



Council for Geoscience

# Pego Ya Ngwaga 2021/22

'Geoscience ke mothopo  
wa hlabollo ya batho'



mineral resources  
& energy

Department:  
Mineral Resources and Energy  
REPUBLIC OF SOUTH AFRICA

Hlogopoledišano ya Pego ya Ngwaga ya 2021/22 Council for Geoscience ya

## 'Geoscience ke mothopo wa hlabollo ya batho'

ke tlhagišo ye bohlokwa yeo e boletšwego ke CEO Mna Mosa Mabuza le go amogelwa ka 2019 ke mokgatlo.



### **Seswantšho sa Letlakala la ka Ntle:**

Sebopego sa phekmathaete se se swerwego ka zohne ya kgauswi ya neoprotherosoiki go Henkries Valley, Namaqualand, Profentshe ya Kapa Leboa (Motšeaseswantšho: Ngaka Valerie Nxumalo). Kalego ya phatlalatšo ye e bontšhago phatlalatšo ya phekmathaete ya selete le mmepe wa kgonagalo ya go hwetšagala ga phekmathaete le go rafša ga yona go kgabaganya Molapo wa Orange River, Profentshe ya Kapa Leboa (Mmepe o tšweleditšwe ke Doggart *et al*, 2022)

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# Lenaneo La Dikhutsofatšo

<b>1D</b>	One-dimensional
<b>2D</b>	Two-dimensional
<b>3D</b>	Three-dimensional
<b>AI</b>	Artificial intelligence
<b>APP</b>	Annual Performance Plan
<b>B-BBEE</b>	Broad-based Black Economic Empowerment
<b>CCUS</b>	Carbon capture utilisation and storage
<b>CEO</b>	Chief Executive Officer
<b>CGS</b>	Council for Geoscience
<b>COVID-19</b>	Coronavirus disease 2019
<b>CTBTO</b>	Comprehensive Nuclear-Test-Ban Treaty Organisation
<b>DDM</b>	District Development Model
<b>DMRE</b>	Department of Mineral Resources and Energy
<b>EME</b>	Exempted micro enterprise
<b>ERP</b>	Enterprise resource planning
<b>ERRP</b>	Economic Reconstruction and Recovery Plan
<b>ECL</b>	Environmental critical level
<b>EXCO</b>	Executive committee
<b>F-REE</b>	Fluorine rare-earth element
<b>GEMMAP</b>	Geological Mapping and Mineral Assessment Project of Malawi
<b>GRAP</b>	Generally Recognised Accounting Practice
<b>GTP</b>	Geoscience Technical Programme
<b>HCM</b>	Human Capital Management
<b>ICT</b>	Information and communications technology
<b>IMMP</b>	Integrated and multidisciplinary geoscience mapping programme
<b>IMS</b>	International Monitoring System
<b>KDD</b>	Karoo Deep Drilling
<b>MEWMP</b>	Mine and Environmental Water Management Programme
<b>MPRDA</b>	Mineral and Petroleum Resources Development Act
<b>MT</b>	Magnetotelluric
<b>MTSF</b>	Medium-Term Strategic Framework
<b>NDP</b>	National Development Plan
<b>OAGS</b>	Organisation of African Geological Surveys
<b>PFMA</b>	Public Finance Management Act
<b>PPPFA</b>	Preferential Procurement Policy Framework Act
<b>PS</b>	Primary station
<b>QPZ</b>	Quarry potential zones
<b>QSE</b>	Qualifying small enterprise
<b>REE</b>	Rare-earth element
<b>SANSN</b>	South African National Seismograph Network
<b>SP</b>	Strategic Plan
<b>the dtic</b>	Department of Trade, Industry and Competition
<b>UNISA</b>	University of South Africa
<b>US</b>	United States





*Go tirila ka go dikologa o boela morago go la Giyani*



*Ditherišano tša mašemong ka Profentsheng ya Kapa Leboa*



# Kgaolo ya A Tshedimošo- Kakaretšo

## Tshedimošo-Kakaretšo ka ga Council for Geoscience

**Leina la boingwadišo:** Council for Geoscience

**Setheo sa mmušo sa bosetšhaba go ya ka PFMA:**

Šetule ya 3A

**Aterese ya lefelo:** 280 Pretoria Street  
Silverton, Pretoria  
South Africa

**Aterese ya poso:** Private Bag X112  
Pretoria, South Africa  
0001

**Nomoro ya mogala:** +27 (0)12 841 1911

**Aterese ya emeile:** info@geoscience.org.za

**Aterese ya wepsaete:** www.geoscience.org.za

**Balekodi ba dipuku go tšwa ntle:** Auditor-General South Africa

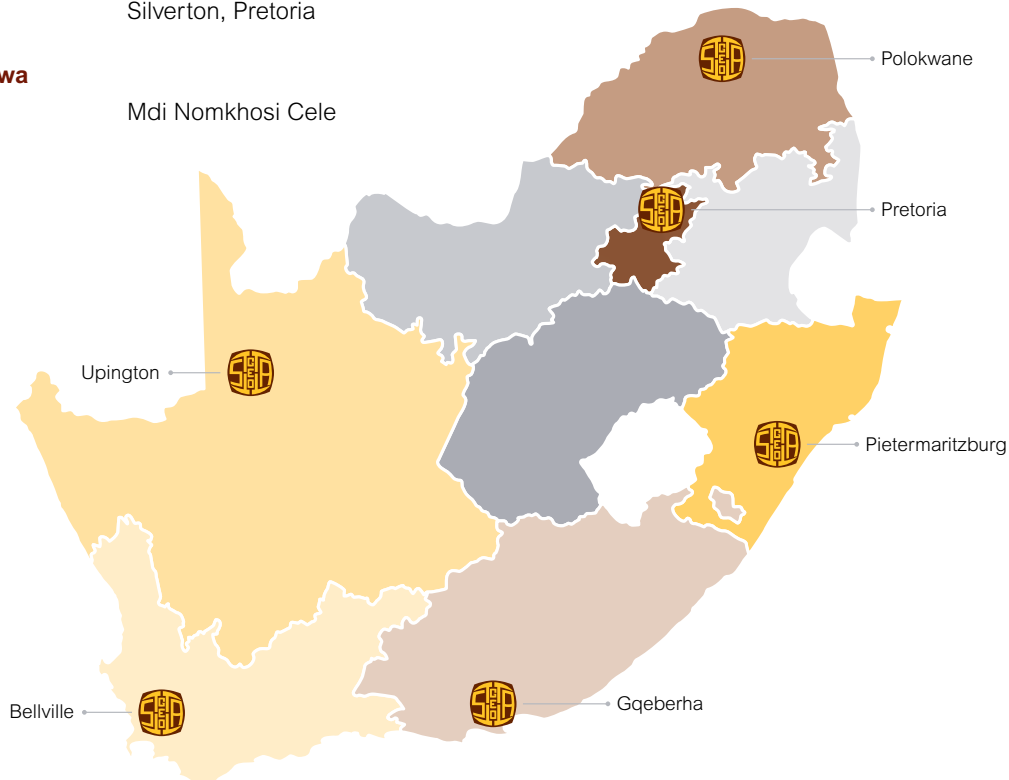
**Dipanka:** Nedbank and Absa in  
Silverton, Pretoria

**Mongwaledi wa lekgotla:** Mdi Nomkhosi Cele

## Council for Geoscience

Molao wa Tšeosaentshe, Molao wa 100 wa 1993 wo o fetošitšwego, o hlamile Council for Geoscience (CGS), magareng ga tše dingwe, bjalo ka mothopo wa bosetšhaba wa datha ya tšeosaenthefiki, tshedimošo le tsebo ka Afrika-Borwa.

CGS e fetogile go ba institšušene ya sebjalebjae ye e ikgantšhago ka meago, dithoto le mabokgoni a go ikgetha. Merero ye e nepilwego ya saentshe ya mokgatlo e gatelela merero ye bohlokwa ye mmalwa ye e akaretšago, eupša e sa kgaoletšego, tšeosaentshe ya diminerale le enetši, tšeosaentshe ya mananeokgoparara le tšhomišo ya naga ka botlalo (go akaretša tšeolotši ya boentšinere le ditšeoahasate) tšeosaentshe ya tikologo le meetse a ka fase ga mabu, tšeosaentshe ya boitlhagišetšo le tšeosaentshe ya botiplomate. CGS e na le dikantoro go dilete tše tshela ka Afrika-Borwa, mola kantorokgolo e hwetšagala Silverton, Pretoria (Figure 1).



Seswantšho sa 1: Dikantoro tša CGS go dilete tše tshela Geoscience ka Afrika-Borwa

# 1

## Mantšu A Ketapele Ka Modulasetulo Wa Lekgotla



**Ngaka Humphrey Mathe**  
Modulasetulo wa Lekgotla

Ke kwa ke itumetše kudu ebile ke na le maatla ao a kgethegilego go ala Pego ya Ngwaga ka Ngwaga ya Lekgotla la Geoscience (CGS) 2021/2022. Ge ngwaga wo o lekodišišwago e le ngwaga wo o tlogo pele ga ngwaga wa mafelelo wa Lekgotla, tšhomišano magareng ga balaodi, bašomi le bakgathatema e bile bohlokwa go dikaonafatšo le dipihlelelo tše kgolo tše di fihleletšwego ke mokgatlo. CGS e tšwetše pele go tia maatla, go ikgafa le go itlama go phethagatšo ya mananeo a yona ka moka le go ba le seabe sa makgonthe go fihleleleng *'Setšhaba se se gatelago pele ebile se fetogilego seo se kgontšhwago ke ditharollo tša Geoscience'* go Afrika-Borwa le badudi ba yona.

Go fetile mengwaga ye mebedi go tloga mola go phulegago leuba la COVID-19 go aparela lefase ka moka, go go hlotšego tlhakahlakano ebile go tšwelago pele go dira bjalo maphelong a ba bantši ka nageng go go bonwego ka kelo ye e oketšegilego ya diphetetšo ka baka la go fetoga ga baerase. Le ge CGS e phethagaditše mananeo-temošo a yona ka moka a bohlokwa go lwantšheng kelo ya phetetšo ka mokgatlong, bašomi ba mmalwa ba bile le phetetšo ya bolwetši ngwageng wa matlotlo wa 2021/22. Le ge go le bjalo, re itemogetše kelo ye e fokotšegilego ya phetetšo le kelo ye e kaonafetšego ya pholo kotara ka kotara. Go fihla gabjale, go dirilwe diteko tše 258 go bašomedi, moo go begilwego palomoka ya diphetetšo tša bolwetši tše 72 go ngwaga wa 2021/22. Se se laetša kelo ya diphetetšo ka kakaretšo ya 27.91%, moo bašomedi ka moka bao diteko tša bona di utollotšego gore ba na le phetetšo ba hweditšego pholo ka botlalo. Ka gona, CGS e na le mahlatse go bega ngwageng wa bobedi ka tatelano, gore ga se ya itemogela mahu ao a bakilwego ke baerase nakong yeo go fanwago ka dipego.

Ge ngwaga o batamela go fihla mafelelong a ona, re swabišitšwe ke go hlokofera ga leloko la rena la Lekgotla, Mna Smunda Mokoena, ka Labone 17 Hlakola 2022. Mna Mokoena o bile leloko la Lekgotla la CGS ka la 1 Mopitlo 2020 le go fana ka tlhahlo ye e tšwetšego mohola go Dikomiti tša Sethekgeniki le tša Matlotlo tša Lekgotla ka bobedi. O bile le tlhohleletšo ya makgonthe ka intasetering ya tša meepo le diminerale kudukudu ka maemo a gagwe ao a maatlafetšego a

go ba baetapele ba go ba le maitshwaro a mabotse ka mmušong bao ba tla hlohleletšago molao go mešomo ka moka ye e direlwago Mmušo. Re re balapa la gagwe ba homotšege nakong ye e boima ebile re re moya wa gagwe o robale ka khutšo.

Kotara ya mafelelo ya ngwaga wa 2021/22 e gopolwa ka go fedišwa ga Seemo sa Tšhoganetšo sa Bosetšhaba ka lebaka la leuba la COVID-19. Tsebišo ye e kgontšhitše CGS go boela go magato a go šoma ka botlalo. Bjalo ka mokgatlo, re itlwaeditše go šoma ka fase ga seemo se seswa mola re tšea magato ka mafolofolo go fokotša kotsi le kamego go phethagatšong ya mešomo. Go ntlha ye, CGS e tloga e thabile go bega ka phihlelelo ya yona ya dipoelo tše di kgotsofatšago tša tšhomišo ya ditšhelete tše di se nago bosodi (ke gore, pego ye e hlwekilego) go ngwaga wa ditšhelete wo o lekodišišwago. Go feta fao, ka phethagatšo ya maleba ya phethagatšo ya mananeo a bohlokwa, go fihleletšwe phethagatšo ya mešomo ka kakaretšo ya 86.4% ka mokgatlo.

Mo ngwageng wo o lekodišišwago, go bile bohlokwa gore CGS e sware dinyakišišo tše di nago le seabe tšeo di gatelelago tharollo ya ditlhohlo tša leago le ekonomi tšeo batho ka moka bao ba dulago ka Afrika-Borwa ba lebanego le tšona. Go se gwa lebelelwa boitlamo bjo, CGS e amogetše leanophethagatšo leo le hlohleletšago go maatlafala ga mokgatlo go seemo se se fetogago sa dikgopolo, ekonomi, le sebopego sa theknolotši. Bjalo ka CGS, re dumela gore go na le kgonagalo ye kgolo kudu ya go utollwa ga diminerale tše mpsha ka Afrika-Borwa. Re humile ka maswika a moswananoši a tšeolotši ao gantši a fihlilwego ka fase ga maswika a magolo kudu go swana le ao a bonwego ka Profentsheng ya Kapa Leboa. Le ge go le bjalo, dinyakišišo mabapi le lehumo le le legolo la tšeolotši ga di dirwe ka tsela ye e e kgotsofatšago. Se se hlohleletšwa le ke dikelo tše nnyane tša peeletšo go mešomo ya go kopola yeo e sa sepelelanego le tšeolotši ka seleteng.

CGS e ikemiseditše go šomiša sekala sa maemo a godimo sa 1:50 000 sa Lenaneo le Kopantšwego la Mmepa wa Geoscience ka Afrika-Borwa. Lenaneo le tšwela pele go fana ka datha ye e hlokegago ya tšeosaentshe yeo e ka šomišwago go tšweletša dikholego tše di oketšago boleng ka makaleng a bohlokwa a Diminerale le Enetši, Meetse le Tikologo, le Tšhomišo ya Naga le Mananeokgoparara a bohlokwa. Tše dingwe tša dikholego tše di nago le mohola tše di tšweleditšwego ka fase ga hlogopoledišano ya diminerale le enetši di akaretša kakaretšo ye e oketšegilego ya go thalwa ga mmepe wa ka nageng ya go fihla go 10.70% le

kakaretšo ya wa dinaga tša ka ntle ya 0.05%. Go feta moo, CGS e gatišitše mmepe wa moswananoši wa mmepe wa kgonagalo ya go hwetšagala ga Phekmathaete ya Orange River ye e lego mothopo wo o tsebjago wa lithiamo le maswikana a go hlokwa ka Profentsheng ya Kapa Leboa. Go protšeke ya go thala mebepe ya Giyani, go thomišitšwe ka mošomo wa go tirila go kotara ya mafelelo ka go epša ga palomoka ya melete ya meetse ye seswai. Go kgobokeditšwe



Bjalo ka CGS, re dumela gore go na le kgonagalo ye kgolo kudu ya go utollwa ga diminerale tše mpsha ka Afrika-Borwa. Re humile ka maswika a moswananoši a tšeolotši ao gantši a fihlilwego ka fase ga maswika a magolo kudu go swana le ao a bonwego ka Profentsheng ya Kapa Leboa. Le ge go le bjalo, dinyakišišo mabapi le lehumo le le legolo la tšeolotši ga di dirwe ka tsela ye e e kgotsofatšago. Se se hlohleletšwa le ke dikelo tše nnyane tša peeletšo go mešomo ya go kopola yeo e sa sepelelanego le tšeolotši ka seleteng. CGS e gatišitše mmepe wa moswananoši wa kgonagalo ya go hwetšagala ga Phekmathaete go Orange River wo e lego mothopo wo o tsebjago wa lithiamo le maswika ao a sa tlwaelegago ka Profentsheng ya Kapa Leboa.

disampole tše mmalwa tša go ba le salfaete le gona di tsebjago go ba di amantšhwa le go epša ga diminerale tša gauta. Gabjale go sekasekwa disampole ka dipoelo tša tlhahlobo tše di akanywago go Kotara ya 1 ya ngwaga wa ditšhelete wa 2022/23. CGS e tšweleditše le mmepe wa kgonagalo ya maswika ao a ka šilwago wa borwa bja profentshe ya KwaZulu-Natal, wo o laetšago mafelo ao a ka šomišetšwago go šilwa ga maswika. Didathasete ka moka, tshedimošo le ditšweletšwa tše di tšwago lenaneong le di tla bopa karolo ye bohlokwa ya go goga šedi ya dipeeletšo le, kudukudu, ya diminerale tšeo di beilwego leihlo go ditheknolotši tša ka moso le thekgo ya methopo ye meswa ya tšweletšo ya enetši.

CGS e tšweleditše mmepe wa mathomo wa bogolo bja 1:10 000 wa mmepe wa kgonagalo ya peakanyo ya tlhabollo ya tšhomišo ya mmepe go tikologo ya Giyani wo o lego bohlokwa kudu go tlhabollo ya mananeokgoparara. Go feta fao, dimmotlolo tše mmalwa tša maekhrozoneišene di tšweleditšwe tšeo di šomago bjalo ka motheo wa go lekola tshekatsheko ya dikotsi tše di amanago le mafelo yeo e lego bohlokwa go polokego ya mananeokgoparara a bohlokwa le go ba le seabe go mananeo a temošo ya semeetseng ya taolo ya masetlapelo yeo e amanago le ditšeoahasate.

Go thekga mošomo wa go kopola ka Afrika-Borwa, CGS e tšweleditše phothale ye e šomišegago gabonolo (Tšeophothale) yeo e thušago bakgathatema go fihlelela datha ya tšeoasentshe le direkote tša tshedimošo tšeo di gatišwago ke CGS. Go tloga mola a thomago go šomišwa, didathasete tša go fapafapana di thomile go hwetšagala go bakgathatema ka moka ebile di ka taoneloutiwa gabonolo go sedirišwa.

Go ba le seabe se segolo go ERRP, CGS e ikemišeditše go boloka bonnyane 5% ya tshenyegelo ya diphatišišo tša lefase ka bophara ka go bea šedi ya yona go mešomo ya go kopola. Go fihlelela se, Afrika-Borwa e ikgafile go kgoboketša didathasete tša maemo a godimo tša tšeoasentshe tše di lego bohlokwa go temogo ya methopo ya borale ye e sa tšwago e hlapelwa. Go hwetša thekgo ye nngwe ya CGS go fihlelela mošomo wo, Kgoro ya Methopo ya Diminerale le Enetši (DMRE) e beetše thoko ditšhelete tša tlaleletšo tše di balelwago dimilione tše R500 (mengwaga ya ditšhelete ya 2023/24 le 2024/25) go tšwetša pele mešomo ya diphatišišo ka Afrika-Borwa. Ke rata go fetiša ditebogišo tša ka go DMRE ka go laetša kholofelo go mošomo wo re o dirago bjalo ka mokgatlo.

Re kgone go fihlelela dikatlego tše bohlokwa morago ga go kgatha tema ga rena ge go be go thalwa Melawana ya Molao wa Tšeoasentshe, Pholisi ya tša Meepo ya Borakgwebopotlana le Tiroatla gammogo le Leanophethagatšo la Diphatišišo la Intasteri ya tša Meepo ya Afrika-Borwa. Ke lethabo le legolo go tsebiša gore dingwalwa ka moka di phethilwe ke dihlopha tša go fapafapana tše di rwelego maikarabelo a go di thala ebile di gatišitšwe go kuranta ya mmušo. Leanophethagatšo le laetša gore baetapele ka mmušong le intasteri ya tša meepo ba ka šoma mmogo go phethagatšeng ditharollo tše di hlokegago go goga šedi ya dipeeletšo tše dingwe tša mešomo ya diphatišišo ka Afrika-Borwa.

Go latela Leanophethagatšo la Kgokagano le Dikamano tša Bakgathatema le le dumeletšwego, CGS e tšwela pele go ela tlhoko theo ya go kgokagana le bakgathatema ka tsela yeo e sepelelanago le mananeo kgokagano ya mmušo ye e theilwego godimo ga ditheo tša temokrasi tša go sepetša dilo phatlalatša, boikarabelo, ditherišano le go kgatha tema. Se bohlokwa go leanophethagatšo ke go bopa dikamano tše botse tša tlhomphano le kholego ya bakgathatema. Se se bontšhitše go ba tsela ya maleba kudu ka gore se nolofaletša mokgatlo go tšwela pele ka mošomo wa ona, go dumelela go ba le kwešišo go go tšwelago pele ga bakgathatema ba rena le ditikologong tšeo re dirago dinyakišišo go tšona. Le kgontšhitše le CGS gore e bonagale kudu go bakgathatema ba yona, tša kgontšha gore go fanwe ka datha le tshedimošo ye e nepagetšego, ye bohlokwa le go sepela le mabaka. Dikamano le bakgathatema di tla dula di le bohlokwa ka go tšwetšwa pele ka lerato mananeo ka moka a CGS le mošomo wa yona.

Go tšwetša pele dikamano tša setipolomate, go fihleletšwe magato ao a bonalago ka go Protšeke ya Poloko ya Khapone, Tšhomišo, le Bobolokego (CCUS) mo ngwageng wo o lekodišišwago. CGS e kgathile tema go dikopano tša maemo a godimo le Panka ya Lefase moo go dirilwego kgatelopele mabapi le go phethagatšwa ga ditumelelano tše itšego tša mošomo tša CCUS di lekotšwego. Go kgokagano ya bjale ye e amogetšwego go tšwa go Panka ya Lefase, CGS e lebogišitšwe mabapi le kgatelopele ya maemo a godimo ye e dirilwego yeo e tlilego le go ntšhwa ga mathomo ga ditšhelete tša protšeke tše di balelwago go dimilione tše R101. Ditšhelete di tla šomišwa go phethagatšwa ga dinyakišišo tša meroromelo le mešomo ya go tirila bjalo ka karolo ya dinyakišišo tša sebopego sa ditsha ngwageng wo a latelago wa ditšhelete.

CGS e obametše le kgopelo go tšwa go DMRE go kgatha tema go ditherišano tše mmalwa tša dinaga tše pedi magareng ga Afrika-Borwa le Republic of the Congo (Congo-Brazzaville), Côte d'Ivoire le Federal Republic of Nigeria. Mafelelo a 2021/22 le ona a gopolwa ka go phethwa ga diphatišišo tša tšeofisikhale tša moya wa lefaufang go Naga ga Eswatini. Go tsenwe fase ka mešomo ya kamogelo ya datha le tlhathollo moo go lebeletšwego gore go tla tlišwa pego ya mafelelo go Kgoro ya tša Meepo ya Eswatini go Kotara ya 1 ya ngwaga wa ditšhelete wa 2022/23.

Bjalo ka karolo ya netefatšo ya Boleng le lenaneo la kaonafatšo, CGS e dirile tekodišišo ya Tiišetšo ya Boleng ya ka Ntle go

sepelelana le dinyakwa tša Ditheo tša Boditšhabatšhaba ya Twaetšo ya Seprofešenale ya Tekolo ya Dipuku ya ka Gare. Maikutlo ka kakaretšo ao a ntšhitšwego ke Molekodi wa ka Ntle ke a gore mošomo wa tekolo ya ka gare ya dipuku wa Kakaretšo o Tiišetša go Maemo le Melao ya Maitshwaro.

CGS e phethile ka go amogelwa ga bakgopedi ba dipasari go ngwaga wa ditšhelete wa 2022 ka palomoka ya dipasari tše 25 tše di abilwego. Go laetša boitlamo bja bataolo go dira dipeeletšo le go godiša methopo ya talente ya ka gare, palomoka ya dipasari tša nakwana tše 19 e abilwe go bao ba dirilego dikgopelo ngwageng wo. Ke rata go lebogiša Ngaka Talicia Pillay, Ngaka Haajierah Mosavel, le Ngaka Brassnavy Manzunzu ka go phethwa ga ditikrii tša bona tša bongaka le Mna Thato Ntikang, Mna Mawande Ncume, le Mdi Boitumelo Mahlase ka go hwetša ditikrii tša bona tša Mastase.

Lekgotla le rata go lebiša mantšu a lona a kwelobohloko go bašomimmogo le bao ba lahlegetšwego ke maloko a lapa le bagwera ngwageng wa 2021/22. Re le lakaletša gore le tie maatla le go ba le mafolofolo.

Ge ke ruma, ke rata go fetiša mantšu a ka a ditebogo go Mohlomphegi Tona ya Methopo ya Diminerale le Enetši, Mna S.G. Mantashe (MP) ka thekgo ya gagwe dinako ka

moka go Lekgotla le CGS ka bophara. Ke rata gape go fetiša ditebogo tša ka go Mohlomphegi Modulasetulo wa Komiti ya Phothefolio ya Palamente ya Methopo ya Diminerale le Enetši (PPC MRE), Mna S. Luzipho (MP), le maloko ao a hlomphegago a PPC MRE ka ditshwayotshwayo tša bona tše bohlokwa le go phethagatša mešomo ya bona ye bohlokamedi bja matlotlo go CGS go kaonafatšo ye kaone ya naga ya gaborena. Ke tšwela pele go leboga balaodiphethiši ba CGS, bašomedi ba tša saentshe le thekgo ka mošomo wa bona o mogolo le phethagatšo ya maemo a godimo go phethagatšeng mananeo ka moka a CGS le go tšwetša pele mošomo wa bona ka bokgwari bjo bogolo.



**Ngaka H Mathe**

Modulasetulo

Lekgotla la Council for Geoscience

31 Mosegamane 2022

# 2

## Polelokakaretšo Ka Mohlankediphethiši



**Mna Mosa Mabuza**  
Mohlankediphethiši

Wo ke ngwaga wo bohlokwa kudu ka ge e le ngwaga wa mafelelo wa paka ya mengwaga ye mehlano go tloga mola go thomišwago ka peakanyoleswa ye bohlokwa ya Council for Geoscience ya go bea šedi go merero ye bohlokwa yeo e phegelelago go lokologanya le go laetša bontši bja seabe sa Geosciences ka maitekelo a tšona go phegelelong ya go rarolla ditlhohlo tša setšhaba. Se se sepelelana le seo se hlagišitšwego ka mošito ke Kgoši Albert Luthuli, mothopi wa mathomo wa Sefoka sa Nobel Peace ka 1961, ya gore “Dikutollo tša saentshe, go magato ka moka ao a ga gopolwago, di swanetše go maatlafatša bophelo bja batho ...”. Council for Geoscience ka nnete e tšwa kgole go thekga ntlha ye e bohlokwa le maitekelo a maloko ka moka a lapa la CGS, yeo e thomilego go tšweletša dipelo tše di thabišago le tše di nago le mohola.

Ke thabile kudu go ala pego ya ngwaga ka ngwaga ya CGS, yeo e tšweletšago mešomo ka moka ya ngwaga wa ditšhelete wa 2021/22. Ngwaga wa ditšhelete wa 2021/22 ke sešupo sa bogare bja ngwaga wa paka ya Tlhako ye Bohlokwa ya Paka ya Magareng ya 2019–2024. Ke tshwanelo, go thoma pele, ka go leboga mešomo yeo e dirilwego ke bataolo ya CGS ba le noši le ka seboka le bašomedi ka bophara ka mafolofolo, boitlamo le bokgoni bja seprofešenale tše di dirilego gore go kgonagale go atlega go ngwaga wo o bilego o boima le go phethagatša boitlamo bja CGS. Taolo ya maleba ya COVID-19 ka Lekgotla e kaonafaditše go laolwa le kgokagantšho ya maitekelo a go fokotša dikotsi tša leuba. Bjalo ka sehlopha, ka moka ga rena re leboga go ba re phologile ngwageng wo o fetilego re se ra ba batšwasehlabelo.

Go tloga mola go amogetšwego Leanophethagatšo la Kgokagano le Dikamano tša Bakgathatema ngwageng wo o fetilego ke Lekgotla, CGS e tšwetše pele go ela tlhoko theo ya go kgokagana le bakgathatema ka tsela yeo e sepelelanago le mananeo kgokagano ya mmušo ye e theilwego godimo ga ditheo tša temokrasi tša go sepetša dilo phatlalatša, ka boikarabelo, ditherišano le go kgatha tema. Ge e phethagatša mošomo wa yona, CGS e hlohleletše Mananeo a Dikamano Magareng ga dikgoro go hlohleletša dikamano tša magareng ga dikgoro tša mmušo le makala ka moka a mararo a mmušo. Go feta fao, CGS e ipeile maemong a go kgatha tema ye bohlokwa go Mmotlolo



wa Tlhabollo ya Dilete (DDM) – lesolo la mmušo leo le nepilego go kaonafatša kgomagano le seabe sa kabo ya ditirelo ka mmušo ka tšhomišo ya mebasepala. Ke tsela ye e hlametšwego go kgontšha makala ka moka a mararo a mmušo go šoma mmogo, le badudi le bakgathatema, go beakanya, go dira ditekanyetšo le go phethagatša ka molomo wa lehlabula. Go lebeletšwe tše di boletšwego ka godimo, CGS e tšwetše pele go rerišana le bakgathatema ba go fapafapana ka diprofentsheng tše di fapafapanego go aga le go maatlafatša dikamano tša tšhomišano go phethagatšo ya Lenaneo la Sethekgeniki la Tšeosaentshe (GTP). CGS e maatlafadiše le dikamano tša yona tša maemo a godimo ka go tsenela tumelelano ya tšhomišano le Orion Minerals go kgontšha go sepetšwa ga tsebo, tshedimošo le dinyakišišo tša mohlakanelwa go ditšeosaentshe ka ditsela tše pedi. Tlhako ye e tla akaretša go phethagatšwa ga diphatišišo tša go tswalelwa ga melete ga maemo a godimo ka Profentsheng ya Kapa Bodikela. CGS e phethile le mananeo a tšhomišano le African Exploration Mining and Finance Corporation yeo e tla tlaleletšwago ke ditumelelano tša diprotšeke tše itšego go dintlha tša tšeosaentshe.

Bjalo ka Bongwaledi bja Organisation of African Geological Surveys (OAGS), re swere Lekgotla/Kopano ya Ngwaga ka Ngwaga ya Kakaretšo (AGM) ka kgokagano ya inthanete. CGS e tšwelapele go kgatha tema go maitekelo a mmalwa ao a etilwego pele ke DMRE a go fana ka thekgo ye e hlokegago ya tšeosaentshe/sethekgeniki. Mo ngwageng wo o lekodišišwago, CGS e thekgile Tona ya Dikamano tša Boditšhabatšhaba le Tšhomišano go Khomišene ya Mohlakanelwa ya Tšhomišano ya AFRIKA BORWA–CÔTE D’IVOIRE go la Abidjan, Côte d’Ivoire le Khomišene ya Dinaga tše pedi magareng ga Rephabliki ya Afrika-Borwa le Rephabliki ya Federale ya Nigeria tše di kopanego go la Abuja, Nigeria.

CGS e swere wekešopo ya kgokagano ya inthanete ya matšatši ye e bego e nepile go rerišana ka dikotsi tše di amanago le tlhabollo ya naga ya tolomaete le go kgokagana go ditherišano tše di tsenoletšego ka nepo ya go kgontšha temogo, tšhomišano mabapi le dinyakwa tša kgapeletšo, le go kgontšha tlhabollo ye e matlafetšego, kabo ya ditirelo le polokego ya setšhaba. Wekešopo ye e tsenetšwe ke bakgathatema ba go feta ba 150 go tšwa go mebasepala, dikgoro tša mmušo, ditsebi tša thuto le ditsebi tša theknolotši le gona go tsenela kopano go be go lekalekane go ya ka bakgathatema go tšwa go dihlopha tše di nepilwego. Go kotara ya mafelelo ya ngwaga wa ditšhelete wo o lekodišišwago, go swerwe wekešopo ya kgokagano ya inthanete ya matšatši a mabedi ya tsunami

ka CGS ye e nepilego go tšwetša pele ditherišano le go abelana ka tsebo go dintlha tše di fapafapanego tša ditlholo tša tsunami le dikamego. Ditherišano tša ditsunami tša kgole le tša kgauswi go Afrika-Borwa ka bakgathatema ba go fapafapana bao ba nepilwego go kaonafatša temogo ya dikotsi tša tšhišinyego ya lefase, dikotsi gammogo le go hlaola ditlhaelelo dife goba dife le go fihlelela ditharollo tše di ka fihlelelwago di bile gona. Gabjale CGS e tšwetša pele dikgonagalo tša tšhomišano le lekala la Ditirelo tša Boso la Afrika-Borwa, Kgoro ya Bodulo bja Batho, Senthara ya Taolo ya Masetlapelo ya Bosetšhaba le diinstitšušene tše dingwe go tšweletša temošo ya semeetseng go lebeletšwe matrikse ya dikotsi ya kgonagalo ya go ka hlaselwa ke ditšeohasate.

Phihlelelo ya melawana ye e fetotšwego ye e gatišitšwego ya Molao wa Taolo ya Masetlapelo wa Bosetšhaba wa 2002 ka la 16 Mopitlo 2020, Karolo ya 11K (3) ye e laetšago gore “go bewa leihlo le kamego ya mororomelo ka tsela ya CGS e swanetše go maatlafatšwa ka ponyo ya leihlo”. CGS a feleleditše e e ba le seabe go maatlafatša go bea leihlo ga meroromelo ya meepo mo mengwageng ye e fetilego ye mebedi, go fana ka dintlha tša ditiragalo tša meroromelo ya meepo go kgabaganya dilete ka moka tše kgolo tša meepo. Se se hlotše gore go be le kwešišo ye kaone ya ditiragalo tša meroromelo tša meepo go kgabaganya dilete tša go fapafapana tša meepo, ka go dumelela go tsena ka bogare ga maleba gore go rerišanwe magareng ga mekgatlo ya go bea melao le meepo, tše di bakilego trend ye e fokotšegago go mahu ao a amanago le go kgokologa ga maswika ka meepong.

Phethagatšo ya lenaneo la go thala mebepe ya tšeosaentshe ya makala ao a kopantšwego a makala a go fapafapana (IMMP) ka tsela ya GTP a tšwetše pele mo ngwageng wo o lekodišišwago. GTP e beile šedi go diprotšeke tša tsošološo ya ekonomi ka potlako ao a akareditšego go thalwa ga mebepe go go tšwelago pele ya bogolo bja 1:50 000 le diprotšeke tše bohlokwa tše di nepilego kudukudu go diminerale tše bohlokwa tša ka moso go akaretša base le dimetale tše bohlokwa kudu (mohlala, nikhele, khopalete, kheromiamo le gauta), dirafša tše di sa hwetšagalego gabotse lefaseng (di-REE) le malahla. Kakaretšo ya mmepe wa ka nageng e oketšegile go fihla go 10.7% ye e hwetšwago ka khomphutha go tšwa go mebepe ya tšeosaentshe ye 32 ya maemo a godimo ya tlaleletšo yeo e tšweleditšwego. Kakaretšo ya mmepe wa bogolo bja 1:50 000 wa ka nageng e kaonafetše go tloga ka fase ga 5%, yeo e begilwego pele ga go phethagatšwa ga IMMP.

Mo ngwageng wo o lekodišišwago, CGS e thakgotše semmušo seketswana sa yona sa diphathišo se se tsebegago bjalo ka R/V (Research Vessel) Nkosi. Seketswana se rekilwe go maatlafatša lenaneo la tšeosantshe la ka lewatleng la CGS leo le nepilego go hlatholla šelefo ya kontinente ya Afrika-Borwa (dinagantle) ka go tharollo ya godimodimo ye e theilwego go theknolotši ya sebjalebjae, go dikala tša botebo tša go fapafapana. Lenaneo la tšeosantshe ya ka lewatleng la 2021/22 le laeditše dikarolo tša ka ntle tša letlakala la 1:50 000 la 3318CD magareng ga Melkbosstrand le Llandudno ka Profentsheng ya Kapa Bodikela. Datha ya maemo a godimo ye e kgobokeditšwego e tla ba le seabe go kaonafatšo ya kakaretšo ya mmepe wa tšeosantshe wa dinagantle wo gabjale e lego go 0.05%.

Go tsenwe fase ka tekolo ya motheo ya tšeoenbiromenthale bjalo ka karolo ya Lenaneo la KDD le le tšweditšwego pele go ngwaga wo o lekodišišwago. Lenaneo go letetšwe gore le ka fana ka theo ya saentshe go mmušo go akanya ka dikgetho tša ona tša go kopola le go rafša ga kgase ya letsopatlapa le go hlama mananeo a tša taolo yeo e theilwego godimo ga bohlatse bja tša saentshe. Go ntšhwa tshedimošo ye bohlokwa go kaonafatša kwešišo ya tšeoletši, tekolo ya bokgoni bja ekonomi, go maatlafala ga mabu, go dira porofaele ya meetse a ka fase ga mabu, go dira mmotlolo wa mororomelo wa selete le tekolo ya kamego ya tikologo. Melete ye mebedi ya meetse ya temogo ya go se iše fase yeo e laeditšego go ba ye e tlogago e ntšha meetse a mantši e abetšwe Masepala wa Beaufort West ka Dibokwana 2018. Ka nako yeo, Kapa Bodikela e be e itemogela ye nngwe ya dikomelelo tše kgolo kudukudu go histori ya bjale. Melete ya meetse ye mebedi, ya kelo ya bontši bja mohlakanelwa bja kgwedi ka kgwedi bja dilitara tše dimilione tše 33, e tšwela pele go tliša kimollo ye e hlokegago kudu go badudi. Go fihla gabjale, masepala o epile le go abelana ka dilitara tše di fetago dimilione tše 835 tša meetse, tšeo di lekanago le 10% tša bokgoni bja kgwedi ka kgwedi bja masepala. Lenaneo la KDD le, go fihla mafelelo a Diphallane 2021, phethile ka go borwa ga molete wa meetse wa KDD-01 wa seterathikerafi sa go tsepama wa go ya fase kudu go lekana botebo bja 2978m. Molete wa meetse o kgabagantše matsopatlapa a khaponešiasi e Ecca Group ao a beetšwego thoko go kgonagalo ya tšweletšo ya kgase ya letsopatlapa, kudukudu Tlhamego ya Whitehill. Go dirilwe mehuta ya dikelo tša kgase go matsopatlapa a ka maitekelo a go dira mmotlolo wa bokgoni bja kgase. Pego ye e hlalošago ka botlalo ya dikutollo go tšwa go go bora le ka moka dinyakišišo tša motheo di ukangwa go gatišwa go kotara ya mathomo ya ngwaga wa ditšhelete wa 2022-2023.



CGS e itumela go bega ka ga mmepe o moswa wa phatlalatšo ya phekmathaete wo o bego o phethilwe mo ngwageng wo o lekodišišwago. Mmepe o tla ba le seabe se segolo kudu go tsena ka bogare go hlokegago kudukudu ya intaseteri ya dipeteri le enetši ya go mpshafatšwa.

Bjalo ka Lekalatirelo la phethagatšo la protšeke ya Afrika-Borwa, CGS e rekile karolo ya naga yeo e laolwago ke mmušo go aga polante ye e šišinywago ngwageng wa go fana ka pego. Kgetho ya setsha e thekgilwe ke Pego ya Tekolo ya Motheo le sebopego se se hlathollago go tsenelela, tlhathollo ya kgonagalo ya mororomelo le tšeoletši ya seka-bokagodimo. Disampole tše di kgobokeditšwego go tšwa go melete ya meetse ye e lego gona le yona e ile ya sekasekwa go lekola dibopego tša go rafša ga diminerale, petrolotši, tšeokhemikhale, le se bohlokwa, dibopego tša matamo.

Ka Profentsheng ya Kapa Leboa, datha ya tšeoletšikhale, tšeofošikhale le tšeokhemikhale, ya temogo ya go tšwa kgole tše di kgobokeditšwego go ngwaga wa peleng gammogo le didathasete tša melete ya meetse ya kgale go tšwa go dikarolo tše e ka bago metale ye bohlokwa tšeo di dikologilego leboa le bodikela bja mašemo a Black Mountain-Aggeneys-Gamsberg di lekodišišitšwe le go fetolelwa go mokgwa wa titšithale. Mo ngwageng wa go fana ka pego wo o fetilego mmepe wa tšeosantshe wa 1:50 000 o bontšhitše tlhahlogo ye e akanywago ya 67% ya Lepanta la Phekmathaete la Orange River, le leo e ka bago sehloga wa dirafša tše bohlokwa tša Li le REE. CGS e itumela go bega ka ga mmepe o moswa wa phatlalatšo ya phekmathaete wo o bego o phethilwe mo ngwageng wo o lekodišišwago. Mmepe o tla ba le seabe se segolo kudu go go tsena ka bogare go go hlokegago kudukudu ya intaseteri ya dipeteri le enetši ya go mpshafatšwa.

