • <i>Investigate where required: Internal Audit and Finance;</i> • <i>Determine whether loss is due to contravention of the Act or disregard of Geoscience Act;</i> • <i>Determine whether due to lack of due care and diligence, gross negligence or criminal activity, and</i> • <i>Responsibility</i> <p>The Executive must direct a request for ruling or approval from Treasury or the relevant Executive Authority</p>

8. Updated Key Risks and Mitigation from the Strategic Plan

Table 17: CGS key risks and their mitigation plans

Outcomes	Key risks	Contributing factors	Risk mitigations
Effective and efficient financial resources management	Inadequate funding to implement the mandate	<ul style="list-style-type: none"> • Insufficient and declining baseline grant allocation • Reduced commercial/ collaborative income generation due to constrained economic activities • Misalignment between short term funding and long term strategy • The impact of global geopolitical landscape on the ability of the CGS to implement its business development initiatives 	<ul style="list-style-type: none"> • Request sustainable funding for implementation of the CGS mandate. • Intensification of business development initiatives to build a sustainable pipeline for funding. • Implementation of the framework to de-risk and catalyse exploration activities in South Africa. • Expand and strengthen the geoscience diplomacy programme. • Enhanced financial management efficiencies and stewardship.
Capable human capital	Failure to deliver on the CGS mandate and meet stakeholder needs	<ul style="list-style-type: none"> • Inadequate talent management. • Misalignment between short term funding for positions and long term strategy • Inadequate specialised skills to deliver on the mandate 	<ul style="list-style-type: none"> • Attract, develop and retain requisite skills.
Improved geoscientific domain through effective knowledge management	Inadequate ICT support and security services	<ul style="list-style-type: none"> • Disparate systems and databases • Inadequate knowledge repository • Insufficient ICT systems to implement the Geoscience Act regulations 	<ul style="list-style-type: none"> • Integrate ICT systems. • Provision of ICT infrastructure and systems to enable data collection.
Enhanced applications of geoscience information and knowledge and to secure a minimum of 5% share of the global exploration expenditure.	Non-delivery of the mandate	<ul style="list-style-type: none"> • Misalignment of the GTP with government priorities. • Insufficient support to government priorities • Insufficient funding to execute the mandate 	<ul style="list-style-type: none"> • Alignment of the GTP to the government priorities and fully implement the integrated approach.
Improved awareness of the CGS brand, services and products	Insufficient brand communication	<ul style="list-style-type: none"> • Inadequate implementation of the Communication and Stakeholder Relations Strategy • Inconsistent brand communication messaging • Uncoordinated implementation of stakeholder engagement plan / programme 	<ul style="list-style-type: none"> • Full implementation of communication and stakeholder relations strategy. • Purposeful, intentional and focused key communication messages. • Centralise brand message communication • Establish a healthy pipeline of approved scientific publications.

Outcomes	Key risks	Contributing factors	Risk mitigations
Improved awareness of the CGS brand, services and products.	Insufficient stakeholder awareness	<ul style="list-style-type: none"> Limited brand communication Decentralised stakeholder engagement efforts Incomplete stakeholder database and centralised recording of stakeholder engagements 	<ul style="list-style-type: none"> Continuous implementation of communication and stakeholder relations plan. Focused, coordinated and a planned stakeholder engagement programme
Enhanced geoscience diplomacy	Inability to form collaborative international partnerships	<ul style="list-style-type: none"> Changes in geopolitical environment Changes in international policy Changes in global economies Global pandemics 	<ul style="list-style-type: none"> Intensification of monitoring and evaluating the geo-political landscape to identify appropriate collaborative opportunities.
Compliance with governance protocols/regulations	Non-Compliance with legal and regulatory requirements	<ul style="list-style-type: none"> Insufficient advocacy and awareness of the regulatory protocols. Ineffective enforcement and monitoring of regulatory requirements Inadequate ethical culture 	<ul style="list-style-type: none"> Improve the compliance checklist, monitoring process and reporting on key legislation. Establish a plan with specialised external trainers on risk, compliance and fraud awareness. Increase awareness of policies and regulatory requirements at quarterly staff meetings and induction sessions.
Compliance with governance protocols/regulations	Fraud risk	<ul style="list-style-type: none"> Inadequate fraud risk awareness. Lack of economic growth in South Africa resulting in unethical business practices. 	<ul style="list-style-type: none"> Strengthening of fraud risk controls Increase fraud risk awareness
Compliance with governance protocols/regulations	Non-Compliance with legal and regulatory requirements	<ul style="list-style-type: none"> Insufficient advocacy and awareness of the regulatory protocols. Ineffective enforcement and monitoring of regulatory requirements. Inadequate ethical culture 	<ul style="list-style-type: none"> Increase awareness of policies and regulatory requirements at quarterly staff meetings and induction sessions. Improve monitoring of compliance with key legislation
Enhanced applications of geoscience information and knowledge and to secure a minimum of 5% share of the global exploration expenditure. Effective and efficient financial resources management	Prolonged and/or frequent power supply interruptions	<ul style="list-style-type: none"> Inability of local municipality utilities services to provide sufficient power without interruptions. Diesel Generators that are beyond lifespan and generating fumes. Lack of alternative power supply 	<ul style="list-style-type: none"> Installed Uninterrupted Power Supply (UPS) to provide back-up power and surge protection during power disruptions. In a process of hiring a Back-up Generator as a temporal measure until a completion of the development of Energy Strategy document for alternative, sustainable energy supply at CGS.

