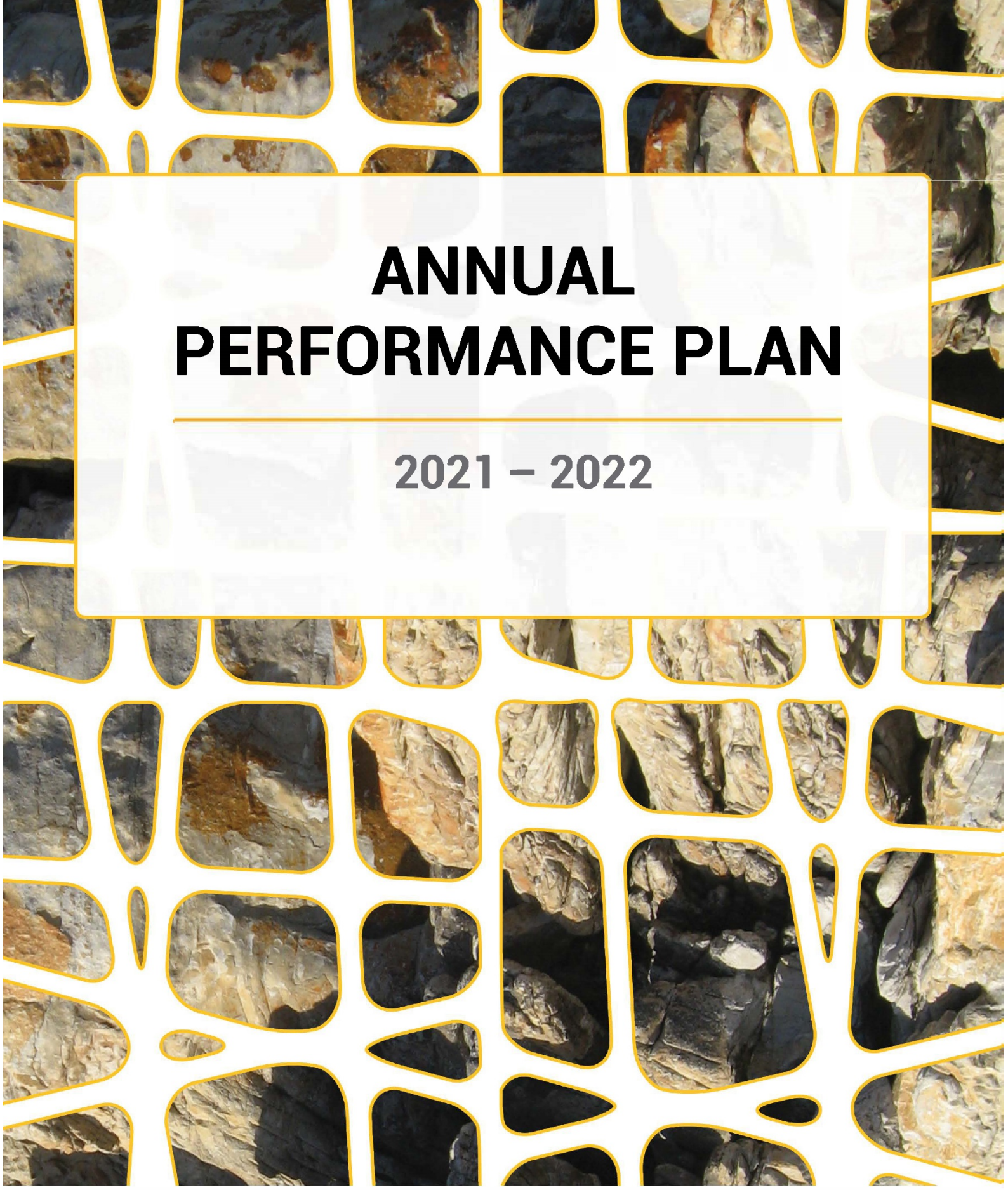
ANNUAL PERFORMANCE PLAN

2021 – 2022



mineral resources & energy
Department:
Minerals Resources and Energy
REPUBLIC OF SOUTH AFRICA

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Council for Geoscience

ANNUAL PERFORMANCE PLAN

COUNCIL FOR GEOSCIENCE

2021 -2022

The six regional offices of the Council for Geoscience in South Africa

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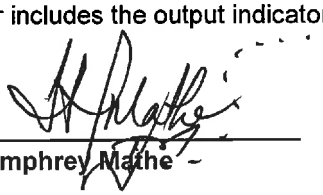
Acronyms

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
CIMERA	Centre of Excellence (CoE) for Integrated Mineral and Energy Resource Analysis
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
DHET	Department of Higher Education and Training
DHS	Department of Human Settlements
DIRCO	Department of International Relations and Cooperation's
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
ECSP	Electronic Communications Service Provider
EME	Exempted Micro Enterprise
EXCO	Executive Committee
GDP	Gross Domestic Product
GTP	Geoscience Technical Programme
ICT	Information and Communications Technology
IMMP	Integrated and Multidisciplinary Geoscience Mapping Programme
IPP	Independent Power Producer
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
PPPFA	Preferential Procurement Policy Framework Act
QSE	Qualifying Small Enterprise
REE	Rare Earth Elements
SA	South Africa
SADC	Southern African Development Community
SANDF	South African National Defence Force
SP	Strategic Plan
SDG	Sustainable Development Goal
UN	United Nations

Board Chairperson's Statement

The Council for Geoscience's (CGS) 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 (2021/22 – 2023/24). The GTP has adopted an integrated and multidisciplinary approach to optimise delivery of the geoscience mandate.

The APP outlines the strategic objectives/programmes, which state the intended outcomes and outputs of the CGS for the MTEF period (2021/22 – 2023/24); 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 Humphrey Mathe

Chairperson of the Board: Council for Geoscience

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 integrated and multidisciplinary geoscience mapping programme 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 Annual Performance Plan (APP) of the CGS for the MTEF period 2021/22–2023/24, 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 2021/22–2023/24, 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 FY2021/22 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 Mabuza

Chief Executive Officer: Council for Geoscience

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 2021/22.

Signature: _____
Ms Refilwe Shelembe
Executive Manager: Geoscientific Services

Signature: _____
Dr David Khoza
Executive Manager: Integrated Geoscience Development

Signature: _____
Dr Jonty Tshipa
Executive Manager: 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 to 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 Geoscience Act No. 100 of 1993, as amended. This Act enunciates the Constitution in defining the mandate of the CGS. Accordingly, Chapter 10, **Public Administration**, of the South African Constitution 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. 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 prospect 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.

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 Strategic Plan of the CGS 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 strategic plan 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 (CCS) 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)

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 Annual Performance Plan which incorporates relevant ***actions, indicators and targets*** that seek to incrementally support the national developmental imperatives. The 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

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

Further to the NDP and MTSF, 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 IRP2019
- 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) as well as strategic mine water management programmes are undertaken to support the DMRE.

The contribution towards upliftment of rural communities typically located in distal geographic areas remains one of the focal points of Government. Interventions in geosciences have been developed to impact the intended development of communities.

2.4 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

No court rulings affecting the CGS.

PART B:
OUR STRATEGIC FOCUS

PART B: OUR STRATEGIC FOCUS

4. UPDATED SITUATIONAL ANALYSIS

4.1 External Environmental Analysis

4.1.1 Macro Socio-Economic Trends — South Africa

[1]Over 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. Almost 90% of households have access to piped water and 84% have access to electricity (Statistics South Africa, 2016). An ambitious policy of redistributive grants has also been put in place, lifting a large share of the population out of poverty. Its legal framework is well regarded and its judiciary is perceived as independent. The advanced banking system and deep financial markets have made South Africa a regional hub for financial services. Nevertheless, growth has trended down markedly since 2011 due to constraints on the supply side, in particular electricity shortages and falling commodity prices. Unemployment rose from 25% to 27%. The youth are particularly hard hit by the economic slowdown, with an unemployment rate of 53% in 2016. Persistent low growth has led to the stagnation of GDP per capita compared to other fast-growing emerging market economies (Figure 1).