Protšeke ya Lepanta la Giyani Greenstone ka profentsheng ya Limpopo e beile šedi go thalwa ga mebepe ya sebopego ye e hlathollago ka botlalo, phathišo ya mabu a go tia, phathišo ya mabu a makenete wa boleng bja godimo, phathišo ya maknethotheluriki ya ditekanyotharo tša IP ya dinepša tša diminerale tše di hlaotšwego (e lego gauta,

REE le nikhale-kheromaete-maknesaete). Diphathišo tša dibopego le tša tšeofisikhale tša boitokišetšo di utollotše go atafala ga dibopego tša trending tša bohlabela–bodikela le leboa–borwa go ya go leboabodikela, ka dibopego tša moragorago tše di tšwelelago go ba di amana le go epša ga diminerale tša gauta. Melete ya meetse ye seswai ka go ditebanyo tša diminerale tše di hlaotšwego e borilwe go šomišwa dithekniki tša go bora melete ka tharetšo ya sakamorago. Go kgobokeditšwe disampole tša maswika go tšwa meleteng ye e borilwego go dira ditshekatsheko gomme dipelo tša tlhahlobo di letetšwe go amogelwa go kotara ya mathomo ya ngwaga wa ditšhelete wo o latelago. Go thekga peakanyo ya tlhabollo ya selete ye e kopantšwego le tlhabollo ya mananeokgoparara, CGS e tšweleditše mmepe wa mathomo wa bogolo bja 1:10 000 wa tšeotheknikhale tikologong ya Giyani. Mmepe wo o tla alwa pele ga balaodi ba maleba go thuša ka tlhabollo ya mananeokgoparara le tšhomišo ya naga.



CGS e hlomile lekga la mathomo phothale ya datha ya tšeosantshe, yeo e hlamilwego go kgonthiša phihlelelo go datha ya tšeosantshe le direkote tša tshedimošo tše di gatišitšwego ke CGS ka tsela ya mebepe, dingwalwa le didathapeisi tše di hwetšagalago go bakgathatema le badiriši. Dikgopelo ka moka tša datha di beakantšwe ka tsela ya Mohlankedi wa Tshedimošo ya Mmušo yo a ngwadišitšwego le aterese ya emeile ye e botegago yeo e hlametšwego go laola dikgopelo le diphatlalatšo ka moka tša datha.

CGS e tšwetše pele go kgokagana le Kgoro ya Madulo a Batho. Mo mathomong a ngwana wa matlotlo wa 2021/22, CGS e kgathile tema go kopano ya Sehlopha sa Taolophethiši sa Kgoro ya Madulo a Batho ya Bosetšhaba moo go alwa ga polelo mabapi le tšeolotši ya boentšinere kudukudu ntlha ya tšeotheknikhale e bego e bego e beilwe le šedi e kgolo. Go ilwe gwa dirwa tšhišinyo mabapi le tšhomišanommogo ya semmušo magareng ga DHS le CGS. CGS e phethagaditše diprotšeke tše bohlokwa tša Tšhomišo ya Mananeokgoparara le Naga go thekga

dintlha tše 5 tše bohlokwa tša MTSF (kakaretšo ya naga, madulo a batho le pušoselegae) le 6 (kamano ya badudi le ditšhaba tše di bolokegilego). Mananeo a tšwela pele go nyaka go kaonafatša tirišo ya mokgwa wo o sa tšwago go amogelwa wa One Plan DDM. Ka maitekelong a, CGS e tšwetše pele go thekga Kgoro ya Madulo a Batho ya Foreisetata go lekola go ba le maswanedi le polokego ya dikarolo tša go fapafapana tša naga go nolofatša kabo ya ditirelo le peakanyeletšo ya dintlo tše di bolokegilego tša theko ya fase, le ka tšhomišano ya rena ye bohlokwa le Housing Development Agency, e tsene fase ka dinyakišišo tša tlhopho ya dikotsi tša naga ya ditolomaete tše di a bolokegago ka tikologong ya greater Khutsong le go nolofatša tlhako ye bohlokwa ya bodulo bja batho le peakanyo ya mananeokgoparara. Ka nnete, go ba le diabe go tšeosantšefiki go tšwelapele go fana ka dimmotlolo tše di hlokegago tša go tšea diphetho tša tsošološo ya laesentshe ya go šoma ya nako ye telele ya lefleo la go fehla mohlagase la Koeberg go thekga tšhireletšo ya enetši ya ka moso ka Nageng. Ka maitekelo a tšhomišano le Kgoro ya Tšhireletšo (DOD), CGS e swaragane le tekolo ye e tseneletšego ya tolomaete le thekgo ya tšeolotšikhale go DOD go thekga phokotšo ya yona ya khirišo ya lenaneo la tlhabollo leswa go kgabaganya ditikologo tša sešole tša Thaba Tshwane go hlaola go ba le maswanedi ga tlhabollo le go tšewa ga diphetho ga tlhabollo leswa. CGS e tšweleditše le mmepe wa kgonagalo ya maswika ao a šitšwego wa borwa bja KwaZulu-Natal, wo o laetšago mafelo ao a ka šomišetšwego go šilwa ga maswika. Go feta fao, dimmotlolo tše mmalwa tša maekhrozonišene di tšweleditšwe tše di šomago bjalo ka motheo wa go lekola tshekatsheko ya dikotsi tše di amanago le lefelo yeo e lego bohlokwa go polokego ya mananeokgoparara a bohlokwa.

CGS e tšwela pele ka phethagatšo ya Lenaneo la yona la Botiplomate bja Tšeosantshe go la Namibia, Malawi le thekgo ya lona ya Comprehensive Nuclear Test-Ban Treaty (CTBTO) ya Ditšhaba Kopano go 'Afrika ye Kaone le Lefase'. Ngwaga wo o lekodišišwago, CGS e saenne tumelelano le Geological Survey Department (GSD) ya Kgoro ya Methopo ya Tlhago le Enetši ya Mmušo wa Eswatini go dira diphathišo tša tšeofisikhale tša moya wa lefaufang wa selete tša go thalwa ga mebepe ya tšeosantshe go tlhabollo ya ekonomi. Kgoboketšo ya datha ya tšeofisikhale ya moya wa lefaufang e phethile le gona CGS gabjale e swaragane le go amogela le go hlatholla datha. Pego ya mafelole ka ga diphathišo e tla tlišwa go lekala la Methopo la Enetši la GSD go kotara ya mathomo ya ngwaga wo o latelago.

CGS e amogetše boithagišetšo bja go phethagatša mošomo wa yona. Gabjale go šomišwa theknolotši ya diteroune go tšwetša pele mošomo wa CGS gomme theknolotši ye gabjale e fana ka tsela ye mpsha ya go kgoboketša datha ya tšeosaentshe go ba le kwešišo ya Lefase yeo e ka se kgonagalego ge go šomišwa ditlabela tše di sepelago mabung. CGS e šetše e hlahlile bafofiši ba diteroune ba šupa bao ba filwego mangwalo ao a amogelegago go Civil Aviation Authority bao e lego gore ba filwe inšorentshe ya go swaragana le mešomo ya tša kgwebo.

Tema ye bohlokwa ye e kgathwago ke CGS bjalo ka mohlokamedi wa bosetšhaba wa datha ka moka ya tšeosaentshe le tshedimošo e hloka tshedimošo ya tšeosaentshe ye e sa hwetšwego gaboima le go fihlelelega gabonolo, tše di dumelelago go tšea sephetho ka tshwanelo, magareng ga tše dingwe, taolo ye e maatlafetšego ya methopo ya tlhago gammogo le go fokotša dikamego tša dikotsi tša tikologo. CGS e hlomile lekga la mathomo phothale ya datha ya Geoscience, yeo e hlamilwego go kgonthiša phihlelelo go datha ya Geoscience le direktote tša tshedimošo tše di gatišitšwego ke CGS ka tsela ya mebepe, dingwalwa le didathapeisi tše di hwetšagalago go bakgathatema le badiriši. Dikgopelo ka moka tša datha di beakantšwe ka tsela ya Mohlankedi wa Tshedimošo ya Mmušo yo a ngwadišitšwego le aterese ya emeile ye e botegago yeo e hlametšwego go laola dikgopelo le diphatlatšo ka moka tša datha. Maitekelo a a bopa karolo ya boitlamo bja CGS go kgonthiša gore datha le tshedimošo hwetšagalala le go fihlelelega gabonolo go tšweletša bokgoni bja go kopola ga naga le go boloka boitlamo ka mmušo bja go fihlelela 5% ya kabelano ya go kopola ka lefase.

Melawana ya 2022 ya Molao wa Geoscience e gatišitšwe gore e phethagatšwe morago ga ditherišano tše di tšeneletšego le bakgathatema mabapi le go amogelwa ga ditshwayatshwayo tše di dirilwego ke bakgathatema ba go fapafapana. Go phethagatšwa ga melawana ye go tla thomišwa ngwageng wa ditšhelete wa 2022/23.

Leanophethagatšo la go Kopola la Instasteri ya tša Meepo ya Afrika-Borwa le Leano la yona la Phethagatšo la 2022 le yona e gatišitšwe ka Mopitlo 2022 ke Tona ya Methopo ya Diminerale le Enetši. Dingwalwa tše tša pholisi di nepile go goga šedi ya dipeeletšo ka tsela ya go tsošološa leanophethagatšo la go kopola la tša meepo le le hlohleletšago go rafša ga diminerale ka phišegelo, theknolotši ye e hlwekilego, makala a tšepedišo le kabo le ditirelo tša meepo. Go tšwela pele ka go fa thekgo go

mešomo ya go kopola ka Afrika-Borwa, DMRE le Kgoro ya Matlotlo ya Bosetšhaba di abetše ditšhelete tša tlaleletšo tše di ka balelwago go dimilione tše R500 go CGS, go maatlafala ga mošomo wo o šišinywago wa go kopola. Ditšhelete di tla fetišetšwa go CGS ka dihlopha tše pedi, dimilione tše R200 nakong ya ngwaga wa ditšhelete wa 2023/24 le dimilione tše R300 go ngwaga wa ditšhelete wa 2024/25.

Setatamente sa Maemo a Ditšhelete sa CGS se bontšha palomoka ya dithoto ya go lekana dimilione tše R727.4, ye e bopšago ke dithoto tše e sego tša bjale le tša bjale tše di lekanago dimilione tše R365.2 le dimilione tše R362.2, ka bobedi. CGS e tloga e kaonafaditše mošomo ka tsela ye e makatšago, kudukudu go lebeletšwe seemo se boima sa ekonomi, ka palomoka ya letseno la dimilione tše R583.2 le tlhalelo ya dimilione tše R12.2. Pego ye e kwešišegago kudu ya tshedimošo ya matlotlo e hwetšwa go Karolo ya E ya pego.

CGS e phethile Tekodišišo ya Tiišetšo ya Boleng ya ka Ntle go sepelelana le Ditlwaetšo ta Seprofešenale tša Ditheo tša Boditšhabatšhaba tša Tekolo ya Dipuku ya ka Gare gomme e hweditše maikutlo ka kakaretšo a gore mošomo wa tekolo ya dipuku wa ka gare o Kakaretšo o Dumelelana le Ditheo le Melawana ya Maitshwaro.

Go ba le maatla ke karolo ye bohlokwa ya mošomo wa CGS le tšwetšo pele ya kgwebo go dikelo tša ditšhelete/ekonomi, leago, bakgathatema le tša tikologo. Go ba le maatla go akareditšwe go nepo ya tša mahlale le boithagišetšo ka gare ga mokgatlo le gona re na le mahlatshe ka go ba le bašomi bao ba šomago ka khutšo le ka phapantšho bao ba bonago CGS bjalo ka mongmošomo yo mokaone. Ke romela mantšu a borutho a kamogelo go maloko a maswa a sehlopha sa CGS. Go bao ba re tlogetšego, re leboga mešomo yeo le re diretšego yona le go le lakaletša katlego go maitekelo a lena a mafsa.

Ke lebogiša Ngaka Talicia Pillay, Ngaka Haajjerah Mosavel le Ngaka Brassnavy Manzunzu ka go phetha ditikrii tša bona tša bongaka; le Mna Thato Ntikang, Mna Mawande Ncume le Mdi Boitumelo Mahlase ka ditikrii tša bona tša Mastase.

Ngwaga o mongwe le o mongwe o na le dipihlelelo le mafokodi a tšona. Mo nakong ya ngwaga wo o lekodišiwago, CGS e lahlegetšwe ke tše dingwe tša talente ya tšona, go akaretša bagale ba nnete ba ditšeosaentshe, ka go rola modiro. Re keteka mošomo o mmothe wa bašomimmogo

ba bao ba šometšego mokgatlo gabotse. Banna le basadi bao ba latelago ba magareng ga bao ba kgafilego nako ye ntši ya maphele a bona go šomela mokgatlo:

- Mna Kwena John Mokoatedi – mengwaga ye 25 bjalo ka Mohlankedimogolo wa Sethekgeniki go Lekala la Kgwebo la Tšeolotši ya Ekonomiki & Tšeokhemistri.
- Mna Dawson Moses – mengwaga ye 39 bjalo ka Mothuši-kakaretšo go Lekala la Kgwebo la Taolo ya Dinolofatši.
- Mna Jacob Joseph Maema – mengwaga ye 29 bjalo ka Mohlankedi wa Tshepedišo go Lekala la Kgwebo la Ditirelo tša Analithikhale.
- Mna Enoch De Bruin – mengwaga ye 17 bjalo ka Mothuši wa tša Tlhokomelo go Lekala la Kgwebo la Taolo ya Meago.
- Mdi Motsoboro Andronica Mathara – mengwaga ye mene bjalo ka Mohlwekiši go Lekala la Kgwebo la Taolo ya Dinolofatši.
- Mdi Siziwe Albertina Ngamntwini – mengwaga ye mene bjalo ka Mohlwekiši go Lekala la Kgwebo la Taolo ya Kgwebo.
- Mdi Julia Mathoto Maphutha – mengwaga ye mene bjalo ka Mohlwekiši go Lekala la Kgwebo la Taolo ya Kgwebo. (Bahumagadi Mathara, Ngamntwini le Maphutha ba šometše mokgatlo ka botshephegi mengwaga ye mentši e le karolo ya tirelo ya go hlwekiša ya go tšwa ka ntle pele ba e ba karolo ya CGS mengwaga ye mene ye e fetilego.)

Ka ge modulasetulo a šetše a laeditše, re ile ra nyamišwa kudu mo ngwageng ka go lahlegelwa ke maloko a rena a sehlopha a bohlokwa kudu. Mna Smunda Mokoena, leloko la Lekgotla, Ngaka Anthony David Surridge, Moeletši wa Sethekgeniki – Kgolego ya Khapone go Lekala la Kgwebo la Kakanyo ya mebepe ya Tšeosaentshe, Mdi Sonya Johanna van Eck, Morulaganyi go Lekala la Kgwebo la Dikgokagano le Dikamano tša Bakgathatema le Mna Madimanyane Isaac Madibane, Mothuša Mohlankedi wa Sethekgeniki go Lekala la Kgwebo la Taolo ya Dinolofatši. Mantšu a kwelobohloko a lebišwa go meloko ya bona ye e ba ratago. Sa go thabiša, CGS ga se ya lahlegelwa ke motho ka lebaka la COVID-19 mo ngwageng.

Go bašomimmogo bao ba hwetšago kaonafalo go tšwa go malwetši gabjale, re le lakaletša go kokotlela ka pejana le go lebelela go ba amogela gape.

Ditebogišo tša ka tša go ikgetha di lebišwa go maloko a Lekgotla, ka fase ga boetapele bjo hlokago bosodi bja modulasetulo, Ngaka Humphrey Mathe, ya se fele pelo

ga bona, tekolo ye botse ya mošomo wa bona, thekgo le tlhahlo ngwageng ka moka. Ditebogišo di lebišwa le go Komiti ya Phothefolio ya Palamente ya Methopo ya Diminerale le Enetši ka thekgo, boitlamo le bookamedi le tlhahlo ya tšona gammogo le Tona le bašomedi ba DMRE.

Gape, ke saena kakaretšo ke tseba gore re agile motheo o maatla wa CGS wo o matlafetšego le go bea šedi go kabo ya ditirelo, gomme seo ke mohlala o mmothe wa institšušene ye e nago le maswanedi ya mmušo ya pušo. Go mohola go bušeletša gore se se fihleletšwe fela ka lebaka la gore re kwa re itumela kudu ka go ithekga ka baetapele ba rena ba nako yeo e fetilego.



**Mna M Mabuza**  
Mohlankediphethiši  
Council for Geoscience

31 Mosegamane 2022

# 3

## Setatamente Sa Maikarabelo Le Tiišetšo Ya Nepagalo Ya Pego Ya Ngwaga Ka Ngwaga

Go lebeletšwe go tsebo le tumelo ya rena tše kaonakaone, re tiišetša gore:

Tshedimošo ka moka le ditšhelete tše di laeditšwego ka go pego ya ngwaga ka ngwaga di gata ka mošito o tee le Ditatamente tša Ditšhelete tša Ngwaga ka ngwaga tše di lekotšwego ke Molekodipharephare wa Dipuku.

Pego ya ngwaga ka ngwaga e feleletše, e nepagetše ebile ga go tshedimošo efe goba efe yeo e tlogetšwego.

Pego ya ngwaga ka ngwaga e beakantšwe go ya ka ditlhahli go dipego tša ngwaga ka ngwaga, tše di beilwego ke Kgoro ya Ditšhelete ya Bosetšhaba.

Ditatamente tša Ditšhelete tša Ngwaga ka Ngwaga (Karolo ya E) di beakantšwe go ya ka ditheo tša Generally Recognised Accounting Practice (GRAP) tše di dirišwago go setheo sa mmušo.

Lekgotla la CGS le rwele maikarabelo a go beakanya Ditatamente tša Ditšhelete a Ngwaga ka ngwaga le go tšea dipetho ka tše di dirilwego go tshedimošo ye.

Lekgotla la CGS le rwele maikarabelo a go hloma le go phethagatšwa ga lenaneo la taolo ya tša ka gare leo le hlametšwego go fana ka tiišetšo ye e kgotsofatšago ka ga serithi le potego ya tshedimošo go phethagatšo, methopo ya bašomi le Ditatamente tša Ditšhelete tša Ngwaga ka ngwaga.

Go thwetšwe balekodi ba dipuku ba ka ntle go tšweletša maikutlo ao a ikemego ka ga Ditatamente tša Ditšhelete tša Ngwaga ka ngwaga.

Go ya ka maikutlo a rena, pego ya ngwaga ka ngwaga e bontšha mešomo, bohlatse bja phethagatšo ya mešomo, methopo ya bašomi le merero ya ditšhelete ka tsela ya maleba ya setheo sa mmušo go ngwaga wa ditšhelete wo o fedilego ka la 31 Hlakola 2022.

We lena



**Mna M Mabuza**  
Mohlakediphethiši  
Council for Geoscience

31 Mosegamanye 2022



**Ngaka H Mathe**  
Modulasetulo  
Lekgotla la Council for Geoscience

31 Mosegamanye 2022

# 4

## Kakaretšo Ya Leanophethagatšo

Mošomo o bohlokwa wa CGS o tšweletšwa go ditšhupetšo tša ona tša tlhomo. Nepo, maikemišetšo le dintlha tše bohlokwa tša mokgatlo di hwetša tlhalešo ye kaonekaone, yeo e hlathollwago go Molao wa Tšeosaentshe wa 100 wa 1993, wo o fetotšwego, ka mo go latelago:

### Nepo

Ponelopele ya CGS ke:

Setšhaba se se gatelago pele se se fetogilego seo se kgontšhwago ke ditharollo tša tšeosaentshe.

### Maikemišetšo

Maikemišetšo a CGS le go ba le seabe go Afrika-Borwa ya katlego ka:

- Go fana ka mebepe ye e humilego ka tshedimošo ye e kopantšwego, e beakantšwego le go dira dinyakišišo ka ga tšeolotši ya ka nageng le ka dinagantle tša Afrika-Borwa, bjalo ka ge e filwe maatla, go:
  - Go nolofatša tlhabollo ya diminerale, enetši le tša temo;
  - Go ba le seabe go tekolo le taolo ye e swarelelago ya diminerale, methopo ya tšeo haeterolotši le ya tšeo enbiromenthale; le
  - Go thekga tlhabollo ya mananeokgoparara.
- E šoma bjalo ka lekala la go fana ka maele maamong a bosetšhaba go tšhilafatšo ya tša tikologo.
- Go fana ka bobolokelo bja tshedimošo le polatefomo ya kabo ya ditirelo yeo e nolofatšago diphetho tše di ka phethagatšwago le go fihlelelega ga tshedimošo ya maleba ke bakgathatema ba maleba.
- Go phethagatša mošomo ka tsela yeo e thekgago diphetho le ditaello tša tlhabologo tša bosetšhaba.

### Boleng bja motheo

Boleng bjo bohlokwa bja mokgatlo ke:

- **Boitlhagišetšo:** Go tšweletša le go phetlagatša dikgopolo tše mpsha le dikholego tše di tšweletšago boleng.
- **Go fapafapana:** Go ela tlhoko setšo seo se akaretšago se se hlohleletšago diphetho le go lemoga go ba le seabe go tšwa go bakgathatema ka moka.
- **Bokgoni bja maemo a godimo:** Go phegelela go šoma ka bokgwari go ntlha ye nngwe le ye nngwe ya kgwebo ya rena.
- **Boikarabelo:** Go hlohleletša potego le boitlamo, go rwala maikarabelo le bong.
- **Go ithuta:** Go tšwetša pele ka tsela ya tlhomo ya tsebo.
- **Polokego, Maphelo, le Tikologo:** Go etiša pele ga maphelo le polokego ga bašomi le bakgathatema ka moka go sepelelana le bookamedi bja tša tikologo.
- **Go sepetša dilo phatlalatša:** Go fana ka ditirelo ntle le go tšea lehlakore, ka toka, ka tekatekano le phatlalatša.

# 5

## Molao Le Maatla A Mangwe

Molao wa Taolo ya Matlotlo wa Bosetšhaba PFMA) Wa 1 wa 1999 o tšweletša CGS bjalo ka Setheo sa Mmušo sa Šetule ya 3A.

**Molao wa Geosience wa 100 wa 1993** le Molaophetošo wa Geosience wa bo-16 wa 2010 wa go latela o hlama CGS. Mošomo wa CGS o akaretša, eupša ga e bee magomo godimo ga:

- a) Kakanyo ya mmepe wa **Geosience wa ka nageng le wa dinagantle wo o kwešišegago** wa Afrika-Borwa.
- b) **Go dira dinyakišišo tša Geosience** le tše di amanago le tlhabollo ya theknolotši.
- c) **Kgoboketšo le tlhokomelo** ya datha ka moka ya tšeosaentshe le go šoma bjalo ka sešego sa tšeosaentshe sa bosetšhaba.
- d) **Tlhamo le tšwetšopele ya tsebo le tshedimošo tše di kwešišagalago le tše kopantšwego** tše bjalo ka tšeolotši, tšeofisiksi, tšeokhemistri, tšeolotši ya boentšinare, tšeolotši ya ekonomi, tšeokhronolotši, phalaeonholotši, mananeo a akhwifa a tšeohaeterolotšikhale, dinyakišišo tša tšeotheknikhale, tšeolotši ya ka lewatleng, tšeomaknethisime, seismolotši, ditšeoahasate, tšeolotši ya tša tikologo le mafapha a mangwe ao a amanago.
- e) **Go tlišwa ga tsebišo go Tona tshedimošo efe goba efe malebana le tša go kopola le go rafša ga methopo ya diminerale**, yeo go nago le kgonagalo ya go ka šomišwa goba go hola Rephabliki.
- f) Go tšwetša pele go nyakana le go go rafša ga diminerale dife goba dife ka Rephabliking.
- g) Nyakišiša (i) **phatlalatšo le sebopego sa methopo ya diminerale** le (ii) dintlha tša tšeoenbiromenthale tša nako ye e fetilego, ya bjale le go rafša ga bjale le ya ka moso ya diminerale.
- h) Nyakišiša tšhomišo ya bokagodimo le **seka-bokagodimo ya naga le moalo wa lewatle**, le go ya ka kwešišo ya tšeosaentshe eletša diinstitišušene tša mmušo le setšhaba ka kakaretšo ka ga tšhomišo ya maleba le ya polokego ka go realo ka nepo ya go nolofatša tlhabologo ye e maatlafetšego.
- i) Hlabolla le go hlokomela **bokgobapuku bja Geosience bja bosetšhaba**, senthara ya tshedimošo ya tšeosaentshe ya bosetšhaba, **National Borehole Core Depository, ditsha tša diteko tša tšeofisikhale le tšeokhemikhale, musiamo wa tšeosaentshe wa bosetšhaba**, neteweke ya tša mororomelo wa bosetšhaba le lefelo la tšhekatsheko ya tšeosaentshe wa bosetšhaba.
- j) Dira diphatišišo le go aba ditirelo tša go ikgetha tše di kgethetšwego go diinstitišušene tša mmušo le tša poraebete.
- k) Fana ka ditirelo tša tsebo ya tšeosaentshe le **go fana ka maele go Mmušo**.

Go ya ka dipheotošo tše di dirilwego go Molao wa Geosience, dikarolo tša 4(c), 4(eA), 4(f), 5(b) le 8 tše, magareng ga tše dingwe, di bolelago ka go hlokomelwa ga tshedimošo tša tšeosaentshe, tekodišišo le tekolo ya dipego tša tšeotheknikhale, tlhokomelo ya dinolofatši tše dingwe tša tšeosaentshe tša bosetšhaba le go thwalwa ga Komiti ya Boipiletšo ya Tšeotheknikhale di ile tša fegwa nakwana. Ka tatelano, Molao wa Tlhabollo ya Diminerale le Petroleamo (MPRDA) o tloga o beakanyetša gore CGS e amogele, kgonthišetše le go hlokomela tshedimošo ya tšeolotši go tšwa go bengditokelo tša go kopola le tša meepo bjalo ka karolo ya dinyakwa tša bona tša go obamela melao. Dipheotošo tše di bopa dikgonagalo tša kgolo ya mokgatlo le go katološa mošomo wa CGS ka tsela ye e bonagalago.

**Taelo ya leano:** Pholisi ya Diminerale le tša Meepo ya Afrika-Borwa (1998) e tlišetša CGS bjalo ka lekgotla la tša saentshe leo le thekgago dinyakišišo le tlhabollo tše di gatelelago tlhabollo ye e swarelelago ya intaseteri ya tša meepo. Se se gatelela go tšwela pele ga maatla go ya ka Molaotheo, bjalo ka ge go hlathollotšwe go ditšhupetšo tša go hlongwa ga CGS.



## 5.1 Dipholisi tše dingwe tša tlhahlo

Go lebeletšwe nyakego ya ka pela go rarolla ditaelo tša bosetšhaba, CGS e netefatša gore mmotlolo wa yona wa kgwebo le mešomo ka moka ya ona di rarolla dipoelo tše di latelago tše bohlokwa tša bosetšhaba go sepelelana le Ponelepele ya 2030 ya Leano la Tlhabollo la Bosetšhaba (NDP):

- **Mešomo ye mekaonekaone ka tsela ya kgolo ya ekonomi ya kakaretšo:** Kabo ya tshedimošo le ditirelo tša tšeosantshe tša naga go goga šedi ya dipeeletšo tša ka nageng le tša boditšhabatšhaba go hlabolla methopo ya diminerale le petroleamo ya godimo.
- **Bašomi ba bokgoni le bao ba ka kgonago go thekga tsela ya kgolo ya kakaretšo:** Aga bokgoni malebana le go kgona go thekga merero ya tšeosantshe, tshepedišo le tša bolaodi/boetapele mola ka go le lengwe go hlangwa dikholego tša boithlhabišo, mananeo lle ditirelo.
- **Neteweke ye e šomago bokaone, ya phekgišano le go ikarabela ya mananeokgoparara a ekonomi:** Tshedimošo ya tšeosantshe le seabe sa ditirelo go tlhabollo ya mananeokgoparara go thekga tlhabollo ya ekonomi ya Afrika-Borwa ya methopo ya diminerale le petroleamo ya godimo.
- **Dinagamagae tša go šoma ka mafolofolo, go phegelela tekatekano le go swarelela ga tšhireletšo ya dijo go bohle:** Kabo ya tshedimošo ya tšeosantshe yeo e kgontšhago tlhabollo ya temo le go kopolwa ga meetse a ka fase ga mabu, magareng ga tše dingwe.
- **Dithoto tša tikologo le methopo ya tlhago yeo e šireletšegilego gabotse le go kgontšhwa go ya pele:** Go dira diphatišišo malebana le, magareng ga tše dingwe, kgamolo ya esiti ya ka moepong le kgolego ya khapone le ditheknolotši tša bobolokelo le go hloma ditheo tša tikologo go tlhabollo ya kgase ya letsopatlapa ka moso.
- **Tirelo ya mmušo ye e šomago gabotse, le ka tshwanelo le ye e ithekgilego godimo ya tlhabollo le badudi bao ba matlafadišwego ka toka le ka go se kgetholle:** Go matlafatšwa ga CGS go godiša go phethagatšwa ga maatla le kgontšha lenaneo leo le fetogago la Mmušo wa Afrika-Borwa.

Go tlaeletša go NDP le MTSF, dinepo tša CGS di hlamilwe go thekga dinepo tša DMRE, yeo nepo ya yona ya motheo e theilwego godimo ga melawana, diphetošo le tlhabollo ya makala a diminerale le enetši gammogo le kabo ya enetši ye e swarelelago le ya theko ya fase ya kgolo le tlhabollo to Maafrika-Borwa ka moka.

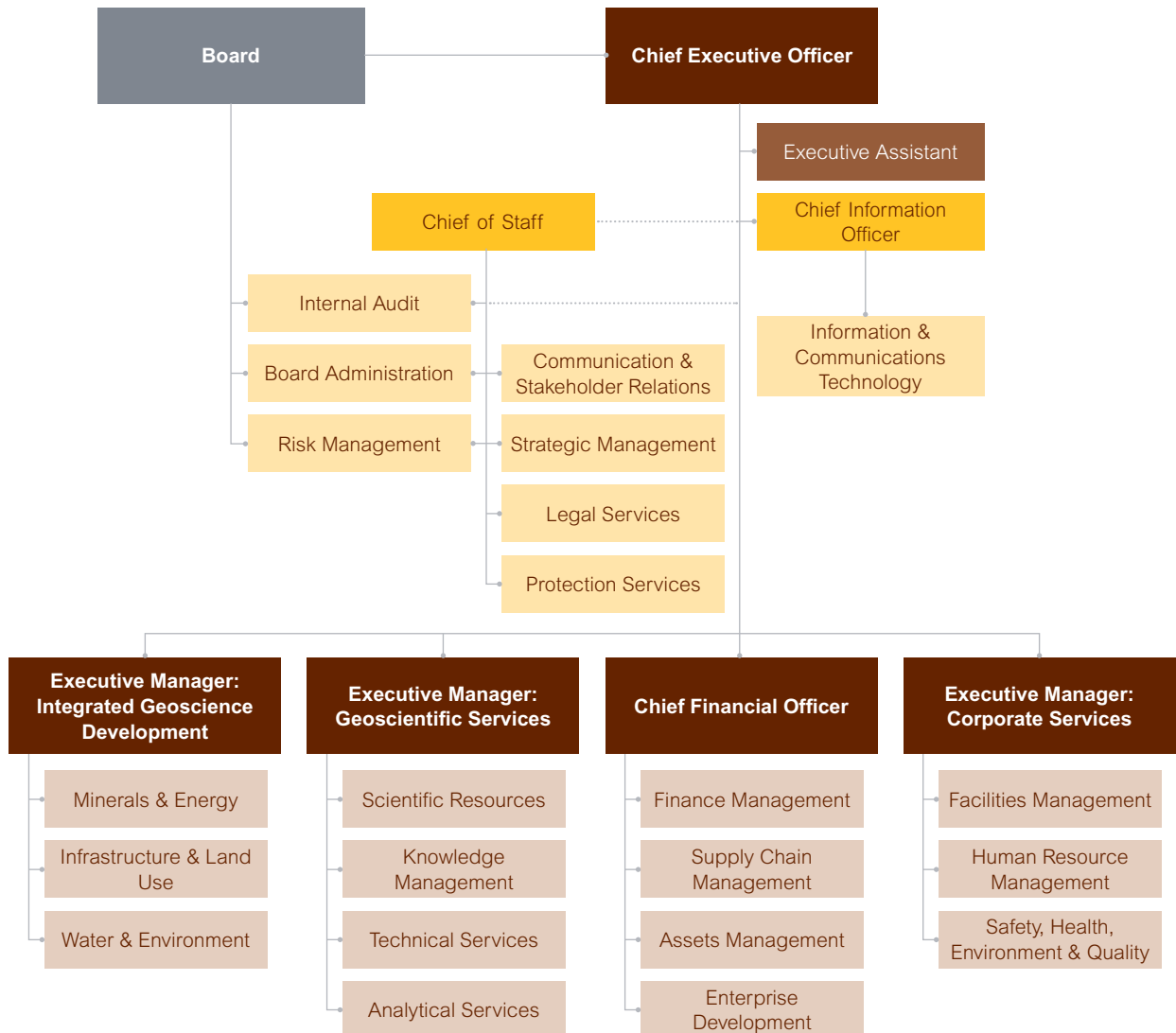
Dinepo tše dingwe tša DMRE, tšeo di thekgwago ke CGS le tšeo di sepelelanago le mešomo ya yona, di akaretša go ba le seabe go phetogo ya maleba go ya go ekonomi ya khapone ya fase; go notlolla methopo ya bokgoni bja godimo bja diminerale le enetši tša Afrika-Borwa; go farologantšha le kabo ya methopo diminerale go thekgwa ga makala a tša meepo le enetši ka bobedi; go oketša dipeeletšo ka lekaleng la diminerale le petroleamo, ka nageng le dinagantle; go oketša kabo ya mmaraka wa diminerale le enetši wa lefase ka bophara wa Afrika-Borwa; go oketša kabo ya tekanyetšo ya go kopolwa ga lefase ka bophara ya Afrika-Borwa; go farologantšhwa ga methopo ya enetši ka tsela ya phethagatšo ya Leano la Methopo ye e Kopantšwego la 2019; go oketša peeletšo ya mananeokgoparara go makala a mmušo le a poraebete; go kopola go go akaretšago, ya tekatekano le ya phenkgišano gammogo le go kgonthiša bokgoni bjo bo lekanetšego le bja maleba ka lekaleng la tša meepo le enetši. CGS e hwetša motheo wa ona o bohlokwa go tšwa go MTSF 2019 to 2024 ya mmušo, Kgoeletšo ka Leanophethagatšo la Bakgathatema go Kgolo ye e Maatlafetšego le Tlhabologo ye e Kwagalago ya Intaseteri ya tša Moepo ya DMRE ya Afrika-Borwa, le Sethalwakakanywa sa 2019 go Saentshe, Theknolotši le Boithlhabišo tša Kgoro ya Saentshe le Boithlhabišo.

# 6

## Sebopego Sa Mokgatlo

Peakanyo ya maemo a bašomi ba CGS (Figure 2) e hlaloša sebopego sa go hlopša ga bašomi go ya ka maemo ga mokgatlo. Sebopego se hlametšwe go thekga go phethagatšo ya mešomo ka tsela ya maleba le ka tshwanelo ga mokgatlo le go beakanya go hlangwa ga Lekgotla la Balaodi le taolophethiši. Sehlopha sa taolophethiši sa CGS se etilwe pele ke Mohlankediphethiši (CEO) yo a ipegago

go Bolaodikgolo bjo rwelego Maikarabelo (Lekgotla la CGS—lebelela Karolo ya C ya pego ye). Sehlopha sa taolophethiši, le sona, se ukametše diphothefolio tše nne: Ditirelo tše di Kopantšwego tša Tlhabollo ya Tšeosaentshe, Ditirelo tša Tšeosaenthifiki, Matlotlo, le Ditirelo tša Kgwebo (lebelela Kgaolo ya A Karolo ya 7).



Seswantšho sa 2: Sebopego sa mokgatlo sa CGS

# 7

## Sehlopha Sa Taolophethiši Sa CGS



**Mna Mosa Mabuza**  
Mohlankediphethiši:



**Ngaka Jonty Tshipa**  
Molaodimogolo wa Bašomi:



**Mna Leonard Matsepe**  
Mohlankedimogolo wa Matlotlo



**Mdi Refilwe Monoko**  
Molaodi-phethiši Ditirelo tša  
Geoscience



**Ngaka David Khoza**  
Molaodi-phethiši Tlhabollo ye e  
Kopantšwego ya Geoscience



**Mna Tshepo Mokolobate**  
Molaodi-phethiši  
Ditirelo tša Kgwebo (Wa  
motšwaoswere)



*Ditherišano tša sethalwa sa mmepe wa phekmathaete wa mabapi le marako ao a tšweletšego ka Profenseng ya Kapa Leboa*

## Karolo ya B Phethagatšo Ya Tshedimošo

Karolo ye ya pego a fana ka tshedimošo ya phethagatšo ye e laetšago dipihlelelo tša kabo ya ditirelo tša CGS. Tshedimošo ye e hlatsela taolo ye e šomago ka tshwanelo ka mokgatlo, go dira dipeakanyo, go dira ditekanyetšo, phethagatšo, tekodišišo le tekolo ya mešomo. Dikamego le ditetelo tša mešomo tša ona di theilwe godimo ga go dira dipeakanyo mmogo le ditšhišinyo tša bataolo le mešomo go fihlelela dipoelo tše di nyakegago.

Mešomo ya phethagatšo ya tshedimošo e tiišetša peakanyo ya dikamego le ditetelo go Leanophethagatšo (SP), dikholego tša lenaneo tše di amanago, ditaetšo tša kholego le ditebanyo ka go Leanophethagatšo la Ngwaga ka ngwaga (APP) le dingwalwa tše di fapafapanego tše di amanago le ditekanyetšo. Karolo ye e gatelela le dipihlelelo tše di elwago kgahlanong le ditaetši tša phethagatšo le ditebanyo tše di hlaotšwego ka dingwalweng tša Leanophethagatšo, APP le ditekanyetšo.

# 1

## Pego Ya Molekodipharephare Wa Dipuku: Dinepo Tše Di Akanyeditšwego Pele

Molekodi-Pharephare wa Dipuku wa Afrika-Borwa o phethagaditše ditshepedišo tša maleba tša tekolo ya dipuku go mešomo ya phethagatšo ya tshedimošo ya CGS go fana ka tiišetšo ye e kwagalago ya dikutollo tša seemo sa tekolo ya dipuku. Kutollo ya seemo sa tekolo ya dipuku go phethagatšo ya mešomo kgahlanong le dinepo tše di akanyeditwego pele e akareditšwe ka pegong ya

balaodiphethiši, moo dikutollo tše bohlokwa di begilwego ka fase ga hlogo ya Maikemišetšo ao a Akanyeditšwego pele go pego ya karolo ya dinyakwa tša semolao le tša tshepedišo ya taolo tša pego ya molekodi wa dipuku.

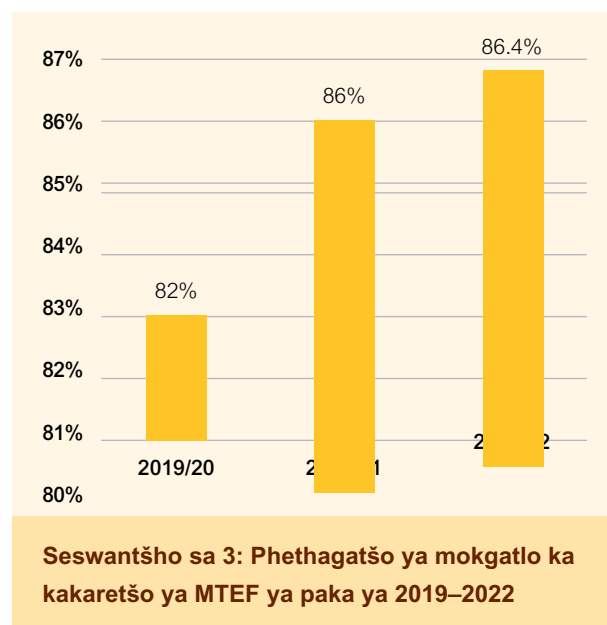
Pego ya Molekodipharephare wa Dipuku, ye e gatišitšwego bjalo ka Karolo ya E: Tshedimošo ya Matlotlo, e hwetšwa matlakaleng a 133 go fihla go 134.

# 2

## Kakaretšo Ya Phethagatšo

### 2.1 Seemo sa kabo ya ditirelo

Mafelelo a paka ya go fana ka pelo e akaretša ngwaga wa bohloano wa phethagatšo ye e sa kgaotšego ya legato la bjale la lenaneo la go thalwa ga mebepe ya tšeosaentshe le kopantšwego le makala a mantši (IMMP) bjalo ka setlabela sa kabo ya tlhahloleswa ye bohlokwa ya CGS, yeo e tlogago e nepile go phethagatšo ya mošomo ya yona, yeo e gateletšwego ka go molao wa tlhomo, Molao wa Tšeosaentshe, Molao wa bo-100 wa 1993 wo o fetotšwego. Se se akaretša kgoboketšo, tšweletšo, tlhomo, tlhathollo le phatlalatšo ya datha, tshedimošo le tsebo ya boleng bja godimo tša Afrika-Borwa. IMMP e beile šedi go merero ye bohlokwa ye mehlano ye e tšweleditšwego mo le ka go dintlha tše bohlokwa tša phethagatšo. Ntle le ditlhohlo tše di tšweleditšwego ke leuba la COVID-19, CGS e adile bontši bja ditebanyo tša yona tša APP go ngwaga wo o lekodišiwago le go hwetša dintlha ka kakaretšo tša phethagatšo tša 86.4%. Seswantšho sa 3 se fana ka kakaretšo ya phethagatšo ka botlalo ya CGS go tloga go cycle ya MTEF ya 2019–2022.