9. Public Entities

Name of public entity	Mandate	Outcomes	Current annual budget (R thousands)
Not Applicable			

10. Infrastructure Projects

No.	Project name	Programme	Description	Outputs	Start date	Completion date	Total cost	estimated	Current expenditure	year
Not Applicable										

11. Public-Private Partnerships (PPPs)

PPP name	Purpose	Outputs	Current value of agreement	End-date of agreement
Not Applicable				

PART D: TECHNICAL INDICATOR DESCRIPTIONS (TIDS)

1. Indicator Title	Percentage of Overhead Costs to Total Costs
Definition	All non-project related costs (e.g. Rates and Levies, Repair & Maintenance, Consumable & General Expenses, etc) expressed as a percentage of total costs (e.g. Personnel Expenditure excluding Manpower Cost, Operating Expenditure)
Source of data	Finance Management – This information is obtained from the financial system
Method of calculation or assessment	Overhead costs/Total costs X 100
Means of verification	Financial Reports (Management Accounts)
Assumptions	Expenditure budgets and financial reporting
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Non-cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	A performance equal to or below the set threshold.
Indicator responsibility	Chief Financial Officer
2. Indicator Title	Percentage of Personnel Costs to Total Costs
Definition	All staff related costs (e.g. salaries, fringe benefits such as death and disability insurance, post-retirement medical aid insurance as well as recruitment-related costs) expressed as a percentage of total costs (e.g. Personnel Expenditure excluding Manpower Cost, Operating Expenditure)
Source of data	Finance Management – This information is obtained from the financial system
Method of calculation or assessment	Staff costs/Total costs X 100
Means of verification	Financial Reports (Management Accounts)
Assumptions	Expenditure budgets and financial reporting
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Non-cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	A performance equal to or below the set threshold.
Indicator responsibility	Chief Financial Officer
3. Indicator Title	Revenue from Collaborative Activities/Partnerships
Definition	Revenue earned from commercial/collaborative activities or partnerships
Source of data	Finance Management – This information is obtained from the financial system
Method of calculation or assessment	Commercial revenue generated
Means of verification	Financial Reports (Management Accounts)
Assumptions	Continued commercial/collaborative revenue generation
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	Attain or exceed the set target
Indicator responsibility	Chief Financial Officer
4. Indicator Title	Grant Revenue
Definition	Value of government grant transfers recognised
Source of data	Finance Management – This information is obtained from the financial system
Method of calculation or assessment	The sum of baseline and conditional grant recognised/utilised
Means of verification	Financial Reports (Management Accounts)

Assumptions	Grant revenue allocated
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Cumulative
Reporting cycle	Quarterly
Desired performance	To achieve the set target
Indicator responsibility	Chief Financial Officer
5. Indicator Title	Number of Audit Qualifications
Definition	Total number of audit qualifications as reported on in the Auditor-General's audit report
Source of data	Annual Report as per the Auditor General's audit report
Method of calculation or assessment	Number of qualifications
Means of verification	Audit Report
Assumptions	Annual external audit
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Non-Cumulative
Reporting cycle	Annually
Desired performance	Zero audit qualifications
Indicator responsibility	Chief Financial Officer
6. Indicator Title	Percentage of total Procurement spend on goods and services from Small, Medium and Micro Enterprises (QSE and EME's) in terms of PPPFA of 2017
Definition	Procuring from Black Exempt Micro Enterprises (EME's) and Qualifying Small Enterprises (QSE's). Percentage procurement expenditure on goods and services from Small Micro and Medium Enterprises (SMME's) of the total local procurement expenditure
Source of data	Supply Chain Management and Enterprise Development Management
Method of calculation or assessment	Total cost of goods and services procured from Exempt Micro Enterprises (EME's) and Qualifying Small Enterprises (QSE's) divided by the total local procurement expenditure expressed as a percentage
Means of verification	Creditors payment Report
Assumptions	Budget available to spend
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Non-Cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	Empower and Support SMME procurement to play a meaningful role in the mainstream economy of South Africa and make inroads into untransformed sectors
Indicator responsibility	Chief Financial Officer
7. Indicator Title	Availability of Key Enterprise Services
Short definition	Availability of key enterprise services including MS Exchange (email), Finance and HR systems, databases and applications
Source / collection of data	Information and Communications Technology. Infrastructure management dashboard
Method of calculation or assessment	Percentage uptime of key enterprise services
Means of verification	ICT Report
Assumptions	ICT infrastructure in place
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Non-Cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	Availability of ICT services (%)