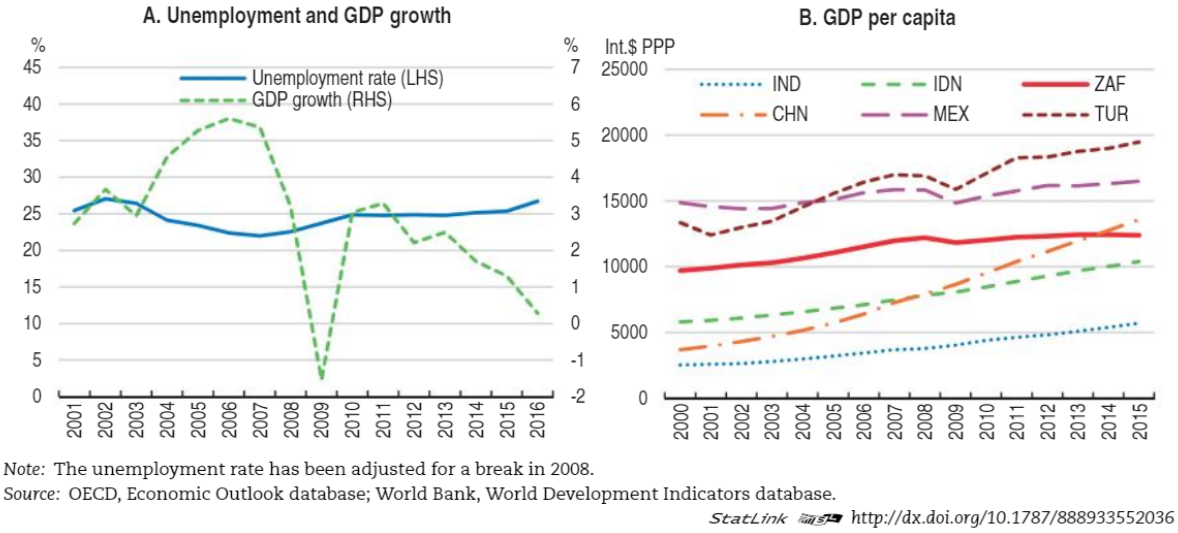


Figure 1: GDP per capita analyses.

Macroeconomic policies are constrained. Fiscal space is limited and higher interest payments push public debt up.

To increase confidence in the economy, the Government has successfully followed a moderate fiscal consolidation policy that has stabilised the debt level and turned the primary balance from deficit to surplus. An important investment programme has been developed with private sector participation to rapidly increase electricity production and limit power blackouts.

The South African economic growth has been constrained, with off-shoot positive prospects to grow modestly in the short to medium terms. This projection is based on the assumption that business

[1] OECD Economic Surveys — South Africa

confidence is increasing, based on incremental perceptions and confidence in the country's political landscape.

The levels of poverty, unemployment and inequality remain unacceptably high, threatening to reverse the gains of a democratic dispensation over the past 25 years. However, the longstanding fiscal discipline, including an inflation targeting policy are yielding results, with results largely contained within the policy range of 3% to 6% since 2014, notwithstanding a few anomalous incidents (see Figure 2: Inflation)[2]. A low inflation environment is projected to 2024, coinciding with the end of the current MTSF planning cycle. A low inflation projection is considered one of the instruments for a moderately expansionary monetary policy to support economic activity.

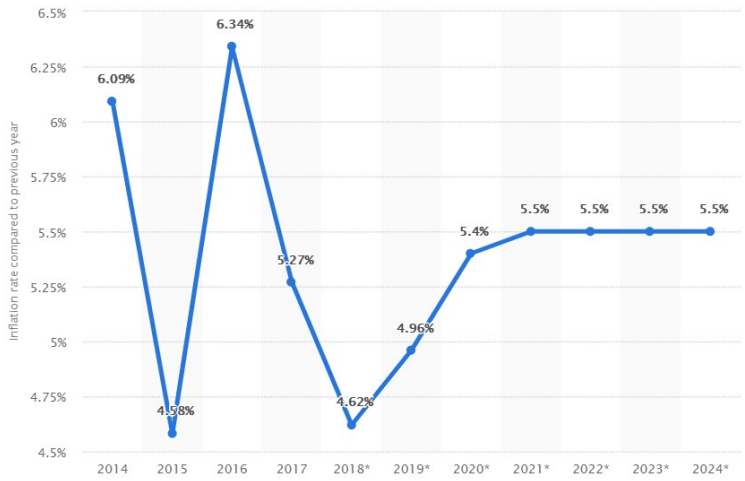


Figure 2: SA inflation trend, 2014–2024.

The OECD Economic Survey of South Africa[3] highlights certain risks to growth, the bulk of which are being addressed by the Government. The South African Reserve Bank has essentially created a low repurchase rate environment to catalyse inclusive economic growth.

Prudent and effective spending of funds and better control of the deficits of state-owned enterprises are necessary to raise fiscal credibility and create room for public investment to foster growth and reduce social inequality. Reforms to ease the cost of doing business boost entrepreneurship, lifting competition barriers in many sectors and facilitating the expansion business activity in the country and regionally, will boost growth and create employment.

[4]In the current year, the expenditure ceiling has been maintained, and national and provincial compensation is likely to be lower than budgeted. In light of the prevailing economic environment and the need to address the considerable risks, the 2019 Budget is emphatic on reprioritisation of expenditure and tax measures to contain the budget deficit and stabilise debt. Government has revised its baseline expenditure down by R9 billion in 2019/20, R19.7 billion in 2020/21 and R21.6 billion in 2021/22. About half of these reductions are applied to streamlining the wage bill of Government through reduction in compensation budgets.

[2] Statista.com 2019
[3] http://www.oecd.org/eco/surveys/economic-survey-south-africa.htm
[4] www.gov.za/speeches

4.1.2 Mining Industry Overview

The mining industry remains an important contributor to the South African economy. The industry directly contributes an average of R8 for every R100 produced by the national economy and employs one in every 40 working individuals (or 2.5% of the entire workforce)[5]. Mining is the largest industry in four of South Africa's nine provinces: North West, Limpopo, Mpumalanga and Northern Cape. In particular, mining contributed R33 for every R100 produced by North West's economy in 2015, and the industry employed one in every six working individuals (or 16% of the provincial workforce). Importantly, the inter-dependence of other economic sectors on the mining industry may neither be overstated nor readily quantifiable to illustrate its significance to the economy.

The protracted effects of a global economic and financial crisis have collectively contributed to the decline in production of various commodities, scaling down of employment as well as a significant drop in green field exploration.

The early signs of commodity price recovery have been consistent over the past two years, suggestive of base-consolidation for a longer term growth of the sector. This necessitates that the country prepares itself to leverage optimal value from mineral and upstream petroleum exploitation.

Although the entire country has been covered in terms of maps 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 low at less than 5%. Consequently, the country has fallen out of the global top-ten exploration expenditure against peer jurisdiction whose comparative detailed geological mapping is correlatively highest. The South African Government has re-affirmed its commitment to investment in the implementation of the integrated and multidisciplinary geoscience mapping programme (IMMP) by the CGS, which seeks to significantly enhance the knowledge and understanding of the geosciences in the country.