## Hlogopoledišano ya 1: Geoscience ya methopo ya diminerale le enetši

Mmušo wa Afrika-Borwa o tsebišitše leano la ona le maatla la go swara bonnyane bja 5% bja tekanyetšo ya lefase ya go kopola ye e ka balelwago go dibilione tše US\$10 ka ngwaga mo mengwageng ye e latelago ye meraro go fihla go ye mehlano. CGS e a itumela go ba ketapele ya tsošološo le go tla ka maanomaswa a sebopego sa go kopola, seo se sepelelanago le boleng bja tšeolotši seo se šišinyago gore naga e dula e le ketapele go morero ka moka yeo e amanago le tša go kopola. Ka gona, CGS e fana ka thekgo ye e hlokegago ya tšeosaentshe/sethekgeniki go maitekelo a mmalwa ao a etilwego pele ke DMRE a bjalo ka ERRP ya Afrika-Borwa, dinyakišišo tša motheo ya tšeoenbiromenthale tša tlhabollo ya kgase ya letsopatlapa ka tikologong ya Karoo, lenaneo la taolo tikologo ya meepo le meetse gammogo le Leanophethagatšo la tša go Kopola.

**Seabe sa CGS go tšhireletšo ya enetši le phetogo ya enetši ya mehleng di hwetšwa go diprotšeke tše mmalwa tše di bopago GTP ya tšona** Tšona di akaretša bokgoni bja dinyakišišo tša tšeothemale, dipoelo tše di thabišago tša ka pejana tše di tla oketša lenaneo la tsošološo ya enetši le le maatlafetšego go paka ya magareng go ya go ye telele. Gape CGS ke lekalatirelo la phethagatšo la Protšeke ya Kgolego ya Khapone, Tšhomišo le Bobolokelo, yeo e lego bohlokwa go dira diteko tša kgolego ya khapone le tšhomišo ka Afrika-Borwa le go tiišetša boitlamo go enetši ye e hlwekilego.

Kgatelopele go phethagatšo ya ntlha ye ya CGS GTP, le ge e sa le legatong la pejana, e fana ka boitshepho bjo bo lekanetšego bja gore kgolo ya ekonomi ye e hlokegago kudu ye e sa hlaolego, gammogo le dinyakwa tša tšhireletšo ya ekonomi, di ka beakanywa gape le go fihlelelwa.

## Hlogopoledišano ya 2: Geoscience ya maphelo, meetse a ka fase ga mabu le tikologo

Mešomo ya go kopola le go rafša ga diminerale di fetiša šedi ya tšona go ya go kgatelelo ye e oketšegago go taolo ya tikologo. Tekatekanyo magareng ga tlhabollo ya meepo le pabalelo ya tikologo e bile ye nngwe ya nepo ye bohlokwa ya dinyakišišo tša CGS. Ka gona, lereo la go tšwelela mmogo ga dikgopolo tše pedi tše di bonalago di thulana ke seo se ka nyakišišwago go kwantšha go tšwelela moo ga dikgopolo go lebeletšwe dinyakišišo tša saentshe. Go feta fao, go kwešiša ga methopo ya meetse,

kudukudu go lebeletšwe ya ntlha ya Afrika-Borwa ke naga ye e hlaelago meetse le yona ke karolo ye bohlokwa ya dinyakišišo ka fase ga morero wo. Datha le tshedimošo tše di tšweleditšwego go morero wo di nepile go kaonafatša kwešišo ya mananeo a akhwifa a ka nageng le a seleteng go hlahla tšhomišo ya methopo ya meetse a ka fase ga mabu le a ka godimo ga meetse.

## Hlogopoledišano ya 3: Geoscience ya mananeokgoparara le tšhomišo ya naga

CGS e filwe maatla go ya ka semolao go fana ka maele a seprofešenale le sethekgeniki go tlhabollo ya mananeokgoparara go dibopego tša tolomaete. Mošomo wo o katološitšwe ka Molaophetošo wa Tšeosaentshe Molao wa 16 wa 2010 go akaretša tekolo le tekodišišo ya tlhabollo ya mananeokgoparara ka moka go mafelo ao a bonwago a ka hlaselwago ke go kgokologa ga maswika. CGS e thomile ka dikgokagano le Kgoro ya Pušo ya Mohlakanelwa le Merero ya Setšo ya Bosetšhaba le mebasepala ye mmalwa ya selete go nyankolla diphetho tše di ka kgonagalago tša ditirišo tša tšeosaentshe go thuša go tšea sephetho ka tšhomišo ya naga le tlhabollo ya mananeokgoparara a magolo a go sepelelana le DDM. CGS e tšwelapele go phethagatša mošomo wa yona wa go hlokomela neteweke ya bosetšhaba ya mororomelo, yeo e lemogago ka go se kgaotše ditšhišinyego tša lefase tša tlhago le tše di bakwago ke mešomo ya tša meepo ka Afrika-Borwa.

## Hlogopoledišano ya 4: Boitlhagišetšo bja Geoscience

CGS e maatlafatša ka boiketlo bokgoni bja yona bja boitlhagišetšo bja tša mahlale go ditšeosaentshe ka moka. Go šomišwa theknolotši ya diteroune gabjale go tšwetša pele mošomo wa CGS le go fana ka tsela ye mpsha ya go kgoboketša datha ya tšeosaentshe go ba le kwešišo ya Lefase go tlaleletša ditlabela tše di sepelago mabung. CGS e tsene fase ka dinyakišišo tša tšhomišo ya mahlale ao e sego a tlhago go tšeosaentshe ka tsela ya go hlangwa ga ditlabela go rarolla, magareng ga tše dingwe, ditlhotlo tša go thalwa ga mebepe ye e hlakahlakanego ya bokgoni bja diminerale le meetse a ka fase ga mabu a selete.

## Hlogopoledišano ya 5: Botiplomate bja Geoscience

CGS e lemoga le go phethagatša tema ya yona bjalo ka setlabela sa tšeosaentshe sa tlwaetšo ya pholisi ya dinagantle

ya Rephabliki ya Afrika-Borwa. Ka gona, CGS e thomišitše ka tema ya Bongwaledi ya go-ya-go-ile ya Organisation of African Geological Surveys (OAGS), wo o tšwetšago pele dikamano tše di tseneletšego magareng ga dinaga tše e lego karolo ya Afrika go dinyakišišo tša tšeosaentshe. OAGS e emetše dikgahlego tša diphatišišo tša tšeolotši tša Afrika le go šomišana thwii le, magareng ga tše dingwe, European Geological Surveys go phethagatša Lenaneo la tšhomišano la PanAfGEO (Pan-African Support to the EuroGeoSurveys – Organisation of African Geological Surveys) la go fana ka maatlafatšo go kgabaganya kontinente ya Afrika.

CGS e mpshafaditše tšhomišano le diphatišišo tša tšeolotši tša Namibia le Malawi tša phethagatšo ya diprotšeke tša go thalwa ga mebepe ya tšeolotši ya maemo a godimo. Mo ngwageng wo o lekodišišwago, CGS e saenne tumelelano le Mmušo wa Eswatini go dira diphatišišo tša tšeofisikhale tša moya wa lefaufang tša selete tša go thalwa ga mebepe ya tšeosaentshe. Go tšwelwa pele go rerišanwa ka dibaka tše dingwe tša tšhomišano le bašomišanimmogo go tšwa dikhamphaning tše di dirago mešomo e swanago, mola go maatlafaditšwe ditšhomišano tša bjale le bagwebišani ba bjalo ka United States Geological Survey, Chinese Geological Survey, Geological Survey of Canada le Nigerian Geological Survey Agency.

## Dikgwebo tša CGS

CGS ga e phethagatše fela mošomo wa yona, eupša e na le tšhomišano go:

- Diprotšeke tša lekalatirelo tše di tšwa go dikgoro/diinstištšūšene tša mmušo le ditheo tša mmušo.
- Diprotšeke tša lekala la poraebete.

CGS e tšwetše pele go phethagatša diprotšeke tša kgapeletšo tše di laeditšwego go Molao wa Geoscience wa 100 wa 1993 wo o fetošitšwego (mohlala, tlhabollo le tlhokomelo ya bokgobapuku bja motheo bja bosetšhaba, ditsha tša tšhupetšo ya tšeofisikhale) le go laola:

- Neteweke go roromela ya bosetšhaba, e bea leihlo mošomo ya meroromelo ka nageng ebile e kgokagana le dineteweke tša ka seleteng le tša lefaseng ka bophara;
- Go lekodišišwa ga mešomo ye e tšweletšago medumo ye megolo ya lefase ka bophara bjalo ka karolo ya tšhomišano ya yona le Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO);

- National Borehole Core Depository, yeo e fanago ka kgoboketšo ye e kwešišegago ya didirišwa tša tšeolotši gomme gabjale e ikgantšha ka bokgoni bja go sekana ka tsela ya haephasepeketherale;
- Musiamo wa Tšeosaentshe wa Bosetšhaba, wo o fanago ka disampole tša bohwa bja tšeolotši bjo bohlokwa go saentshe;
- Bokgobapuku bja Tšeosaentshe bja Bosetšhaba le lebenkele la go rekiša, leo le fanago ka dikgatišo tša tšeolotši le mebepe go setšhaba; le
- Setlabela sa tshekatsheko ya tšeosaentshe ya bosetšhaba, le le hwetšagalago go sekasekwa, magareng ga tše dingwe, disampole tša tšeolotši, disampole tša meetse le ditšweletšwa tša tlhago tša intaseteri.

## 2.2 Tikologo ya mokgatlo

Mo nakong ya ngwaga wo o lekodišišwago, CGS e thomišitše go phethagatša sebopego sa mokgatlo (Seswantšho sa 2) go kaonafatša go šoma ka tshwanelo le kabo ya ditirelo go ya ka leanophethagatšo le le amogetšwego. CGS e kgethile go leka phethagatšo ya stream leads ka fase ga Lekala la Diminerale le Enetši gammogo le Lekala la Ditirelo tša Analytical, go thuša ka thekgo ya tshepedišo go Business Unit Managers.

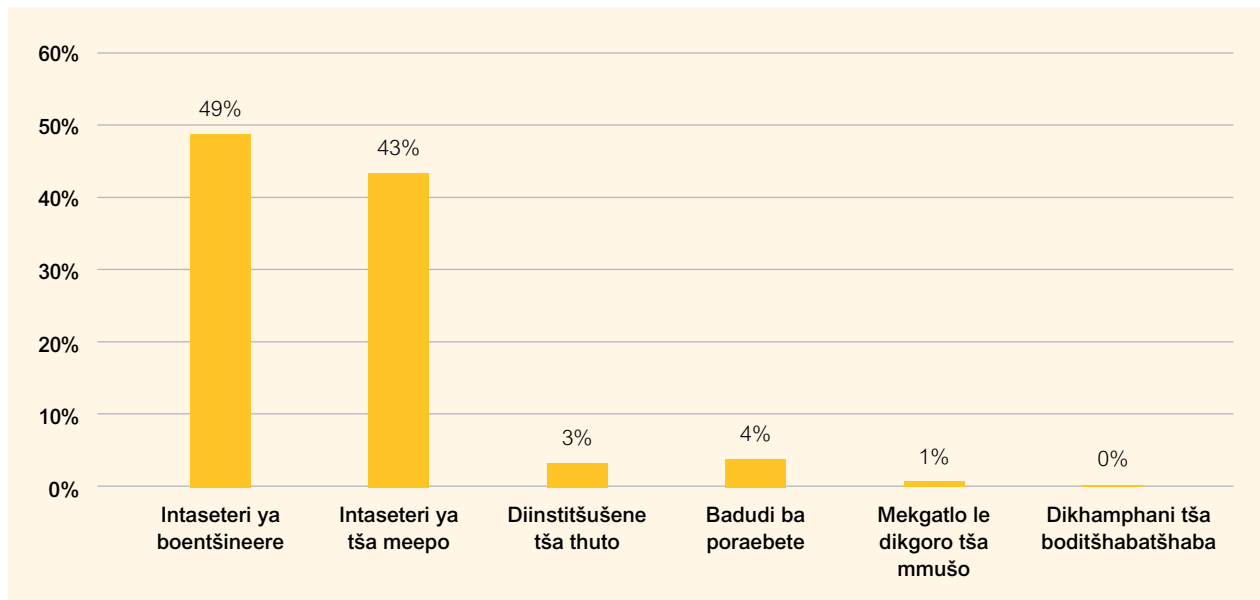
Go tloga mola go hlongwago Ofisi ya Tshedimošo ya Mmušo go ngwaga wa ditšhelete wa 2020/21, phatlalatšo ya datha le tshedimošo tša tšeosaentshe go bakgathatema e kaonafetše. Mo ngwaga wo o lekodišišwago, CGS e lekodišišitše Pholisi ya yona ya Datha le Tshedimošo go ya ka Molao wa POPI wa 2013 go tšwetša pele tšhireletšo ya tshedimošo ya batho ye e amogelwago ke CGS le gona se se akaretša tshedimošo ya batho ya bašomedi ba CGS, badiriši le bakgathatema. CGS e ngwadišitše Mohlankedi wa Tshedimošo le Motlatša Mohlankedi wa Tshedimošo, go ya ka karolo ya 55 (2) ya Molao wa Tšhireleto ya Tshedimošo ya Sephiri wa 4 wa 2013 ka la 16 Dibokwana 2022.

Phothale ya Datha le Tshedimošo e hlomilwe ka la 1 Ngwatobošhego 2021 ke CEO le go tiišetšwa ke Tona ya Methopo ya Diminerale le Enetši go side-lines tša Mining Indaba. Phothale e hlametšwe go kgonthiša gore direktote tša datha le tshedimošo tša tšeosaentshe tše di gatišitšwego ke CGS ka tsela ya mebepe, dingwalwa le didathapeisi di a hwetšagalago bakgathatema le badiriši go tšwa moo ba lego gona ka magaeng.

Go tloga ka Moranang 2021 go fihla ka Hlakola 2022, tshedimošo le datha tša Geoscience di phatlaladitšwe go

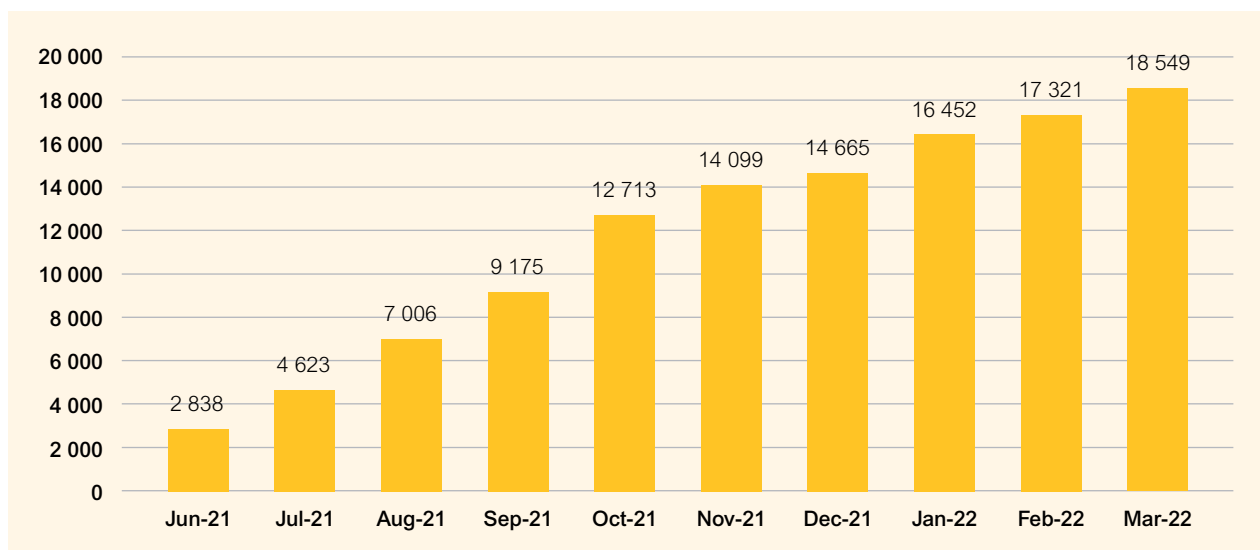
bakgathatema ba go fapafapana ba bjalo ka intasteri ya boentšineere, intasteri ya tša moepo, badudi ba poraebete, dikgwebo tše laolwago ke mmušo, diinstitšušene tša thuto ya godimo le dikhamphani tša boditšhabatšhaba (Seswantšho sa 4). Mo nakong ye, CGS, ka tsela ya info@geoscience.org.za, e amogetše dikgopelo tše di fetago tše 2 000, tša,

magareng ga tše dingwe, dipego tša tolomaete, datha ya melete ya meetse ya tšeolotši, mebepe ya tšeolotši, mebepe ya diminerale ya tšeolotši le tshedimošo ye nngwe e bjalo ka tšeokhemikhale, tšeofisikhale, go roromela le datha ya tša ka lewatleng.



**Seswantšho sa 4: Kgopelo ya phesente ka tsela ya info@geoscience.org.za go ya ka intasteri ya 2021–22**

Phothale ya Datha le Tshedimošo tša Geoscience e ngwadišitše badiriši bao ba fetago ga 1 000 magareng ga Ngwatobošhego 2021 le Hlakola 2022. Badiriši ba phothale bontši bja bona ba tšwa go diinstitšušene tša boentšinere, tša meepo le tša thuto ya godimo. Go taonelouta go go fetago makga a 16 000 (Seswantšho sa 5) go begilwe, e bile go be go akaretša mebepe ya tšeolotši, dibibliokerafi le dikgopotšo, dikgatišobaka le dibopego tša difaele tša tšeolotši, bjalobjalo.



**Seswantšho sa 5: Go taonelouta ga datha ka tsela ya Phothale ya Taolo ya Datha ya Geoscience, Ngwatobošhego 2021–Hlakola 2022**



## 2.3 Dikgatelopele tše bohlokwa tša leano le diphetogo tša molao

Ga se gwa ba le dipheotošo tše bohlokwa tša pholisi go Molaophetošwa wa Geoscience (Molao wa 16 wa 2010) go tloga mola o thomago ka la 1 Mosegamanye 2012. Melawana ya Molao wa Geoscience wa 2022, wo o hlatholla dipheotošo tša phethagatšo ya dipeakanyetšo tša maatlafatšo ka gare ga Molao di gatišitšwe bjalo ka molao ka Hlakola 2022 morago ga ditherišano le dikgokagano tše di tseneletšego le bakgathatema ba go fapafapana. Melawana e nepile go, magareng ga tše dingwe, go lokologanya bokgoni le maswanedi a go ba ka fase ga tlhokomelo ya CGS ya datha, tshedimošo le tsebo tša CGS go ya ka molao wa tlhomo. Go feta fao, peakanyetšo ye e kgontšhago CGS go thomiša ka go kopola e a katološwa go hlama dipheotošo tše di maatlafetšego tša mokgatlo go dira bjalo mola go bewa šedi le phethagatšo le maatla a yona ao a katološitšwego.

MPRDA wa 2008 o hlatholla tema ye e kgathwago ke CGS malebana le tshedimošo ya tšeolotši ye e tšweletšwego ka tsela ya mešomo ya go kopola ka Afrika-Borwa. Go sepelelana le mokgwa o moswa wa leanophethagatšo, CGS e amanya mešomo ya lona le ditlhabollo tša moragorago go dipheotošo tša MPRDA, Molao wa Taolo ya Tikologo wa Bosetšhaba le Molao wa Peakanyo ya Naga le Taolo ya Tšhomišo ya Naga.

Mmotlolo wa Tlhabollo wa Selete (DDM) o nyaka go maatlafatša bokgoni bja kabo ya ditirelo le bokgoni bja mebasepala. Ka lebaka le, CGS e šomišane go tselelela le palo ya mebasepala ya dilete le ya selegae ka diprofentsheng tša Kapa Bohlabela, KwaZulu-Natal, Limpopo le Mpumalanga go leka dikgonagalo tša go ba le seabe go tšeosaentshe se segolo go maikemišetšo ao a laeditšwego a DDM.

## 2.4 Kgatelopele go ya go phihlelelo ya dikamego le dipelo tša institšušene

SP 2020–2025 ya CGS e lekodišitšwe go sepelelana le dinyakwa tša fasana tša Tlhako tše di Boeleditšwego tša Maanophethagatšo le di-APP, 2020. Ditaetši tša dipelo di fetotšwe go latela peakanyo ye e theilwego godimo ga dipelo yeo e amogetšwego ke Mmušo wa Afrika-Borwa. SP 2020–2025 ya CGS e adilwe pele ga Palamente ka Hlakola 2021 gammogo le Leanophethagatšo la Ngwaga ka ngwaga la 2021/22.

Setatamente sa kamego sa CGS se thadilwe go tšwa go setatamente, 'Setšhaba se se gatelago pele se se fetotšwego seo se kgontšhwago ke ditharollo tša Geoscience'. CGS e amogetše IMMP bjalo ka leanophethagatšo leo le hlohleletšago go maatlafala ga mokgatlo go seemo seo se fetogago nako le nako sa tshepedišo, ekonomi, setšhaba le boikalo bja naga bjo bo šuthago kgafetšakgafetša ya saentshe le theknolotši. Leanophethagatšo le nepile go tšwetša pele kabo ye e nago le seabe ya maatla a motheo le go fana ka ditharollo tša tšeosaentshe go thekga NDP 2030 le maano a mangwe a mmušo ao a rarollago kgolo ya ekonomi, bodiidi, go se lekalekane, tlholego ya mešomo, thuto, meetse a go hlweka, enetši ya theko ya fase le go hlweka, le ditšhaba tše di bolokegilego. Seswantšho sa 6 se hlatholla kamego ya tsela ya leanophethagatšo la CGS, dipelo tša yona le mafelo a kamego.

**LEANOPHETHAGATŠO LA CGS**

**DIPOELO TŠA INSTITŠUŠENE**

**SETATAMENTE SA KAMEGO SA CGS**

**MAFELO A KAMEGO (KA 2025 LE 2030)**



**Lenaneo la go Thalwa ga Mebepe ya Geoscience le Kopantšwego le Makala a Mantši (IMMP).**

IMMP e hlametšwe go hlohleletšago go maatlafala ga mokgatlo go seemo seo se fetogago nako le nako sa tshepedišo, ekonomi, setšhaba le boikalo bja naga bjo bo šuthago kgafetšakgafetša bja saentshe le theknolotši.

Leanophethagatšo le nepile go tšwetša pele kabo ye e nago le seabe ya maatla a motheo.

Go fana ka ditharollo tša tšeosantshe go thekga NDP le maano a mangwe a mmušo ao a rarollago kgolo ya ekonomi, bodiidi, go se lekalekane, tlhologo ya mešomo, thuto, meetse a go hlweka, enetši ya theko ya fase le go hlweka, le ditšhaba tše di bolokegilego.

1. Taolo ye bokaone le ye e šomago gabotse ya methopo ya matlotlo
2. Go obamela diphrothokholo/melawana ya pušo
3. Lehumo la bašomi le le nago le bokgoni
4. Ditirišo tše di kaonafetšego tša ditšweletšwa tša tšeosantshe le go boloka 5% tša kabelano ya tshenyegelo ya lefase ya kutollo.
5. Temogo ye e kaonafetšego ya leswaopapatšo, ditirelo le ditšweletšwa tša CGS.
6. Taolo ya tsebo ye e kaonafaditšwego.
7. Botiplomate bja tšeosantshe bjo kaonafaditšwego.

Setšhaba se se gatelago pele seo se fetogilego seo se kgontšhwago ke ditharollo tša Geoscience.

- Kgolo ya ekonomi
- Tlhologo ya mešomo Tšhireletšo ya enetši
- Phetogo go ya go ekonomi ya khapone ya fase
- Phihlelelo ya meetse a go hlweka Tšhireletšego dijong
- Tlhabollo ya mananeokgoparara le tšhomišo ya naga
- Tšweletšo ya tšhomišanommogo le Afrika le lefase.

**Seswantšho sa 6: Sebopego sa leanophethagatšo le mokgwa wa tshepedišo wa kamego tša CGS**

Lenaneo la 1 le hlatholla kgatelopele go phihlelelo ya dinepo tša mengwaga ye mehlano kgahlanong le ditaetši tša dipoelo tša SP 2020–2025 ya CGS.

**Lenaneo la 1: Kgatelopele malebana le phihlelelo ya SP 2020–2025 ya CGS**

Dipoelo	Ditaetšo tša dipoelo	Kelotho	Nepo ya mengwaga ye mehlano	Kgatelopele go ya go phihlelelo ya nepo ya mengwaga ye mehlano
<b>Dintlha tše bohlokwa tša MTSF</b>	<b>Ntlha ye bohlokwa ya 1: Pušo ye e nago le bokgoni, ya maitshwara le ye e hlabologago</b>			
<b>Taolo ye kaone le ye e šomago gabotse ya methopo ya matlotlo</b>	Go se hwetšagale ga dikutollo tše di sa kgahlišego tša tekolo ya dipuku	0	Pego ye e hlwekilego ya tšhomišo ya ditšhelete e fihleletšwe ka 2025	CGS e hweditše dipoelo tše di kgotsofatšago tša tšhomišo ya ditšhelete yeo e se nago bosodi (ke gore, pego ye e hlwekilego) go ngwaga wa ditšhelete wo o lekodišišwago. Go šoma gabotse ga ditaolo tša ka gare go tšwetšwa pele go maatlafatšwa gore go fihlelelwe pego ye e hlwekilego ya tšhomišo ya ditšhelete.

Dipoelo	Ditaetšo tša dipoelo	Kelotho	Nepo ya mengwaga ye mehlang	Kgatelopele go ya go phihlelelo ya nepo ya mengwaga ye mehlang
<b>Go obamela diphrothokholo/ melawana ya pušo</b>	Mokgatlo wo o obamelago ditšhupetšo tša maleba tša tshepedišo	Selaetši se seswa	Mokgatlo wo o obamelago melao 100% ka 2025	Gabjale CGS e obamela molao wa PFMA 100% gomme go feta fao, e hlompha melao ka kakaretšo, e lego lenaneo la ditšhupetšo ka moka tša tshepedišo tšeo CGS e swanetšego go di obamela, tše gabjale di lego ka sebopego sa dikakanyo gomme go letetšwego gore di tla phethwa ngwageng wa ditšhelete wa 2022/23.
<b>Dintlha tše bohlokwa tša MTSF</b>	<b>Ntlha ye bohlokwa ya 3: Thuto, bokgoni le maphele</b>			
<b>Go dira dipeeletšo go bašomi bao ba nago le bokgoni</b>	Mananeo a taolo ya talente go aga, go hlokomela le go goketša bašomi bao ba nago le bokgoni e a phethagatšwa	Selaetši se seswa	Bašomi bao ba maatlafaditšwego, ba fetogilego, bao ba nago le tlhohleletšo le bao ba hweditšego tlhahlo ka 2025	Go hlangwa mananeo a taolo ya talente gabjale ao a tla phethwago go ngwaga wa ditšhelete wa 2022/23 le go phethagatšwa morago ga moo.
<b>Dintlha tše bohlokwa tša MTSF</b>	<b>Ntlha ye bohlokwa ya 2: Phetogo ya ekonomi le tlhalego ya mešomo Ntlha ye bohlokwa ya 5: Kakaretšo ya naga, bodulo bja batho le pušoselegae Ntlha ye bohlokwa ya 6: Kgokagano ya setšhaba le ditšhaba tše di bolokegilego</b>			
<b>Ditirišo tše di kaonafetšego tša tshedimošo le tsebo tša tšeosaentshe le go boloka bonnyane 5% tša kabelano ya tshenyegelo ya lefase ya go kopola</b>	Kakaretšo ya mmepe wa tšeosaentshe ye e oketšegilego	Selaetši se seswa	16%	Ka kakaretšo, ke palomoka ya mebepe ye 205 yeo e tšweleditšwego go tšwa go palomoka ya mebepe ye 1 916 ye e bakilego kakaretšo ya mebepe ya ka nageng ya 10.7%, yeo e laetšago kaonafatšo ye bohlokwa go tloga go ka fase ga 5% pele ga go thomišwa ga IMMP.
	Kakaretšo ye e oketšegilego ya mmepe wa tšeosaentshe wa dinagantle	Selaetši se seswa	0.6%	CGS e tšweleditše mmepe o tee fela wa dinagantle godimo ga palomoka ya 1 828 ye e bego e beakantšwe ya dira palomoka ya diphesente gore e fihle go 0.05%.
	Phethagatšo ya Lenaneo la Sethekgeniki la Tšeosaentshe la diminerale, enetši, meetse a ka fase ga mabu, mananeokgoparara, tšhomišo ya naga, boithagišetšo le tikologo	Selaetši se seswa		Ditirišo tša tsebo ya tšeosaentshe go fihlelela tlhabollo ya setšhaba
<b>Temogo ye e kaonafetšego ya leinapapatšo, ditirelo le ditšweletšwa tša CGS</b>	Leanophethagatšo la Kgokagano le Kamano le Bakgathatema le kopantšwego le phethagaditšwego	Selaetši se seswa	Bakgathatema bao ba kgotsofaditšwego ke boleng bja ditirelo le ditšweletšwa tša CGS	CGS e fihleletše kelo ya kgotsofalo ka bakgathatema ya 66.4% ka go ngwaga wa ditšhelete wa 2021/22, wo o lego ka fase ga tebanyo ye yona ya 70%. Leanophethagatšo la kgokagano le kamano le bakgathatema gabjale le a phethagatšwa go kaonafatša temogo ya ya leina, ditirelo le ditšweletšwa tša CGS.

Dipoelo	Ditaetšo tša dipoelo	Kelotho	Nepo ya mengwaga ye mehlang	Kgatelopele go ya go phihlelelo ya nepo ya mengwaga ye mehlang
<b>Seemo se se kaonafetšego sa tšeosaentshe ka tsela ya taolo ye e šomago gabotse ya tsebo</b>	Tšhomišo ya lenaneophethagatšo le le kopantšwego la taolo ya tshedimošo ya tšeosaentshe	Selaetši se seswa	Datha le tshedimošo tša tšeosaentshe tše di laolwago ka tsela ya maleba ka 2025	CGS e dirile 62.5% tša kgatelopele ka go phethagatšo ya mathomo ya tharollo ya tšeosaentshe ye kopantšwego, e lego ntlha ye bohlokwa ya taolo ya maleba ya datha go tloga go kamogelo go tšwa go mananeo a khudušo le tekolo ya datha go ya go kgonagatšo ya phihlelelo ya datha le tshedimošo ka phothale ya datha ya tšeosaentshe ya CGS. Le ge e le gore mananeo a datha ga se a tšwa a kopanywa, tebanyo ya mengwaga ye 5 go letetšwe gore e fihlelelwe.
<b>Dintlha tše bohlokwa tša MTSF</b>	<b>Ntlha ye bohlokwa ya 7: Afrika ye kaone le lefase</b>			
<b>Botiplomate bjo kaonafaditšwego bja tšeosaentshe</b>	Go hlamilwe dikgwebišano tše bohlokwa tša boditšhabatšhaba	Selaetši se seswa	Go ba le seabe ga tšeosaentshe go ya go “Afrika ye kaone le lefase” go matlafaditšwe ka 2025	CGS mo ngwageng wo o lekodišiwago e kgathile tema magareng ga dinaga tše pedi le dinaga tše ntlha tše di fapafapanego go thekga tlhamego ya pholisi ya dinagantle ya Afrika-Borwa. Mo ngwageng wo o lekodišiwago, CGS e saenne tumelelano le Mmušo wa Eswatini go dira diphatišišo tša tšeofisikhale.

**Lemoga:** Pego ye e hlwekilego ya dipuku e hlalošwa bjalo ka tekolo ye e kgotsofatšago ya ditšhelete ye e se nago dikutollo tše di se nago bosodi. Tekolo ye e kgotsofatšago ya dipuku ke ge go na le dikutollo tše di se nago bosodi tše di lokošitšwego nakong ya tekolo ya dipuku.

Go fihlelela dipoelo tše kaone le tše šomago gabotse tša taolo ya methopo ya ditšhelete gammogo le go fihlelelwa ga pego ye e hlwekilego ka 2025, CGS e tla tšwela pele go tšweletša le go hlokomela mananeo a pepeneneng, go bea ditekolo tša ka gare tša tshepedišo le go laola ditemošokotsi tše di ka hlagago. CGS e tla tšwela pele ka go ba le phišegelo ya go fihlelela pego ye e hlwekilego ka 2025. Ditatamete tša ditšhelete di tla tšwela pele go beakanya go ya ka diitheo tša GRAP le dinyakwa tša PFMA. Go šetše go phethagaditšwe ditaolo go kgonthiša taolo ya maleba ya dithoto, letseno, tshenyegelo le dikoloto. Lekala la tshepedišo ya kgwebišetšano ya ditheko leo le hlamilwego le tla kgonthiša lenaneo la maleba la dikgwebišetšano le dikabo tša ditheko leo le lokilego, la tekatekano, le phenkgišano le le poloko ya ditshenyegelo. Ka mešomo ya yona ya tekolo ya tshepedišo ya ka gare le taolo ya ditemošokotsi, CGS e bea leihlo ditaolo tša ka gare tše di šomago gabotse, ya lekola ditaolo tša matlotlo le go fokotša tšhomišompe ya matlotlo tše bjalo ka bomenetša, bohodu, tshenyegelo ye e sa tlwaelegago, ya go hloka mohola le ya tshenygo ya tšhelete.

Go obamela diphrothokholo tša pušo le melawana le ditšhupetšo tše dingwe tša tshepedišo go bohlokwa go CGS go ba le seabe go phihlelelo ya Ntlha ye bohlokwa ya 1 ya MTSF, e lego ‘mmušo wo o nago le bokgoni, wa maitshwaro le wo o

gatelago pele’. Gore go fihlelelwe kelo ye e amogegagago ya go obamela melao, CGS e nepile go kaonafatša le go tšweletša pele go itekanela ga taolo ya go obamela melao ka go bea dipholisi le ditshepedišo tša maleba go fihlelela nepo ya mokgatlo wo o obamelago melao ka botlalo ka 2025. CGS o šoma go tikologo ye e hlakahlakanego, ye e fapafapanago le ye e tseeneletšego le go obamela melao ka kakaretšo, le gona e swanetše go obamela le ditšhupetšo tše mmalwa tša tshepedišo. Go obamela melao go tla fihlelelwa ka tsela ya maleba le ye e beakantšwego go ba diphethagatšo.

Bokgoni bja maleba bo theilwe godimo ga bašomi bao ba nago le bokgoni. Go goga šedi, go boloka le go kgokagana le go tšweletša talente ya maleba go maemo a makgonthe, CGS gabjale e tšweletša mananeo a taolo ya talente ao a sepelelanago le leanophethagatšo la CGS. Mananeo a a nepile go aga, go thekga le go goketša bašomi bao ba nago le bokgoni mo mafelelong a paka ya MTSF. Mananeo a taolo ya talente a tla ikarabela go maemo a bohlokwa a paka ye kopana, ya magareng le ye telele tša kgwedi tše di theilwego godimo ga peakanyo ya bašomi.

Leanophethagatšo la IMMP le nepile go ba le seabe go Leano la Tsošološo le Tielelo ya Ekonomi la Afrika-Borwa ka go boloka bonnyane bja 5% tša tshenyegelo ya go kopolwa ga lefase ka

bophara ka ditirišo tša tshedimošo ya tšeosaentshe le tsebo tše di tšweleditšwego go tšwa go lenaneo. Phethagatšo ya GTP, setlabela sa motheo go fihlelela leanophethagatšo la CGS, e nepile go notlolla bokgoni bja mothopo wa diminerale le enetši le go ba le seabe go phetišetšo ya toka go ya go ekonomi ya khapone ya fase. GTP e tla fana le ka datha le tshedimošo tše bohlokwa (ka tšweletšo ya mebepe ye tšeosaentshe ya bogolo bja 1:50 000 ya ka nageng le dinagantle), go akaretša tirišo ya dithekniki tša tšhomišo ya mahlale ao e sego a tlhago go thekga tlhabollo ye maatlafetšego ya mananeokgoparara, tšhomišo ya naga ka toka le taolo ya tikologo. Mo ngwageng wo o lekodišišwago, mebepe ya tšeosaentshe ye 32 ya ka nageng e tšweleditšwe ka bogolo bja 1:50 000, seo se hlotšego koketšego go 10.7% ya kakaretšo ya mmepe wa ka nageng, go laetša kaonafatšo ye bohlokwa go tloga go ka fase ga 5% pele ga go thomišwa ga IMMPP. Go feta fao, dikholego tšeosaentshe ye e dirišwago tšeo di tla bago le seabe go diminerale, enetši, meetse a ka fase ga mabu, mananeokgoparara le tšhomišo ya naga di tšweleditšwe. Ye nngwe ya dikholego tše bohlokwa, kudukudu go tšwa go Profentshe ya Kapa Leboa (e lego, mmepe wa phatlalatšo ya phekmathaete ye mpsha) e nepile go go fana ka dintlha tša diminerale tša bokamoso gomme CGS e gatela pele go boloka 5% tša tshenyegelo ya lefase ya go kopola.

Go kaonafatša temogo ya leinapapatšo la CGS, ditirelo le ditšweletšwa, leanophethagatšo la kgokagano le kamano le bakgathatema le kopantšwego leo le phethagaditšwego mo ngwageng wo o lekodišišwago. CGS e thomišitše ka go phethagatša leanophethagatšo le go bea leihlo go kgolo ya leinapapatšo la lona ka ditlabela tše bjalo ka diphatišišo tša bakgathatema.

Bjalo ka mohlokamedi wa bosetšhaba wa datha ka moka ya tšeosaentshe le tshedimošo, CGS e thomile ka tšhomišo ya tshedimošo ya tšeosaentshe ye e sa hwetšwego gaboima le go fihlelelega gabonolo le lenaneo la taolo ya tsebo tšeo di tla dumelelago go tšea sephetho ka tshwanelo go taolo ye maatlafetšego ya methopo ya tlhago gammogo le go fokotša dikamego tša ditšeoahasate, magareng ga tše dingwe. Tšhomišo ka botlalo ya lenaneo la taolo ya tshedimošo e tla kgontšha mokgatlo go phethagatša pholisi ya datha le tshedimošo tša tšeosaentshe gammogo le Melawana ya Molao wa Tšeosaentshe yeo e gatišitšwego nakong ya ngwaga wo o lekodišišwago. Go feta fao, CGS e hlomile Phothale ya Datha le Tshedimošo ya Tšeosaentshe, yeo e hlamilwego go kgonthiša gore phihlelelo go datha ya tšeosaentshe le direkote tša tshedimošo tše di gatišitšwego ke CGS di a hwetšagala go bakgathatema le badiriši.

CGS e nepile go kaonafatša phethagatšo ya katolo ye bohlokwa ya botiplomate bja tšeosaentshe go thekga maikemišetšo a pholisi ya dinagantle ya bosetšhaba go maatlafatša botiplomate bja ekonomi le go thekga mananeo a go ba le seabe sa Afrika-Borwa go aga **Afrika e kaone le lefase**, yeo e sepelelanago le Dinapo tša Tlhabollo ye e Maatlafetšego tša Dinagakopano 2030 le Lenaneotherišano la Botee bja Afrika 2063. Mananeo a tšeosaentshe a akaretša dintlha tša tlhabollo ya bokgoni ya bašomi, phetošo ya institšušene, tshepedišo le bolaodi/boetapele, tlhabollo ya bokgoni le phethagatšo ya mananeo ao a dumelelanwego. Go ngwaga wo o lekodišišwago, CGS e saenne tumelelano ye bohlokwa le Lefapha la Diphatišišo tša Tšeolotši la Kgoro ya Methopo ya Tlhago le Enetši ya Eswatini. Tšhomišano ye e bohlokwa e akaretša go dira diphatišišo tša tšeofisikhale tša moya wa lefaufaug tša selete tša go thalwa ga mebepe ya tšeosaentshe ya kgonagalo ya go hwetšwa ga diminerale le methopo ya meetse a ka fase ga meetse magareng ga tše dingwe.

# 3

## Tshedimošo Ya Phethagatšo Ya Lenaneo La Institution

Go ya ka leaneophethagatšo la CGS, go šomišwa mokgwa wa dintlha tše di lekelekantšwego (BSC) go fana ka karabo go phethagatšo ka kakaretšo ya mokgatlo. BSC e tloga e laola phethagatšo ya mokgatlo go maemo a kgwebišano le maemong a yona e le noši. Mananeo a mahlano a bohlokwa a akaretša modiriši, tshepedišo ya ka gare ya kgwebo, go ithuta le kgolo le go ba le kwešišo ye e tseletšego

ya matlotlo (Seswantšho sa 7). Mananeo a a ikarabela go dipoelo tše šupa tša institšušene tše di laeditšwego go SP 2020–2025 ya CGS le gona a hlophilwe go ya ka dintlha tše bohlokwa tša MTSF tša mmušo. Mananeo a bohlokwa le ona a rarolla mathata ao a amanago le mafapha ao a akaretšago magoro ka moka a basadi, baswa le bagolofadi.