Indicator responsibility	Chief Information Officer
8. Indicator Title	Percentage of Scientific Staff with Masters or Doctoral Degrees
Short definition	Percentage of scientific staff that have Masters or Doctoral degrees in relation to the total number of scientific staff. Scientific staff means staff (including Executives and Managers) who hold a minimum qualification of B-Tech / BSc in Geoscience and Engineering in Scientific programmes or related science field. Staff means permanent, fixed-term contractor and interns.
Source / collection of data	This information is obtained from personnel records
Method of calculation or assessment	Total number of scientific staff with Masters or Doctoral degrees/Total number of scientific staff X 100. (Masters includes MSc and MTech whilst Doctoral includes PhD and DTech)
Means of verification	HR report
Assumptions	Completion of studies Interest to study
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Non-Cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	A performance greater than the target is desirable
Indicator responsibility	Executive Manager: Corporate Services
9. Indicator Title	Percentage of Training Expenditure to Leivable Amount of Payroll
Short definition	Total training expenditure of staff and non-staff on leivable amount of payroll expressed as a percentage. Staff means permanent, fixed-term contractor and interns.
Source / collection of data	Accounting system
Method of calculation or assessment	Percentage of training expenditure to leivable amount of payroll
Means of verification	HR report
Assumptions	There is continuous training requirements
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Non-Cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	Effective utilisation of allocated expenditure on training and development
Indicator responsibility	Executive Manager: Corporate Services
10. Indicator Title	Staff Turnover Rate
Short definition	Percentage of employees who have left the organisation
Source / collection of data	Payroll system
Method of calculation or assessment	Number of staff who have left the organisation during the reporting period divided by the total number of staff at beginning of the reporting period multiplied by 100 yielding a percentage. Staff means permanent, fixed-term contractor and interns
Means of verification	HR report
Assumptions	Staff retention measures are effective
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Non-Cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	Achieve turnover lower than target
Indicator responsibility	Executive Manager: Corporate Services
11. Indicator Title	Percentage of Staff Living with Disability
Short definition	Staff living with disabilities as reported. Staff means permanent, fixed-term contractor and interns
Source / collection of data	Disclosure forms – personnel records
Method of calculation or assessment	(Number of staff living with disability ÷ total number staff) X 100.
Means of verification	HR report
Assumptions	Measures to attract and retain targeted groups are effective

	Existing staff willingness to disclose
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: Applicable as per the CGS employment equity
Spatial transformation (where applicable)	N/A
Calculation type	Non-Cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	Achieve or exceed the targeted percentage of employees living with disabilities
Indicator responsibility	Executive Manager: Corporate Services
12. Indicator Title	EE Stats, Scientific cohort (Female representation)
Short definition	The percentage of female scientific staff at the CGS. Scientific staff means staff (including Executives and Managers) who hold a minimum qualification of B-Tech / BSc in Geoscience and Engineering in Scientific programmes or related science field. Staff means permanent, fixed-term contractor and interns
Source / collection of data	Payroll system
Method of calculation or assessment	$(\text{Number of female scientific staff} \div \text{total scientific staff}) \times 100$
Means of verification	HR report
Assumptions	Measures to attract and retain targeted groups are effective
Disaggregation of beneficiaries (where applicable)	Target for women: Applicable as per the CGS employment equity plan Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Non-Cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	Achieve the targeted percentage of employment equity
Indicator responsibility	Executive Manager: Corporate Services
13. Indicator Title	EE-Stats, Managers (Female representation)
Short definition	The percentage of female Business Unit Managers at the CGS.
Source / collection of data	Payroll system
Method of calculation or assessment	$(\text{Number of female Managers} \div \text{total number of Managers}) \times 100$
Means of verification	HR report
Assumptions	CGS supportive of transformative agenda of the government
Disaggregation of beneficiaries (where applicable)	Target for women: Applicable as per the CGS employment equity plan Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Non-Cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	Achieve the targeted percentage of employment equity
Indicator responsibility	Executive Manager: Corporate Services
14. Indicator Title	EE Stats, Executive Managers (Female representation)
Short definition	The percentage of female Executive Managers at the CGS.
Source / collection of data	Payroll system
Method of calculation or assessment	$(\text{Number of female Executive Managers} \div \text{total number of Executive Managers}) \times 100$
Means of verification	HR report
Assumptions	CGS supportive of transformative agenda of the government
Disaggregation of beneficiaries (where applicable)	Target for women: Applicable as per the CGS employment equity plan Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Non-Cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	Achieve the targeted percentage of employment equity
Indicator responsibility	Executive Manager: Corporate Services