4.1.3 Impact of Covid-19 on Minerals Exploration and Mining

The S&P Global Intelligence's latest report (April 2020) [6]shows that:

- The aggregate market value of the industry's listed mining companies, based on 2,333 firms, was down 16% month over month (at US$1.06T, off 29% from a 19-month high of US$1.49T in December 2019 the lowest aggregate market value for the sector since May 2016).
- The aggregate market cap of the top 100 mining companies was down 15% in March 2020 to US$898B.
- Exploration Price Index fell to 128 from 131. The price index has eight constituents, namely: Au, Ag, Pt, Cu, Ni, Zn, Co and Mo.
- Junior explorers' budgets are forecasted to decrease 42%.
- Global exploration budgets are predicted to fall by 29% in 2020 to a total of US$6.9B.

This emphasises the importance of State's investment in geosciences to improve South Africa's attractiveness as an exploration jurisdiction. The CGS has therefore adjusted its plans to concentrate the Geoscience Technical Programme to projects that will yield immediate impact to the economic recovery project. 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.

[5] Statistics South Africa

[6] https://www.spglobal.com/marketintelligence/en/news-insights/blog/mining-exploration-insights-april-2020

4.1.4 PESTEL Analysis

The external environment consists of variables/forces that are outside 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 polies, the socio-economic climate and energy. The following factors were assessed by means of the PESTEL analysis:

Figure 3: 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 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 slow rate of recovery from the global economic downturn has meant that the Government's fiscal strength is accordingly limited. 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 mineral exploration budget has recovered to just over US$10 Billion per annum and projected to grow modestly over the next five years. It has been established that jurisdiction with major investment in geoscientific programmes secure a lion's share of the annual exploration budget, while the corollary remains valid. South Africa's share of this budget has shrunk to a fraction of a percent. The President of the Republic has affirmed the importance of the mining industry as a sunshine industry, notwithstanding its long heritage. 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 and also have the potential to impact on both the profile and the value of services provided by the CGS to society, taking into account the vast disparities in stakeholder expectations.

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 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 has never been more eminent. This results in unprecedented growth in the demand for alternative minerals that support renewable energy, such as battery minerals, which will result in a renewed search for minerals contributory to these sources of energy. 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 prevalence, 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 sectors[7]. Clean energy technologies such as wind, solar and batteries rely on a large amounts of minerals and metals (e.g. cobalt, nickel, manganese, lithium, copper and rare-earth metals also known as REEs) to work. [8]Therefore, more demand for the minerals, elements and metals that make these technologies possible will be sustained. The CGS programmes will also focus on the search for such critical minerals, elements and metals.

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,

[7] https://iupac.org/united-nations-proclaims-international-year-periodic-table-chemical-elements/

[8] https://www.carbonbrief.org/explainer-these-six-metals-are-key-to-a-low-carbon-future

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 innovative utilisation of emerging mapping technologies for the gathering of 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.

[9]The 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. 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 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. [4]**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

[9] No. 42078 Government Gazette, 4 December 2018

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 CO_2 and therefore reduce the nation's carbon footprint. Most importantly, the CGS is assessing the utilisation options where CO_2 and its outputs could be used for, among other, enhancement of geothermal energy generation, development of construction materials, enhanced coal-bed methane (ECBM). 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.

Legislative: The CGS is legislation 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.

INTERNAL	**Strengths**	**Weaknesses**
	• Support through Government grant funding through line Departments (i.e. DMRE) • A sound historical heritage, investible geoscience data and information accumulated over a 100-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.	• A limited capacity of highly qualified and skilled scientists near retirement. • 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. • Dependency on intermittent and short term ring-fenced funding from MTEF projects.
EXTERNAL	**Opportunities**	**Threats**
	• Collaboration opportunities with various Government departments, science councils, 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 and geometallurgy through the priorities of the fourth industrial revolution. • Transformation, growth and development of world-class scientists. • Implement geoscience programmes to give effect to the National Development Plan priorities and respond to post Covid-19 economic recovery measures. • Opportunity to leverage on programmes to support the just transition energy policy.	• Disruptive events such as the Covid-19 pandemic. • Increased criminality that leads to increase in 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.

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. 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		L	H	Manage Closely	Direct

AU and Regional Structures, such as SADC	Public and Private Institutions	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		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

* Linkages with other stakeholders- Classification on how the different stakeholders have a direct / indirect linked impact to the work of CGS. H: High, L: Low

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.

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 CGS is mandated to collect, compile, interpret and disseminate geoscience information and knowledge for South Africa in accordance with Geoscience Act No 100 of 1993, as amended in 2010. The CGS business model allows for both statutory and collaborative activities, and these are implemented through the statutory IMMP of the CGS, which addresses the developmental imperatives of South Africa in NDP Vision 2030.

The CGS implements its strategic objectives through the IMMP, that not only aims to map the nation at a scale of 1:50 000 but all use the geoscience information to address societal issues. To this end, the IMMP which is the CGS geoscience technical programme (GTP) comprises five core themes.

- **Geoscience for Minerals and Energy:**
  The programmes of the CGS are positioning the organisation to respond to the call of the Minister of Mineral Resources and Energy; Mr Gwede Mantashe for South Africa to capture a minimum of 5% of the global exploration budget of $10 billion in the next 3 to 5 years. The provision of critical pre-competitive geoscience information is one of the key factors in increasing mineral exploration activities many of which could lead to exploitation projects; thereby boosting investment attractiveness of South Africa. As a whole, the globe faces a projected exponential increase in the demand for mineral and energy resources due to potential doubling of the world population in the next 20 years. The development and sustainable use of mineral and energy resources, which requires a multiple layer model which includes fundamental and applied research, has thus become urgent.

  To contribute to this theme, the CGS continues to generate information in projects such as the Molteno-Indwe coalfield, Characterisation of the lithosphere of South Africa, Griqualand West, Limpopo, Bushveld; Geothermal energy potential of South Africa projects; to name a few.

- **Geoscience for Health, Groundwater and Environment:**
  The DMRE mandated the CGS to execute the ‘Management of state contingent liabilities with respect to derelict and ownerless mines in South Africa’ (or derelict and ownerless) and ‘Mine environment and water management’ (or mine water) projects. The two projects were composed of two main pillars: Research (e.g., air quality monitoring, mineral assessments for future mining, passive treatment, coexistence of mining and biodiversity) and construction (construction of canals and closure of shafts). Through these projects, the CGS advises government through the DMRE on the contingent environmental liabilities of derelict and ownerless mines in the country, as well as on the management of mine water ingress and residue control in the Witwatersrand goldfields and coal mines of the eastern Highveld. A major product of the Mine Water Project is an online portal, which will assist in highlighting potential impacts on the environment and proposing mitigation measures, where necessary.

  The CGS is conducting groundwater mapping in the Eastern Cape (Makana) and Free State Provinces (Maluti). In both these areas, hydrogeological modelling has been completed, potential groundwater resources have been identified and several areas selected for targeted drilling in the next financial year. Additionally, the CGS has developed an innovative groundwater mapping tool that adopts an integrated and multi-disciplinary geoscience datasets using machine learning techniques.

- **Geoscience for infrastructure and land use:**

The nation's investment in the infrastructure programme is significant. The CGS has responded to this programme by mapping the extent of the dolomitic rock nationally in an attempt to use it as proxy for characterising areas of possible subsidence. To this end, the extent of dolomitic layer nationally has been developed using known boreholes. Additionally, artificial intelligence tools have been developed to predict the development of subsidence in dolomitic areas. The national seismic network continues to detect natural and mining-induced earthquakes in South Africa on a continuous 24-hour basis.

- **Geoscience for innovation**

As a scientific institute the CGS fosters scientific innovation in all areas of geoscience, particularly in application. To this end, the CGS has embraced the world trajectory towards the fourth industrial revolution (4IR) by applying machine learning algorithms in an attempt to develop predictive capabilities in areas such as geohazards (subsidence and seismicity) mapping and water mapping, the latter's software tool published in the current reporting period.