Setatamete sa Kamego sa CGS: Setšhaba se se gate lago pele seo se fetogilego seo se kgontšhwago ke ditharollo tša tšeosaentshe	MANaneo A CGS	DIPOELO TŠA CGS	GO IKARABELA GO BEAKANTŠWEGO GA CGS GO DINTLHA TŠE BOHLOKWA TŠA MTSF	REKOTE YA MOKGATLO YA CGS
1	Boikemo Mererong ya Matlotlo	1. Taolo ye bokaone le ye e šomago gabotse ya methopo ya matlotlo		Sebopego sa Kgolo ya Ekonomi/Matlotlo
2	Go Šoma Bokaone le ka Tsela ye e Kgotsofatšago ga Mokgatlo	2. Go Obamela Melawana ya Pušo	1. Pušo ye e nago le bokgoni, ya maitshwara le ye e hlabologago	Sebopego sa Mananeotirišo ao a Kgontšhago (a mokgatlo)
3	Bašomi bao ba Maatlafadišwego, Ba Fetogilego, Bao ba Hlohleledišwego le Bao ba Hweditšego Tlhahlo	3. Lehumo la bašomi le le nago le bokgoni	3. Thuto, bokgoni le maphelo	Ponagalo ya Batho la Maemo a Godimodimo
4	Go Phethagatšwa ga Maatla	4. Ditirišo tše di kaonafetšego tša tshedimošo le tsebo tša tšeosaentshe le go boloka bonnyane 5% tša kabelano ya tshenyegelo ya lefase ya kutollo 5. Botiplomate bja tšeosaentshe bjo kaonafadišwego	2. Phetogo ya ekonomi le tlhalego ya mešomo 5. Kakaretšo ya naga, bodulo bja batho le pušoselegae	Ponagalo ya Mmaraka (Bakgathatema/Badiriši)
5	Tša boeletši, kgokagano le bakgathatema le taolo ya tsebo	6. Temogo ye e kaonafetšego ya leina/brand, ditirelo le ditšweletšwa tša CGS 7. Tomeine ye e kaonafetšego ya tšeosaentshe ka tsela ya taolo ye e šomago ka tshwanelo ya tsebo	6. Kgokagano ya setšhaba le ditšhaba tše di bolokegilego 7. Afrika ye Kaone le Lefase	

**Seswantšho sa 7: Mananeo ao a kopafadišwego a CGS le dikamano tša ona go dintlha tše bohlokwa tša MTSF 2019–2024 le tše mokgatlo o di etišitšego pele**

Tshedimošo ya phethagatšo le yona e akaretša seemo sa kabo ya ditirelo sa mokgatlo, makala a magolo a kabo ay ditirelo, le badiriši le bakgathatema bao ba fiwago ditirelo. Go lekola phethagatšo ya kgwebišano ya CGS, mokgatlo a hlamile ditaetiši tša phethagatšo, tšeo, gammogo le ditebanyo tša phethagatšo tša 2021/22, di akaretšwago ka boripana go Lenaneo la 2. Phihlelelo ya ditebanyo tša ditaetiši tša dipoelo tša lenaneo le lengwe le bohlokwa la ngwaga wa ditšhelele leo le lekodišišwago le tšona di laeditšwe ka botlalo go Lenaneo la 2.

### 3.1 Pego ya Phethagatšo ya Kgwebišano ya 2021/22

**Lenaneo la 2: Pego ya Phethagatšo ya Kgwebišano go lebelešwe APP ye e adilwego ya 2021/22**

<b>Sebopego sa Kgolo ya Ekonomi/Matlotlo</b>							
<b>Lenaneo la 1: Boikemo mererong ya matlotlo</b>							
<b>Maikemišetšo: Go kgonthiša go abja ga ditirelo ka tsela ye kaone le ye e kgotsofatšago tša taolo ya matlotlo, go kgoboketša thušo ya ditšhelele go tšwa go šomiša dibaka tša mešomo ya tšhomišano le kgwebišano gammogo le go tla ka mekgwa ya go ikhweletša thušo ya ditšhelele</b>							
<b>Dipoelo tša inšitišuwane tša lenaneo la 1: Taolo ye bokaone le ye e šomago gabotse ya methopo ya matlotlo</b>							
<b>Poelo</b>	<b>Kholego</b>	<b>Selaetiši sa Kholego</b>	<b>Phethagatšo ya makgonthe ye e lekotšwego ya 2019/20</b>	<b>Phethagatšo ya makgonthe ye e lekotšwego ya 2020/21</b>	<b>Tebanyo ye e beakantšwego ya ngwaga 2021/22</b>	<b>Phihlelelo ya makgonthe 2021/22</b>	<b>Go fapoga go tebanyo ye e beakantšwego go phihlelelo ya makgonthe 2021/22</b>
Taolo ye kaone le ye e šomago gabotse ya methopo ya matlotlo	Dipego tša matlotlo tše lekotšwego	Phesente ya dišhenyegelo tše di letišwego tša palomoka ya dišhenyegelo	61.04%	63.00%	≤66%	54.90%	Ga e dirišwe*
	Dipego tša matlotlo tše lekotšwego	Phesente ya dišhenyegelo tša bašomi go palomoka ya dišhenyegelo	65.86%	64.03%	≤70%	57.18%	Ga e dirišwe*
	Dipego tša matlotlo tše lekotšwego	Letšeno la go tšwa go mešomo ya mohlakanela/ dikgwebišano	R29m	R23.2m	R33m	R107.9m	+R74.9m
	Dipego tša matlotlo tše lekotšwego	Letšeno la thušo ya ditšhelele	R422.4m	R486.2m	R373.2m	R464.3m	+R91.1m
							<b>Mabaka a phapogo</b>
							Tebanyo e fihleletšwe. Go dirilwe magato a go laola le go fokotša dišhenyegelo tše di letišwego. Phethagatšo ya GTP e kaonafetiše go palomoka ya tšhelele ye e šomišitšwego.
							Tebanyo e fihleletšwe. Se e bile ka lebaka la go be ka fase ga taolo dišhenyegelo tša bašomi go amana le tšhomišo ya tšhelele go kabo ya ditirelo tša protšeke.
							Tebanyo e fetišitšwe. Go dirilwe letšeno le lentši ka lebaka la go kgatha tema ga CGS go protšeke ya Eskom ya R50.1m, protšeke ya Freistata ya R7m, protšeke ya Naga ya Eswatini ya R17.2m le diprotšeke tše dingwe tše mmalwa tše nnyane.
							Tebanyo e fetišitšwe. Letšeno le le šuthitšwego la R86.6m le amogetšwe go tšhelele diphethagatšo tša ngwaga wa bjale tša R373.2m. Go dirilwe maitapišo ka maikemišetšo a go fokotša letšeno le le šuthitšwego.

\* Ga e dirišwe\*: Tebanyo ye e nepilwego e fapana le palomoka ya makgonthe.

### Sebopego sa Mananeotirišo a makaone (a mkgatlo)

Lenaneo la 2: Go šoma bokaone le ka tsela ye e kgotsofatšago ga mkgatlo

Maikemišetšo: Go hlama le go phethagatša dipholisi tše kaone le tše kgotsofatšago, ditshepedišo le ditsela tša kgwebo go thekga mmotholo wo o kopantšwego wa kabo ya ditirelo wa CGS, go obamela tšwaetšo ye kaone go fihlelela pušo ye e maatlafetšego le go abelana le go šomiša ditharollo tša ICT tše di sepelago le mabaka, tša go ka katološwego le tše di bolokegilego

Dipoelo tša insitišušene tša lenaneo la 2: Taolo ye kaone le ye e kgotsofatšago ya methopo ya matlotlo le go obamela diphrthokholo/melawana ya pušo

Poelo	Kholego	Selaetši sa Kholego	Phethagatšo ya makgonthe ye e lekotšwego ya 2019/20	Phethagatšo ya makgonthe ye e lekotšwego ya 2020/21	Tebanyo ye e beakantšwego ya ngwaga 2021/22	Pihlelelo ya makgonthe 2021/22	Go fapoga go tebanyo ye e beakantšwego go pihlelelo ya makgonthe 2021/22	Mabaka a phapogo
Taolo ye kaone le ye e šomago gabotse ya methopo ya matlotlo le	Dipego tša matlotlo tše lekotšwego tša ngwaga	Phesente ya palomoka ya ditheko tše di rekilwego go ditsho le ditirelo go tšwa go dikgwebo tše nnyane, tša magareng le tše kgolo (QSE le di-EME) go ya ka PPPFA ya 2017	48.25%	40.75%	≥30%	42.48%	Ga e dirišwe*	Tebanyo e fihleletšwe. Phetogo go ya ka tšhelete ye e šomišwego go reka ditheko e etišwa pele.
Go obamela diphrthokholo tša taolo/melawana	Dipego tša matlotlo tše lekotšwego tša ngwaga	Palo ya dipoelo tša tekolo ya ditšhelete	0	0	0	0	0	Tebanyo e fihleletšwe. Dipoelo tša tekolo ya dipuku tše di se nago dikutollo tše di nago le bosodi (pego ye e hwakillego) di fihleletšwe ka ngwaga wa 2021/22. Go tšerwe magato a magolo go fihlelela kaonafatšo ye e gateelago pele.
	Khwetšagalo ya pego	Khwetšagalo ya ditirelo tše bohlokwa tša kgwebo	Kelo ye mpsha	100%	≥99%	99.89%	Ga e dirišwe*	Tebanyo e fihleletšwe. Peeletšo ya mkgatlo go ditheknoloji tša bjale (go akareiša tšhireletšo kgahlanong le boradia bja inthaneteng) e fihleletše phethagatšo ya mešomo ya 99.89% ka kakaretšo le go hwetaga ga methopo go akareiša mafelo a CGS ka moka.

\* Ga e dirišwe\*: Tebanyo ye e nepilwego e fapana le palomoka ya makgonthe.



**Ponagalo ya Batho la Maemo a Godimodimo**

Lenaneo la 3: Bašomi bao ba maatlataditšwego, ba fetogilego, bao ba hlohleleditšwego le bao ba hweditšwego tlhahlo

Maikemisetšo: Go thwalwa le go se lahlegelwe ke bašomi ba bokgoni bja maemo a godimo bja saentshe ka intasetering ya tšeoasentshe; Go aga bokgoni malebana le bokgoni bja tšeoasentshe, tshapedišo le bolaodi/boetapele mola ka go le lengwe go tšweletšwa ditšweletšwa tša boithagaisetšo, mananeo le ditirelo; Go hlohleletša go dira dipeeletšo go maatlatatšo ya methopo ya bašomi le go fapafapana go ya ka merafe

Dipelo tša instišušene tša lenaneo la 3: Go dira dipeeletšo go bašomi bao ba nago le bokgoni

Poelo	Kholego	Selaetši sa Kholego	Phethagatšo ya makgonthe ye e lekotšwego ya 2019/20	Phethagatšo ya makgonthe ye e lekotšwego ya 2020/21	Tebanyo ye e beakantšwego ya ngwaga 2021/22	Phihlelelo ya makgonthe 2021/22	Go fapoga go tebanyo ye e beakantšwego go phihlelelo ya makgonthe 2021/22	Mabaka a phapogo
Go dira dipeeletšo go bašomi bao ba nago le bokgoni	Dipego tša methopo ya bašomi	Phesente ya bašomi ba tša saentshe bao ba nago le ditikri tša Mastase goba tša Bongaka	41.56%	40.47%	≥35%	41.22%	Ga e dirišwe*	Tebanyo e fihleletšwe. Bolaodi bja CGS bo tšwela pele go dira dipeeletšo go maitekelo a go ithuta le ithabollo. Ka gona, go na le mothopo wo mokaone wa go thuša bakgopedi ba dipasari go ithuta ba le mošomong bao gabjale ba ithutelago ditikri tša Mastase le tša Bongaka.
	Dipego tša methopo ya bašomi	Kelo ya go rola modiro ga bašomi	7.99%	5.48%	≤10%	4.99%	Ga e dirišwe*	Tebanyo e fihleletšwe. Bolaodi bja CGS bo tšwelele pele go hlohleletša seemo sa mošomo sa go akaretša batho ka moka le se sekaone go bašomi ka moka. Gape go bile le maitekelo a go tsena ka bogare go se lahlegelwe ke bašomi a go swana le go šuthišwa ga bašomi go ya matepheng a mangwe go ithutela mešomo go diprotšeke gammogo le maitekelo a go ithuta le go ithabolla.
Go dira dipeeletšo go bašomi bao ba nago le bokgoni	Dipego tša methopo ya bašomi	Phesente ya tshenyegelo ya tlhahlo le tšhelete ye e lefišwago lekgetho ya ditsele tša megolo ya bašomi	3.52%	1.20%	≥1%	2.33%	Ga e dirišwe*	Tebanyo e fihleletšwe. Bolaodi bja CGS bo tšwelele pele go dira dipeeletšo go ithabologo ya bašomi go potlakiša IMMP le diryawka tše dingwe tša kgwebo.
	Dipego tša methopo ya bašomi	Phesente ya bašomi bao ba phelag ks bogolofadi	1.66%	2.25%	≥1.5%	1.86%	Ga e dirišwe*	Tebanyo e fihleletšwe. Bolaodi bja CGS bo phethagadiše maitekelo a go tsena ka bogare ao a akaretšago batho ka moka go lebeletšwe bašomi bao ba phelago ka bogolofadi.
Go dira dipeeletšo go bašomi bao ba nago le bokgoni	Dipego tša methopo ya bašomi	Dipalopalo tša EE, bašomi ba lekala la tša saentshe (Kemedi ya basadi)	Kelo ye mpsha	39%**	44%	39%	-5%	Tebanyo e fihleletšwe. Kgolo ya mokgatio e bile ye nnyane go feta ka moo go bego go lebeletšwe. Go thwalwa ga bašomi nakogn yeo e tlogo go tla sekamela go basadi go lebeletšwe bokgoni.
	Dipego tša methopo ya bašomi	Dipalopalo tša EE, EXCO (Kemedi ya basadi)	Kelo ye mpsha	20%**	20%	20%	0%	Tebanyo e fihleletšwe. Se e bile ponagalo ya go tšwelela ga lefeela go legato la Taolophethiši.

\* Tebanyo ye e nepilwego e be e fapana le palomoka ya palo ya makgonthe.

\*\* Tshedimošo ya phethagatšo ya mešomo ye e lekotšwego ye e gateletšwego ya ngwaga wa ditšhelete wa 2020/21 ge e laetšwa ka dipresentsente. Ga e dirišwe

**Ponagalo ya mmaraka (Bakgathatema/Badiriši)**

**Lenaneo la 4: Go phethagatšwa ga maatla**

**Maikemišetšo: IMMP Lenaneo la go thalwa ga mebepe la tšeosantshe ye e kopantšwego ya makala a mantši**

**Dipoelo tša instišuene tša lenaneo la 4: Ditirišo tše di kaonafetšego tša tshedimošo le tsebo tša tšeosantshe le go boloka bonnyane 5% tša kabelano ya tshenyegelo ya lefase ya go kopola**

Poelo	Kholego	Selaetši sa Kholego	Phethagatšo ya makgonthe ye e lekotšwego ya 2019/20	Phethagatšo ya makgonthe ye e lekotšwego ya 2020/21	Tebanyo ye e beakantšwego ya ngwaga 2021/22	Phihlelelo ya makgonthe 2021/22	Go fapoga go tebanyo ye e beakantšwego go phihlelelo ya makgonthe 2021/22	Mabaka a phapogo
Ditirišo tše di kaonafetšego tša tshedimošo le tsebo tša tšeosantshe le go boloka bonnyane 5% tša kabelano ya tshenyegelo ya lefase ya go kopola	Mebepe ya tšeosantshe ya dinagantle	Kakaretšo ya mebepe ya tšeosantshe ya ka nageng	Kelo ye mpsha	9.03%	9.5%	10.7%	+1.2%	Tebanyo e fetišitšwe. Mebepe ya tšeosantshe ya ka nageng ya tlaleišo e tšweleditšwe ka lebaka la peakanyoleswa ya methopo ya ka gare go thekga diprotšeke tša tsošološo.
	Mebepe ya tšeosantshe ya dinagantle	Kakaretšo ye e okeitšegilego ya mmepe wa tšeosantshe wa dinagantle	Kelo ye mpsha	0.05%	0.3%	0.05%	-0.25%	Tebanyo e fihleletšwe. Le ge e le gore go dirilwe kgatelopele ye bohlokwa ka sekepe se segolo sa mmepe wa kgauswi le lebopo (RV Nkosi), dikpepe tše dingwe tše kgolo tša mmepe wa ka lewatleng (go tšwa go bakgathatema ba bohlokwa) ga se tša hwešagala go swana le ge go be go akantšwe peleng.
Botlompate bja tšeosantshe bjo bo kaonafadišwego	Dikholego tša tšeosantshe tša tlaleišo ya boleng tše bjalo ka dipego tše kopantšwego, dimmotlolo tša 3D, ditharollo tša boithagišetšo, mananeo a diminerale le dimmotlolo tša maatlafatšo	Dikholego tša tšeosantshe ye e dirišwago tša diminerale le enetši	Kelo ye mpsha	7	4	4	0	Tebanyo e fihleletšwe. CGS e tšweleditše dikholego tša yona tša tšeosantshe tše di dirišwago tše di beakantšwego tša diminerale le enetši.
	Dikholego tša tšeosantshe tša boleng bjo okeditšwego tše bjalo ka dipego tše kopantšwego le dimmotlolo tša 3D, ditharollo tša boithagišetšo	Dikholego tša tšeosantshe tše di dirišwago tša mananeokgoparara, tšhomišo ya naga, maphelo, meetse a ka fase ga mabu le	Kelo ye mpsha	10	5	7	+2	Tebanyo e fetišitšwe. Palo ya ditšweletšwa tša tšeosantshe tše bohlokwa tša go thalwa ga mebepe ya ka fase ga mabu, tlhabollo ya mananeokgoparara, le tšhomišo ya naga di be di potlakitšwe gore go thekgwe tsošološo ya ekonomo le protšeke ya Kgolego ya Khapone, Tšhomišo le Bobolokelo.

**Ponagalo ya mmaraka (Bakgathatema / Badiriši)**

Lenaneo la 5: Tša boeletši, kgokagano le bakgathatema le taolo ya tsebo

Maikemišetšo: Go kaonafatša dikamano tša bakgathatema ka tšhomišano le diintitšusene tše di amantšwego ka tshwanelo, lekala la poraebete le setšhaba ka kakaretšo

Dipelo tša institšusene tša lenaneo la 5: Temogo ye e kaonafetšego ya leswaopapatšo la CGS, ditirelo le ditišweletšwa gammogo le tikologo ye e kaonafetšego ya tšeošaentshe ka taolo ye e šomago ka tshwanelo ya tsebo

Poelo	Kholego	Selaetši sa Kholego	Phethagatšo ya makgonthe ye e lekotšwego ya 2019/20	Phethagatšo ya makgonthe ye e lekotšwego ya 2020/21	Tebanyo ye e beakantšwego ya ngwaga 2021/22	Phihlelelo ya makgonthe 2021/22	Go fapoga go tebanyo ye e beakantšwego go phihlelelo ya makgonthe 2021/22	Mabaka a phapogo
Temogo ye e kaonafetšego ya leinapapatšo, ditirelo le ditišweletšwa tša CGS	Bobegaditaba dingwalo	Palo ya dingwalo tše di gatišitšwego go mananeo a bobegaditaba	17	25	24	24	0	Tebanyo e fihleletšwe. Bjalo ka karolo ya phethagatšo ya Leanophethagatšo la Kgokagano le Dikamano tša Bakgathatema le le Kopantšwego, CGS e gatišitše dingwalo le dipapatšo tša yona tše di beakantšwego tša bobegaditaba.
	Mokgathatema pego ya diphatišišo	Kelo ya kgotsofalo ya bakgathatema	76%	88.48%	≥70%	66.4%	-3.6%	Tebanyo e fihleletšwe. Diphatišišo tša kgotsofalo di gogile šedi ya kelo ya diphetolo tša fasana bjalo ka ge go bapetšwa le paka ya peleng ya go bega. Se se ka bakwa ke go kgatišo ya Melawana ya Molao wa Tšeošaentshe tšeo di tlogago di se tša kwešišwa gabotse ke bakgathatema. Go feta moo, temogo ye kgolo ya leinapapatšo la CGS e okedišše nyakego ya ditirelo tša CGS, yeo e bilego le kamego go dintlha tše dingwe tša dimako tša kabo ya ditirelo.

**Ponagalo ya mmaraka (Bakgathatema / Badiriši)**

Lenaneo la 5: Tša boeletši, kgokagano le bakgathatema le taolo ya tsebo

Maikemišetšo: Go kaonafatša dikamano tša bakgathatema ka tšhomišano le diintitšusene tše di amantšwego ka tshwanelo, lekala la poraebete le setšhaba ka kakaretšo

Dipelo tša institšusene tša lenaneo la 5: Temogo ye e kaonafetšego ya leswaopapatšo la CGS, ditirelo le ditišweletšwa gammogo le tikologo ye e kaonafetšego ya tšeosaeantshe ka taolo ye e šomago ka tshwanelo ya tsebo

Poelo	Kholego	Selaetši sa Kholego	Phethagatšo ya makgonthe ye e lekotšwego ya 2019/20	Phethagatšo ya makgonthe ye e lekotšwego ya 2020/21	Tebanyo ye e beakantšwego ya ngwaga 2021/22	Phihlelelo ya makgonthe 2021/22	Go fapoga go tebanyo ye e beakantšwego go phihlelelo ya makgonthe 2021/22	Mabaka a phapogo
Seemo se se kaonafetšego sa tšeosaeantshe ka tselo ya taolo ye e šomago ka tshwanelo ya tsebo	Dingwalo tše di lekotšwego ke bagera tše di gatišitšwego go ditšenale tša saantshe, dikgaolo tša dipuku le dibolumu tše di rulagantšwego	Palo ya dingwalo tše di lekotšwego ke bagwera tše di gatišitšwego	41	33	30	30	0	Tebanyo e fihleletšwe. CGS e tšwelediše dingwalo tše 30 tše di lekotšwego ke bagwera.
	Mehlala: dikgopotšo, dikgatišobaka, dipuku le diatletase	Palo ya dikgatišo tša CGS	12	10	8	8	0	Tebanyo e fihleletšwe. CGS e gatišitše palomoka ya dikgatišo tše 8 bjalo ka ge go beakantšwe.
	Mehlala: Dintlhakgopolo tša khonferentshe, dintlhakgolo tše di katošitšwego le dintha tše bohlokwa	Palo ya ditshepedišo tša dikhonferentshe	47	66	25	32	+7	Tebanyo e fetišitšwe. Dintlhakgopolo tše 32 tša khonferentshe di tšweledišwe ngwaga wo wa ditišhelete – bontši bja tšona (19 goba 59.4%) di gatišitšwe ke CGS go tšwa go diseminare tša sethekniki tša CGS.

### Lenaneo la 3: Phethagatšo ye e amantšhwago go tekanyetšo

Lenaneo/mošomo/ maikemišetšo	2021/2022			2020/2021		
	Tekanyetšo R'000	Ditshenyegelo tše di drilwego R'000	Tshenyegelo (Ye ntši)/Ye nyane R'000	Tekanyetšo R'000	Ditshenyegelo tše di drilwego R'000	Tshenyegelo (Ye ntši)/Ye nyane R'000
Lenaneo la 1: Boikemo mererong ya matlotlo	67 038	66 315	724	84 482	60 029	21 453
Lenaneo la 2: Go šoma bokaone le ka tsela ye e kgotsofatšago ga mokgatlo	105 260	104 124	1 136	127 939	94 255	33 684
Lenaneo la 3: Bašomi bao ba maatlafaditšwego, ba fetogilego, bao ba hlohleleditšwego le bao ba hweditšego thahlo	15 011	14 848	162	18 245	13 441	4 804
Lenaneo la 4: Go phethagatšwa ga mošomo	398 456	394 155	4 302	484 305	356 795	127 510
Lenaneo la 5: Boeletši, kgokagano le bakgathatema le taolo ya tsebo	16 118	15 944	181	19 591	14 433	5 158
<b>Palomoka</b>	<b>601 884</b>	<b>595 386</b>	<b>6 498</b>	<b>731 562</b>	<b>538 953</b>	<b>192 609</b>

### Leanophethagatšo la go fekeetša dikarolo tša go se šome go ka tsela ye e kgotsofatšago

Maanophethagatšo a go fekeetša go se šome ka tsela ye e kgotsofatšago go akaretša:

- 1) CGS e šomile go tloga go R/V Nkosi ye e sa tšwago go hlongwa go thala dikarolo tša ka ntle tša mmepe wa bogolo bja 1:50 000 go letlakala la 3318CD magareng ga Melkbosstrand le Llandudno go lebope la Kapa Bodikela. Datha ye e kgobokeditšwego go tsenwe fase ka go šogana le yona go kgonthiša gore kaonafatšo go phihlelelo ya kakaretšo ya mmepe wa tšeosaentshe wa dinagantle. Bašomišanimmogo ba bangwe ba beng ba dikepe ba a nyankollwa go potlakiša kgoboketšo ya data go tikologo ya fasefase lewatlang.
- 2) Molokoloko wa kemedi ya diphaephe tša legoro la bongtshadi ka go CGS o be o oketšega ka tsela ye e makatšago le gona sebopego sa saentshe se etišitšwe pele go fihlelela go farologanywa ga bong bjo fapanago go CGS.
- 3) CGS e tla kgokagana le bakgathatema go rarolla go se kwešišane malebana le Melawana ya Molao wa Geoscience wa 2022. Go feta moo, CGS e tla lokologanya ditshepedišo tša ka gare go kaonafatša dinako tša phethagatšo go fihlelela ditetelo tša bakgathatema.



*Difosili tša  
brachiopod  
Tropidoleptus go  
matsopatlapa a  
mengwageng  
ya Devonian a  
Dibopego tša  
Swartruggens,  
Worcester*

## Boikarabelo bja CGS go leuba la COVID-19

Lenaneo la 4: Kgatelopele go boikarabelo bja instišušenene go leuba la COVID-19

Lenaneo/ lenaneo la ka fasana	Maitekelo	Khwetsagalo ya lefelo (Profentshe/ masepala sa dīstrik/ selaga) (moo go kgonegago)	Palo ya baholegwa (moo go kgonegago)	Disaggregation ya baholegwa (moo go kgonegago)	Palomoka ya kabo ya tekanyetšo go ya ka go tsena ka bogare (R'000)	Tekanyetšo ye e šomišitšwego go ya ka go tsena ka bogare	Go ba le seabe go dipoelo ka go APP (moo go kgonegago)	Dipoelo tša semeetseng
Lenaneo la 1: Boikemo mererong ya matlotlo								
Lenaneo la 2: Go šoma bokaone le ka tsela ye e kgotsotšišago ga mokatlo								
Lenaneo la 3: Bašomi: bao ba maatlafatšwego, ba fotogilego, bao ba hlohleditšwego le bao ba hweditšwego tlhahlo	Go bea lehlilo go go sa kgaotšego go phethagatšo ya boikarabelo bja CGS go leano la boikarabelo go COVID-19 (go akarareiša Pholisi ya COVID-19) le go fana ka maele ka Komiti ya COVID-19 ya CGS.	Diprofentsheng ka moka tša Afrika-Borwa moo CGS e bego e phethagatša mananeo a yona.	Palo ya bašomi ba CGS le bakgathatama ba yona.	Ga e dirišwe.	Akaradišwe ka go tekanyetšo ye e lego gona ya CGS.	Akaradišwe ka go tshenyegelo ye e lego gona ya CGS.	Maitekelo a go stena ka bogare a kgontšhitše CGS go fihlelela dipoelo tšeo le lego gona go Lenaneo la 1.	Maitekelo a go tsean ka bogare a maatlafatšwe diprotšeke tša tsošološo ya ekonomī tša CGS.
Lenaneo la 4: Go phethagatšwa ga maatia								
Lenaneo la 5: Boeletši, kgokagano le bakgathatama le taolo ya tsebo	CGS e tšwetše pele go ba le seabe go go bea lehlilo go go maatlafatšego ga tlhologo ya moromelo ka meepong, go laetša mekgwa go go itemogelwa ga meroromelo go kgabaganya dilite tše kgolo tša meepo go ya ka melawana ye e fetošitšwego ya Molao wa Toalo ya Masetlapelo wa Bosetšhaba wa 2002 ka la 16 Mopitlo 2020.	Diprofentsheng tša Gauteng, Northern Cape le North West	Inlaseteri ya tša meepo, DMRE le Mine Health, Safety Council.	Ga e dirišwe.	Akaradišwe ka go tekanyetšo ye e lego gona ya CGS.	Akaradišwe ka go tshenyegelo ye e lego gona ya CGS.	Ga e dirišwe.	Se se hlotše gore go be le kweišo ye kaone ya mekgwa ya boitemogelo bja moromelo ya meepo go kgabaganya dilite tša go fapafapana tša meepo, ka go dumelela go tsena ka bogare ga malaba gore go rerišanwe magareng ga mekgatlo ya go bea melao le meepo, go go bakilego mkgwa wa phokolešo ya mahu ao a amanago le go kgokologa ga maswika ka meepong.

# 4

## Dintlha Tše Bohlokwa Tša Phethagatšo Ye Mešomo

### 4.1 Lenaneo la Sethekgeniki la Geoscience

Tsela ye e kopantswego le ya mafapha a go fapafapana ya mokgatlo di bopa motheo wa GTP ebile e ikemišetša go ba le seabe go dikarolo tše di latelago tše bohlokwa: Diminerale le Enetši; Maphelo, Meetse a ka fase ga mabu le Tikologo; Manaeokgoparara le Tšhomišo ya Naga; Boithlagišetšo bja Tšeosaentshe le Botiplomate bja Tšeosaentshe. Gabjale IMMMP e phethagadiše ka tšhomišo ya GTP, magareng ga tše dingwe, ebile e akaretša kgoboketšo ya dinyakišišo tša tšeosaentshe tše di nago le seabe se segolo le diprotšeke tša go thalwa ga mebepe. Go ngwaga wo o lekodišiwago, GTP e be e hlangwa ke diprotšeke tša mmušo le tša kgwebo. GTP e tšwelapele go kaonafala go lenaneo la tsošološo ya ekonomi ka morago ga COVID-19 la Afrika-Borwa. Dintlha tše bohlokwa ka ga kgatelopele ya GTP nakong ya 2021/22 di ahlaahlwa ka dikarolong tše di latelago.

#### 4.1.1 Hlogopoledišano ya Geoscience ya Methopo ya Diminerale le Energy

Makala a diminerale le enetši a na le seabe se bohlokwa go leano la kgolo le tlhabollo la Afrika-Borwa. Hlogopoledišano ya Tšeosaentshe ya Methopo ya Diminerale le Enetši o kgontšha dataetšo tša bosetšhaba, go akaretša go abalena ka tshedimošo le ditirelo tša naga le ya tšeosaentshe. Tshedimošo ye e goga šedi ya dipeeletšo tša ka nageng le tša boditšhabatšhaba go hlabolla methopo ye e humilego ka diminerale le petroleamo. Hlogopoledišano e ikemišeditše le go oketša go fana ka dilaesentshe tša go kopola le ditshenyegelo, le dipeeletšothwii go tšwa dinagantle, tše di kgontšhwago ke Operation Phakisa, e lego lesolo la Mmušo wa Afrika-Borwa leo le hlametšwego go potlakiša go phethagatšwa ga diharollo go merero ye bohlokwa ya tlhabollo ye bjalo ka diekonomi tša lewatle le tše di sa hlotlwago. Sa mafelelo, mošomo o nepile go oketša thekgo ya go kopola, tlhabollo le tšweletšo ya kgase ya letsopatlapa le tša moepo.

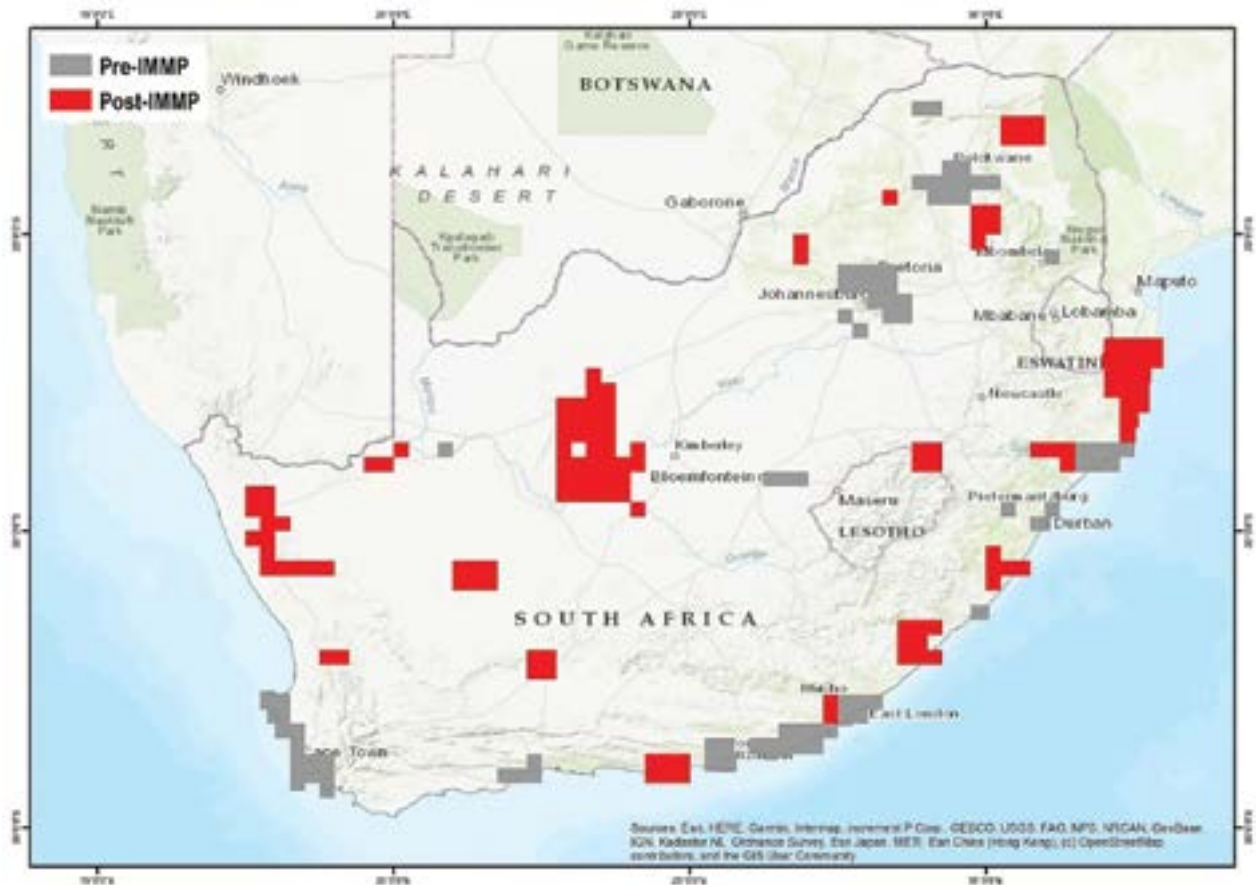
Go swana le merero ye mengwe, morero wo o kgontšhwa ke Karolo ya 5.1(c) ya Molaophetošo wa Tšeosaentshe, go “šoma bjalo ka mohlokomedi sa bosetšhaba sa tshedimošo ya tšeotheknikhale, tshedimošo ya tša diphatišišo le

tshedimošo ye nngwe ka moka ye e amanago le lefase, tikologo ya ka lewatlang le sekgoba sa tšeomaknethiki”. Ka fase ga morero wo, CGS e kgoboketša, ya sekaseka le go šomana le tšeosaentshe ya ka nageng le ya dinagantle tša boleng bja godimo (mohlala, tša tšeolotšikhale, tšeokhemikhale, tšeofisikhale le datha ya diminerale), ye e tla fokotšago kotsi ya le go oketša boitshepho go go kopola le tša meepo, kudukudu ditikologong tše di sego tša lemogwa ka tshwanelo. Datha ye le yona e šomišwa go hlaola methopo ya enetši ya tlhago ye e ka bago gona ye bjalo ka malahla, petroleamo, kgase ya tlhago, kgase ya šeile le enetši ya tšeothemane.

Go ikarabela go Leano la Tsošološo le Tielelo ya Ekonomi la morago ga COVID-19 la naga, CGS gabjale e phethagatša diprotšeke tše bohlokwa tše di nepilego kudukudu go diminerale tše bohlokwa tša ka moso tše di akaretšago le dimetale tše bohlokwa (mohlala, nikhele, khopale, khromiamo le gauta), diminerale tše di sa hwetšwego gabonolo (di-REE) le malahla. Dintlha tše dingwe tše bohlokwa tša diprotšeke tše di kgethilwego ka fase ga Hlogo ya Tšeosaentshe ya Methopo ya Diminerale le Enetši di a latela.

#### 4.1.1.1 Go thalwa ga mebepe ya ka nageng

Mo ngwageng wo o lekodišiwago, CGS e tšwetše pele go gatela pele ka lenaneo la yona le go thalwa ga mebepe le detaield la bogolo bja 1:50 000, ebile le okeditše kakaretšo ya go thalwa ga mebepe ya ka nageng go 10.7% ye e balelwago go tšwa go mebepe ye e tšweleditšwego ye 32 ya tšeolotšikhale ya maemo a godimo ya tlaleletšo. Kakaretšo ya mmepe wa bogolo bja 1:50 000 wa ka nageng o kaonafetše go tloga ka fase ga 5% ya pele ga phethagatšo ya IMMMP (Seswantšho sa 8). Lenaneo la go thala mebepe ya ka nageng le beile šedi go diprofentshe tša Kapa Bohlabela, Bodikela, le Leboa gammogo le diprofentshe tša Mpumalanga, Freistata, KwaZulu-Natal, North West le Limpopo. Go tšweletšwa ga mebepe ye bohlokwa ya tšeolotši le datha ye e amanago le yona di tla nepa diharollo tše di fapafapanego tša tšeosaentshe ye e dirišwago, go akaretša methopo ya diminerale le enetši, maphelo, meetse a ka fase ga mabu le tikologo, mananeokgoparara le tšhomišo ya naga, le boithlagišetšo boithlagišetšo bja tšeosaentshe.



**Seswantšho sa 8: Papetšo ya kakaretšo ya mebepe ya ka nageng mo mathomong a 2017/18, pele ga IMMP, go fihla mafelelong a 2021/22**

**Go thalwa ga Mmepa wa Tšeosaentshe wa Bodikela bja Griqualand, Profentshe ya Kapa Leboa**

**Tlhalošo le Maikemišetšo:** Go thalwa ga mmepa wa tšeosaentshe wa Bodikela bja Griqualand go hlatholla ka botlalo le go laetša sebopego sa diminerale, enetši, dikotsi, geosystems tša boentšineere le tša tikologo ka tikologong ya Borwa bja Griqualand. Lenaneo la go thalwa ga mebepe ya tšeolotšikhale le le hlalošago ka botlalo le akaretša go thalwa ga mebepe ya tšeosaentshe le mebepe ya diminerale. Kudukudu, protšeke e laetša kgonagalo ya diminerale tše bjalo ka taamane, ayone (Fe) le manganese (Mn) le go thekga tšhomišo ya naga, kwešišo ya tša temo le meetse a ka fase ga mabu le dinyakišišo tša tikologo go kgontšha go agwa ga mananeokgoparara le kgolo ya ekonomi. Griqualand West Basin ke lefelo leo le hlakahlakanego la tšeolotši yeo e humilego ka dirafša tše dingwe tša ekonomi ye kgolokgolo lefaseng. Lefelo la dinyakišišo le na le tatelanyo ye e hlakahlakanego ya maswika a magolo a go hlatlagana, maswika a magolo ao a bonalago o ka re a a phela a kereiti ya fase tšee di sa hlamegago gabotse tša Transvaal le Olifantshoek Supergroup, tša khemikhale tše di emetšego mehuta ye e fapafapanego ya diphalayoenbaromente (go tloga go

theresteriale go fihla go meetse a kgauswi le a go iša fase) le maswika a bolkeno ao a khupeditšwego ke maswika a Cenozoic ao a ikadielgo go phatlalala.

**Diphinlelelo le dintlha tše bohlokwa:** Nakong ya ngwaga wa go fana ka pego, dathapeisi ya CGS ya melete ye e borilwego le go e amantšhwa go mothopo wa datha ye bohlokwa ya litholotšikhale, sebopego goba ya diminerale, ka go gatelela kudukudu go amantšha go rafša ga diminerale le dibopego tšeo di tsebegago. Ka go dira bjalo, palomoka ya melete ya kgale ye 49 go tloga go Kalahari Manganese Field e ile ya golegwa, ya netefatšwa, le go fetišetšwa go ArcGIS and LeapfrogGeo™ go akaretša dathat ya SRTM ya dimmotlolo tša mahlakoretharo (3D)<sup>1</sup>. Melete ye e borilwego ya kgale e be e le mothopo wa motheo wo o šomišwego go hlama dimmotlolo ka ge setratikerafi se ikadile ka fase

<sup>1</sup> **ArcGIS** ke leloko la softewere ya klaente, softewere ya seba, le ditirelo tša mananeokhomputha a tshedimošo ya tikologo ya kgokagano ya inthaneteng ao a tšweleditšwego ebile a hlakometšwego ke Esri.

**LeapfrogGeo™** ke khamphani ya go tšweletša memmotlolo ya tšeolotši yeo e kopantšhago, e kgokaganyago le go hlatholla datha.

**SRTM**, NASA's Shuttle Radar Topography Mission, ke dathasete ya tlhatlošo ye e ka akaretšago lefase, ya kakaretšo ya bogolo bja kelo ya ditikrii tša magareng ga -60 le 60.