15. Indicator Title	Onshore geoscience map coverage
Short definition	Coverage of onshore geological maps expressed as a percentage
Source / collection of data	Integrated Geoscience Development and Geoscientific Services (Geoscience Technical Programme)
Method of calculation or assessment	Count the number of onshore geological maps produced within the reporting period added to maps produced in preceding years (i.e. fundamental geological maps) divided by the total number of geological map tiles (same scale) covering South Africa's onshore territory X100%
Means of verification	Assessment of the geoscience maps submitted
Assumptions	Availability of financial and human resources Seamless access to land Favourable health, safety and environmental conditions
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	Achieve targeted number of geoscience outputs
Indicator responsibility	Executive Manager: Integrated Geoscience Development
16. Indicator Title	Offshore geoscience map coverage
Short definition	Coverage of offshore geoscience maps expressed a percentage
Source / collection of data	Integrated Geoscience Development and Geoscientific Services (Geoscience Technical Programme)
Method of calculation or assessment	Count the number of offshore geoscience maps produced within the reporting period added to maps produced in preceding years (such as geology and geophysics) divided by the total number of map tiles (same scale) covering South Africa's offshore territory X 100
Means of verification	Assessment of the geoscience maps submitted
Assumptions	Availability of financial and human resources Favourable health, safety and environmental conditions Continuity of strategic partnerships for the offshore programme
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	Achieve targeted number of geoscience outputs
Indicator responsibility	Executive Manager: Integrated Geoscience Development
17. Indicator Title	Applied geoscience outputs for minerals and energy
Short definition	Applied geoscience outputs are value-added outputs that have scientific, economic and social benefit (i.e., non-geological maps, databases, reports, models, software, methodologies, frameworks, etc.), and are deliverables, which are responsive to mineral and energy development.
Source / collection of data	Geoscience Technical Programme
Method of calculation or assessment	Count the number of applied geoscience outputs that add value and support minerals and energy development approved by the CEO (such as integrated reports, non-geological maps, databases, models, software, methodologies, frameworks, 3D models, innovative solutions, mineral systems or emplacement models)
Means of verification	Assessment of the outputs that add value and support mineral and energy development
Assumptions	Availability of financial and human resources Seamless access to land Favourable health, safety and environmental conditions Continuity of strategic partnerships for the offshore programme
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	Achieve targeted number of geoscience outputs
Indicator responsibility	Executive Manager: Integrated Geoscience Development
18. Indicator Title	Applied geoscience outputs for infrastructure, land use, health, groundwater and the environment

Short definition	Applied geoscience outputs are value-added outputs that have scientific, economic and social benefit (i.e., non-geological maps, databases, reports, models, software, methodologies, frameworks, etc.) and are deliverables, which are responsive to infrastructure, land use, health, groundwater and the environmental prudence.
Source / collection of data	Geoscience Technical Programme
Method of calculation or assessment	Count the number of value-added applied geoscience outputs not related to mineral and energy approved by the CEO (such as integrated reports, non-geological maps, databases, models, software, methodologies, frameworks, 3D models and innovative solutions)
Means of verification	Assessment of the outputs that add value and support infrastructure, land use, health, groundwater and the environmental stewardship
Assumptions	Availability of financial and human resources Seamless access to land Favourable health, safety and environmental conditions Continuity of strategic partnerships for the offshore programme
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	Achieve targeted number of geoscience outputs
Indicator responsibility	Executive Manager: Integrated Geoscience Development