- **Geoscience for Diplomacy**

The CGS is involved a number of projects in the African continent, assisting primarily in geological mapping. This "diplomacy" programme is meant to foster collaboration between the African Geological Surveys and promote training including skills transfer as well as contributing to the priority 7: A better Africa and the World. The CGS is working with the Namibian and Malawian geological surveys to conduct high-resolution geological mapping. The CGS is the permanent secretariat of the Organization of African Geological Surveys (OAGS), which aims to develop close relations between African member states in the areas of geoscience research. The OAGS, through its collaborative programme with the European Geological Surveys (EGS) has been implementing a multi-national training programme under the EU-funded PanAfGEO project. This project, on which CGS has played a key role, has resulted in 1074 trainees in 16 African countries.

Geoscience mapping coverage:

- ***Onshore mapping coverage***

Geoscience mapping at various scales is a core discipline at the CGS. The detailed onshore national mapping programme at a scale of 1:50 000 has increased coverage from 5% to 8.8% and it is expected to reach 16% by the end of the MTSF cycle.

- ***Offshore mapping coverage***

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 (EEZ) 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 also engages in collaborative projects typically characterised as follows:

- Agency projects: Sourced essentially from other government departments/institutions and public entities;
- International projects: Sourced mainly through international tenders, and have advanced the country's regional integration policy and the Geoscience Diplomacy programme of the CGS, and
- Private sector: Collaboration with private sector establishments.

The CGS successfully manages a number of national geoscience facilities, including:

- The national seismograph network which monitors seismic activity locally and globally;
- Monitors global infrasound activity as part of collaboration with the CTBTO
- The national borehole core repository, which provides a comprehensive collection of valuable geological materials;
- The national geoscience museum, which provides information and preserves rare, scientifically valuable and geological heritage samples;
- The national geoscience library and bookshop, which provide geological publications and maps to the public, and
- The national geoscience analytical facility, which is available for the analysis of geological samples and industrial raw materials.

4.2.2 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, 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.

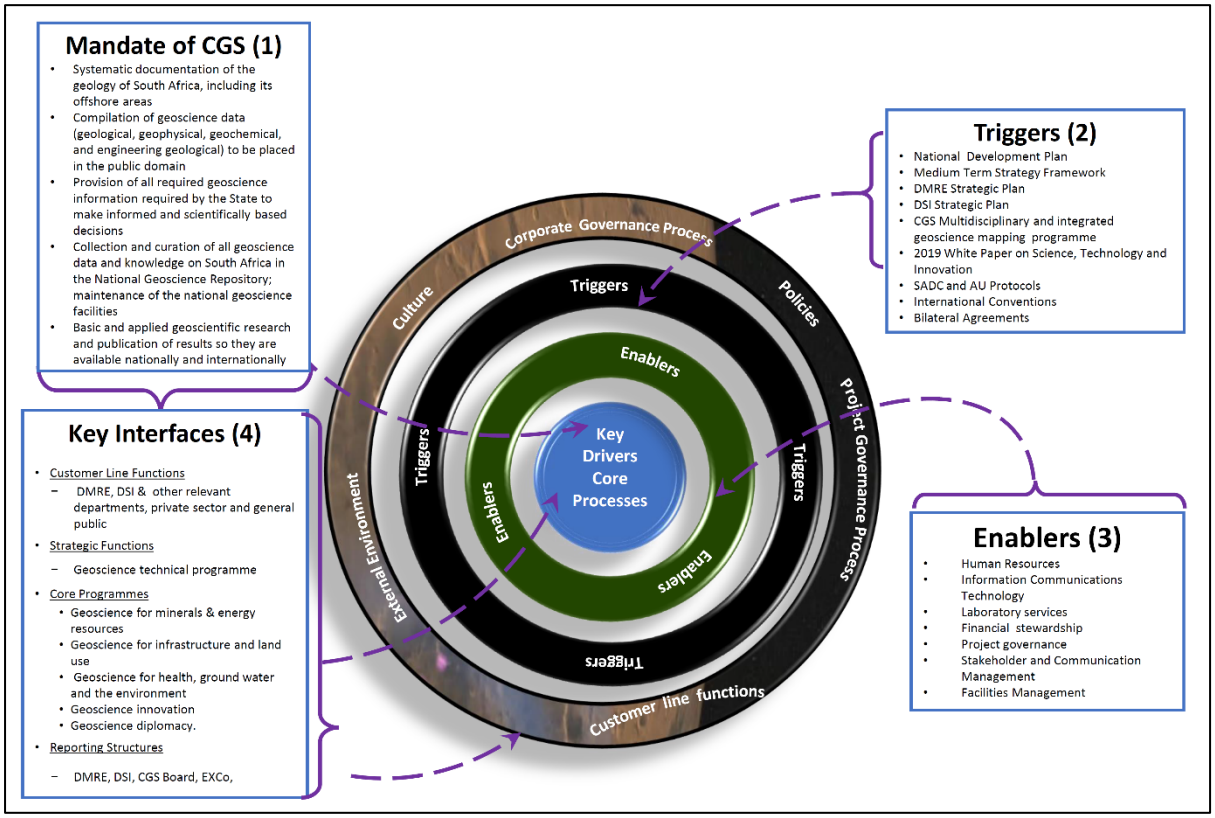


Figure 4: CGS Operating Model.

4.2.3 CGS Organisational environment

During the previous MTSF cycle 2014 - 2019, the CGS underwent drastic changes in terms of its strategy and business model. In the financial year 2013/14, the CGS introduced a Repositioning Strategy, which focused on migrating the CGS to a highly collaborative Target Operating Model (TOM). This model sought to address the service delivery needs of the country and to align the CGS to the requirements of its stakeholders and customers. This strategy was not implemented successfully and was accordingly abandoned. The Repositioning Strategy was replaced by the interim strategy termed "Business Unusual" in the second quarter of financial year 2015/16. This strategy focused on improving project management and operational efficiencies in view of unlocking the deferred income. Consequently, the strategy unlocked a significant portion of the deferred income. By the end of the 2015/16 financial year, the CGS had made a surplus of R54.2m.

It is worth noting that the Business Unusual strategy halted some statutory projects to divert resources to MTEF projects in order to accomplish its objective. Nevertheless, it yielded some positive results such as revenue generation and the reduction of the financial rollover of funds allocated to MTEF projects. However, this strategy was not sustainable in ensuring that the CGS remains a robust scientific organisation that focuses on research to comprehensively address the developmental needs of South Africa.

After a careful analysis of the CGS performance, the above-mentioned organisational strategies were replaced by a new business strategy, which was adopted by the CGS Board in June 2017. This new strategy is focused on an integrated and multidisciplinary geoscience mapping programme (IMMP), with all other CGS activities integrated and coordinated around this programme. The aim of this strategy is to map the land surface (both onshore and offshore) of South Africa at a greater level of detail, 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 the Operation Phakisa – oceans economy. The IMMP priorities include but not limited to:

- Digitally migrate all geoscience data (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 inclusive Mineral and Energy Resource Wealth)
- Catalysing the blue economy development, in line with the Operation Phakisa – oceans economy
- Securing future Energy resources (the IRP 2019)
- Contribute to improved carbon capture technologies (transition to a low carbon growth trajectory)
- Geoscience research that contributes to food security, infrastructure development, water and environment (Ensuring Community Safety, Land Use and Infrastructure Development and Securing South Africa's Water Resources).
- Improve African collaborations
- Grow scientific skills to execute the IMMP
- Embrace applications of the 4IR and AI in geosciences (leading geoscience innovation)

The CGS has made significant strides in terms of the representation of females, youth and people living with disabilities. Notably, female staff represent 44% of the scientific cohort with African females making up 30%. The representation of people living with disabilities is at 1.66%, which is at an all-time high over the past 5 years due to the in-house disability awareness campaign which encouraged employees to disclose their disabilities. Youth represent 40% of the workforce.