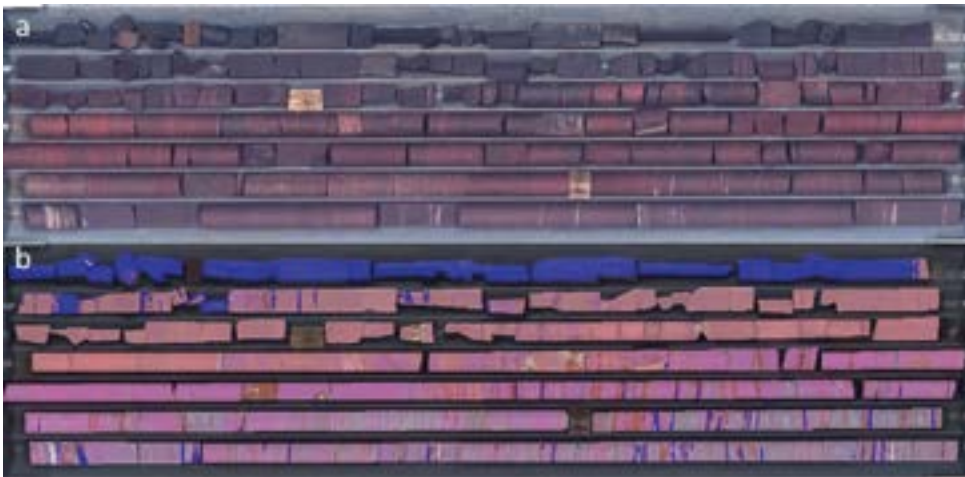


ga kakaretšo ya tatelano ya Kalahari ya sedimentary ye e ka balelwago go 135 m ka bokoto (Seswantšho sa 9).

Go tlaleletša, selete sa Griqualand West se hlotšwe bjalo ka lefelo le le nepilego le bohlokwa la tihabollo le tlahlo ya go ithuta ka metšhene. Didathasete tše di kgobokeditšwego mengwageng ye e fetilego di be di sepetšwa go polatefomo ya mmotlolo wa boithhagišetšo, kudukudu go kwešiša le go lemoga kgonagalo ya go rafša ga diminerale tša Fe-Mn go kgabaganya selete se. Mmotlolo o be o beile šedi go bapela tikologo ya Maremane Dome le go correlated

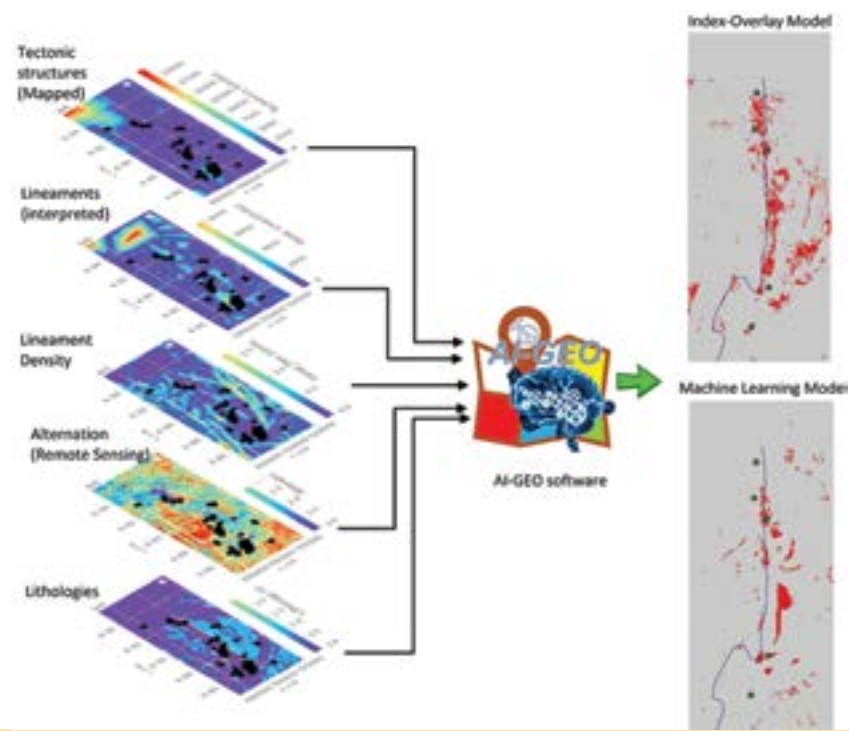
gabotse le diepša tše di tsebjago gabotse, le mafelo ao a utollotšwego gabjale (Seswantšho sa 10).

Protšeke ya Griqualand West e tlišitše mebepe ya tšeolotši ye senyane ya bogolo bja 1:50 000 go gatišwa mo ngwageng wa go fana ka pego. Go feta fao, segopotšo sa tšeolotši seo se mpshafaditšwego sa go hlaloša ka botlalo seo se hlalošago lithosetratikerafi ya tikologo, diphathe tša yona tša tshenyego ya naga, bontši bja meetse a ka fase ga mabu le methopo ya ekonomi di be di phethwa.



**Seswantšho sa 9: Bogolo bja molete wo o borilwego go tšwa go Kalahari Manganese Field ye e bolokilwego go la Donkerhoek**

Bogolo e ka sekana sa haephasepektherale go hlatholla ka tsela ye e nepagatšego ditikologo tša go rafša ga diminerale le diitholotši, molete wo o epilwego kgale wa maitekelo a go rafša ga diminerale ka gare ga Hotazel Formation ka botebo bjo e ka bago bja 800 m. Borale bja manganese o moso go (a) bo laetšwa gabotse ke lepanta la sepeketherale sa khaponeiti la botalalerata go (b), ka maswika ao a se nago diminerale tša hematite-siderite ka fase ao a nago le tlahpho ya moswananoši ya sepeketherale



**Seswantšho sa 10: Kerafo ye e laetšago kakaretšo ya tshapedišo ya go ithuta ka metšhene ye e šomišwago lefelong la diteko tša dinyakišišo la Griqualand West**

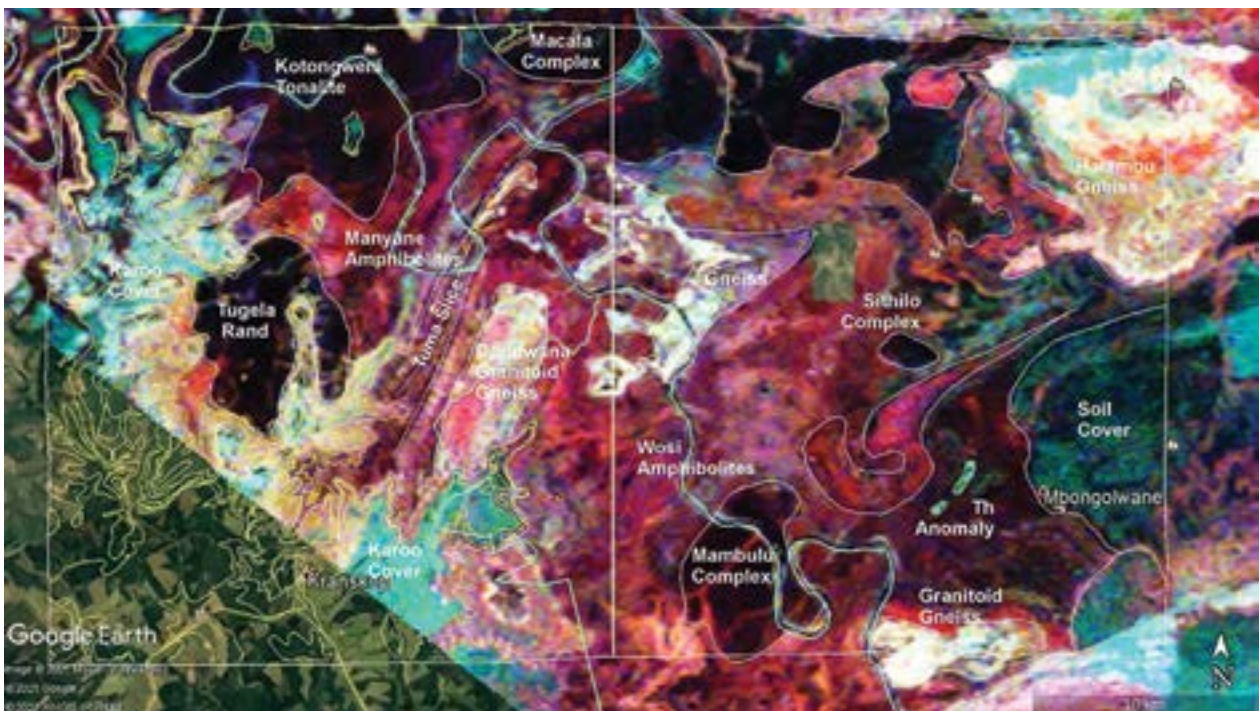
**Mebepe ya Tšeosaentshe ya Bogareng bja KwaZulu-Natal**

**Tihalošo le Maikemišetšo:** Protšeke ya go thwalwa ga mebepe ya tšeosaentshe ya Bogareng bja KwaZulu-Natal e nepile go šitiša taolo ya dibopego le seterathikerafi gammogo le phetogo ya lepanta leo le laetšago moo go hwetšagalago diminerale ka bogareng bja selete sa KwaZulu-Natal. Ka 2021/22, protšeke e thadile matlakala a mebepe a bogolo bja 1:50 000 a mebepe ya Kranskop le Mbongolwane ka bodikela le matlakala a Bergville le Zunckels go leba ka bohlabela bja profentshe. Tšeolotši ya lefelo leo le thadilwego mebepe la Kranskop le Mbongolwane di hlalošša ke maswika ao a fapanago go tloga go Mesoarchaeon go ya go a bjale, ka dilitholotši tše ntšintši tšeo di humilego ka diminerale tša bogolo bjo bo fapafapanago (mohlala, gauta, khromaete, nikhele-koporo) le mekgwa ya go rafša ga diminerale. Nepo ka seleteng e theilwe godimo ga mebepe ya tšeolotši go kwešiša taolo ya sebopego le seterathikerafi le phetogo ya lepanta leo le laetšago moo go hwetšagalago diminerale ka seleteng. Mošomo wo o nepile go ba le seabe go tlhamego ya go hwetšagalaga ga diminerale le go kgontšha tlhabollo ya diminerale ye e maatlafetšego.

**Diphihlelelo le dintlha tše bohlokwa:** Dinyakišišo tše di tseneletšego tše di dirilwego di akaretša kgoboketšo le regeneration ya tshedimošo ye e lego goan ya tšeosaentshe ye e hloago dathapeisi ye extensive ye e bopšago ke palomoka ya dathapoints tše 1 074 tša sebopego le tše 74

tša ekonomiki tša mafelo a mebepe. Go tlaleletša, mebepe yeo e lego gona yeo e swerwego ke CGS le yeo e tšwago go dingwalo e dirilwe leswa ka titšithale, gomme datha ka moka yeo e tsentswago go tšeodathapeisi go hlalosa focus areas. Tlhathollo ya datha ye e hwetšagalago ya aeromakenethiki ya maemo a godimo/high-resolution le datha ya remote sensing di thušitše go bušetša maemo a mellwane ye megolo ya thekthoniki yeo e kgaolago diphuthelwana tša tektonostratikerafi ka gare ga Tugela Terrane.

Ditlhathollo tša bjale di dumeletše tlhabollo ya maleba ya mellwane ya Madidima le Mandleni Nappe, gammogo le tlhathollo ya mafelo ao a humilego ka thoriomo-photosiamio le granitoid-gneiss pluton ao a bego a se a lemogwa peleng a go amana le Dondwana Formation (Seswantšho sa 11). Ditlhathollo tše di tseneletšego tša datha ya melete ye e borilwego go tšwa mafelong a bohlokwa a aletheremafiki, tšeo di tšebjago go ba di humile ka diminerale tša khromaete le nikhele-koporo, di dirilwe ka meleteng ye e borilwego ye 43 ye e fetoletšwego go titšithale go mafelo a mararo. Go tlaleletša, tshedimošo ye e hweditšwego go tšwa go datha ye e bile bohlokwa go pušetšo ya mafelo a mellwane ye megolo ya thekthoniki yeo e kgaolago dikaroganyo tša thekthonostratikerafi ka gare ga Tugela Terrane. Mebepe ya tšeolotšikhale ya bogolo bja 1:50 000 ya mathomo gammogo le didathapeisi tša popegofase tše di sepelelanago le yona tše di akareditšwego le datha le tshedimošo tše di hlatselago di phethilwe. Ditšweletšwa tše go letetšwego gore di tla gatišwa le go lokollwa semmušo ngwageng wo o latelago wa go fana ka pego.

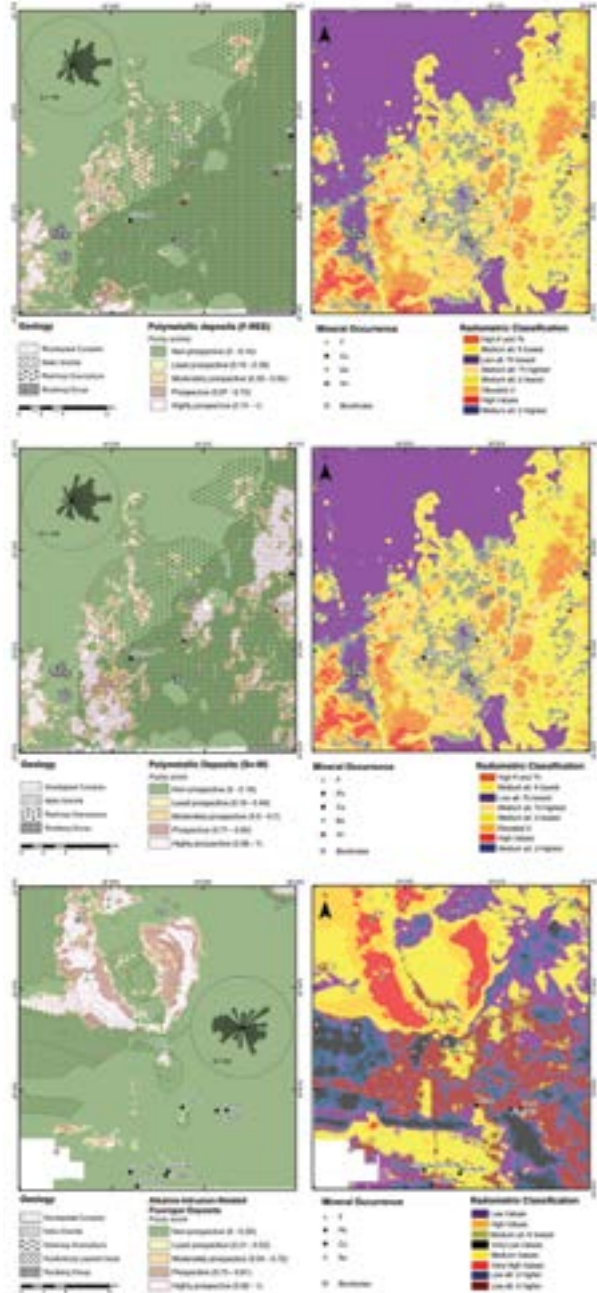


**Seswantšho sa 11: Sebopego sa Ternary se se hlathollwego se se bontšhago mellwane ya tšeolotši ye e amaango le dipharologantšho go datha ya thoriomo-yuraniomo-potasiamo**

**Mmepe wa Tšeosaentshe wa Bushveld, Diprofentsheng tša Limpopo-Northwest-Mpumalanga**

**Tihalošo le Maikemišetšo:** Protšeke ya go thalwa ga Mepebe ya Bushveld e dira dinyakišišo ka ga tšhabologo ya le ditaolo go leraga le fišago le mananeo a go rafša ga diminerale tša haeterethemale, kudukudu tšeo di kgokaganago le bokamoso bja ditheknolotši tša enetši. Dikeranaete tša Bushveld di humile ka diepša tša pholimethaliki tše mmalwa tša bogolo bjo bonnyane go ya magareng tše di dirilwego ka thini-tungsten-koporo-lead-zinki-gauta-silibera-uraniamo-floraete-ayone-di-REE. Go feta fao, kgato ya mafic ya Bushveld Complex le yona e humile ka diepša tše bohlokwa tša ayone-titaniamo-banadiamo ka gare ga dillaga tša maknethaete le dibopego tše dingwe tša go fapafapana. Mokgwa wa tlhathollo wo o šomišwago ka dinyakišišong tše o akaretša dithekniki tša tšhekatsheko ya naga le kopantšho ya datha (ke gore, tšeofisikhale, tšeokhemikhale, tšeolotšikhale le datha ya go lemoga go tšwa kgole) go phethagatša go thalwa ga mebepe ya diminerale tše di ka kgonagalago tša sekala sa tsošološo ya diminerale tše bohlokwa ka go Bushveld Complex. Protšeke e beile šedi go maatlafatšeng gaps tša datha ya tšeosaentshe malebana le mananeo a bohlokwa a go rafa diminerale ka go Bushveld Complex le, go feta moo, mananeo ao a swanago ka ditikologong tše dingwe tša naga, tše bjalo ka Kapa Leboa. šedi ye kgolo e filwe go go rafša ga diminerale tša mehuta ya ayone okesaete-koporo-gauta, go akaretša mehuta ye e fapafapanego ya go rafša ga diminerale ya folousepara.

**Diphihlelelo le dintlha tše bohlokwa:** Mo ngwageng wo o lekodišišwago, dinyakišišo di be di beile šedi go delineating potential fluorspar ditebanyo ka tikologong ya leboabohlabela bja Pretoria ka tsela ya integration ya didathasete tša go fapafapana tša tšeosaentshe go akaretša radiometriki, tšeokhemistri le aeromaknethiki. Mebepe ya kholofetšo e tšweleditšwe go šomišwa mmotlolo wa tatelago ya boitirišo; mebepe ye e hlatholla mafelo ao a holofetšago a o rafša ga diminerale tša fluorite ka go keranaete (endogranitic), granophyre (exogranitic) le go bonagala ga alkaline (Seswantšho sa 12). Go feta mo, mebepe ya khwetšagalo e laetša mafelo a kgonagalo ya go rafša ga diminerale tša pholimethaliki tin-tungsten tšeo ka tlwaelo di amanago le go rafša ga diminerale tša floraete. Go hwetšagala le go kgobokana ga diela tša go bopa borale di bonwe go ba di hueditšwe ke dibopego tša selete le tša tikologo. Se se tlišetša ke go hlaga ga fgo palega ya go tumilego kudu go gontši ka bodikela-leboabodikela-borwa-borwabohlabela le leboa-leboabodikela (NNW) tšeo di amanago le kalego ya Franspoort thekthoniki ye e bilego gona go tloga kgale yeo e phatlalalago ka thokong ya NNW. Dišego tše mmalwa tše di tsebegago tša folousepara ka tikologong ya dinyakišišo le yona e bontšha go hwetšagala mmogo le kalego ya thekthoniki ye, se se šupago kgonagalo ya khuetšo ya sebopego go go rafša ga diminerale.



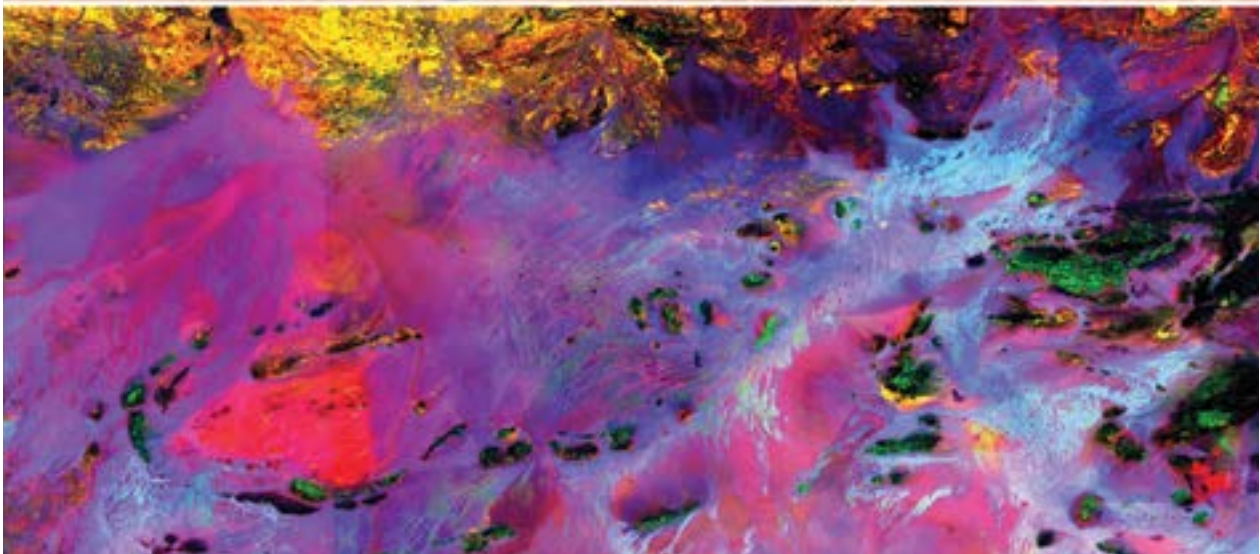
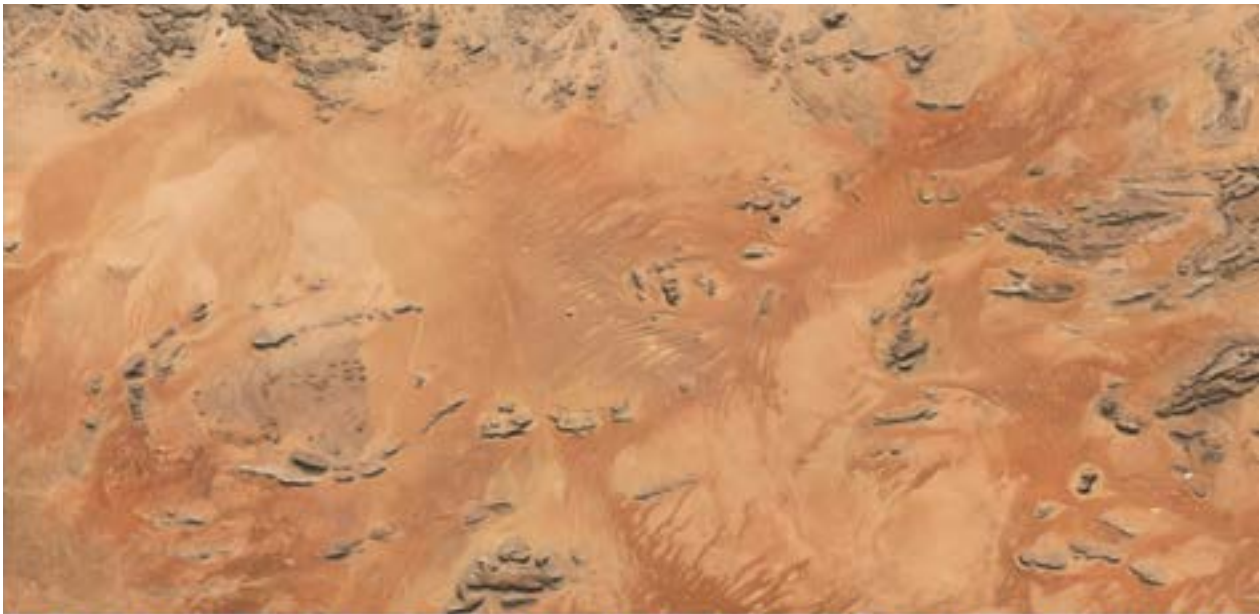
**Seswantšho sa 12: Bogodimo: Mmepe wa khwetšagalo ya Fluorine rare-earth element (F-REE) ge go bapetšwa le mmeep wa motheo wo o tšweleditšwego go tšwa go datha ya radiometriki**  
**Lemoga:** Boleng bja godingwana ka dielemente tša radio (e lego Thoriamo, Uraniamo le Potasaimo) bo emetše mafelo ao a holofetšago a go rafša ga diminerale tša F-REE.  
**Bogareng: Mmepe wa kholofetšo ya Tin-Tungsten ge go bapetšwa le mmepe wa motheo wo o tšweleditšwego go tšwa go datha ya radiometriki**  
**Lemoga:** Boleng bja godingwana bja dielemente tša radio bo emetše mafelo ao a holofetšago a go rafša ga diminerale tša Tin-F-REE.  
**Botlase: Mmepe wa kholofetšo ya fluorspar ye e amanago le go bonagala ga kalaka ge go bapetšwa le mmepe wa motheo wo o tšweleditšwego go tšwa go datha ya radiometriki.**  
**Lemoga:** Boleng bja godimodimo bja dielemente tša radio bo emela mafelo ao a nago le kholofetšo ya go rafša ga diminerale tša folousepara.

**Go laetšwa ga sebopego sa Lithosphere ya Afrika-Borwa, Profentshe ya Kapa Leboa**

**Tihalošo le Maikemišetšo:** Go laetšwa ga sebopego sa Protšeke ya Lithosphere e nepile go thekga go kopolwa ga diepša tša diminerale go Profentshe ya Kapa Leboa ka kabo ya datha le tsebo tša tšeosaentshe tše bohlokwa. Go fihlelela nepo ye, dimmotlolo tša dipeakanyo tša go rafša ga diminerale tša Afrika-Borwa, go thoma ka selete sa Kapa Leboa, di tla hlabollwa le go lekodišišwa, go kgontšha ditshepedišo tša bokgoni bjo kgotsfatšago bja kakanyo ya diminerale. Dimmotlolo tše di nyaka go kopantšhwa ga didathasete tša tšeosaenthifiki tše ntši go hlama mmepe wa khwetšagalo go bogolo bja selete le tikologong. Protšeke le yona e fana ka tshedimošo le tsebo ka tšhomišo ya

didathasete tše di fapafapanago tšeosaentshe le dillaga go meetse, tikologo, le ditlhamago tša tšeotheknikhale go thekga tlhabollo ya mananeokgoparara.

**Diphihlelelo le dintlha tše bohlokwa:** Mo ngwageng wo o nyakišišwago, protšeke e lekodišišitše mehuta e e beakantšwego ya tšeolotšikhale, tšeofisikhale, tšeokhemikhale, lemogwago go tšwa kgole le go fetša go ba titšithale, didathasete tša melete ye e borilwego ya kgale go tšwa mafelong a base-metal prospective ao a rareditšego leboa e bodikela bja meago ya Black Mountain-Aggeney-Gamsberg (Seswantšho sa 13). Se se hlotše gore go be le go hlaolwa ga ditikologo tše 16 tša tebanyo ye e holofetšago. Peakanyo ya dinyakwa tša tlhopho tše 14 e hlamilwe le gona e tla applied go kgabaganya mafelo ao



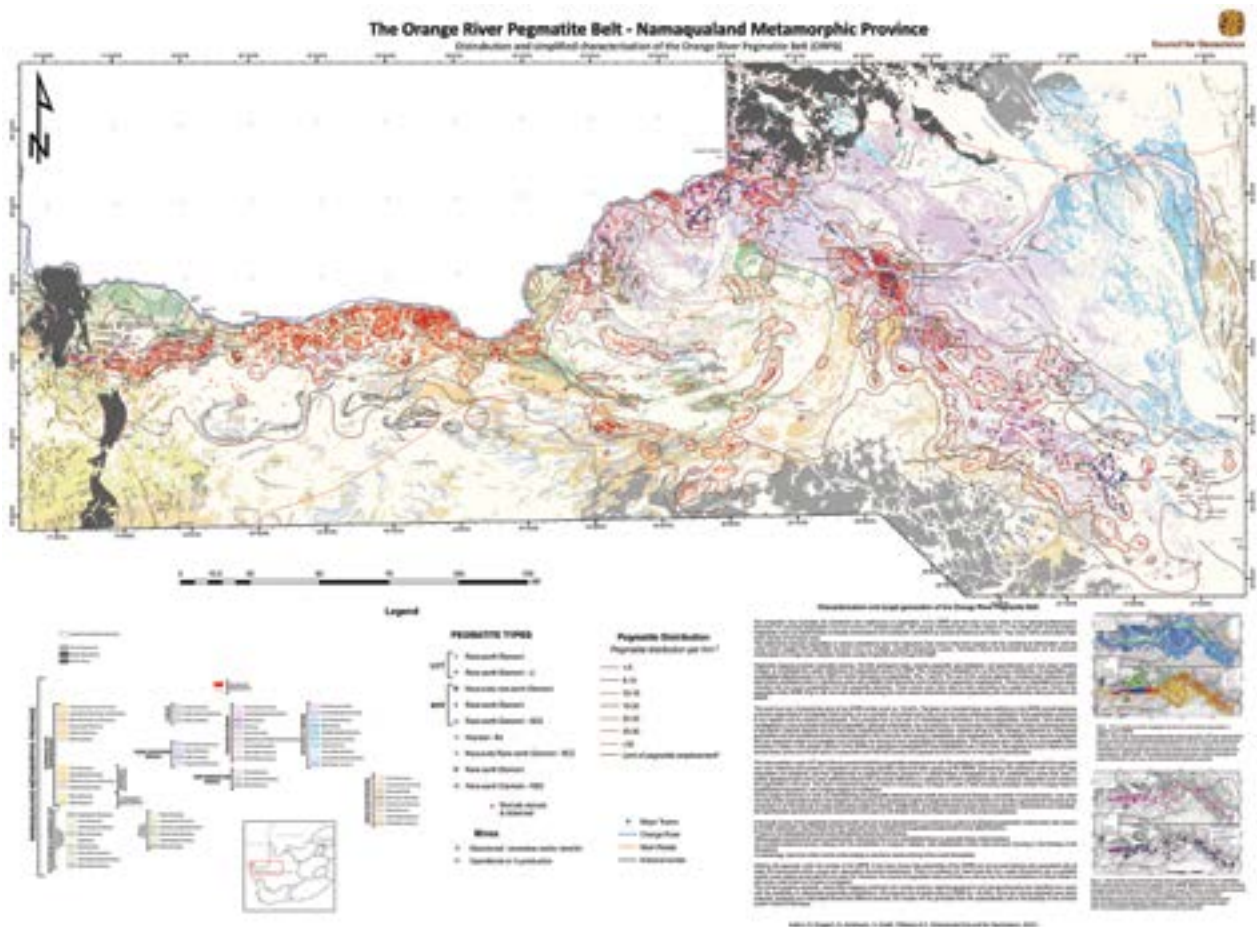
**Seswantšho sa 13: Ponagalo ya diswantšho tša sathalaete ya mahlakore a a mantši ye e šomišwago go hlaloša mafelo a go fapafapana a ditlhamago tša tšeolotšikhale le ditshepedišo tša tšeotaenamiki**

a holofetšago ao a lebantšwego. Mafelo ao a hlophetšwego godimo ka gona e tla goga šedi ya ditsinkelo tša datha ye e tseneletšego go akaretša go tsenywa ga datha ya tšeofisikhale le diitharollo tša Euler; tsinkela ya didathasete tše itšego tša melete ye e borilwego ya kgale; tlhamego ya motheo ya didathasete tše di lemogwago go tšwa kgole; le tšweletšo ya lenaneo la go bora melete la go kopola go leka mehuthuta ya ditebanyo go kgabaganya selete. Ditebanyo tše di tla hlabolwa go ya pele le go utollwa mo ngwageng wo o latelago.

Mo ngwageng wa go fana ka pego wo o fetilego go thalwa ga mmepe wa tšeosantshe wa 1:50 000 go bontšhitše tlhahlogo ye e akanywago ya 67% ya Lepanta la Phekmathaete la Orange River, leo e ka bago sehloga wa dirafša tše bohlokwa tša (Li) le REE. Mo ngwageng wo o lekodišišwago **mmepe o moswa wa phatlalatšo ya phekmathaete** o phethilwe (Seswantšho sa 14) ka go ba le seabe go intervention ye e hlokegago kudu ya intaseteri ya dipeteri

#### 4.1.1.2 Lepanta la Giyani Greenstone (Mapanta a Limpopo Greenstone)

**Tihalošo le Maikemišetšo:** Protšeke ya Lepanta Giyani Greenstone e nepile go thekga kgolo ya ekonomi, go rarolla tšhireletšo ya meetse le go hlohleletša stewardship sa tša tikologo ka tsela ya kopantšwego yeo e akaretšago mešomo ya mafapha a mantši. Protšeke e nepile go fihlelela se ka go amantšha dinyakišišo tša tšeosantshe tša Archaean go kwešiša peakanyo ya tekthoniki le ditaolo tša sebopego tša go rafša ga diminerale le go rarolla ditlhohlo tša setšhaba ka tikologong. Protšeke e akaretša go thalwa ga mebepe ye e tseneletšego ya tšeolotši le ga sebopego sa go thalwa ga mebepe ya tšeolotši le dibopego tša ditebanyo tša diminerale sa bogolo bja 1:10 000, dinyakišišo tša mabu a tšeokhemikhale a maemo a godimo, diphatišišo tša tšeofisikhale, dinyakišišo tša tikologo le tša meetse a ka fase ga mabu tše di nepilego mananeo a akhwifa, go thalwa ga mebepe ya mafelo a meepo ye e sego molaong gammogo le dinyakišišo tša tšeotheknikhale.



**Seswantšho sa 14: Mmepe wa Lepanta la Phekmathaete la Orange River go la Namaqua Metamorphic Province, wo o bontšhago phatlalatšo ya maswika a bokgoni bja khwetšagalo Li le REE**

**Diphihlelelo le dintlha tše bohlokwa:** Mo ngwageng wo o lekodišiwago, Protšeke ya Lepanta ya Giyani Greenstone e amile go thalwa ga mebepe ga dibopego tše hlalošago ka botlalo tša ditebanyo tša diminerale, diphathišo tša makenete wa mabung tša maemo a godimon, diphathišo tša 3D tša maknethotheluriki (MT), diphathišo tša pholaraseišene ye e tsentswego gammogo le diphathišo tša mabu tša maemo a godimo go ditebanyo tša diminerale tše kgethilwego (ke gore, gauta, REE le nikhele-khromaete-maknesaete). Diphathišo tša dibopego le tša tšeofisikhale tša mathomong di utollotše go atafala ga dibopego tše di tumilego tša bohlabela–bodikela le leboa–borwa go ya go leboabodikela tše di tšwelelago go ba di amana le go epša ga diminerale tša gauta. Dibopego tše go boletšwego ka tšona moragorago di bonala di amana le go rafša ga diminerale tša gauta ka tikologong. Ditebanyo tše di tšweleditšwego tša diminerale di tiritšwe go šomišwa dithekniki tša go tirila o rarela ka sa ka morago (Seswantšho sa 15), gammogo le go rafša ga diminerale tša gauta tše di nepilwego tše di hlagago mabung a go se iše fase, ke gore, go tšwa go botebo bja fasana bja 20 m go ya go bja godimodimo bja 100 m.



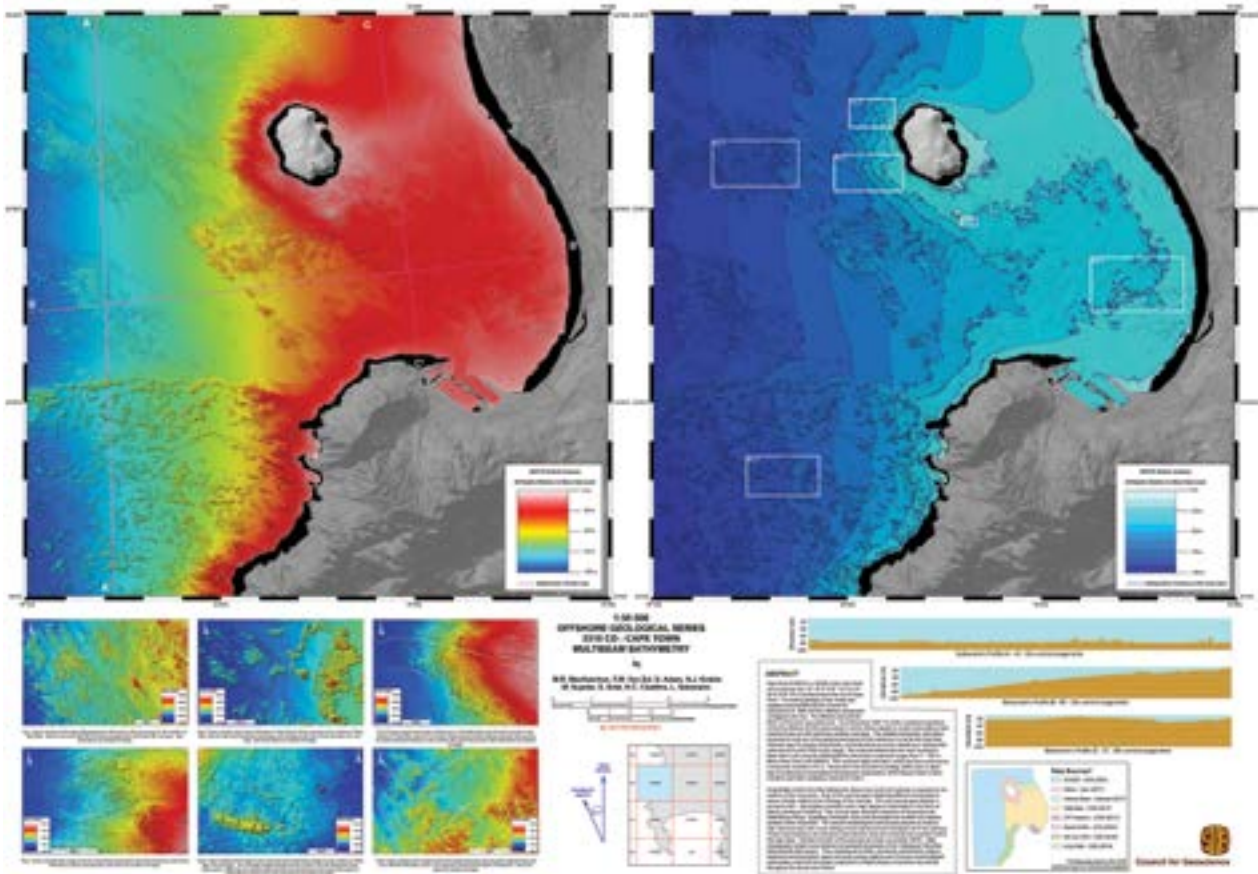
**Seswantšho sa 15: Lenaneo la Go borwa ga meetse ga Tharetšo ya Sakamorago go le lengwe la ditebanyo tše di tšweleditšwego la diminerale, 20 km ka bohlabela bja toropo ya Giyani**

Go feta moo, dipelo tša haeterotšeolotšikhale tša ngwaga wo o fetilego wa ditšhelete di hlotše go hlaolwa ga mafelo ao a ka bago le meetse a ka fase ga mabu go la Giyani le ditikologo tša kgauswi. Dipelo di demarcated Mahlathi Village go go tirila ga meetse a ka fase ga mabu ka botebo bja godimodimo bja 150 m. Ge melete ye e epilwego e ka tšweletša dipelo; a tla fiwa setšhaba sa Mahlathi, ka ge setšhaba se lebane le tlhalelelo ya meetse.

#### 4.1.1.3 Go thalwa ga mebepe ya Geoscience ka lewatleng

**Tihalošo le Maikemišetšo:** Protšeke ya go thalwa ga mebepe ga tšeosaentshe tša dinagantle di nepile go thala mmepe wa selete sa dinagantle sa Afrika-Borwa wa maemo a godimo go wa go thekga tlhabollo ya **ekonomi ye talalerata**. ya naga. Ka kgahlego ye e oketšegilego ya go hlaola methopo ya diminerale ye meswa le go tšwetša pele go ba le maatla ga tikologo, Tikologo ya go lgetha ya Ekonomi ya dinagantle ya Afrika-Borwa ke ye kgolo go fetišiša ebile ke selete se se sa tsebegego kudu. Go thalwa ga mebepe go go tseneletšego go a nyakega go hlatholla selete se le go tsebiša dinyakwa tše bohlokwa tša peakanyo ya tlhabologo. CGS ka gona e tsene fase ka lesolo le legolo la go akanya mebepe ya selete se. Mafelo a bohlokwa ao a nepilwego a akaretša selete sa kgauswi, šelefo ya kontinente, le ditikologo tša mawatleng ao a išago fase. Se se tla feleletša se thuša go beakanya ka tsela ya mabela maanophethagatšo ao a ka fetošegago go rarolla matšhošetši a mananeokgoparara le ditšhabeng tše di dulago mabopong. Go feta moo, ditheknolotši go akanya lebato la lewatleng di kaonafaditše bokaone go mengwaga ya bjale, kudukudu ka go tsenywa ga ditlabela tša tekolo ya botebo bja lewatle tša metheo ya mentši.

**Diphilelelo le dintlha tše bohlokwa:** Mo ngwageng wo o lekodišiwago, go thala mebepe wa lebato la ka lewatleng go tšwetše pele go tloga go R/V Nkosi ye e sa tšwago go hlongwa. Protšeke e dirile dikaonafatšo go dikhoute le dialkorithime tše di šomišwago ke thekniki ya go ithuta ka metšhene go hlama mebepe ya lebato la ka lewatleng. Protšeke e akantše dikarolo tša ka ntle tša letlakala la 1:50 000 la 3318CD magareng ga Melkbosstrand le Llandudno (Seswantšho sa 16). Datha ye ya maemo a godimo ke ya mathomo go Afrika gomme e tla ba le seabe go kakaretšo ya mmepe wa tšeosaentshe ya dinagantle. Datha e tla amantšhwa le datha ya ka nageng go thuša go bea ka fase ga taolo katološo ya dibopego tše bohlokwa tša tšeolotšikhale tše di lego bohlokwa go tlhabollo, tše bjalo ka dibopego tša kgonagalo ya meroromelo.