19. Indicator Title	Number of Articles Published on Media Platforms
Short definition	Number of articles with scientific or organisational content (written or contributed by the CGS) published in mainstream media and/or industry publications (such as mining engineering, popular science magazines, newspapers, social media and newsletters)
Source / collection of data	Communication and Stakeholder Relations
Method of calculation or assessment	Count number of media articles
Means of verification	Articles published on media platforms
Assumptions	Availability of financial resources Communication and stakeholder management strategy in place
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	To achieve or exceed target
Indicator responsibility	Manager: Communications & Stakeholder Relations
20. Indicator Title	Stakeholder Satisfaction Level
Short definition	This is the level of satisfaction of stakeholders in active engagement with the CGS
Source / collection of data	Stakeholder survey
Method of calculation or assessment	Percentage of stakeholders satisfied with services and products from CGS
Means of verification	Stakeholder survey report
Assumptions	Willingness of stakeholders to participate in the survey
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Non-Cumulative
Reporting cycle	Annually
Desired performance	Achieved set level of stakeholder satisfaction
Indicator responsibility	Manager: Communications & Stakeholder Relations
21. Indicator Title	Number of Peer-Reviewed Articles Published
Short definition	Peer-reviewed articles published in scientific journals, book chapters and edited volumes
Source / collection of data	Integrated Geoscience Development and Geoscientific Services
Method of calculation or assessment	Count the number of peer-reviewed publications
Means of verification	Assessment of the peer-review articles
Assumptions	Continuity of the Geoscience Technical Programme Sustainable strategic and technical collaborations Efficiencies in publication time lines
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	A performance better than the target is desirable
Indicator responsibility	Executive Managers: Integrated Geoscience Development and Geoscientific Services
22. Indicator Title	Number of CGS Publications
Short definition	The publications of CGS information in deliverables/products such as bulletins, memoirs, books and atlases.
Source / collection of data	Integrated Geoscience Development and Geoscientific Services
Method of calculation or assessment	Count the number of CGS publications.
Means of verification	Assessment of the internal publications submitted
Assumptions	Availability of financial resources Sustainable strategic and technical collaborations

Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	A performance better than the target is desirable
Indicator responsibility	Executive Managers: Geoscientific Services
23. Indicator Title	Number of papers published in a conference proceedings
Short definition	Total number of papers (such as abstracts, extended abstracts and conference papers and keynotes, etc.) published in conference proceedings
Source / collection of data	Integrated Geoscience Development and Geoscientific Services
Method of calculation or assessment	Count the number of papers published in a conference proceedings
Means of verification	Assessment of the papers published in a conference proceedings
Assumptions	Availability of financial resources Sustainable strategic and technical collaborations Favourable health, safety and environmental conditions
Disaggregation of beneficiaries (where applicable)	Target for women: N/A Target for youth: N/A Target for people with disabilities: N/A
Spatial transformation (where applicable)	N/A
Calculation type	Cumulative
Reporting cycle	Annually (tracking and monitoring is done on the quarterly basis)
Desired performance	A performance better than the target is desirable
Indicator responsibility	Executive Managers: Integrated Geoscience Development and Geoscientific Services

ANNEXURES

There are no annexures attached to this document.



**MINISTER
MINERAL RESOURCES AND ENERGY
REPUBLIC OF SOUTH AFRICA**

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Dr H Mathe

The Chairperson
Council for Geoscience
PRIVATE BAG X112
PRETORIA
0001

Dear Dr Mathe

**APPROVAL OF THE COUNCIL FOR GEOSCIENCE (CGS) STRATEGIC PLAN (2020-25)
AND ANNUAL PERFORMANCE PLAN WITH BUDGET FOR 2023-24 FINANCIAL YEAR.**

The CGS Strategic Plan and its 2023-24 Annual Performance Plan (APP) with budget bear reference.

This serves to inform you I have approved the CGS Strategic plan and APP with budget for 2023-24 financial year in terms of section 30.2.3 of the Treasury Regulations issued in terms of the Public Finance Management Act (PFMA) Act no 1 of 1999 as amended.

The approved aforesaid Strategic Plan and Annual Performance Plan will be used as the basis to quarterly monitoring and evaluating CGS's performance against planned targets, and where necessary to implement the corrective actions.

The Department is concerned that the CGS programmes structure is not aligned with the approved budget structure (ENE database). The mid-term review of the CGS APP must clearly articulate the expected outputs for the CCUS project, so as to enable proper monitoring.

Should the council require more information and/or clarity, kindly contact the Chief Director: State Owned Entities Oversight, Mr. Lloyd Ganta on 012 406 7468 or lloyd.ganta@dmre.gov.za.

Yours sincerely


MR SG MANTASHE, MP
MINISTER OF MINERAL RESOURCES AND ENERGY

DATE: 20/03/2023