4.2.4 CGS Governance

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:

- Finance;
- Technical;
- Personnel, Remuneration and Transformation;
- Audit and Risk.

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.

Technical Committee

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

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.

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.

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.

4.2.5 CGS Organisational Structure

Figure 5 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.

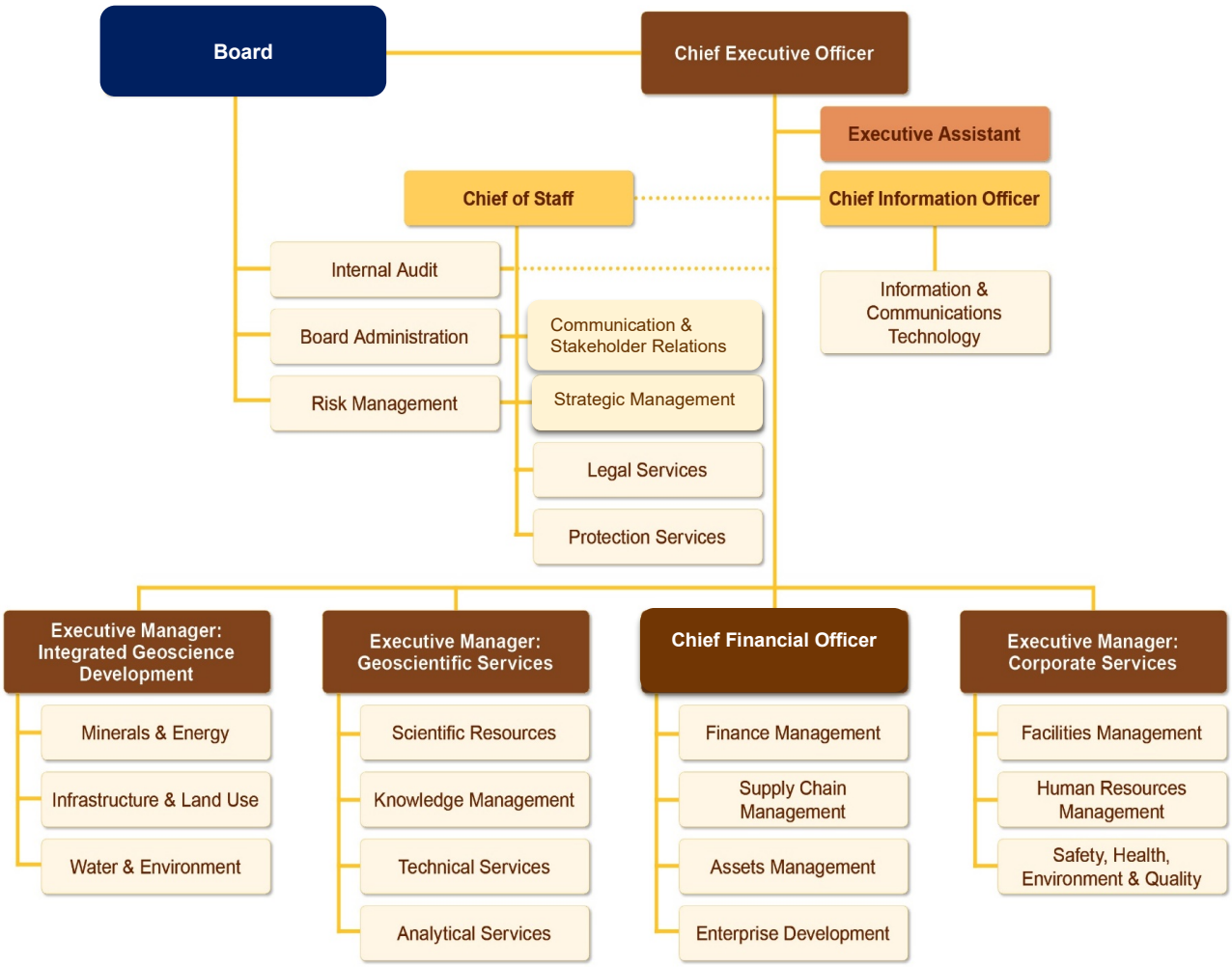


Figure 5: CGS Organisational Structure.

PART C:
MEASURING OF OUR PERFORMANCE

PART C: MEASURING OUR PERFORMANCE

5. CGS Programmes

5.1 Programme 1: Financial sustainability

Programme 1 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.

Programme 1 Goal: CGS financial growth through integrated geoscience services delivery, partnerships and innovation

Table 3: Programme 1 Outcomes, outputs, performance indicators and targets.

Outcome	Outputs	Output indicators	Audited performance			Estimated performance	MTEF period		
			2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Effective and efficient financial resources management	Audited financial reports	Percentage of overhead costs to total costs	54.33%	New Measure	61.04%	≤66%	≤66%	≤66%	≤66%
	Audited financial reports	Percentage of personnel costs to total costs	54.73%	New Measure	65.86%	≤70%	≤70%	≤70%	≤70%
	Audited financial reports	Revenue from collaborative activities/partnerships	R52.6m	R30m	R29m	R30m	R33m	R36m	R39m
	Audited financial reports	Grant revenue	R359.5m	R426.6m	R422.4m	R502.2m	R373.2m	R408.1m	R409.6m

5.2 Programme 2: Organisational effectiveness and efficiency

Programme 2 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.

Programme 2 Goal: A geoscience institution that is capable, effective, efficient, compliant and responsive, through an integrated service-delivery model

Table 4: Programme 2 Outcomes, outputs, performance indicators and targets.

Outcome	Outputs	Output indicators	Audited performance			Estimated performance	MTEF period		
			2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Effective and efficient financial resources management and Compliance with governance protocols/regulations	Audited annual report	Number of audit qualifications	0	0	0	0	0	0	0
	Audited annual report	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	New Measure	New Measure	48.25%	≥30%	≥30%	≥30%	≥30%
	Availability report	Availability of key enterprise services	New Measure	New Measure	New Measure	≥99%	≥99%	≥99%	≥99%

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

Programme 3 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.

Programme 3 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 5: Programme 3 Outcomes, outputs, performance indicators and targets.

Outcome	Outputs	Output indicators	Audited performance			Estimated performance	MTEF period		
			2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Capable human capital	Human Resources Reports	Percentage of scientific staff with Masters or Doctoral degrees	33.72%	New Measure	41.56%	≥35%	≥35%	≥35%	≥35%
	Human Resources Reports	Percentage of training expenditure to leviable amount of payroll	New Measure	1.46%	3.52%	≥1%	≥1%	≥1%	≥1%
	Human Resources Reports	Staff turnover rate	0.24%	5.47%	7.99%	≤10%	≤10%	≤10%	≤10%
	Human Resources Reports	Percentage of staff living with disability	New Measure	1.59%	1.66%	≥1.5%	≥1.5%	≥1.5%	≥1.5%

	Human Resources Reports	EE Stats, Scientific cohort (Female representation)	New Measure	New Measure	New Measure	≤49:≥51	44%	46%	48%
	Human Resources Reports	EE Stats, EXCO (Female representation)	New Measure	New Measure	New Measure	≤20:≥80	20%	40%	40%

Female representation for the scientific cohort and EXCO were revised in line with the quarter 3 performance (FY2020/21) of 38%.

5.4 Programme 4: Delivery of the mandate

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

Programme 4 Goal: An enabling environment in support of national imperatives and enhancing living conditions and creating a safe environment

Table 6: Programme 4 Outcomes, outputs, performance indicators and targets.