**Seswantšho sa 16: Mmpepe wa 1:50 000 Tatelantšho ya Tšeolotšikhale ya Dinagantle ya Cape Town Multibeam Bathymetry**

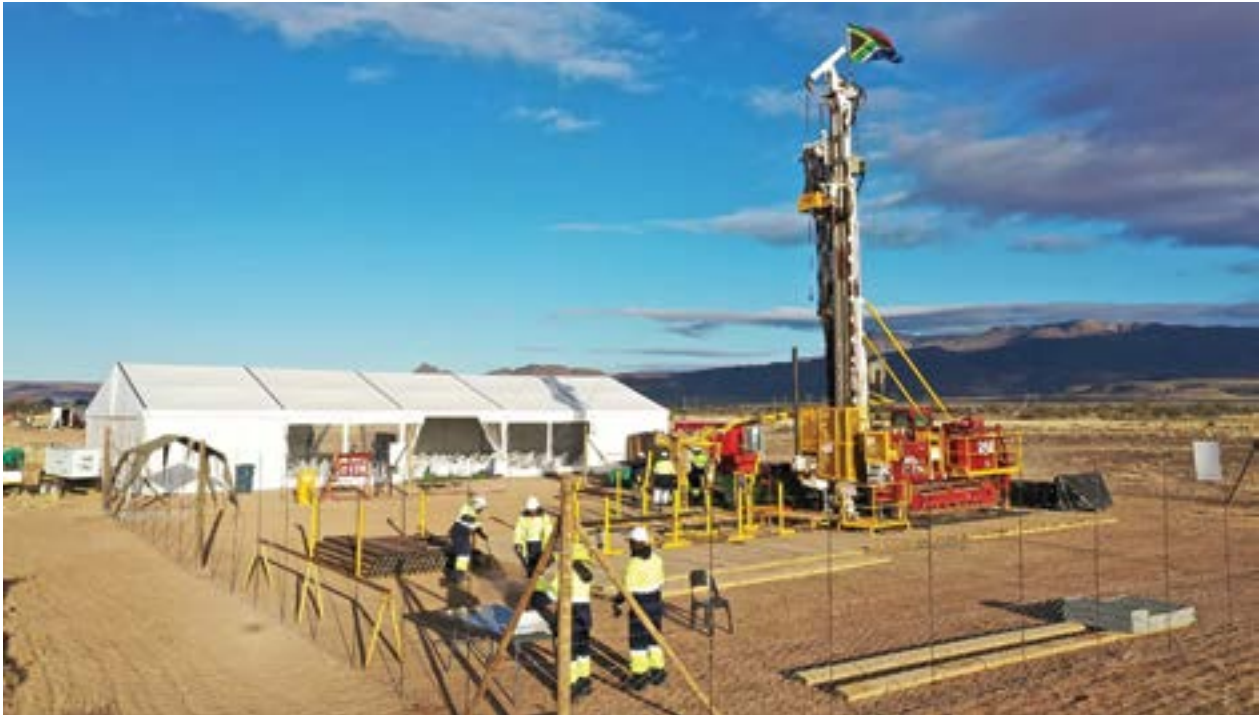
**4.1.1.4 Go tirila Karoo Deep le Lenaneo la Motheo la Merero ya Tša Tikologo ya Lefase**

**Tihalošo le Maikemišetšo:** CGS e be e tsene fase tekolo ya motheo ya dinyakišišo tša go amana le lefase ka borwa bja Karoo bjalo ka selo se bohlokwa mešomo ya go kopola ya kgase ya letsopatlapa ka seleteng. Theo ya go amana le tša tikologo e nepile go lekola dikamego tše di ka kgonagalago tša go kopolwa ga kgase ya letsopatlapa go tikologo ya Karoo go thuša balaodi go hlama melao ye e dirišwago yeo e tla šireletšago tikologo. Protšeke e akaretša le dinyakišišo go kwešiša tshepedišo ya meetse a ka fase ga mabu a go tsenelela le go hlama mekgwa ya go bea leihlo ye e tšwelago pele gammogo le go lekola bokgoni bja kgase ya letsopatlapa ya khaponešiasa ya Eccla Group.

**Diphihlelelo le dintlha tše bohlokwa:** Go tirilwa ga molete wa go tsenelela fase kudu wa stratikerafi wa botebo bjo bogolo go fetišiša ya molete wo o borilwego wa Karoo Deep Drilling (KDD)\_01 (Seswantšho sa 17) go phethilwe ka katlego ka botebo bja 2 978 m. Molete wo o borilwego

o šwahla maswika ka moka a lerageng a Beaufort le Eccla Group le go fetela pele go 306 m ka go Dwyka Group. Nakong ya lenaneo la go bora melete, ditoleraete tše mmalwa di ile tša lemogwa. Mo mafelelong a ngwaga wa ditšhelete wa 2021/22, mešomo ka moka ya tlaleletšo ya tšeolotšikhale, tšeotheknikhale, le tšeofisikhale e phethilwe go botebo bjo nepilwego.

Go dirišitšwe mekgwa ya tšeofisikhale ya molete wa go iša fase go nyakišiša tlhamego le dikarolo tša sebopego tša ditaetšo tša tšeolotšikhale le seterathikerafi. Go tlabelwa ga molete go fihleletšwe ka dikgato tše tharo, le ge e le gore nakong ya kgato ya boraro fela mekgwa ye meraro e ka dirišwa ka lebaka la maemo a melete ye e borilwego ye e sa bolokekago ka botebo. Go tlabelwa ga sebopego go laeditše gore go hlongwa go be go na le bokgoni bjo lekanetšego ka mepharogo ya tlhago ye mennyanane. Seswantšho se bontšhitše gore mepharogo ye e lemogilwego e hlotšwe ke go bora melete, ga se go be le bohlatse bja phošo goba go phuthwa ga tikologo ya dinyakišišo.



**Seswantšho sa 17: Setsha sa go bora sa KDD**

Matsopatlapa a khaponešiasa a Ecca Group a be a nepilwe go dikelo tša kgase, ao tshekatsheko ya ona e sa dutšego e tšwela pele go dilaporathori tša go fapafapana ka nageng le lefaseng ka bophara. Didathasete ka moka tša go fapafapana di a kopanywa gore go tšweletšwe mmotlolo wa bophara bja sekotlelo.

#### **4.1.1.5 Bokgoni bja Enetši ya Tšeothemale ya Afrika-Borwa**

**Tihalošo le Maikemišetšo:** CGS e šomiša tsebo ya tšeosaentshe go ba le seabe go farologantšhwa ga mogopo wa enetši ka tsela ya dinyakišišo tša methopo ya enetši ye e renewable e bjalo ka enetši ya tšeothemale. E nyakišiša bokgoni bja enetši ya tšeothemale bjalo ka enetši ya theko ya fase, ye e botegilego le go ka tsošološwa ga phišo ya thwii ya meago ya kgwebo le ya bodulo. Tšhomišo ya yona e oketšegie go akaretša tšweletšo ya mohlagase wa sekala sa tšhomišo, gwa phatlalatša didirišwa tša go fiša le go tonya le kaonafatšo ya ditshepedišo tša intaseteri tša go fapafapana. Datha ya tšeofisikhale, kudukudu MT le boima, di be di hlathollwa mmogo le datha ya tšeolotšikhale go kwešiša kamano maganese ga ditsela ta kelo ya seela sa tšeothemale le dibopego tše kgolo tša tšeolotšikhale ka tikologong, go aga mmotlolo wa tlhathollo wo o kopantšwego wa tšeothemale le go hlaloša

dibopego tša lenaneo la tšeothemale. Mo ngwageng wo o lekodišišwago, Khwetšagalo ya Enetši ya Tšeothemale ya Protšeke ya Afrika-Borwa e beile šedi go Shu Shu ka Profentsheng ya KwaZulu-Natal le Tshipise ka Profentsheng ya Limpopo.

**Diphihlelelo le dintlha tše bohlokwa:** Go tielela ga mmotlolo wa 3D MT ya meetse a Shu Shu e phethilwe. Mmotlolo o lemogile mothopo wo mokaone wa 1 200 m ka fase ga mabu go tloga go taetšo ya bogodimo bja meetse a tšeothemale a Shu Shu. Datha ye e hweditšwego ya MT e be e hlathollotšwe le go laetša gore mothopo wa go fiša wa Shu Shu o go zounu ya go tielela ga fase ye e tšwelago pele gomme datha ya boima ye e hweditšwego e laeditše gore meetse a be a hwetšwa go tikologo ya maatla ya fase. Dintlha tša haeterolotšikhale, go roromela, leago, ya tikologo le ekonomi tša naga ya Tshipise le tšona di nyakišišitše go tšweletša ditebanyo tša go bora melete go tlhamego ya tšeothemale.

Ge go lebeletšwe enetši ya tšeothemale ya tšweletšo ya enetši, seemo sa enetši ka Afrika-Borwa se lekodišitšwe. Tekodišišo e hwetše gore, ge go bapetšwa dinyakwa tša enetši tša naga kgahlanong le tšweletšo ya bjale ya enetši, ka nnete go na le sebaka sa go tsenya enetši ya tšeothemale bjalo ka mothopo o mongwe wa enetši go yeo e dirišwago.

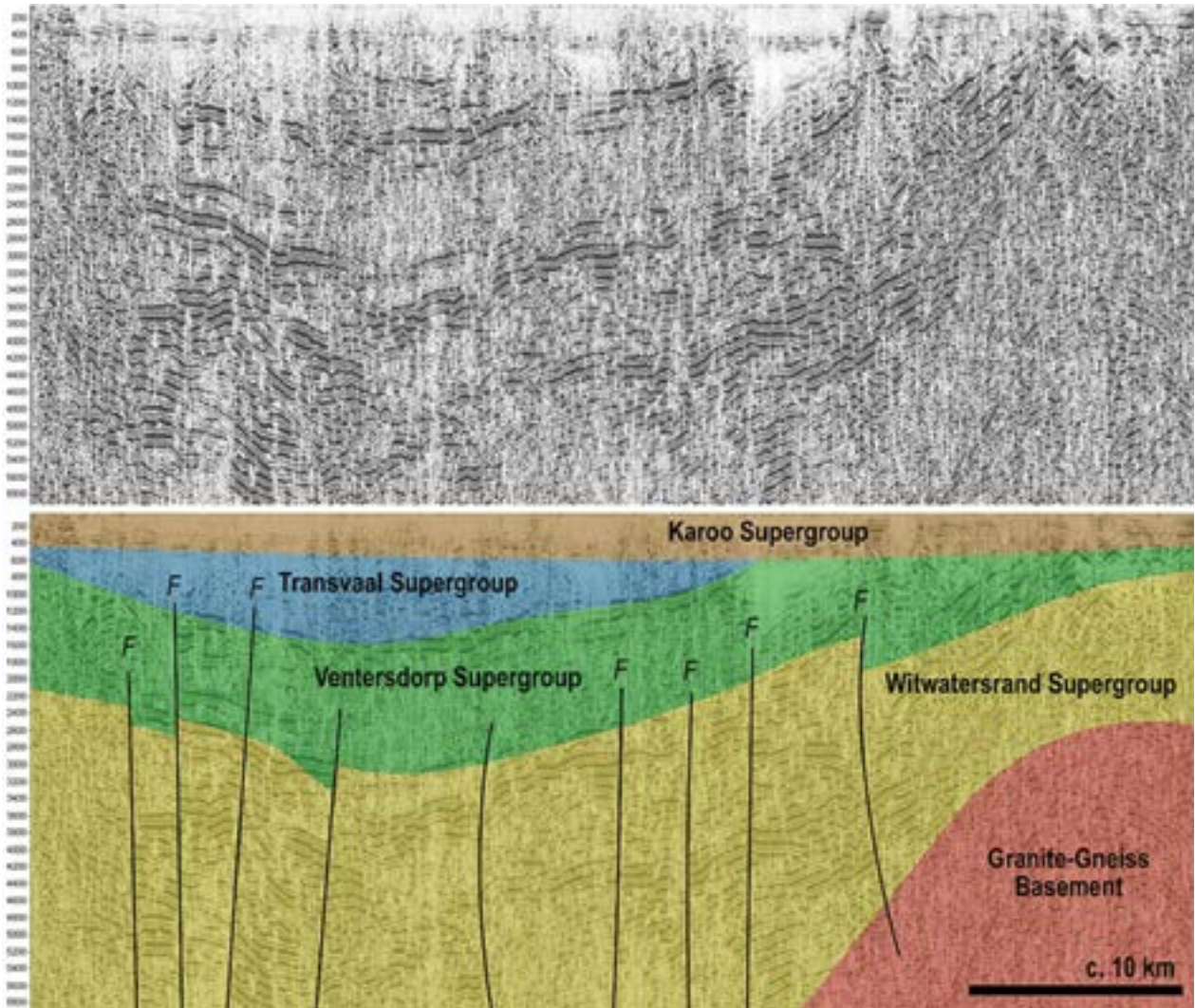


**4.1.1.6 Kgolego ya Khabone, Tšhomišo le Bobolokelo**

**Tlhalošo le Maikemišetšo:** Tlhabologo ye e tšwelago pele ya Afrika-Borwa e theilwe gagologolo godimo ga bokgoni bja naga bja go tšweletša kabo ye maatlafetšego ya enetši go fihlelela dinyakwa tša bosetšhaba. Naga e na le boleng bjo bo fapafapanego bja malahla le gona ke ye nngwe ya batšweletši ba bagolo ba malahla lefaseng. Go feta moo, ka go seemo sa tsošološo ya ekonomi morago ga COVID-19, malahla a oketšegile go ba ye nngwe ya ditšweletšwa tše bohlokwa go fetišiša go ekonomi ya tša meepo ya Afrika-Borwa. Le ge go le bjalo, Afrika-Borwa e ikemiseditse go fokotša go ntšhwa ga meši ye e lego kotsi. Ka ge malahla a le ye nngwe ya ditšweletšwa tše kgolo kudu tša phatlalatšo ya meši ye kotsi, mmušo o ipileditše go tlhamo ya ditlharollo tša boithlhabišo go

thuša go phetogelo ya Afrika-Borwa go ya go ekonomi ya khapone ya fase. Phetogo go tloga go malahla e tla dirwa ka nepagalo. Go na le nyakego ya phetogelo go enetši ye e lokilego. Se se bohlokwa go netefatša gore ditšhaba tšeo di botilego malahla go bophelo bja bona ga di amege gampe ke phetogo ye. Go feta fa, phetogo ya enetši e ka se direge bošegong bjo tee le ka gona go hlokega tharollo ye maatlafetšego. Kgolego ya khapone, tšhomišo le bobolokego (CCUS) di bonwa lefaseng ka bophara bjalo ka tharollo ye.

CGS e thomile ka protšeke ye e bohlokwa ya bosetšhaba go netefatša gore kabo ya enetši ya Afrika-Borwa le tlhabologo ya bosetšhaba di tšwelapele, mola naga e sa le gare e na le seabe ka tshwanelo go lwantšheng phetogo ya klaemete. Tekololeswa ya ditsha tša bobolokelo bja CCUS tše di dirilwego mo ngwageng wo o fetilego di



**Seswantšho sa 18: Mohlala wa tlathollo ye e nolofaditšwego ya datha ya go roromela ya lefa ya 2D go kgabaganya lefelo le le šišinywago la dinyakišišo**

utollotše gore Afrika-Borwa e na le bokgoni bjo bontši bja CCUS go feta seo se lemogilwego peleng. Go feta moo, go na le bokgoni bjo bontši kudu bja diprofentshe tša Mpumalanga le Gauteng. Se e bile kutollo ye bohlokwa ka ge e ka fetša ka tsela ye e makatšago bokamoso bja enetši bja Afrika-Borwa. Phethagatšo ya tšhomišo ka go protšeke ya CCUS go utollotše gore ditharollo tše mmalwa tša boithlhabišo go ka thekga mošomo wo, go akaretša go šomiša khapone taeoksaete ye e goledilwego ka gare ga diintasteri tša petrokhemikhale le tša temo, le se bohlokwa, tharollo ya mathata a tshenyo ya meetse a ka meepong.

**Diphihlelele le dintlha tše bohlokwa:** Mo ngwageng wo o lekodišiwago, dinyakišišo di nepile go go borwa ga melete ga maemo a godimo, ditshekatsheko tša pesini le go sampolwa ga matamo le dilitholotši tša sili. Ditshekatsheko di nepile go He-pycnometry (e lego thekniki ye e šomišago kgase ya heliamo go ela bolumu ka nepagalo), thomokerafi ye e balwago ka khomphutha ya x-rei, go tlaleletša go suite ya dinyakišišo tša tšeokhemikhale, mineralotšikhale le peterotšikhale. Go feta moo, dinyakišišo di hlegile go tšwa go tshapedišo goba datha ya lefa ya mahlakore-pedi (2D) go roromela go kgabaganya setee seo se šišinywago sa dinyakišišo (Seswantšho sa 18). Dathasete ye e bohlokwa go hlatholla dilitholotši tša methopo le dibopego tšeo di ka bago le khuetšo go mosepelo le go amogelwa ga go tšhelwa ga khapontaeoksaete. Dinyakišišo tša haeterotšikhale le tšona di dirilwe le mebepe ya meetse a ka fase ga mabu a akhwifa e thadilwe go thekga maitekelo a tlhamego ya metheo. Kgoboketšo ya datha ya tšeofisikhale ya moya wa lefaufauging e tšwela pele.

Lenaneo la CCUS le fihleletšwe bokgole bjo bohlokwa ka gore lekga la mathomo ka protšekeng tšhelete ya mathomo ya thušo ya ditšhelete ya dimilione tše ZAR101, go tšwa go thušo ya ditšhelete ya dimilione tše US\$23, e fetišeditšwe go CGS go tšwa go Panka ya Lefase. Se se tla dumelela go phethagatšawa ga dinyakišišo tša go roromela le mešomo ya go tirila yeo e beakantšwego go ngwaga wa ditšhelete wo o latelago bjalo ka karolo ya dinyakišišo tša tlhamego ya ditsha.

#### 4.1.2 Hlogopoledišano ya Geoscience ya sebopego sa motheo le lefase

Hlogopoledišano ya Tšeosaentshe ya Mananeokgoparara le Tšhomišo ya Naga e fana ka go thalwa ga mebepe ya rekhonaisentshe ya tšeosaentshe ye e beakantšwego. Tshedimošo ya tšeosaentshe e sekasekwa go hlaola mafelo ao a bolokegilego le a maatlafetšego a bodulo bja

batho, tšhomišo ya naga ye maatlafetšego le tlhabollo ya mananeokgoparara. Molaotheo wa Afrika-Borwa le Karolo ya 5.1(eA) ya Molao wa Phetošo wa Tšeosaentshe o bolela gore CGS e swanetše go “lekodišiša le go lekola dipego ka moka tša tšeotheknikhale malebana le ditšehasate tšeo di ka amanago tlhabollo ya mananeokgoparara ka moka ka ditefišo tše di beilwego”.

Go sepelelana le NDP Vision 2030, maikemišetšo a hlogopoledišano ya nolofatšo ya mananeokgoparara a bohlokwa le tlhabollo ya naga. Palo ya melao ya tlhabollo le makalatirelo, a bjalo ka Lekalatirelo la Thekgo ya Mananeokgoparara Masepala, Molao wa taolo ya Masetlapelo, Molao wa Taolo ya Peakanyo ya Mabala le Tšhomišo ya Naga le Molaokakanywa wa Mananeokgoparara a Bohlokwa, le tšona di hlola seemo seo se kgontšhago sa morero go thekga ditaello tša bosetšhaba. Morero ga o fane ka tshedimošo ya tšeosaentshe le seabe sa tlhabollo ya mananeokgoparara, eupša e thekga tlhabollo ya ekonomi ya Afrika-Borwa ya dimineraale, petroleamo ya godimo (e lego, oli le kgase) le methopo ya meetse gammogo le DDM. Dikotsi tša tlhago tša ka nageng di akaretša kotsi ya godimo ya subsidence go terrains tša tolomaete, le ditšhišinyego tša lefase le mafula, tšeo ka moka di ka bago le kamego ye bohlokwa ya ekonomi, thoto le ditlhabollo tša manaeokgoparara a bohlokwa. CGS e maatlafatša bokgoni bja setšhaba go laola kamego ya dikotsi tša tlhago ka go kgoboketša tshedimošo ya tšeosaentshe le go aga mananeo a temošo ya ka pejana ao a ka fokotšago dikamego. Protšeke e gatelela mananeokgoparara a thekgo le peakanyo ya tšhomišo ya naga di laetšwa ka fase.

##### 4.1.2.1 Go bea leihlo le go Hlokomela go tshikinyega gwa lefase

**Tlhalošo le Maikemišetšo:** Nepokgolo ya go bea leihlo le go hlokomelwa ga mororomelo wa lefase ke go fana ka datha ya tšhišinyego ya lefase ya parametric ya selete, lefaseng ka bophara, ka nageng le ka ditikologong tša meepo. Go tlaleletša, maitekelo a beilwe ka go expanding kakaretšo ya South African National Seismograph Network (SANSN) le phokotšo ya ratio ya signal-go ya go-lešata tša datha ya tatelano ya nako. Se se fihleletšwe ka go fana ka tshedimošo ye e nago le mohola go diprotšeke tša dinyakišišo le ditekolo tša tšehasate, go hlatholla dilete tše di ka hlagelwago ke mororomelo le go kgontšha botiplomate bja boditšhabatšhaba.

**Diphihlelele le dintlha tše bohlokwa:** Dipolelo go tšwa go go bea leihlo ga mororomelo wa lefase go routine ka

SANSN go tloga go Pherekong go fihla go Manthole 2021 go bakile dathapanka ye e mpshafaditšwego ya ditharollo tša bogareng tše 3 768 tše di begilwego ke ditiši tše tharo goba go feta tša go roromela. Palomoka ya ditšhišinyego tša lefase tše 876 di bonwago go ba tšeo di amanago le tša moepo go tloga go mašemo a gauta le meepo ya polatinamo ya Afrika-Borwa. Bontši bja go ditaetšo tša go roromela di hlagile go ditikologo tša meepo ya ka ntle ga mabu tša ka nageng, yeo e lego gore ye 2 317 e be e laeditšwe go dathapeisi bjalo ka dithuthupi tše di belatšago. Ditšhišinyego tša lefase tša thekthoniki ka gare ga mellwaneng ya Afrika-Borwa le mawatleng a ka ntle e baletšwe go 463, mola ditšhišinyego tše di šetšego di be di hwetšwa ka dinageng tša baagišani le go bokgole bja meromelo ya kgole bja go feta 1 000 km ka ntle ga mellwane ya Afrika-Borwa (Seswantšho sa 19). Operation ya routine le tlhokomelo ya dineteweke di kgonthišetše nako ye e amogelagago go ya ka go rekotwa ga datha le transmission.

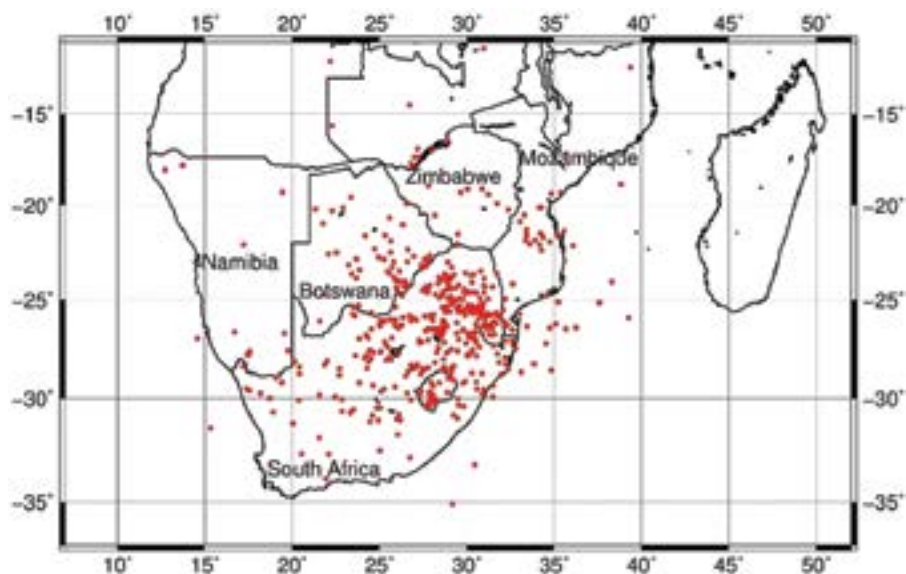
Karolo ya neteweke ya legoro la tša meepo la protšeke di bopša ke tshekatsheko ya meromelo ya paka ya go tloga go Dibokwane 2021 go fihla ka Pherekong 2022 le go mpshafatšwa ga dathapeisi ya meromelo ya neteweke ya legoro la meepo la Afrika-Borwa. Palomoka ya ditiragalo tša 6 923 di be di hwetšwa go šomišwa ditiši ka gare ga dineteweke tša legoro tše respective. Godimo ga ditiragalo tše 6 923 tšeo di bego di hwetšwa, tše 137 di be di hwetšwa ka gare ga Leano la Taolo ya Mafula (Johannesburg) area, 5 619 ka tikologong ya Far West Rand (Carletonville) le 1 167 go tikologo ya Klerksdorp, Orkney, Stilfontein le

Hartebeesfontein . Datha ya dineteweke tša magoro a mararo di sekasekilwe letšatši ka letšatši. Far West Rand e be e le legoro leo le roromelwago kgafetšakgafetša la tše tharo (tše di bopago 81% ya ditiragalo ka moka tša dineteweke tša legoro tše di sekasekilwego).

CGS e tšwela pele go sedimoša ofisi ya Mohlomphegi Gwede Mantashe, Tona ya Methopo ya Diminerale le Enetši, ka go “bookamedi le kamego ya mororomelo” bjalo ka ge e laeditšwe/stipulated ka go Molao wa Taolo ya Masetlapelo wa Bosetšhaba wa 2002 ka la 16 Mopitlo 2020, Karolo ya 11K (3). Diwego tša mororomelo di beakanywa le go tlišwa beke ye nngwe le ye nngwe.

#### 4.1.2.2 Lenaneo la Go thalwa ga Mebepe ya dikotsi Tša maswika (geoHazards)

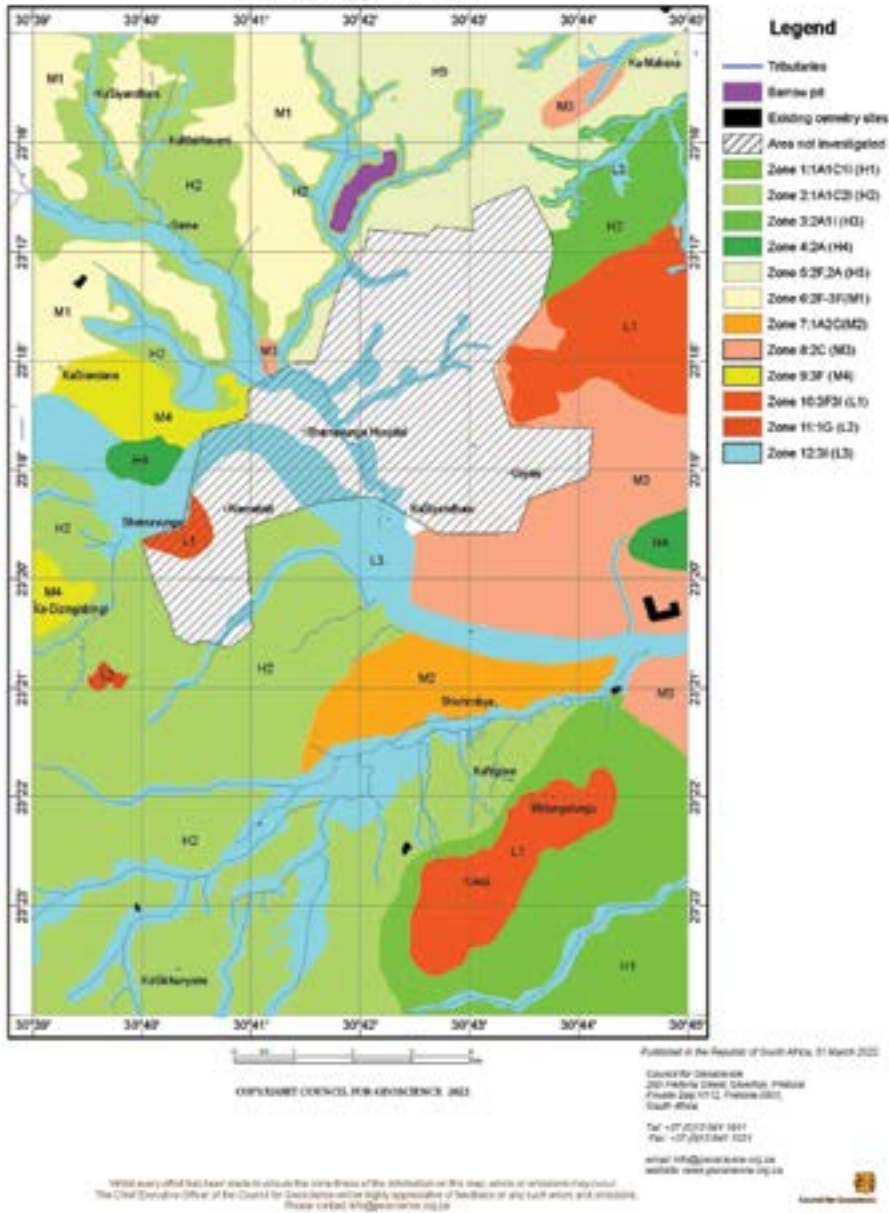
**Tlhalošo le Maikemišetšo:** Lenaneo la go thalwa ga mebepe la Tšeoahasate la Bosetšhaba ke maitlhagišetšo a mengwaga ye mentši ao a nepilego go akaretša datha ya tšeoasentshe go kaonafatša kwešišano ya rena ya ditšeoahasate le kamego ya yona go mananeokgoparara, tšhomišo ya naga le polokego ya badudi go kgabaganya Afrika-Borwa. Lenaneo le bopša ke magoro a go fapafapana a go ithuta, magareng ga tše dingwe. Lenaneo le bopša ke mafapha a dinyakišišo a mafapha a go fapafapana magareng ga a mangwe, dikotsi tša go amana le mororomelo, go tielela ga tolomaete, le go thalwa ga mebepe ya mabu a mathata le go fokola ga go kgokologa ga maswika, tšeo di dirwago bjalo ka diphatišišo tša mengwaga ye mentši tša go šomiša datha ya mananeo a tša mororomelo, tšeoletšikhale, tšeofisikhale, tšeotheknikhale, datha ya



**Seswantšho sa 19:**  
**Mmepe wa tšhišinyego ya lefase ya thekthoniki ye e hwetšwago ka borwa bja Afrika nakong yeo e lekodišišwago**

### GIYANI POTENTIAL TOWN DEVELOPMENT MAP

Compiled by N. Tsepo and L. Mashikane



**Seswantšho sa 20:**  
**Selete sa Giyani,**  
**Limpopo: Sekala**  
**sa 1:10 000 sa go**  
**ba le maswanedi**  
**ga tlhabologo go**  
**lebeletšwe dikelo tše di**  
**laeditšwego mmpeng**  
**tša boetšineere bja**  
**tšeolotši**

mananeo a sathalaete a moya wa lefaufaug le ditemogo tša tikologong. Go akanywa gore dinyakišišo tše di tla šomišwa go akanya mmepe wa ditšehasate tša tlhago le tše maitirelo le Ditemošokotsi go kgabaganya naga. Kopantšho ya ditšweletšwa tše tša tšehasate e akanywa go ka šomišwa go eletša mmušo le setšhaba, kudukudu malebana le tlhabollo ya mananeokgoparara a maatlafetšego, peakanyo ya tšhomišo ya naga, taolo ya masetlapelo le boitokisetšo ka nageng.

**Diphihlelelo le dintlha tše bohlokwa:** Nakong ya 2021/22, protšeke e be e nepile go dintlha tše di latelago: tekolo ya dikotsi tša go roromela tša Toropokgolo ya Johannesburg; dinyakišišo tša palayoseisemiki tša tikologo ya Thugela le

go thalwa ga mebepe ya diphošo tše kgolo (go akaretša Witwatersrand Basin); dinyakišišo tša maekherosoneišene tša ditoropokgolo tše di kgethilwego go la KwaZulu-Natal; tlhopho ya dikotsi tše di amanago le tolomaete le dinyakišišo tša dithekniki tša dinyakišišo tša tlhopho go setsha se sengwe dithekniki go lekola naga ya tolomaete, go thalwa ga mmepe wa kgonagalo ya go hlalwa ke lenteselaete le tlhamo ya mkgwa wa dikotsi go kgabaganya tikologo ya Masepala wa Selegae wa Ndwedwe, KwaZulu-Natal; le go thalwa ga mmepe wa tšeotheknikhale go kgabaganya selete sa Greater Giyani, Masepala wa Distriki wa Mopani, go laetša bogolo bja mabu a mathata le tlhabollo ya naga ya maleba.

## **Maekhrosoneišene**

Dimmotlolo tše mmalwa tša maekhrosoneišene di tšweleditšwe tše di šomago bjalo ka motheo wa go lekola tshekatsheko ye e itšego ya setsha, ye bohlokwa go polokego ya mananeokgoparara a bohlokwa. Dimmotlolo di be di tšweleditšwe go ditoropokgolo tše di kgethilwego pele tša KwaZulu-Natal, go akaretša Durban, Pietermaritzburg, Port Shepstone, Richards Bay le St Lucia. Go dirilwe tshekatsheko ya boiphetoletlo bja mabu go šomišwa datha ya tšeofisikhale, seismological, tšeotheknikhale le tšeolotšikhale ye e hlamilwego ka dinyakišišong tše mmalwa. Dipelo tše di hweditšwego di akareditše mebepe ya dikotsi tša ka godimo ga mabu tša go roromela ka poelo ya paka ya mengwaga ye 475 ya dipaka tša boiphetoletlo bja dinepo tše tharo, tše di hlagišwago bjalo ka go potlakišwa ga mabu a godimo (PGA) – go dipaka tša metsotswana ye 0.0, 0.15 le ye 1.0. Go feta moo, mmepe wo o laetšago dintlha tša katološo ka PGA le yona e dirilwe mmotlolo, tše di tlogago di laetša bohlatse bja katološo ye bohlokwa ya bogolo bja lebala. Kelo ya go tsepama le go rapama ya go šomiša dikgatišontšu tša setiši se tee go akanya makga a ditiragalo tša matlapa a magolo a ka fase ga mabu ao a ikadilego. Mmotlolo wa maekhrosoneišene o ka šoma bjalo ka motheo wa go lekola tshekatsheko ya dikotsi tše di amanago le setsh, o ka thuša babeakanyi ba ditoropokgolo ka diitlhabollo tša manaeokgoparara tše sensitive.

### **Go thata mebepe ya Tšeotheknikhale**

Go thalwa ga mmepe wa tšeotheknikhale go dirišitše mkgwa o mongwe go mebepe ya bogolo bja 1:10 000 go mebepe ya tšhomišo ya nanga ya tšhetheknikhale ya tlhabollo ya mananeokgoparara le peakanyo. Se se akarditše go dira dinyakišišo tša tšeotheknikhale go tikologo ye kgolo kudu ya poloko ya mmepe wa 2330BC tikologong ya selete sa Giyani. Mekgwa ya go thalwa ga mebepe ya ntlha ya tšeotheknikhale e be e šomišwa go kopanya mekgwa ya go fapafapana go tšweletša mmepe wa suitability ya peakanyo ya tlhabollo ya tšhomišo ya naga (Figure 20). Mebepe ye e nepile go thekga peakanyo ya tlhabologo ya distriki ye e kopantšwego ya tlaoblogo ya mananeokgoparara. Mmepe wa go ba le maswanedi ga peakanyo ya tlhabollo ya tšhomišo ya naga e arotšwe ka palo ya ditikologo go ya ka ditšhitišo tše di fapafapanego tša tšeotheknikhale go tlhabologo. Mafelo a a tšweletšwa ka go kopanya dikhoute tše di kopantšwego go mebepe ya tlhabologo ye e ka kgonaalago. Kgonagalo ya tlhabollo e be e arotšwe ka ya godimo (H1 to H5), ya magareng (M1 go ya go M4), ya fase le ya fase kudu (L1 to L3). Go swanetše go gopolwa

gore go dira ditikologo go go theilwego godimo ga datha ya selete. Ka gona e swanetše go šomišwa bjalo ka setlabela sa dipeakanyo se segolo e sego bjalo ka ya go ema legato diphatišišo tša ditšha tša boentšineere bjo itšego.

### **Kotsi ya go roromela le dinyakišišo tše di amanago le Ditemošokotsi**

Dinyakišišo di fane ka tekolo ya dikotsi tše di ka kgonagalago tša go roromela tša City of Joburg (CoJ) tše di amago go akanywa ga kgonagalo ya tshenyego le ditahlegelo tše di hlolwago go tšwa go ditšhišinyego tša lefase tše di ka hlagago ka moso. Mo ngwageng wo o lekodišišwago, dinyakišišo di hlophile mmotlolo wa mathomo wa dikutollo go masepala wa CoJ. Dinyakišišo tše di bohlokwa go tekolo ya dikotsi ya go roromela le phokotšego ya dikotsi tša ditšhišinyego tša lefase ka ge kotsi ya go roromela e oketšega ka lebelo, ka lebaka la go atafala ga setšhaba ka lebelo, go hudugela dinagasetoropong le tlhabollo ya mananeokgoparara.

#### **4.1.2.3 Go thalwa ga Mebepe ka Kapa Bohlabela**

**Tlhalošo le Maikemišetšo:** Protšeke ya Go thalwa ga mebepe ya Eastern Cape e akatša mafapha a go fapafapana a dinyakišišo ao a kgolego, tshekatsheko le go hlabolla datha ye bohlokwa ya tšeosaentshe go ditlha tše bohlokwa tša tlhabologo le mafelo a bodiidi ka Profentshe. Go rarolla ditlhothlo tše, dinyakišišo tše di amanago le mafelo di dirilwe go thuša bakgathatema go tšea diphetho ba na le tsebo ka peakanyo ya tšhomišo ya naga, tlhabollo ya mananeokgoparara, pabalelo, taolo ya tikologo le/goba maatlafetšego go rafša ga methopo ye bohlokwa ya tlhago le ekonomi. Dinepo tše bohlokwa ke go lemoga ditaolo tša tlhago le tšeolotši go kgogolego ye e hlagago ka lebelo le go fana ka tshedimošo ye bohlokwa ya stratikerafi le sebopego go thuša go hwetša methopo yeo e laetšago e se ya hlathwa gabosteya meetse a ka fase ga mabu.

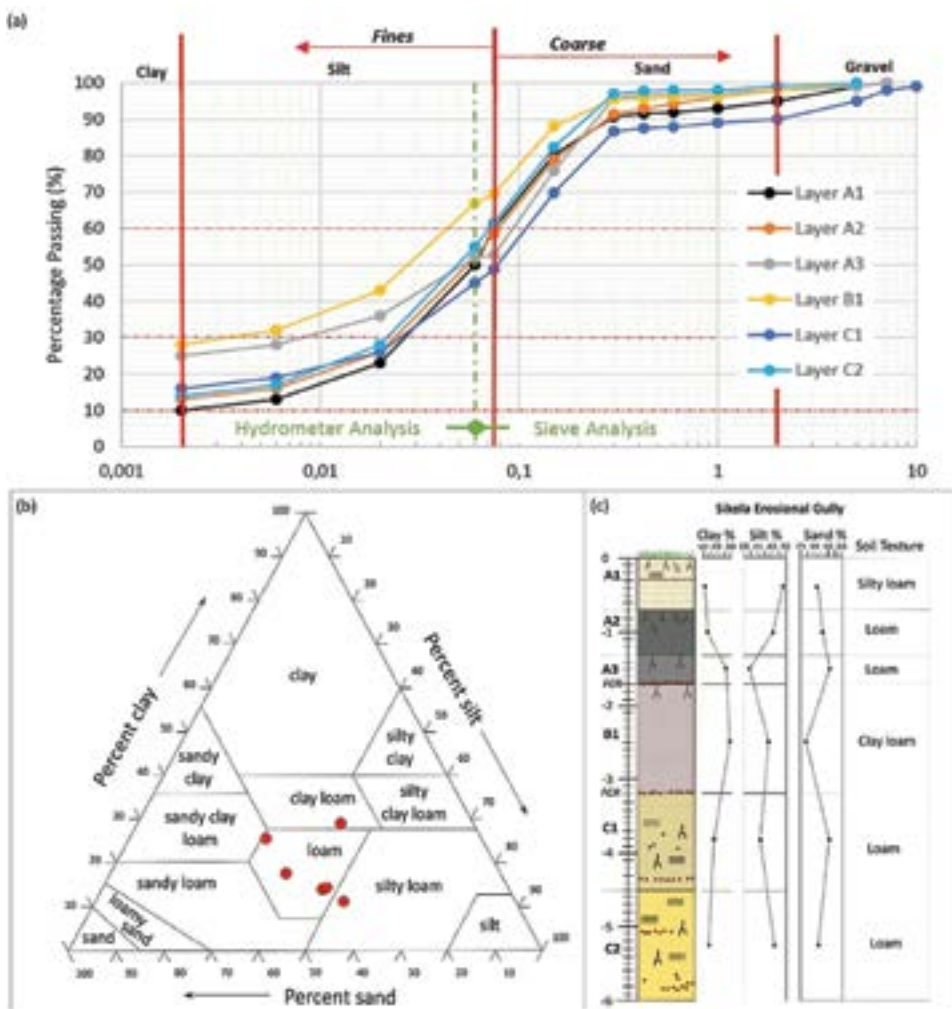
**Diphihlelele le dintlha tše bohlokwa:** Matlakala a seswai a mebepe ya tšeolotši a bogolo bja 1:50 000 a gatišitšwe go selete sa tikologo sa Mthatha. Tlhalošo ya mmepe wa tšeolotši ye e hlalošago ka bottlalo e rarolla ditlhothlo tša tšeosaentifikiki tše pressing ka tikologong ye e lekodišišitšwe le go phethwa gore e gatišwe. Tlhalošo ya mmepe e akaretša tekodišišo le tekolo ya bokgoni bja ekonomi ya dimineralo le go hlangwa ga mmepe wa khwetšagalo ya lekgwara la tikologo, tekolo ya khwetšagalo ya meetse a ka fase ga mabu le go tšweletšwa ga mmepe wa khwetšagalo ya meetse a ka fase ga mabu go tikologo

le dinyakišišo tša nageng ka go tthamo le katološo ya diphaephe tša go gogolega tše kotsi kudu. Go dirilwe le tekolo ka ga kotsi ye e ka kgonagalago ye e hlolwago ke dibopego tša kgogolego ya mabu go ditsela tše di lego gona le mananeokgoparara a metsesetoropong.