Outcome	Outputs	Output indicators	Audited performance			Estimated performance	MTEF period		
			2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Enhanced applications of geoscience information and knowledge and to secure a minimum of 5% share of the global exploration expenditure and Enhanced geoscience diplomacy	Onshore geoscience maps	Onshore geoscience map coverage	New Measure	New Measure	New Measure	9%	9.5%	11%	12%
	Offshore geoscience maps	Offshore geoscience map coverage	New Measure	New Measure	New Measure	0.1%	0.3%	0.4%	0.5%
	Value-added geoscience outputs such as integrated reports, 3D models, innovative solutions, mineral systems and emplacement models.	Applied geoscience outputs for minerals and energy	New Measure	New Measure	New Measure	6	4	4	4
	Value-added geoscience outputs such as integrated reports and 3D models, innovative solutions.	Applied geoscience outputs for infrastructure, land use, health, groundwater and the environment	New Measure	New Measure	New Measure	6	5	5	5

5.5 Programme 5: Advisory, stakeholder engagement and knowledge management

Programme 5 Purpose: To improve stakeholder relations through collaborations with strategically aligned institutions, the private sector and the general public.

Programme 5 Goal: An enabling environment in support of national imperatives and enhancing living conditions and creating a safe environment

Table 7: Programme 5 Outcomes, outputs, performance indicators and targets.

Outcome	Outputs	Output indicators	Audited performance			Estimated performance	MTEF period		
			2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Improved awareness of the CGS brand, services and products	Media articles	Number of articles published on media platforms	10	13	17	24	24	24	24
	Stakeholder survey report	Stakeholder satisfaction level	69.6%	64.9%	76%	≥70%	≥70%	≥70%	≥70%
Improved geoscientific domain through effective knowledge management	Peer-reviewed articles published in scientific journals, book chapters and edited volumes.	Number of peer-reviewed articles published	47	26	41	30	30	32	34
	Examples: memoirs, bulletins, books and atlases.	Number of CGS publications	9	6	12	7	8	8	10
	Examples: Conference Abstracts, extended abstracts, papers and keynotes.	Number of conference proceedings published	42	136	47	40	25	80	40

6. Annual and quarterly targets of the output indicators (FY 2021/22)

Table 8: Programme 1: Financial sustainability annual and quarterly targets.

Output indicators	Annual targets	Q1	Q2	Q3	Q4
Percentage of overhead costs to total costs	≤66%*	≤66%	≤66%	≤66%	≤66%
Percentage of personnel costs to total costs	≤70%*	≤70%	≤70%	≤70%	≤70%
Revenue from collaborative activities/partnerships	R33m*	R5m	R10m	R15m	R33m
Grant revenue	R373.2m*	R100m	R250m	R300m	R373.2m

* Tracking and monitoring will be done on quarterly basis.

Table 9: Programme 2: Organisational effectiveness and efficiency annual and quarterly targets.

Output indicators	Annual targets	Q1	Q2	Q3	Q4
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	≥30%*	≥30%	≥30%	≥30%	≥30%
Number of audit qualifications	0	-	-	-	0
Availability of key enterprise services	≥99%*	≥99%	≥99%	≥99%	≥99%

* Tracking and monitoring will be done on quarterly basis.

Table 10: Programme 3: An empowered, transformed, motivated and capacitated workforce annual and quarterly targets.

Output indicators	Annual targets	Q1	Q2	Q3	Q4
Percentage of scientific staff with Masters or Doctoral degrees	≥35%*	≥35%	≥35%	≥35%	≥35%
Percentage of training expenditure to leviable amount of payroll	≥1%*	≥1%	≥1%	≥1%	≥1%
Staff turnover rate	≤10%*	≤10%	≤10%	≤10%	≤10%
Percentage of staff living with disability	≥1.5%*	≥1.5%	≥1.5%	≥1.5%	≥1.5%
EE Stats, Scientific cohort (Female representation)	44%*	44%	44%	44%	44%
EE Stats, EXCO (Female representation)	20%*	20%	20%	20%	20%

* Tracking and monitoring will be done on quarterly basis

Table 11: Programme 4: Delivery of the mandate annual and quarterly targets.

Output indicators	Annual targets	Q1	Q2	Q3	Q4
Onshore geoscience map coverage	9.5%*	9.1%	9.2%	9.3%	9.5%
Offshore geoscience map coverage	0.3%*	0.15%	0.2%	0.25%	0.3%
Applied geoscience outputs for minerals and energy	4*	0	2	3	4
Applied geoscience outputs for infrastructure, land use, health, groundwater and the environment	5*	0	2	3	5

* Tracking and monitoring will be done on quarterly basis

Table 12: Programme 5: Advisory, stakeholder engagement and knowledge management annual and quarterly targets.

Output indicators	Annual targets	Q1	Q2	Q3	Q4
Number of articles published on media platforms	24*	4	8	12	24
Stakeholder satisfaction level	≥70%*	-	-	-	≥70%
Number of peer-reviewed articles published	30*	*	*	*	30
Number of CGS publications	8*	1	3	5	8
Number of conference proceedings published	25*	*	*	*	25

* Tracking and monitoring will be done on quarterly basis

7. 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 objectives of the CGS are illustrated below (Figure 6), 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 objectives/programmes that cover the customer, internal business process, learning and growth and financial perspectives. These strategic objectives/programmes are aligned to the NDP 2030 as well as the MTSF 2019-2024 priorities and addresses the cross-cutting areas for women, youth and people with disabilities.

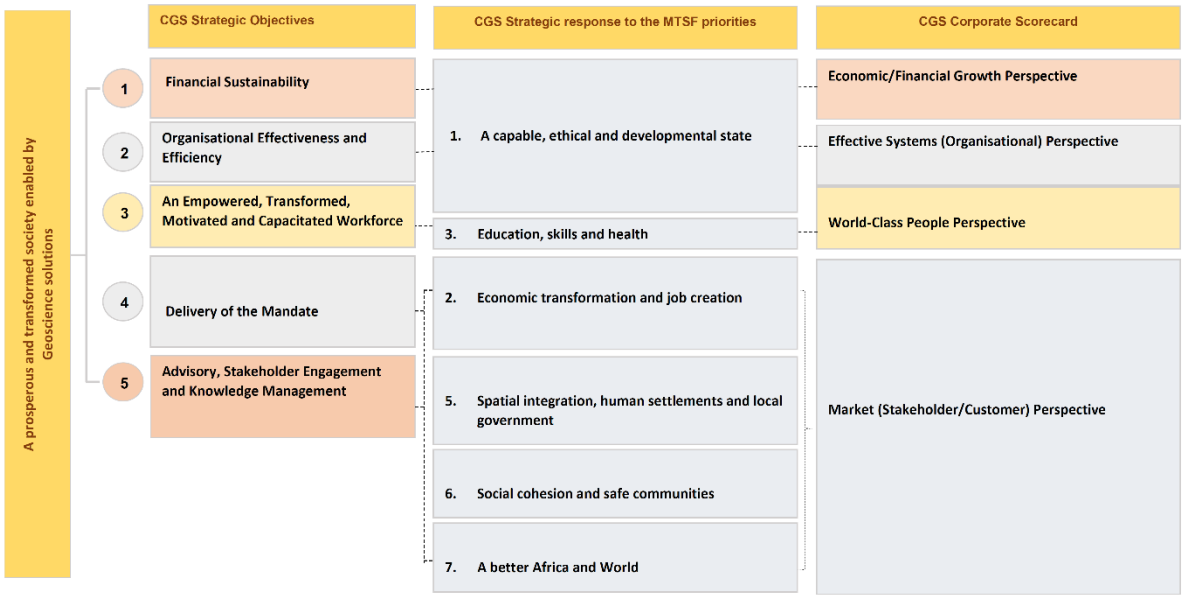


Figure 6: The alignment of CGS Strategic Objectives/Programmesthe MTSF 2019-2024 priorities as well as the BSC perspectives.

The CGS plans of achieving its impact “A prosperous and transformed society enabled by geoscience solutions” is anchored on seven institutional outcomes (i.e. Effective and efficient financial resources management, Compliance with governance protocols/regulations, Capable human capital, Enhanced applications of geoscience information and knowledge and to secure a minimum of 5% share of the global exploration expenditure, Improved awareness of the CGS brand, services and products, Improved geoscientific domain through effective knowledge management and 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 – 7 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.

8. Programme resource considerations

8.1 Overview of 2021/22 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- 2020/21**	**FY - 2021/22**	**FY - 2022/23**	**FY - 2023/24**	**FY - 2024/25**	**FY - 2025/26**
	x 1 000	**x 1 000**	**x 1 000**	**x 1 000**	**x 1 000**	**x 1 000**
Government grant	502,230	371,156	408,078	409,646	484,281	513,338
Deferred Income	105,978					
Sales and contracts	29,282	32,210	35,431	38,974	42,871	47,159
Sundry income	4,072	4,276	4,490	4,714	4,950	5,197
TOTAL INCOME (RAND)	**641,562**	**409,642**	**447,999**	**453,335**	**532,102**	**565,694**
EXPENDITURE (RAND)	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**
	x 1 000	**x 1 000**	**x 1 000**	**x 1 000**	**x 1 000**	**x 1 000**
Personnel costs	336,594	316,946	342,117	367,773	393,517	421,063
Bursaries	4,074	4,481	4,930	5,423	5,965	6,561
Commercial project costs	13,177	14,495	15,944	17,538	19,292	21,222
Overheads and operating costs	215,921	58,220	69,508	47,101	97,828	101,348
SUBTOTAL	***569, 766***	***394,142***	***432,499***	***437,835***	***516,602***	***550,194***
Surplus before Capital Expenditure	**71,796**	**15,500**	**15,500**	**15,500**	**15,500**	**15,500**
Application of Surpluses:						
Capital expenditure						
Vehicles and Aircrafts	3,500	3,500	3,500	3,500	3,500	3,500
Equipment	12,000	12,000	12,000	12,000	12,000	12,000
Deferred : Building and Laboratory Infrastructure	22,645	-	-	-	-	-
Deferred: Digital information System; buildings; equipment's and facilities	33,651	-	-	-	-	-
SUBTOTAL	***71,796***	***15,500***	***15,500***	***15,500***	***15,500***	***15,500***
TOTAL EXPENDITURE (RAND)	**641,562**	**409,642**	**447,999**	**453,335**	**532,102**	**565,694**
Surplus (Loss)	-	-	-	-	-	-

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. The Government grant decreases from FY2020/21 due to the discontinuation of the MTEF ring-fenced funding for analytical and research work for the Geoscience Laboratory. In the 2020 MTEF, an additional baseline allocation is made to the amount of R345,8m. These allocations are made in trances 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. R18,7m was reduced in the 2020/21 financial year as part of the 2020/21 Adjusted Estimates of National Expenditure budget. A further R84.3m (R20.6m in 2021/22 and R22.9m in 2022/23 and R40.8m respectively) National Treasury proposed budget reductions were made in the 2021 MTEF. The reduction will have an adverse impact on the delivery of the Geological mapping for exploration of mining. This means that that some economic recovery projects will be affected by these changes and might result in the delay on accelerates delivery to ignite the economy.

Revenue from Government Grant

The Government grant consists of the baseline grant and additional funding for MTEF projects. There has previously been no real growth in the baseline grant. The grant increases were meant to address inflation. The baseline grant has increased to R320,2m, R353,1m, R352,2m, R422,4m, R447,8m for the financial years 2021/22, 2022/23, 2023/24, 2024/25 and 2025/26 respectively due to the above mentioned baseline adjustments.

Table 14: Analysis of Government Grant Allocation.

Item	FY - 2020/21 x 1 000	FY - 2021/22 x 1 000	FY - 2022/23 x 1 000	FY - 2023/24 x 1 000	FY - 2024/25 x 1 000	FY - 2025/26 x 1 000
Government grant	**502.2m**	**373.1m**	**408.0m**	**409.6m**	**484.3m**	**513.3m**
Baseline allocation (operational)	202.4m	212.8m	228.3m	238.5m	256.4m	271.8m
MTEF Projects (Ring Fenced)	50.3m	52.9m	54.9m	57.5m	61.9m	65.5m
Deferred Income	105.9m	0	0	0	0	0
Geological mapping for exploration of mining	51.4m	107.4m	124.8m	113.6m	166.0m	176.0m
Analytical and research work for the Geoscience Laboratory	198.3m	0	0	0	0	0
Commercial Revenue	**29.2m**	**32.2m**	**35.4m**	**39.0m**	**42.9m**	**47.2m**
Sundry income	**4.1m**	**4.3m**	**4.5m**	**4.7m**	**4.9m**	**5.2m**
TOTAL REVENUE (RAND)	**641.6m**	**409.6m**	**447.9m**	**453.3m**	**532.1m**	**565.7m**

Revenue from Collaborative/Partnership Activities

Revenue from collaborative activities is budgeted at R29,2m for FY2020/21 and is expected to increase by 10% year on year over the five financial years. This is based on current collaborative contracted work. There are plans to grow this revenue stream to augment the Government grant allocation and achieve financial sustainability.

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 R336,6m for FY2020/21 and subsequently a 7% increase year on year has been added over the five financial years. From

FY2021/22 the personnel budget decreases to R316.9m due to the end of the ECSP allocations for analytical and research work for the Geoscience Laboratory and the National Treasury proposed budget reductions on Compensation of employees. The proposed reductions will have a negative impact on some economic recovery projects and might result in the delay on accelerated delivery to ignite the economy. 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.

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 R4,1m has been budgeted for FY2020/21, with a 10% increase year on year over the five financial years.

Cost of Collaborative/Partnership 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 R13,2m for FY2020/21, which is 45% of the projected revenue for each year over the five financial years.

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 in proportion to the total Government grant. Overhead and operating costs are budgeted at R215,9m for FY2020/21. A significant decrease in the budget in FY2021/22 is due to the discontinued additional allocations for the analytical and research work for the Geoscience Laboratory. These costs are budgeted in proportion to the revenue. R18,7m was reduced in the 2020/21 financial year as part of the 2020/21 Adjusted Estimates of National Expenditure budget. A further R84,3m (R20,6m in 2021/22, R22,9m in 2022/23 and R40,8m in 2023/24) proposed budget reductions were made in the 2021 MTEF. The reduction will limit the geoscientific contribution to the South African Economic Reconstruction and Recovery Plan.

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. However, this is not sufficient to sustain services and skills development in the CGS.

An amount of R15,5m has been budgeted for the replacement of vehicles, equipment and aircraft repairs for FY2020/21. A capital renewal plan is developed annually to address the infrastructure requirements.

8.2 Link between the Budget and Strategic Objectives

Table 15: Link between Budget and Strategic Objectives.

CGS Objectives	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Objective (Programme) 1: Financial Sustainability	73,531,842	47,921,006	52,452,542	55,752,539	59,266,052	63,007,563
Objective (Programme) 2: Organisational effectiveness and efficiency	115,455,966	75,243,132	82,358,320	87,539,807	93,056,547	98,931,277
Objective (Programme) 3: An empowered, transformed, motivated and capacitated workforce	16,464,856	10,730,215	11,744,892	12,483,809	13,270,537	14,108,316
Objective (Programme) 4: Delivery of Mandate	418,430,200	264,226,080	288,832,170	284,154,357	352,259,627	374,498,043
Objective (Programme) 5: Advisory, Stakeholder Engagement & Knowledge Management	17,679,136	11,521,566	12,611,076	13,404,488	14,249,237	15,148,802
Total Budget	641,562,000	409,642,000	447,999,000	453,335,000	532,102,000	565,694,000

The decrease in the budget for Programme 2 and 4 is aligned with the end of the MTEF funding in the government grant.