Go dirilwe diteko ša go fapafapana tša leraga, tša khemikhale le tšeotheknikhale le diteko tša laporathori go lemoga mehuta ya maraga a go gogolega a Masotcheni Formation. Diteko tše di dirilwego di akareditše foloresentshe ya X-rei, go tsinkelwa ga X-rei, tshekatsheko ya bogolo bja mabele, mapheko a Atterberg, phetošetšo ya kheišene, go phatlalatšwa ga mabu, go nwelela, le lepokisi la gona (Seswantšho sa 21). Diteko di nepile go rarolla dibopego

dife goba dife tša fisiokhemikhale tše di ka kgontšhago tshenyego ya naga mola di leka go kwešiša kamano ye e hlakahlakanego magareng ga magato a khwetšagalo, kgogolego ya mabu, le go se hwetšagale ka gare ga boikalo bja naga. Dipolelo ke dikgato tša mathomo tša tshepedišo le tlhathollo.

Dimmotlolo tše di akanyago kgonagalo ya tshenyego ya rekoliithe go kgogolego ya mabu ka phefo go bapela selete sa Wild Coast sa Eastern Cape di phethilwe le go hlaolwa ka katlego mafelo ao a ka bago kotsing ao a nyakago go fokotša magato a go tšena ka bogare go bapela Wild Coast ya tikologo ye e sa tielelago.



(a). Khebe ya phatlalatšo ya bogolo bja mabele go pedotšeniki ye nngwe le ye nngwe le lla ga ya kholubiale tša Masotcheni Formation di sampotšwe ka gare ga molokoloko wa diphaephe tša Sikela, borwa bja šunu go la Eastern Cape (b le c). Go lebeletšwe tshkatsheko ya bogolo bja mafela, dillaga tša leraga di hlophilwe go laetša segopego sa mabu a seloko

**Seswantšho sa 21: Diteko tša go fapafapana tša nageng le tša laporathori tše di dirilwego go lemoga maraga ao a ka gogolegago a Masotcheni Formation**

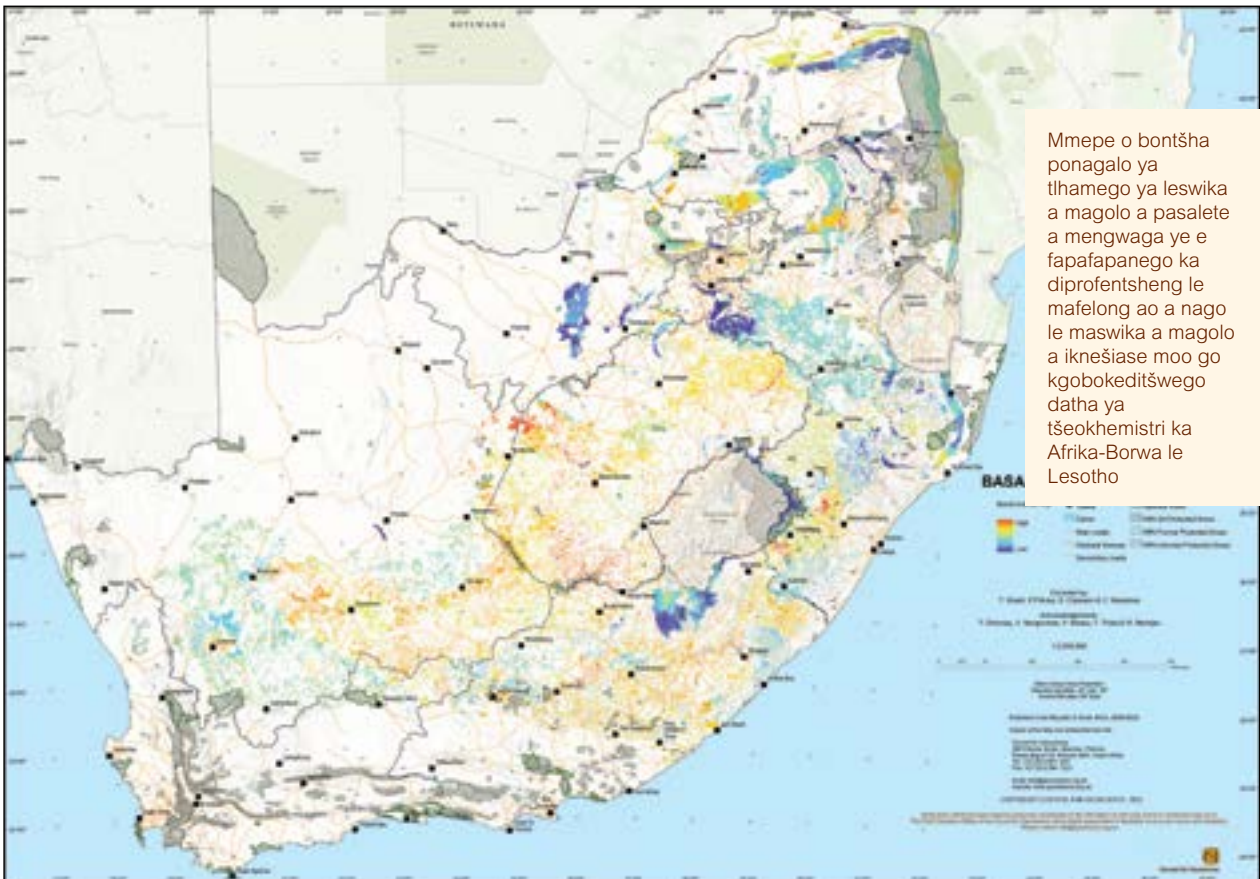
**4.1.2.4 Protšeke ya go thalwa ga mebepe ya Mothopo wa Maswika ao a šitšwego**

**Tlhalošo le Maikemišetšo:** Protšeke ye e nepile go lekola maswika a go tia ao a hlagago ka tlhago go šomišwa bjalo ka lekgwara le le šomišwago go aga ditsela le diporo le diintaseteri tša tšweletšo ya disamente. Go feta moo, dinyakišišo di dirwa go laetša kgonagalo ya go hlangwa ga faepa ya pasalete ka Afrika-Borwa bjalo ka mmara wo o tshephišago wa intaseteri ye e tšwelelago. Maikemišetšo ke go ela methopo ya boleng bja lekgwara le go katološa dathapeisi ya bosetšhaba ya methopo ya lekgwara le le šitšwego go thekga tlhabollo ya mananeokgoparara. Ditsenelelo tše di bopa karolo ya Karoo Large Igneous Province le gona e ka ba mothopo o bohlokwa ge o šomišwa go tšweletša ditšweletšwa tša faepa ta basalete. Go dirwa dinyakišišo mo CGS go kwešiša bogolo bja lateral bja maswika a motheo ao a hlagago ka tlhago a sebopego sa pasalthiki/dolerithiki/kaporoiki go tšweletša setšweletšwa

se sengwe go ema legato la difaepa tše di bitšago tšhelete ye ntši tše di šomišwago gabjale tše bjalo ka khapone, faepa ya galase, le faepa ya tšhipi.

Maswika a pasalete ke mohuta wa maswika a iknešiasae ao a tlwaelegilego gannyane, ao re rekišwago go lebeletšwe bothata bja ona le go sepela ka go nanya ge go bapetšwa go maswika a mangwe a iknešiasae.

**Diphihlelelo le dintlha tše bohlokwa:** Mo ngwageng wo o lekodišišwago, mmepe wa mathomo wa pasalete ye e tshephišago o tšweleditšwe go tšwa go datha ya tšeokhemistri. Tšeokhemistri e laetša gore Bushveld Complex le selete sa borwa bja Lebombo go la Western Cape e na le bokgoni bja fasefase bja go kopolwa ga pasalete, mola mafelo a mangwe go rarela naga, a bjalo ka Karoo, Tuli le Ventersdorp di na le bokgoni bja faepa ya pasalete ya magareng, bjalo ka ge go laeditšwego go Seswantšho sa 22.

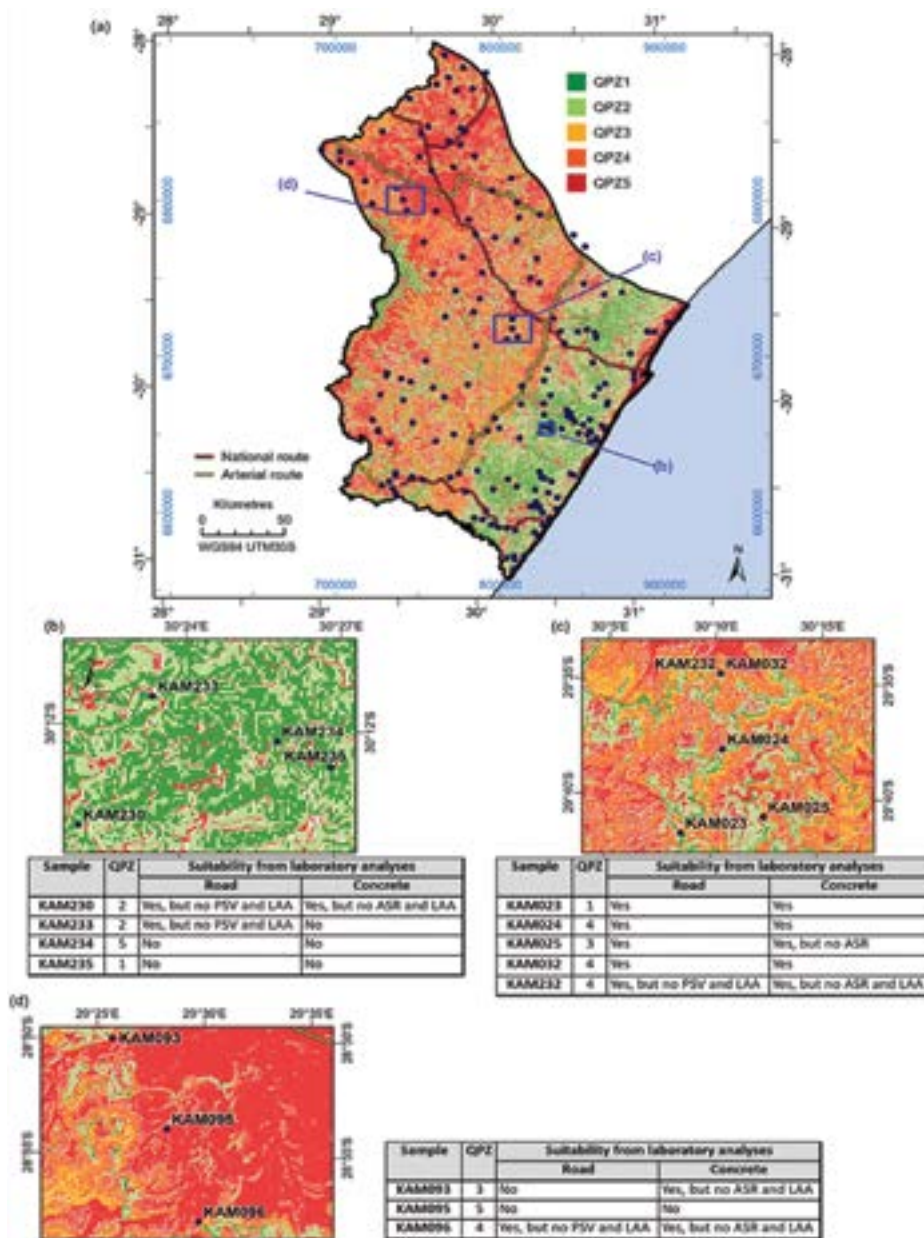


**Seswantšho sa 22: Mmepe wa phišo wa kgonagalo ya go hwetšagala ga pasalete wa mathomo wa Afrika-Borwa**

Gore go thekgwe tlhabollo ya mananeokgoparara a, tlhabollo ya tšhomišo ya naga le ekonomi ya tikologo, CGS e tšweleditše mmepe wa khwetšagalo ya lekgwara le le šitšwego wa borwa bja KwaZulu-Natal wo o laetšago mafelo a mantši ao a holofetšago ao go ka epšago lekgwara.

Mmepe o bontšha mafelo ao a nago le maatlakgogedi a lekgwara la boleng bjo bobotse go lebeletšwe diilhamego tša sebopego, bjalo ka maatla a go šila, go nwelela

meetse, le go retelela kamego, go kgoboga le mošomo wa go phadimiša. O bontšha kamagano ye maatla kudu magareng ga khwari ya mafelo a kholofetšo ya khwari (di-QPZ) le dipharametha tša tšetheknikhale tše di etšwego (Seswantšho sa 23). Bokgoni bja kakanyo bja mokgwa wo o moswa e ka ba mohola kudu go go fana ka dintlha tša khwetšagalo ya lekgwara leo le šitšwego la tikologo, le go kgontšha go hlaolwa ga di-QPZ go lebeletšwe poloko ya tšhelete le go lebelela mabaka.



(a) Sampole ya mafelo ao a ikadilego go mmepe wa QPZ. Mafelo ao a laeditšwego ke (b) go fihla go (d) a okeditšwe le dipapetšo di laeditšwe go mananeo. (b) Lefelo le le bontšhwago kudu ka QPZ1 le 2 (c) lefelo le le bontšhwago kudu ka QPZ3 le 4. (d) Lefelo le le bontšhwago ka PZ3 go fihla go 5.

**Seswantšho sa 23: Papetšo magareng ga QPZ le tlhopho ye e theilwego godimo ga laporathori**



### 4.1.3 Hlogopoledišano ya Geoscience ya Maphelo, Meetse a ka fase ga mabu le Tikologo

Lekala la tša meepo ke lekala le le ikemego leo le kaonafaditšego ekonomi eupša le, ka tsela ye nngwe, tlogetše ditlhohlo tša bohwa bja ekonomi gore le elwe tlhoko ka tšhoganetšo. Go phelega gabotse ga ditšhaba go leago le ekonomi go amana thwii le maphelo a tikologo moo ba dulago gona, ba tšweletšago dijo ebile ba šomago. Kgahlego ya tša meepo lefaseng ka bophara e fetogela go mešomo ya go kopola le go rafša, ka kgatelelo ye kgolo go stewardship sa tša tikologo. Bjalo ka naga yeo e nago le tlhalelo ya meetse, Afrika-Borwa e lebane le ditlhohlo tše kgolo ka go khwetšagalo le kabo ya meetse, tše di gakaditšwego ke kwešišo ye nnyane ya methopo ya meetse. Tlhabollo ya ditšhaba, methopo ya temo le diminerale le enetši di theilwe go kgonagalo ya go hwetšagala ga le tsebo mabapi le methopo ya meetse.

Hlogopoledišano ya Tšeosaentshe ya Maphelo, Meetse a ka fase ya mabu le Tikologo e tšwetša pele stewardship bja tša tikologo, kudukudu go mafelo ao a lebanego le tšhilafatšo ka mešomo e bjalo ka go kopola le go rafša diminerale. Ka fase ga morero wo, methopo ya meetse a ka fase ga mabu e hlaotšwe le go hlathollelwa ditšhaba, diintasteri le temo. Go tsenwa ka bogare go bjalo ka matlafatšo ya maitirelo le gona go a lekodišišwa. Morero wo o bopša ke diprotšeke tše mmalwa, go akkretša Mine Environment and Water Management Programme (MEWMP) le taolo ya dikoloto tša tšhoganetšo tša mmušo malebana le tlhokomologo le go hloka bong bja meepo—gabjale a bitšwago 'dinyakišišo tša tšeosaenthifiki go meepo ya bohwa'.

#### 4.1.3.1 Lenaneo la Tikologo ya Meepo le Taolo ya Meetse a Tikologo

**Tlhalošo le Maikemišetšo:** MEWMP e hlama maanophethagatšo a phokotšo go taolo ye maatlafetšego ya meetse a ka moepong go la Afrika-Borwa. CGS e hlamile leano la phethagatšo la nako ye telele go kaonafatša poloko ya ditshenyegelo le go swarelelega ga taolo meetse a ka moepong ka go Witwatersrand. Leano le la phethagatšo le akaretša dintlha tše mmalwa tše di amanago le taolo ya meetse a ka moepong, maemo a ka nageng le a boditšhabatšhaba a tša tikologo ao a amago lekala la meepo, ditlhohlo tša ka nageng tše di amanago le taolo ya meetse a ka moepong, maitekelo ka lekaleng go rarolla ditlhohlo tše, gammogo le ditlhaelelo le dintlha tše bohlokwa. MEWMP e hlangwa ke

diproteke tša go fapafapana tše di hlophilwego go ya ka merero ye e latelago: taolo ye active ya meetse a ka moepong, ditharollo tša meetse tše maatlafetšego, le ditharollo tša meetse a ka moepong tše proactive.

#### Diphihlelelo le dintlha tše bohlokwa:

##### Taolo ye Bohlokwa ya Meetse a ka Moepong

Hlogopoledišano ya taolo ye bohlokwa ya meetse a ka moepong o bopša ke mešomo ye mebedi ye megolo: taolo ya matseno le dinyakišišo go phokotšo ya dikelelo tše bohlokwa tša tikologo (di-ECL). Taolo ya matseno e nepile go fokotša go tsenaga ga meetse ao a hlwekileog ka gare ga melete ya moepo ya dipeisini tše tharo (tša Bohlabela, Bodikela le Bogareng) tša mašemo a gauta tša Witwatersrand. Go latela tekolo ya ngwaga ya haeterolotši ka botlalo ya tlhwekišo ya meetse a ka moeponggo Peisini ya Bohlabela, mmotlolo o bonolo o šomišitšwe go akanya boleng bja taolo ya matseno. Bolumu ya tšatši ka tšatši ya magareng e pompetšwe go kgabaganya protšeke ka botlalo e be e le 135.6 ML, e emela tshenyegelo ya taolo ya meetse ya ngwaga ka ngwaga ya dimilione tše R4.3 ka mekalitha pe letšatši a hlwekišitšwe. Poloko ya 18.6 ML/d e lemogilwe go tloga go ngwaga wa haeterolotši wa 2020/21 (morago ga go phethwa ga khanale ya Van Ryn le go tswalelwa ga lenga la Modderbee); se se lekana le polokego ya dimilione tše R79 ka ngwaga. Tekolo ya di-ECL e reconfirmed decanting go mafelo ao a itšego go Peisini ya Bodikela eupša e gatelela go se be le diabe go Peisini ya Bogareng le Bohlabela go sa lebelelwe go palelwa ke go hlokomela di-ECL. Ka gona, CGS e šišinya di-ECL tše mpsha tša 1 652 m, 1 557 m le 1 486 m ka godimo ga legato la bogareng la lewatile la Dipeisini tša Bodikela, Bogareng le Bohlabela, ka moka. Ka gona, bokgoni bja go pompa ka go Peisini ya Bodikela e swanetše go oketšwa go 40 ML/d go fihlelela di-ECL.

##### Ditharollo tša Go-ya-go-ile tša Meetse a Moepong:

##### Tlhwekišo ya go se šomiše maatla

Tlhwekišo ya go se šomiše maatla ya meetse a moepo wa esiti e bopa karolo ya mešomo ka fase ga ditharollo tša meetse a moepo ye maatlafetšego. Lenaneo ya CaroRap go Witkranz e dira go lefelo la moepo wa lefa go la Carolina, Mpumalanga, ke lenaneo la tlhwekišo ye e sego bohlokwa yeo e akaretšago ditsela tša ditereine tša kalaka le anaeropiki mafelo a monola go kaonafatša boleng bja meetse ao a amilwego ke moepo. Go tloga mo e thoma ka Pherekong 2021, lenaneo le bontšhitše

dipelo tše di hlohleletšago go tlošwa le taolo ya pH. Ditlhohlo tše di lemogilwego ka lenaneo di be di amana kudu le taolo ya tša kago le tša sebopego. Phethagatšo ya ngwaga ka moka ya go tlošwa ga magareng ga dikelo tša dimetale tša mananeo di hlakanywa bjalo ka 3.2%, 27.8%, 39.8% le 62.5% ya manganese, zinki, aluminiamo le ayone, mola sulfeiti e bontšhitše bokgoni bja go se tloše.

#### 4.1.4 Hlogopoledišano ya Boithhagišetšo bja Geoscience

Peeletšo ya CGS go boithhagišetšo e tla eta pele le go kgontšha saentshe ya seabe sa godimo, go lebiša go kwešišo tše nepagetšego kudu le tše maatla le diphetho tše kaone go thekga ponelopele ya CGS.

Hlogopoledišano ya Boithhagišetšo bja Tšeosaentshe o hlohleletša go fetoga ga dikgopolo go ba ditharollo tša go phethagatša go rarolla tše dingwe tša ditlhotlo tša setšhaba tša tšhoganetšo kudu, tše bjalo ka tlhokego ya meetse, bodiidi le ditšeoahasate. Go kgabaganya didathasete tša mafelo a tšeosaentshe tše di fapafapanago kudu (tšeolotši, tšeofisikse, tšeokhemistri, bjbj.), datha e a kgoboketšwa le go oketšega ka lebelo le le makatšago, go hloa nyakego ya ka pejana ya tšweletšo ya diteori tša tirišo ya dikhomphutha le ditlabela go dumelela batho go hwetša tshedimošo ye bohlokwa (tsebo). Hlogopoledišano ya Boithhagišetšo bja

Tšeosaentshe le yona e nyakišiša tirišo ya ditheknolotši tša sebjalebjale tše bjalo ka AI go extraction ya tsebo. Se se tla kaonafatša lebelo, go šoma ka tshwanelo le nepagalo go mošomo wa go rafša ka tsebo.

CGS e phethagatša ditlabela tša AI tša boithhagišetšo tša go dira diphatišišo tša tlhobaetšo ya meetse e ka fase ga mabu le go laetša diteng tše di hweditšwego go tšwa meleteng yeo e epilwego. Go feta fao, softewere ya mmotlolo wa tšeosaentshe ya go se lefelwe ye mpsha e a gatetšego pele go dumelela go kopantšhwa ga dillaga tše ntši tša datha ya tšeosaentshe. Ka nnete, boithhagišetšo bja tšeosaentshe bo bohlokwa go rarolleng sa ruri ditlhohlo tša matšatšing a sehono tša leago le ekonomi. Datha ye e kgobokeditšwego go feta ngwagakgolo e swanetše go šomišwa gape go šomišwa dithekniki tša sebjalebjale go ntšha boleng bja godimodimo. Morero wo o akaretša diprotšeke tše tharo tše di akaretšago mafapha a go fapafapana:

- AI—protšeke ya go thalwa ga mebepe ya kakanyo ya diminerale le enetši tše tshepišago;
- Tlhabollo le tlhokomelo ya softewere ya tšeosaentshe; le
- Dinyakišišo tša nako ye teletšana tša kgonagalo tša tikologong tša go tlošwa ga ayone le manganese ka ozoneišene: mokgwa o moswa wa go šireletša mananeo a kabo ya meetse a ka fase ga mabu.



**Seswantšho sa 24: Tshepedišo ye e fetotšwego ya kutollo ya tsebo ye e šomišwago ke softewere ya AI\_GEO 1.0**

#### 4.1.4.1 AI-Protšeke ya Go thalwa ga mebepe ya Kholofetšo ya Khwetšagalo ya Diminerale le Enetši

**Tlhalošo le maikemišetšo:** Protšeke ye e nyaka go hlama softewere yeo e dirišago lereo la datha ya tšeosaentshe la AI go rarolla dithlohlo tša go thalwa ga mebepe ya kholofetšo ya khwetšagalo ya diminerale le meetse a ka fase ga mabu wa selete le go aga metšhene ye e nolofatšago phethagatšo ya mešomo ka tsela ya go itiriša. Tšhomišo ya AI le yona e tla fokotša tshenyegelo ya mathomo go nyakana le diminerale ka go tšweletša mebepe/dimotlolo tša go nepa go utollwa ga diminerale, go goga šedi ya dipeeletšo le go ba le seabe go peakanyo ya tšhomišo ya naga. Sephuthelwana sa softewere sa (AI\_GEO1.0) se na le mananeo ka moka a diminerale ka Afrika-Borwa le Alkorithime ka moka tša AI tša kopantšho ya datha ya tšeosaentshe, go šomišwa ditshepedišo tša tsebo ya magato a tshela ao a fetotšwego.

**Diphihlelelo le dintlha tše bohlokwa:** Ka ngwageng wa go fana ka pego, softewere ya AI\_MIN1.0, moo go yona CGS e filego pego peleng, e mpshafadišwe go akaretša mmotlolo wa kakanyo wa meetse a ka fase ga mabu. Se se dira gore bešene ya bjale e be polatefomo ya softewere ye kopantšwego ka botlalo ya diminerale, enetši le kakanyo ya meetse a ka fase ga mabu (Seswantšho sa 24). Mošomo wo o dirilwego go softewere ye e kopantšwego e akareditše go hwetša maikutlo a badiriši go kaonafatša tšhomišetšo ya softewere, go lokiša mathata, diteko tša taolo ya boleng, peakanyoleswa ya dimotšule, go mpshafatša ga dialkorithime tša AI ka tša moragorago le dikaonafatšo ka kakaretšo go tšhomišego ya softewere. Mošomo wa dinyakišišo wa ka moso o tla bea šedi go kgokaganyo ya softewere go phothale ya inthaneteng ya CGS, go dira diteko tša kelo ya bogolo bja go ya fase bja softewere moepoing le bogolo bja dirafša, le bokgoni bja go dira mmotlolo go dikelo tše tharo.

#### 4.1.5 Hlogopoledišano ya Bodiplomate bja Geoscience

Tlhago le diphetogo tša sebopego sa polanete di e katološetša ka ntle ga mellwane ya mmušo goba setheo sefe goba sefe se tee. Bjalo ka Bongwaledi wa go-ya-go-ile wa OAGS, CGS e šomiša gagologolo Hlogopoledišano ya Botiplomate bja Tšeosaentshe go fihlelela le go phethagatša bontši bja dikamano tša boditšhabatšhaba tša Afrika-Borwa, kudukudu ka go ditšeosaentshe. Go sepelelana le ye nngwe ya dinyakwa tše bohlokwa tša taolo ya botshelela tša 'Afrika ye kaone le Lefase', CGS e na le histori ya go šomišana le dinaga tšša go fapafapana tša

Afrika ka tsela ya go thalwa ga mebepe ya tšeosaentshe, phetogo ya institšušene, go hlangwa ga mebepe le ditirelo tše dingwe. Gabjale, CGS e šomišana le Dikgoro tša Diminerale le Meepo go la Malawi, Namibia le Eswatini.

Hlogopoledišano ya Botiplomate bja tšeosaentshe e hlama tikologo ye e kgontšhago go merero ya bosetšhaba. Dintlha tše bohlokwa ke go dira dipeeletšo go bašomi bao ba nago le bokgoni bja tšeosaentšhifiki, bokgoni bja tša tshepedišo le bolaodi/boetapele le go hlangwa ga ditšweletšwa tša boitlhagišetšo, mananeo le ditirelo. Tumelelano go mafelo a kgwebišetšano ya kontinente ya Afrika e fana ka dibaka tše bolokwa go bea Afrika-Borwa go tsela ya kgwebo ye e etilwego pele ke peeletšo le go šoma le dinaga tše dingwe tša Afrika go hlama bokgoni bja tšona bja intaseteri.

Hlogopoledišano e thekga dinepo tše ntši tša tlhabologo tša tšeosaentshe tša boditšhabatšhaba le dinyakwa, kudukudu tša ditšhaba tša Afrika. Go thalwa ga mebepe ya go putlaganya mellwane ya tšeolotšikhale ka dinageng tše bjalo ka Namibia le Malawi di tšweletša datha ye bohlokwa ya tšeolotši go thekga tlhabollo ya ekonomi le tlhabollo ya ditsebi tša tšeolotši tša ka nageng le bathuti. SANSN, ye e laolwego ke CGS, e dira seabe se bohlokwa go phethagatšo ya peakanyo ya CTBTO, yeo e sepedišago tšhomišano ya lefase go bea leihlo diteko tša dibetša tša nyuklea.

#### 4.1.5.1 Comprehensive Nuclear Test Ban Treaty Organisation

**Tlhalošo le Maikemišetšo:** CTBTO e nepile go thibela le go šitiša diteko ka moka tša dihlalani tša nyuklea goba dithuthupi tše dingwe tša nyuklea go kgabaganya lefase. Tema ye e kgathwago ke CGS ke go sepediša le go hlokomela ditiši tša sebopego sa maphoto tša CTBTO ka gare ga Afrika-Borwa, seo e lego senyakwa se segolo sa phethagatšo seo se filwego maatla ke tumelelano magareng ga CGS le CTBTO. E emela Afrika-Borwa go diwekešopo tša go fapafapana tša CTBTO, dithuto tša tlhahlo le dikopano gammogo le go fana ka maele go ditheknolotši tša sebopego sa lephoto go Kgoro ya Kgwebo, Intaseteri le Diphadišano (**the dtic**). Go tšaleletša, CGS e šomiša datha go tšwa go ditiši tša International Monitoring System (IMS) tša merero ya saentshe le tša selegae ka nageng.

CGS e hloketše ebile e šomiša Primary Seismic Station (PS39), Infra-Sound Station (IS45) (Seswantšho sa 25) le



**Seswantšho sa 25: Setiši se se sa tšwago go kaonafatšwa sa boditšhabatšhaba sa IS (IS47) go la B, profentsheng ya Free State, Afrika-Borwa**

Auxiliary Station Stations go la Sutherland le Antarctica (AS099 & AS35) bjalo ka karolo ya seabe sa Afrika-Borwa go IMS ya Comprehensive Test Ban Treaty.

**Diphihlelelo le dintlha tše bohlokwa:** Mo ngwageng wo o lekodišiwago, ga go mathata a magolo ao a amanago le nako le go šoma gabotse ga setiši sa tekodišišo ao a begilwego. Setiši sa PS39 se šomile gabotse go dikgwedi tša Mopitlo go fihla go Dibatsela 2021, dikgwedi ka moka nakong ya paka ya go fana ka pego e boetše go dibopego tša phethagatšo tše 100%. Setiši sa IS47 se se tsenetše legato la bobedi la go kaonafatša disensara tša yona le Wind Peakanyo ya Phokotšo ya Lešata gomme gabjale e fihlelela dinyakwa tša IMS (tššetšo ya datha, bokgoni bja khaliporeišene le boleng bja datha). Se se laeditšwe ge IS47 e be e rekota go thuthupa ga bolkeno go tšwa go Tonga.

Go hlongwa ga softwera ya NDC-in-a-Box go phethilwe gomme e hlopholla datha go tšwa go ditiši tša IMS tša Afrika-Borwa. CGS e šomiša datha nako le nako go tšwa go ditiši tša go roromela tša CTBTO ka go tshekatsheko ya tšatši ka tšatši ya ditšhišinyego tša lefase le tša dinyakišišo ka go dikotsi tša go roromela le sebopego sa Lefase ka nageng. Tlhahlo go tshekatsheko ya medumo ye megolo e beakantšwe go sekaseka datha ya medumo ye megolo le go gatelela ditaetšo go tšwa lenaneong la dithuthupi tše di belaelwago tše di hwetšagalago go selete sa eMalahlani. Tshekatsheko ye e beakantšwe go ba karolo ya mošomo wa tšatši ka tšatši wa CGS.

CGS e tšwela pele go eletša **the dtic** le Kgoro ya Dikamano tša Boditšhabatšhaba le Tšhomišano ka tsela ya dikgokagano tša kgafetšakgafetša. **The dtic** e kgethile moemedi wa CGS go kgatha tema ka go Open Scholarship Initiative (OSI) Consultative Group of Experts. Sehlopha se se beakanya go bokgoni bja palo ya ditsebi tša boditšhabatšhaba go hwetša tlhahlo le maele ka merero ye bohlokwa, ya sethekgeniki le ye e lego mohola go tšwetšo pele le phethagatšo ya bokamoso bja OSI Exercise Plan.

#### 4.1.5.2 Protšeke ya Go thalwa ga mmepe le Tekolo ya Diminerale ya Malawi

**Tlhalošo le Maikemišetšo:** Mengwaga ye mehlano (2016 go fihla go 2021), Go thalwa ga Mebepe ya Tšeolotši go go thekgwago ka diitšhelete ke naga ya Fora le Protšeke ya Tekolo ya Diminerale (GEMMAP) ya Malawi e batamela go fihla mafelelong a yona a go phethwa. Protšeke e thomiša ka tsošološo ye mpsha ya go kopolwa ga diminerale go la Malawi ka go, magareng ga tše dingwe, go tšweletša mebepe ya sebjalebja ya tšeolotši ya naga ka bophara ka bogolo bja 1:100 000, 1:250 000 le 1:1 000 000, ye nngwe le ye nngwe ka letlakala la ditlhalošo, dikgopotšo, dipego tša mafelelo. Go tlaleletša go go thalwa ga mebepe ya tšeolotši, protšeke e be e bopša ke dimotšule tše dingwe tše hlano (tšeokhemistri ya leraga ya moela, tekolo ya bokgoni bja diminerale, mananeokgoparara le peakanyo ya ditlabela, meepo ya bogolo bjo bonnyane, le ditšeoahasate) tšeo di phethilwego mo mafelelong a 2020/21. Protšeke gape e akareditše lenaneo la tlhahlo le hlalošago ka botlalo la bašomedi ba Kgoro ya Diphatišišo tša Tšeolotši ba Malawi.

**Diphihlelelo le dintlha tše bohlokwa:** Motšule wa go thalwa ga mmepe wa tšeolotši ke karolo ye kholokgolo ya GEMMAP le mošomo woo CGS e dirilego seabe se segolo ka ona. Go feta fao, CGS e rwele maikarabelo a taolo ka moka ya thulaganyo ya polelo ya dipego tša sethikhniko le kgatelopele, tše e lego leloko le le noši la go bolela polelo ya tlhago ya Seisimane la khonsotiamo.

Diabe tša COVID-19, phetogo ya sepolitiki le dintlha tše dingwe di tšwetše pele go ka be le seabe go phethagatšo ya protšeke. Se se hlotše gore go phethwa ga protšeke go katološwe e sego ka semmušo go fihla ka Ngwatobosego 2022. Ntle ga se, mediro ka moka yeo e beakantšwego le deliverables di phethilwe go ya ka standards tše di nyekagago, ka nako le ka ditekanyetšo tše di beilwego. Also running ka go 2022 ke khonferentshe ye e beakantšwego ya mafelelo ya GEMMAP go la Zomba, ye e šuthišeditšwego go matšatšikgwedi, ao go tla tšewago sephetho ka ona, magareng ga Mopitlo le Ngwatobosego 2022.

Mo ngwageng wo o lekodišišwago, protšeke e beile šedi go tšweletšo ya deliverables tše di akanywago tše di tlišitšwego go klaente ka matšatšikgwedi a mafelelo a 2 Mosegamane 2021 le peakanyo ya pego ya mafelelo. Dilo tše di rometšwego go fihla gabjale di akaretša:

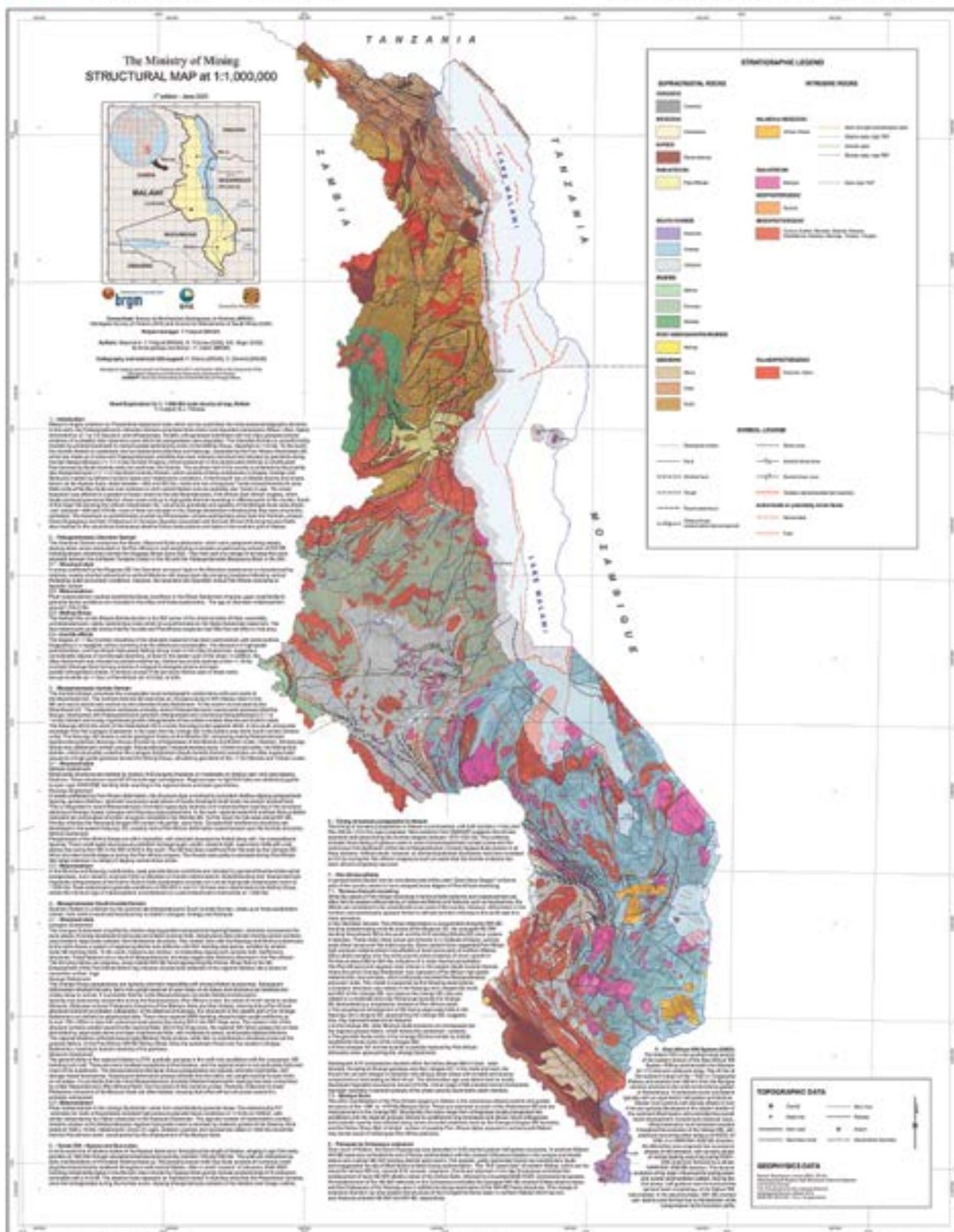
- Mmepe wo o feleletšego, wo bonolo, wa go hloka sekala wa tšeolotši ya GIS wa naga ka bophara (dillaga tše di tiilego le tša go ela, ditiragalo tša diminerale le ditšeoahasate);
- 40 x 1:100 000 ya sekala sa matlakala a tšeolotšikhale ka diletšente, go kgabaganya dikarolo, bjbj;
- 40 x ditlhalošo tša matlakala;
- 1: mebepe ya bogolo bja 250 000 ya tšeolotši le sebopego (mebepe ya 10 o mongwe le o mongwe);
- mebepe ya 1:1 000 000 ya tšeolitšikhale, sebopego (bona mohlala go Seswantšho sa 26); mebepe ya methopo ya tšeohasate le diminerale;
- 6 x memoirs; le
- Dipego tša mafelelo ka diphatišišo tša tšeokhemikhale, ditšeoahasate le tekolo ya potential ya diminerale (le dimametletšo tša datha ka moka).