8.3 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
Geophysics and Research 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	**Equipment and Technology** Laboratories and Geophysics are the two main areas giving rise to the need for disclosure in terms of materiality and significance **Laboratories** **Geophysics** *Consideration in terms of expenditure was given as follows: (as included within the budgeting process)* • *Irregular Expenditure consisting of spending outside of approved budget* • *Fruitless and Wasteful Expenditure. Equipment not suited or necessary for purpose*	Calculating the property and equipment threshold value at 2% of the value as indicated in the annual financial statements (R326,633,000) **R6,5m** **R6,5m** **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**	Management to submit a report with all relevant details and values concerned to the Executive for comment and disclosure to Treasury where required *Process:* • *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 diligence, gross negligence or criminal activity, 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
			• *Responsibility* The Executive must direct a request for ruling or approval from Treasury or the relevant Executive Authority
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	**Financial** Operations and Capex are considered as the main areas giving rise to the need for disclosure in terms of materiality and significance: ***Operating Expenditure*** *(Existing Budgeted Projects)* *Any irregular spending outside of approved budget* ***New Projects*** *Unforeseen additional expenditure due to poor project planning or early termination or cancellation of projects* ***Capex: -*** ***Total Assets***	**R2,2m** Operating threshold value calculated at 1% of budget value (R215,921,000) **Expressed as 2% of the Project Value** This threshold will vary according to the project value. E.g. R40m equates to R800,000 and R10m equates to R200,000 **R12,3m** Total asset threshold value calculated at 2% of the value as indicated in the annual financial statements (R614,349,000)	Management to submit a report with all relevant details and values concerned to the Executive for comment and disclosure to Treasury where required *Process:* • *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 diligence, gross negligence or criminal activity; and* • *Responsibility* The Executive must direct a request for ruling or approval from Treasury or the relevant Executive Authority
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 A significant change in the nature or	Where the business has joint ventures or similar arrangements, these are strictly governed by the Geoscience Act in addition to the PFMA Concluding any transaction in terms of Section 54 without approval from the Executive Authority	Should such an event materialise it would need to be investigated and only then would the potential loss be determined No threshold can be anticipated	Management to submit a report with all relevant details and values concerned to the Executive for comment and disclosure to Treasury where required *Process:* • *Information to be provided regarding event;*

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
extent of its interest in a significant partnership, trust, unincorporated joint venture or similar arrangement		Any transgression is to be investigated and reported once all relevant details have been compiled	• *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 diligence, gross negligence or criminal activity, and* • *Responsibility* The Executive must direct a request for ruling or approval from Treasury or the relevant Executive Authority

9. Updated key risks and mitigation from the Strategic Plan

The CGS is required to manage and respond to a set of strategic risks that may have an impact on the execution of its strategic plan. These, together with the response of the CGS to the risks are summarised in the table below. In addition, the initiatives proposed to achieve the CGS strategic objectives will further provide a level of mitigation of the stated risks.

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	• The impact of Covid-19 pandemic on the GDP and the ability to implement business development initiatives.	• Fast-track the implementation of the GTP to catalyse investment in exploration; the goal is to ensure a long-term sustainable funding model that sustains the impact of the geosciences in South Africa. • Implement business development strategy.
Capable human capital Improved geoscientific domain through effective knowledge management	Inadequate specialised skills to deliver on mandate	• Inadequate talent management.	• Talent management and employee training and development strategy.
Enhanced applications of geoscience information and knowledge and to secure a minimum of 5% share of the global exploration expenditure.	Insufficient support to the government priorities, e.g. economic transformation and job creation through mineral promotion.	• Misalignment of the GTP with government priorities.	• Align the GTP to the government priorities and fully implement the integrated approach.
Improved awareness of the CGS brand, services and products Enhanced geoscience diplomacy	Insufficient communication and stakeholder management.	• Uncoordinated implementation of stakeholder engagement plan / programme.	• Implement a coordinated communication and stakeholder management strategy
Compliance with governance protocols/regulations	Non-Compliance with regulatory requirements such as PFMA, OHSA, LRA, CGS data policy)	• Insufficient advocacy and awareness of the regulatory protocols.	• Monitor and manage compliance. • Implement training and awareness campaigns on compliance.

10. Public entities

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

11. Infrastructure projects

No.	Project name	Programme	Description	Outputs	Start date	Completion date	Total estimated cost	Current year expenditure

Not Applicable								

12. Public-Private Partnerships (PPPs)

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

PART D:

TECHNICAL INDICATOR DESCRIPTIONS (TIDs)

PART D: TECHNICAL INDICATOR DESCRIPTIONS (TIDs)

1. Indicator Title	**Percentage of Overhead Costs to Total Costs**
Definition	All non-project related costs expressed as a percentage of total costs
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 expressed as a percentage of total costs
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	**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
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
6. 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
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 any employee at the CGS with a scientific qualification or involved in the scientific programmes (who book time on the timesheet system)
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 and 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 Leviable Amount of Payroll**
Short definition	Total training expenditure of staff and non-staff on leviable amount of payroll expressed as a percentage
Source / collection of data	Accounting system
Method of calculation or assessment	Percentage of training expenditure to leviable 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	VIP 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 and fixed-term contracts on permanent positions, excluding contractors.
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
Source / collection of data	Disclosure forms – personnel records
Method of calculation or assessment	Number of staff living with disability divided by the total number staff X 100. Staff means permanent and fixed-term contracts on permanent positions, including contractors and interns
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 any employee at the CGS with a scientific qualification or involved in the scientific programmes (who book time on the timesheet system)
Source / collection of data	VIP system
Method of calculation or assessment	(Number of female scientific staff ÷ total scientific staff) X 100
Means of verification	HR report
Assumptions	Measures to attract and retain targeted groups are effective
Disaggregation of beneficiaries (where applicable)	Target for women: 40% 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, EXCO (Female representation)**
Short definition	The percentage of female staff at the EXCO level at the CGS.
Source / collection of data	VIP system
Method of calculation or assessment	(Number of female staff at the EXCO level ÷ total number of EXCO members) X 100
Means of verification	HR report
Assumptions	CGS supportive of transformative agenda of the government
Disaggregation of beneficiaries (where applicable)	Target for women: 20% 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	**Onshore geoscience map coverage**
Short definition	Coverage of onshore geoscience 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 geoscience maps produced within the reporting period added to maps produced in preceding years (such as geology, geophysics, geotechnical, geochemistry, seismic hazards, mineral resources, energy resources and hydrogeology) divided by the total number of 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
15. 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
16. Indicator Title	**Applied geoscience outputs for minerals and energy**
Short definition	Applied geoscience outputs are value-added 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, 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
17. Indicator Title	**Applied geoscience outputs for infrastructure, land use, health, groundwater and the environment**
Short definition	Applied geoscience outputs are value-added 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, 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

18. 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: Communication and Stakeholder Relations
19. 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: Communication and Stakeholder Relations
20. 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	Non-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
21. 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: Integrated Geoscience Development and Geoscientific Services
22. Indicator Title	**Number of Conference Proceedings Published**
Short definition	Total number of abstracts published in conference proceedings (such as abstracts, extended abstracts and conference papers and keynotes)
Source / collection of data	Integrated Geoscience Development and Geoscientific Services
Method of calculation or assessment	Count the number of conference proceedings
Means of verification	Assessment of the conference proceedings submitted
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	Non-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.