#### 4.1.5.3 Sethalwa sa Mmepe wa Geoscience wa Dillaga tše Ntši wo o Kopantšwego wa ka Nageng ya Eswatini

**Tlhalošo le Maikemišetšo:** CGS e thwetšwe ke Mmušo wa Eswatini go thomiša ka go thalwa ga mebepe ya tšeosaentshe ya llaga ye ntši ka Nageng ya Eswatini,

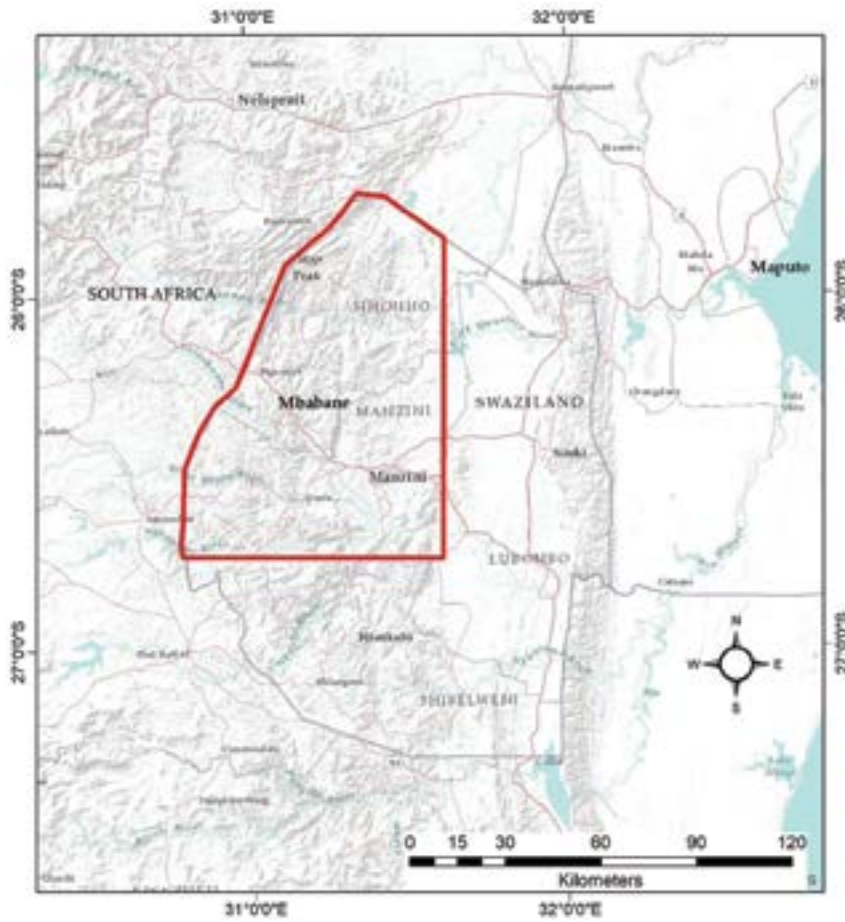
ya go bea šedi go lekala le le holofetšago la bodiekla la naga. Ka baka la mehutahuta ya dibpego tša tšeolotšikhale tše di tšweleditšwego ka nageng ya Eswatini, mananeo a go fapafapana a go rafa diminerale a mengwaga ye e fapafapanego a gona, go akaretša a gauta ya loute ya orotšeniki ye e nago le maswika a mmala o motala a Archaean, a mokgobo wa salfaete ya makema, salfaete ye kgolo go fetišiša ya bolkenotšiki ya mohuta wa Kuroko ya Archaean, a thini ya phekmathaete/beine ye e swerego keranaete ya Archaean, le a ditaamane tše di amanago le khimperelaete ya Cretaceous. Diprotšeke di akaretša go kgoboketšwa le tlhathollo ya datha ya mathomothomo ya moswananoši ka nageng ya moya wa lefaufaug ya tšeofisikhale ka 1D, 2D le 3D. Tshedimošo e tla šomišwa go hwetša kwešišo ka ga ditlhamego tša ka godimgwana ga mabu tše di huetšago go rafša ga diminerale le tlhabologo ye kgolo ya boikalo bja naga bja thekthoniki, go akaretša go fana ka dintlha tša methopo ya meetse a ka fase ga mabu. Kwešišo ya tšeosaenthifiki ka botlalo e underderpins maitekelo afe goba afe go pharologantšho ya leago le ekonomi, potlakišo ya tlhabollo ya mananeokgoparara a ka nageng le tlhabollo ya maatlafetšego ya methopo ya diminerale le meetse a ka fase ga mabu tše ye mentši kudu yeo e sa tšwa go e hlabollwa ya ka nageng.

**Diphihlelelo le dintlha tše bohlokwa:** Protšeke ya khwetšo ya datha ya tšeosaentshe ka bontši ka seleteng ya Eswatini e nepile go kgoboketšo le tlhathollo ya datha ya moya a lefaufaug ya tšeofisikhale (elektromaknethiki, dimaknethiki le diradiometriki). Karolo ya dinyakišišo e hwetšwa ka go karolo ya leboa-bodikela bja Naga ya Eswatini, go tloga Diprofentsheng tša Hhohho le Manzini (Seswantšho sa 27). Dibopego tše mmalwa tše conductive di hlaotšwe go tšwa go 1D inversion ya datha ya elektromaknethiki ye e kgobokeditšwego go fihla gabjale le dimmotlolo tša 3D tša datha ya maknethiki di tšweleditšwe go diepša tša go feta tše pedi tša gauta. Ditebanyo tše di tla nyakišišwa go tšwela pele morago ga gore lefelo leo le šetšego la 20% le fetišitšwe le gore datha ya mafelelo e amogetšwe ka botlalo. Dinyakišišo tše di tseneletšego tša dipeakanyo tše kgolo tša diminerale, go thalwa ga mebepe ya temogo go tšwa kgole ya phetošo le tshekatsheko ya tšeokhemikhale di tla dirwa go tšweletšo ya tebanyo. Tše di tla akaretša le lenaneo la tlhahlo la tšeofisikse ye e gatetšego pele ka go tsela ya dipeakanyo tša diminerale, tlhathollo ya datha ya moya wa lefaufaug, le mekgwa ya tshekatsheko ya mabu.



Mmepe, wo o nago le ditlhalošo go sebopego sa mmepe, o phethilwe ngwageng yo pego e fiwago ka ona.

Seswantšho sa 26: Mmepe o moswa wa sebopego sa tšeolotši wa bogolo bja 1:1 000 000



E na le botelele bja leboa-borwa bja 110 km le bophara bja 70 km ka lehlakoreng la bohlabela-bodikela.

**Seswantšho sa 27: Mellwane ya diphatišo tša elektromaknethiki tša lefaufaug tše di akaretšago bogolo bja 7000 km<sup>2</sup> bja naga**

# 5

## Dikgoboketšo Tša Palaeontholotši Ya Ditirelo Tša Taolo Ya Tsebo Le Tshedimošo

**Tihalošo le Maikemišetšo:** Bjalo ka mohlokamedi wa semolao, CGS e tšwela pele go hlokomela ye nngwe ya dikgoboketšo tša palaentholotši tše kgolokgolo le tše akaretšago kudu ka Afrika-Borwa tše di tlogago go histori ya tšeolotši ya mengwaga ye dibilione tše 2.1. Kgoboketšo e hlangwa ke disampole tše di akaretšago tše 100 000 go tšwa go mebušo ka moka ya bophelo bjo bo akaretšago mehuta ye seteratikerafiki ka botlalo ya Afrika-Borwa le gona e le bohlokwa go kgatelepele ya tshabologo ya bophelo. Ka go gatela pele ga theknolotši, direktote tša titšithale tše di bego di bonwa di sa šomišege go tloga mengwageng, gabjale di bohlokwa go diriša datha ya tša moepong. CGS gape e mohlokamedi wa makgolokgolo a diketekete tša direktote tša analoko le tša titšithale. Go se, CGS e phethagatša khudugo ya mengwaga ye mentši ya titšithale le go lekolwa ga tshedimošo ya direktote tša kgale go taolo ya dikgoboketšo tše ntši tša saentshe—ka moka ga tšona di na le seabe go tomeine ya taolo ya tsebo ya tšeosaenthifiki ye e kaonafadišwego. Se se kgontšhitše phihlelelo ye bonolo go datha ya GTP, kudukudu go mediro ya datha ya tša meepo.

**Diphihlelelo le dintlha tše bohlokwa:** Ka lenaneo la khudugo ya titšithale, leo le nyakago go sekana go ya ka peakanyo le go rekota mebele le dipego tša bohwa, CGS e fetišitše tebanyo ya yona ya go hudugela go titšithale direktote tša analoko tša 100 667 ka 3.39% mo ngwageng wo o nyakišišwago. Leano la tekolo ya dipuku la tšeosaenthifiki le akantšwe go hlopha palo ya godimo ya datha ye raw ye e beakantšwego gabotse le ye e sa beakanywago gabotse ya tšeosaentshe ye e kgobokeditšwego mengwageng ye mentši.

Tekolo ya dišego tša tšeosaenthifiki tša dikgoboketšo tša sebopego bjalo ka molete wo o borilwego, disampole tša maswika, disampole tša diminerale le fosili, di nyakišišitšwe gore di feleletše, nepagalo le bohlokwa bja saentshe. CGS e lekotše le difosili tša mmele tše 1 816 kgahlanong le tebanyo ya 1 400. Phihlelelo ye e bohlokwa go thuša CGS go ba le bobolokelo bjo bokaone bja bjale bja Musiamo wa Tšeosaentshe wa Bosetšhaba. Mehuta ye bohlokwa ye mmalwa le disampole tša sewelo di gona; go tloga go disele tša tšona tše di phelago tše ntši tše bonolo, go ya go diphoofolo le dimela tše di tsebjago tša peleng, go ya go taenosole le diamuši tša bogologolo tša tše e lego diphoofolo tša matšatšing a lehono. Ka lenaneong le, CGS le yona e phethagatša masolo a bohlokwa a tsošološo (kudukudu go tšwa go mafelo ao e sego a lefelong go la Upington le Griekwastad). Bogolo bja melete ye e borilwego bo romelwa go National Borehole Core Depository gomme e se akaretša go netefatšwa le go tiišetšwa ga sebopego sa molete wa tša go tirila tša nnete go ya ka seriti. Melete e hweditšwego e dirwa ditekodišišo tša saentshe tše di tseletšego le go šomiša mananeo a saentshe. Go 2021/22, CGS e phethile masolo a yona a tsošološo a motheo. Le ge go le bjalo, ga se melete yeo e bego e netefadišwe ka go etelwa mo e lego gona go merero ya go šelefa—ke fela melete ye e borilwego ye 18 godimo ga ye 32 yeo e netefadišwego. Ka kakaretšo, CGS e fihleletše 95.24% ya tebanyo ya yona ya ngwaga go tekolo ya dišego tša tšeosaentshe.



# 6

## Theknolotši Ya Tshedimošo Le Kgokagano

Go ngwaga wa ditšhelete wa 2021/22, go phethagatšeng leanophethagatšo la CGS, mešomo ye latelago ye bohlokwa ya tshedimošo le dikgokagano (ICT) e dirilwe go kaonafatša go šoma gabotse le ka tshwanelo ya CGS.

### 6.1 Khwetšagalo la ditirelo tše bohlowa tša kgwebo

Temogo ya boleng bja ICT e thekgwa ke setšhaba sa tshedimošo se kgokagantšwego seo se nyakago phihlelelo ya go šoma gabotse le go kgotsafatsa go tshedimošo le ditirelo tša tšeosantshe. Go paka ye e lekodišiwago, ditharollo tša go fapafapana tša ICT, tlhokomelo, magato a tekolo le go bea leihlo magato go bile le seabe go palomoka ya kakaretšo ya 99.89% khwetšagalo ya tirelo, yeo e sepelelanago le target ya dintlha tše di fetago tše 99%.

Go šoma gabotse ka kakaretšo le go šoma ka tshwanelo ga CGS le gona go kaonafaditšwe ka, magareng ga tše dingwe, go fana kd dikhomphutha, dilepothopo, go thekga mananeokgoparara a neteweke ya kgole (mohlala, datha, lentšu, dineteweke tša poraebete tša tša mešomo ye bjalo ka kgoboketšo ya datha ya nageng ya diphatišišo tša tšeosantshe tša tšeosantshe ya tikologo ya ka lewatleng) go tšwela pele go thekga dipeakanyo tša go šoma tša hybrid tše di tlišitšwego ke COVID-19 le melawana ye e sepelelanago le yona ya kiletšo ya mesepelo.

Go fana ka mananeokgoparara a ICT le thekgo tša phothale ya wepe ya tšeosantshe di laetša kaonafatšo ya go šoma gabotse le ka tshwanelo tša CGS le go ba le seabe go mmušo wa elektroniki (eGovernment). Go abelana ka mananeokgoparara a le ona ke karolo ye bohlokwa ya thomelo ya tirelo ya mmušo ya phetogo ya titšithale ya CGS le phatlalatšo ye e šomago ka tshwanelo ya tshedimošo magareng ga CGS le setšhaba sa tšeosantshe.

Go phatlalatšwa gannyane ga Office 365 go kgontšhitše CGS go leverage peeletšo ya yona ya laesentshe ya peakanyo ya ofisi ka tsela ya dikgokagano tše kopantšwego (mohlala, go ba le khonferentshe ya bitio, go letša megala ya phrothokholo ya inthanete ya kgašišontšu, go tsenelea khonferentshe ya wepe le go abelana ka sekerini). Tharollo

ye gape e bile le seabe go šoma gabotse le ka tshwanelo tša CGS go ya ka dipeeletšo tša ditshenyegelo tša megala, tšweletšo ya tšhomišanommo go le tšweletšo ya mokgatlo, kudukudu go ditsebi tša saentshe tša lekala.

Go tšwetšeng pele mabokgoni a tirišo ya CGS le bjalo ka karolo ya leeto la diphetogo la titšithale la CGS, CGS e dirile kgatelopele ye e bonagalago go phethagatšo ya peakanyo ya methopo ya kgwebo (ERP) mo mafelelong a ngwaga wa ditšhelete wo o lekodišiwago. Phethagatšo ya ERP e fetile leswao la bogareng go ya go phetho. ERP e nepile go, magareng ga tše dingwe, go nolofatša le go hlopholla tshepedišo ya manyuale le go boloka direktote, le kopantšho ya mananeokhomphutha go kgabaganya diyuniti tša kgwebo tša CGS ka go fana ka pego ye e kopantšwego.

Go dirilwe kgatelopele go ka phethagatšo ya ERP yeo e akaretšago go phethwa ga ditlhathollo tša kgwebo tša ERP. Kopantšho ya ERP, go dira diteko le diteko tša yuniti le kamogelo ya modiriši tša dimotšule tše ntši tše bjalo ka Human Capital Management (HCM); Organisation Management; Safety, Health, Environment and Quality; HCM Time Management; le dimotšule tša HCM Personnel Administration di phethilwe. Dikopantšho tša dimotšule tše bjalo ka diproteke, matlotlo, le dipeakanyetšo tša tshepedišo ya kgwebišetšano ya ditheko le tšona di phethilwe gomme šedi e tla bewa go go phethwa ga dimaele tša mafelelo tša seripagare sa mafelelo tša phethagatšo tše di akaretšago mošomo wa go fihlelela dinyakwa tša badiriši wa ERP go fihlelela dinyakwa tša moswananoši tša CGS (mohlala, neeletšano ya mošomo, go kopanywa, le dipego), diteko le ditlhahlo tša kamogelego ya modiriši.

### 6.2 Thireletšo ya boradiakhomphutheng le kaonafatšo ya neteweke ya mananeokgoparara

#### 6.2.1 Tšhireletšo ya boradiakhomphutha

Mo ngwageng wo o lekodišiwago, dipholisi le ditshapedišo tše mmalwa di tšwetše pele go dirišwa go šireletša dithoto

tša CGS. CGS e tšwetše pele go boloka le go kaonafatša tšhireletšo ya boradiakhomphutha nakong ya ngwaga wa ditšhelete. CGS e file maatla Security Agency (SSA) Cyber Centre go dira tekolo ya tšhireletšo go mananeo a yona a ICT go lekola go ba seemong se kotsing go go ka kgonagalago go go amago mananeokhomphutha ao a lebeletšego ka gare le tša ka ntle ka bobedi. Go bea leihlo le ditekolo tša SSA di nepile go thuša CGS go hlaola le go lemoša matšhošetši afe goba afe go tšhireletšo a ICT ao a ka tšwelelago.

Go maatlafatša go tšwela pele tšhireletšodikhomphutha ya CGS, dipeeltšo tša tlaleletšo di dirilwe ka go diriša ditheknolotši tše di gatetšego pele tša tšhireletšodikhomphutha gammogo le difayawolo tša tlaleletšo go ditsha tša Bellville le Pietermaritzburg go thibela phihlelelo ye e sa dumelelwago le go kgontšha tekolo ya pele ga nako, temogo ya pele ga nako le go bea leihlo ga sekgoba sa boradia sa CGS.

Mešomo ya go hlatloša temogo ya badiriši ya tšhireletšo dikhomphutha, yeo e akareditšego go kgokagana ka go ba seemong sa tlhobaetšo sa boradia tše di ka kgonagalago, le tšona di dirilwe go lemoša badiriši ba CGS ICT go ditlhaselo tša dikhomphutheng le go thibela setšhaba gore se se be batšwasehlabelo go ditlhaselo tše.

### 6.2.2 Kaonafatšo ya mananeokgoparara a neteweke

Difayawolo tša tlaleletšo di hometšwe go ditsha tše pedi tšaa lebopong (e lego Bellville le Pietermaritzburg). Neteweke ya lefelo le legolo leo le hlalošwago ke softwewe le beilwego go kgokaganya kantorokgolo ya CGS le ditsha tša Cape Town le Pietermaritzburg. Tše di šoma bjalo ka

ditlabela go hapo ya neteweke ya kantorokgolo ka tsela ya South African National Research Network.

Kaonafatšo ya neteweke le yona e tlišitše go šoma ka tshwanelo ga mokgatlo ka go fokotša ditshenyegelo tša tirišo (mohlala, kgokagano ya datha le neteweke ya poraebete ya magareng ya ditsha tše ntši). Se se kaonafaditše le tšhomišo ya mothopo wa ICT le tšhomišo go ditsha tše ntši. Kaonafatšo ye ya neteweke e coupled ka kgokagano ye e šomago gabotse le ye e kgotsofatšago ya inthanete go tsošološo go tšwa go masetlapelo ya bobedi go dikholego tša setšhaba sa tšeosaentshe.

### 6.3 Tšwetšo pele ya kgwebo

Mo ngwageng wo o fetilego, CGS e dirile tekolo ya dikotsi tša tielelo ya masetlapelo ya lefelong ka thušo ya lekala la Tlhabollo ya Tšeosaentshe le Kopantšwego leo le lebeletšego dintlha tše bjalo ka ditiragalo tša mororomelo, bokgole le go ithekga go mothopo wa maatla a mohlagase.

CGS e hlamile lefelo la go tsošološo ya masetlapelo la bobedi moo datha ya CGS e ipušeletša go ditirelo tše bohlokwa go kgonthiša tšwetšopele ya tirišo ge go ka hlaga masetlapelo. Go ngwaga wo o fetilego, Leano la Tielelo go Masetlapelo la CGS le phethagaditšwe le gomme go šoma o e kgole ya thomišwa ka katlego, mohlala, diitshapedišo tša kgwebo tša matlotlo di tšwetše pele ntle le go tsenwa ka bogare. Peeletšo ya lefelo ya bobedi le yona e netefatša, magareng ga tše dingwe, go tšwela pdle ga kgwebo ya setšhaba sa tšeosaentshe le go bopa karolo ya maitapišo a go eta pele go šoma gabotse le ka kgotsofaloa CGS go ya maemong a godimo.



*Ditshkatsheko tša disampole tša ditšhipi go tšwa lenaneong la go tirila go la Giyani*

# 7

## Dipoelo Tša Dinyakišišo Tša Geoscience

CGS e phatlalatša dinyakišišo tša yona go bakgathatema go tatelano ya dikgatišo, go akaretša dikgopotšo, dikgatišobaka, ditlhalošo, dipego tša ngwaga ka ngwaga, dingwalwa tša bobegaditaba, ditshepedišo le mebepe ya dikhonferentshe, gomme tše di tšweletšwa go dikarolo tša 7.1 go fihla go 7.3. Mokgatlo o bea šedi ye nngwe go mandate wa tšona le khwetšagalo ya tšona ya datha ye mpsa ya makala a mantši di bakile go ditshomišano le dikgwebišano le batho ba ka ntle le go tšweletšwa ga dikgatišo tša tlaeletšo.

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### 7.3 Ditshepedišo tša dikhonferentshe

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## 7.4 Dingwalwa tša bobegaditaba

1. Media advertorial – Mining Weekly; Council for Geoscience goes live with digital geoscience data.
2. Media advertorial – Green Economy Journal Issue 47; Council for Geoscience – Environment focus a top priority.
3. Media article – Times Live; 'It's fake, there was no earthquake in KZN,' says Council for Geoscience.
4. Media article – Independent Online (IOL); Tremor? What tremor? Council for Geoscience has no record of KZN earthquake.
5. Media article – The Witness; Update/Geoscience reports no tremor for Durban area.
6. Media article – Fin24; Pilot site for carbon capture project due to be up and running in 2024.
7. Media advertorial – Global Africa, Mpumalanga Business 2021/22; Finding new ways of reducing and reusing carbon.
8. Media advertorial – PENT Communications, Most Inspiring & Powerful Women Magazine; Council for Geoscience (Dr V. Nxumalo, Dr H. Cawthra and Geoscientific Executive Manager Ms R. Monoko).
9. Media article – Sharenet, Europe News; South Africa aims to bring pilot carbon capture project online in 2023.
10. Media article –News24; 3.1 tremor felt in East Rand area.
11. Media article – Timeslive; Earthquake 3.1 magnitude hits Boksburg.
12. Media advertorial –South African Business; An intensive new geological mapping programme is underway.
13. Media advertorial –Western Cape Business; A study on gas potential in the Karoo has been completed.
14. Media article – African Business; Leading the march to re-imagine mineral exploration.
15. Media article – Daily Maverick; New Centurion sinkhole is one of about 200 recorded across Gauteng in past five years.
16. Media article – Eyewitness News; Parts of Joburg rattled by early morning earthquake.
17. Media advertorial – Green Economy Journal Issue 50; Integrated Geoscience – Targeting Sustainable Development in South Africa.
18. Media article – Greeneconomy.media; Council for Geoscience – An Exploration Enabler.
19. Media article –Independent Online (IOL); Confirmed:3.5 magnitude earthquake recorded in the East Rand, Gauteng.
20. Media article – Mining Elites; Council for Geoscience – An exploration enabler.
21. Media article – Mining Review Africa; Council for Geoscience: Laying the foundation for exploration.
22. Media article – News24; East Rand rocked by 3.5 magnitude tremor.
23. Media article – Sunday Times; Sinkholes will become a hole new ballgame without proper management.
24. Media article – Timeslive; Tremor recorded 50 km from Durban.



*Geologists observing the Reverse Circulation Drilling in Giyani*

## Kgaolo ya C Pušo

Pušo ya mohlakanelwa mo CGS e akaretša mananeo, dibopego le ditshepedišo tšeo ka tšona setheo se sepedišwago, laolwago le go rwešwa maikarabelo. E dirišwa ka tsela ya ditheo tša molao wa yona wo o dirišwago, Molao wa Tšeosantshe, Molao wa 100 wa 1993, wo o fetotšwego, PFMA Molao wa 1 wa 1999, wo o fetotšwego, Melawana ya Kgoro ya Matlotlo ya Bosetšhaba, Phrothokholo ya Pušo ya Mohlakanelwa ka Lekaleng la Mmušo, le dipholisi tša mokgatlo. Karolo ye ya pego e hlaloša ka botlalo mananeotaolo a mmušo, dibopego le ditshepedišo.

- **Lekgotla le dikomiti tša lona** – tlhamo ya Lekgotla le dikomiti tša yona, tlhahlo ya Lekgotla, ditefelo le maitshwara a Lekgotla, tema ye e kgathwago ke Lekgotla le maikarabelo.
- **Go obamela melao le melawana** – seemo sa CGS sa go obamela ditemošo tša melao.
- **Taolo ya ka gare le taolo ya dikotsi** – mananeo a taolo ya dikotsi ye e phethagatšwago le go šoma ka tshwanelo ga ditaolo tša ka gare ka mokgatlong.
- **Bofora le bomenetša** – magato a go lemoga le go lwantšha mešomo ya boradia.
- **Tekolo ya dipuku ya ka gare** – mediro ya lekala la ka gare la tekolo ya dipuku.
- **Tiišetšo ya boleng** – seemo sa tiišetšo ya boleng.
- **Merero ya maphelo, polokego le tikologo** – go obamela ditheo tša polokego, maphelo, tikologo le boleng.



# 1

## Bolaodi ba tsamaiso

Tona ya Methopo ya Diminerale le Enetši, (Tona), ka thušo ya Lekgotla la CGS, o rwele maikarabelo a taolo, tshepedišo ya phethagatšo tša CGS. Ka gona, mokgatlo o tliša dipego kotara ka kotara le ka ngwaga ka ngwaga

go ya ka Melawana ya Kgoro ya Matlotlo (26.1) go DMRE, ka la 30 Mopitlo, 31 Mosegamane, 31 Diphlane le 31 Pherekong, ntle le ge a laetšwe ka tsela ye nngwe ke Kgoro ya Matlotlo ya Bosetšhaba.

# 2

## Lekgotla La Council for Geoscience

### 2.1 Tlhamego ya Lekgotla le mešomo ya lona

Tona o thwetše Lekgotla la CGS go tloga la ka 1 Mopitlo 2020 ya ka Karolo ya 4 ya Molao wa Geoscience, Molao wa 100 wa 1993, wo o fetotšwego go fihla ka la 30 Moranang 2023. Lekgotla le bopša ke maloko ao e sego a phethišo a 11, maloko a mane a go šielana le lelokophethiši, Mohlankediphethiši. Modulasetulo wa Lekgotla ke leloko la go ikema, ga se leloko-phethiši le gona mešomo le maikarabelo a Modulasetulo le CEO di hlathollwa ka botlalo.

### 2.2 Lekgotla la bjale – 1 Mopitlo 2020 go fihla ka 30 Moranang 2023

Lekgotla la bjale le thwetšwe ke Tona go tloga ka la 1 Mopitlo 2020. Lekgotla le akaretša Modulasetulo (yo a ikemego), le maloko a mangwe a 10 ao e sego maloko-phethiši, maloko a mane a go šielana le CEO (lelokophethiši).

### **Bokgoni le maitemogelo**



**Ngaka Humphrey Mathe**  
Modulasetulo wa Lekgotla

Ngaka Mathe o thwetšwe bjalo ka Modulasetulo wa Lekgotla ka la 1 Mopitlo 2020. Ke setsebi sa tšeolotši ka mangwalo yo a nago le MSc (Mineral Exploration) go tšwa Yunibesithing ya Rhodes, PhD (Applied Geology) go tšwa Yunibesithing ya Natal, Durban le Advanced Management Programme (AMP) go tšwa Insead, Fontainebleau, Fora. Ngaka Mathe ke Mohlankediphethiši wa Tranter Resources Pty Limited. Peleng ga moo e be e le Mohlankediphethiši wa Scinta South Africa Pty Limited, khamphani ya methopo ya malahla; le Executive General Manager: Corporate Services go Exxaro Resources Limited. Pele ga fao e be e le Chief Operating Officer le Molaodiphethiši wa Eyesizwe Coal Pty Limited. O šomile go intasteri ya meepo bophelo bja gagwe ka moka le gona o na le maitemogelo a mengwaga ye e fetago ye 45. O ile a kgethwa bjalo ka mophenkgišani go Sefoka sa Molaodi wa Ngwaga sa 2008. Ngaka Mathe o šoma go makgotla a Talent10 Holdings Pty Limited, Scinta South Africa Pty Limited (Modulasetulo yo e sego Leloko-Phethiši), Tranter Holdings Pty Limited, Tranter Resources Pty Limited (CEO), Council for Geoscience (Modulasetulo yo e sego Leloko-Phethiši), Handa Mining Corporation (TSX listed), Cape Copper Oxide Company (Modulasetulo yo e sego Leloko-Phethiši), Empowerment Capital Investment Partners (Modulasetulo yo e sego Leloko-Phethiši) le Wescoal Holdings Limited [(JSE listed) Modulasetulo yo e sego Leloko-Phethiši]. O šoma le mo go Investment Committee of Acrux Resources Pty Limited. Ke Serutegi mo go Geological Society of South Africa ebile o ingwadišitše le South African Council for Natural Scientific Professions bjalo ka setsebi sa mahlale.



**Mna Mosa Mabuza**  
Mohlankediphethiši

### **Bokgoni le maitemogelo**

Mna Mabuza ke Setsebi sa Tšeolotši seo se nago le Bachelor's Honours ka Tšeolotši le Postgraduate Diploma ya Tshepedišo ya Kgwebo. O thwetšwe bjalo ka leloko la Lekgotla ka la 1 Mopitlo 2020. Ke CEO wa CGS gabjale gomme o thwetšwe ka la 1 Mosegamanye 2017. Mna Mabuza o šomile, magareng ga tše dingwe, go la De Beers bjalo ka Explorationist, Laboratory Geologist le Mosekasekimogolo wa tša Kgwebo, go la DMRE bjalo ka Molaodimogolo wa Mineral Promotion, go la Anglo American Platinum bjalo ka Hlogo ya Dikamano tša Mmušo le DMRE bjalo ka Motlatša Molaodipharephare wa Mineral Policy and Promotion.

### **Bokgoni le maitemogelo**



**Mna Xolisa Mvinjelwa**

Motlatša Modulasetulo wa Lekgotla

Mna Mvinjelwa o na le Bachelor of Science ka Khemistri go tšwa Yunibesithing ya Kapa, Mastase wa Tshepedišo ya Kgwebo go tšwa WITS Business School, Setifikheiti sa Management Advanced Programme go tšwa WITS Business School le Diploma ya Taolo ya tša Tšweletšo go tšwa Production Management Institute of South Africa. O thwetšwe bjalo ka leloko la Lekgotla le Motlatša Modulasetulo wa Lekgotla ka la 1 Mopitlo 2020 le ka 27 Mopitlo 2021. O na le maitemogelo a mengwaga ye e fetago ye 30 ya go šoma ka intastering ya tša meepo moo a thomilego mošomo wa gagwe mo Vereeniging Refractories (Anglo American subsidiary) bjalo ka Technical Assistant ka Kgorong ya R&D a gatela pele mo khamphaning, a swere maemo a go fapafapana bjalo ka Molaodi wa Tšweletšo, Quality Superintendent, Molaodi wa Polante, Mosekaseki wa tša Mmaraka le Moemedi wa Ditheko tša Sethekgeniki. Morago ga moo o bile karolo ya Rhino Minerals (lekala la ANGLOVAAL) bjalo ka Motlatša Molaodi wa tša Mmaraka wa Sethekgeniki moo a bego a rwele maikarabelo a go hwetša mebaraka ye meswa lefaseng ka bophara. O na le mengwaga ye e fetago ye 20 a šomela IMERYYS South Africa (lekala la IMERYYS) moo a swerego maemo a go fapafapana ao a akaretšago Molaodi wa Ditheko le tša Mmaraka; Molaodimogolo: Diprotšeke tša go Ikgetha; Hlogo ya HR, Pholisi & Maanophethagatšo; Hlogo ya Maanophethagatšo & Ditirelo tša Kgwebišano; le Mongwaledi wa Lekgotla. Gabjale ke Molaodiphethiši: Maitshwaro le Diphetogo go IMERYYS South Africa le Modulasetulo wa Komiti ya Leago & Maitshwaro wa lekgotla. Bjalo ka setsebi mererong ya tša kgwebo, gape o dula go makgotla a go fapafapana tša dikhamphani tšeo di sekametšego kudu ka meepong le diintaseteri tše di amanago le meepo. Ke Modulasetulo wa Coastal Fuels, e lego khamphani ye nnyane ya moepo wa malahla wo o nago le dithoto tša malahla. Gape ke Modulasetulo wa Ticamode, e lego khamphani ya B-BBEE yeo e lego mogwebišani wa IMERYYS.



**Mna Beeuwen Gerrys**

Leloko la Lekgotla

### **Bokgoni le maitemogelo**

Mna Gerrys ke Moentšiner wa Metšhene yo a nago le lengwalo la Mastase ka Taolo ya Boentšiner (taolo ya theknolotši le boithhagišetšo) go tšwa Yunibesithing ya Pretoria. O thwetšwe bjalo ka leloko la Lekgotla ka la 1 Mopitlo 2020. O šoma go Kgoro ya Saentshe le Boithhagišetšo bjalo ka Molaodi-mogolo wa Technology Localisation, Beneficiation and Advanced Manufacturing. O na le maitemogelo ao a tseneletšego go taolo ya dinyakišišo le boithhagišetšo, ICT, le ditlhathollo tša mananeo a ditšweletšwa, tlhamo ya dipholisi, le tše dingwe tša dikgatišo go dinyakišišo le tlhabollo le tlhabollo ya intasteri.



**Ms Rosalind Mdubeki**

Leloko la Lekgotla

### **Bokgoni le maitemogelo**

Mdi Mdubeki o thwetšwe bjalo ka leloko la Lekgotla ka la 1 Mopitlo 2020. O na le National Diploma le tikrii ya Bachelor ya Surveying le Setifikheiti sa Taolo ya Diprotšeke. O šomile Eskom bjalo ka Survey Technician le Engineer ka lekaleng la tlhahlo gomme gabjale o šoma bjalo ka Surveyor General: Bloemfontein (o hlokometše Freistata le Kapa Leboa) go Kgoro ya Temo, Tlhabollo ya Naga le Tlhabollo ya Metsemagae.



### **Bokgoni le maitemogelo**

Mdi Malie o thwetšwe bjalo ka leloko la Lekgotla ka la 27 Mopitlo 2020. O phethile lengwalo la Baccalaureus Legum (LLB) ebile o na le maitemogelo ao a tseneletšego ka lekaleng la meepo le diminerale, o feditše mengwaga ye e fetago ye 17 le DMRE. O na le kwešišo ye e tseneletšego ya mananeo peomelao ya tša taolo ka lekaleng la tša meepo le diminerale. Gabjale ke Molaodi: Tlhabollo ya Dipholisi tša Diminerale go DMRE.

Mdi Malie o rotše modiro go tšwa go Lekgotla ka la 02 Mosegamane 2021.

#### **Mdi Sibongile Malie**

Leloko la Lekgotla



### **Bokgoni le maitemogelo**

Mdi Mochothli o thwetšwe bjalo ka leloko la Lekgotla ka la 1 Mopitlo 2020 gomme o na le lengwalo la Mastase ka Environment and Society, B-Tech ya Environmental Health, BA Honours ka Public Administration le BA ya Social Science. O šometše Kgoro ya Meetse le Kelelatšhila bjalo ka Molaodimogolo wa Melawana le Tšhomišo ya Meetse, wa South African National Parks bjalo ka Molaodi: Environmental Audits le Mafikeng District bjalo ka Mohlankedimogolo wa Maphelo a Tikologo.

#### **Mdi Deborah Mochothli**

Leloko la Lekgotla



### **Bokgoni le maitemogelo**

Mna Mokoena o hlokofetše ka la 17 Hlakola 2022 morago ga bolwetši bjo bokopana. O gopolwa ka lebaka la boikgafo bja gagwe go šomeleng badudi ba Afrika-Borwa.

Mna Mokoena o be a thwetšwe bjalo ka leloko le le ikemego la Lekgotla la CGS ka la 1 Moranang 2020. O be a na le BSc ya Engineering, MBA, ebile a na le Government Certificate of Competence for Mines and Works. O be a na le maitemogelo ao a tseneletšego ge a be a šoma bjalo ka molaodi go makgotla a mmalwa. O šomile bjalo ka Molaodiphethiši go Best Infrastructure and Investments, le go Service Delivery Solutions (Pty) Ltd. O bile le maitemogelo a mengwaga ye mentši ka diintasetering tša meepo le enetši ka makaleng a mmušo le a poraebete ka bobedi. Mna Mokoena o šomile bjalo ka Leloko la Nakwana le Modulasetulo wa National Public Transport Regulator le bjalo ka Lelokol a Bolaodi la Nakwana la National Energy Regulator.

#### **Mna Smunda Mokoena**

(O hlokofetše)

Leloko la Lekgotla



**Mdi Lebogang Madiba**

Leloko la Lekgotla

### **Bokgoni le maitemogelo**

Mdi Madiba o thwetšwe bjalo ka leloko la Lekgotla ka la 1 Mopitlo 2020. O na le lengwalo la Honase ya BCom ka Economics go tšwa Yunibesithing ya Pretoria, le la Mastase wa Finance ka Economic Policy go tšwa Yunibesithing ya London (SOAS) le Executive Leadership Programme go tšwa lefapheng la School of Business Leadership la UNISA. Gabjale o šoma bjalo ka Molaodimogolo: Economic Services in Public Finance go Kgoro ya Matlotlo ya Bosetšhaba gammogo le Economic Development Function Group Leader ye e rwelego maikarabelo go merero ye e amanago le ditekanyetšo tša dikgoro tša mmušo tša bosetšhaba le dihlongwa tša mmušo. Gabjale, o šoma bjalo ka molao yo a sego lelokophethiši wa Lekgotla la South African Diamond and Precious Metal Regulator. Mabokgoni a mošomo a peleng a akaretša Deputy Treasurer: Front Office and Structured Finance for Transnet SOC LTD le Director: Country Risk ka gare ga Lekala la Dithoto le Dikoloto la Kgoro ya Matlotlo ya Bosetšhaba. Gape e bile leloko la Komiti ya Taolo ya Resefe ya Panka ya Resefe ya Afrika-Borwa go fihla ka 2018.



**Ngaka Thuli Khumalo**

Leloko la Lekgotla

### **Bokgoni le maitemogelo**

Ngaka Khumalo o thwetšwe bjalo ka leloko la Lekgotla ka la 1 Mopitlo 2020. O na le lengwalo la PhD ka Saentshe ya tša Tikologo, Setifikheiti sa Management Development Programme le Gordon Institute for Business Science gomme o swaragane le lengwalo la Mastase wa Filosofi ya Corporate Strategy. O šomile go maemo a go fapafapana a godimo, go akaretša tema ya gagwe ya bjale bjalo ka Motlatša Molaodipharephare wa Phetogo ya Klaemete le Boleng bja Monya go Kgoro ya Dithokgwa, Boreahlapi le Tikologo.

Ngaka Khumalo o rotše modiro go tšwa go Lekgotla ka la 31 Diphilane 2021.



**Mdi Adila Chowan**

Leloko la Lekgotla

### **Bokgoni le maitemogelo**

Mdi Chowan o thwetšwe bjalo ka leloko la Lekgotla ka la 1 Mopitlo 2020. Ke Chartered Accountant le gona o na le lengwalo la LLB. Mdi Chowan ke Atebokheiti yo a šomago go Duma Nokwe Chambers. O šomile go makgotla a mmušo le tša dikhamphani tša poraebete bjalo ka Molaodi yo e sego Lelokophethiši le bjalo ka leloko la Komiti ya Tekolo ya dipuku.



**Adv. Ntika Maake**

Leloko la Lekgotla

#### **Bokgoni le maitemogelo**

AAdv. Maake o thwetšwe bjalo ka leloko la Lekgotla ka la 1 Mopitlo 2020. O na le Ditikrii tša B. Iuris le LLB, Diploma ya Corporate Governance (UNISA). Diploma ya Taolo ya Diprotšeke (Executive College) Post-Graduate Certificate ka Climate Change and Energy Law, Post-Graduate Certificate ka Water Law (Wits), Mastase wa Laws ka Extractive Industries in Africa, LLD Candidate in Property Law (Property Clause) (Yunibesithi ya Pretoria). O šomile go mekalatirelo a mmalwa a mmušo, go akaretša Eskom Holdings, City of Tshwane le Kgoro ya Toka le Tlhabollo ya Molaotheo. Gabjale ke Modulasetulo wa Lekgotlakgalemo la Meetse go Kgoro ya Bodulo bja Batho, Meetse le Kelelatšhila. Gape ke Leloko la Komiti-Kgalemo ya Premier Soccer League.



**Ngaka Jennifer Mirembe**

Leloko la Lekgotla

#### **Bokgoni le maitemogelo**

Ngaka Mirembe o thwetšwe bjalo ka leloko la Lekgotla ka la 27 Mopitlo 2020. O na le lengwalo la Bongaka la Town Planning, la Mastase ka City Planning le mangwalo a mmalwa a tša taolo. O šomile go maemo a go fapafapana a godimo, go akaretša tema ya gagwe bjalo ka Molaodi wa Delivery Channel Management le Chief Town Planning go Kgoro ya Bodulo bja Batho ya Bosetšhaba.



**Ngaka Patience Gwaze**

Leloko la Lekgotla

#### **Bokgoni le maitemogelo**

Ngaka Gwaze o thwetšwe bjalo ka leloko la Lekgotla ka la 03 Hlakola 2022. O na le lengwalo la PhD ka Physical and Chemical Properties of Aerosol Particles, lengwalo la Mastase ka Geophysics, le Honase ya BSc ka Physics. O šomile go diinstitšute tša go fapafapana bjalo ka setsebi sa dinyakišišo pele a ka thwalwa go Kgoro ya Dithokgwa, Boreahlapi le Tikologo ka 2010. Gabjale ke Molaodimogolo: Air Quality Information, le designated National Air Quality Officer.



**Mdi Pontso Tsotetsi**

Leloko la Lekgotla

#### **Bokgoni le maitemogelo**

Mdi Tsotetsi o thwetšwe bjalo ka leloko la Lekgotla leo le šielanago le Mdi R Mdubeki ka la 1 Mopitlo 2020. O na le lengwalo la Bachelor ka Land Surveying, Diploma ka Land Surveying le Certificate ka Advanced Management Development Programme. Gabjale o šoma bjalo ka Motlatša Molaodipharephare wa Diphatišišo: Gauteng go Kgoro ya Temo, Phetogo ya Naga le Tlhabollo ya Dinagamagae.



### **Bokgoni le maitemogelo**

Mna Nel o be a thwetšwe bjalo ka leloko la Lekgotla leo le šielanago le go Mdi D Mochotlhi ka la 1 Mopitlo 2020. O na le tikrii ya Honase ya BCompt ebile ke Chartered Accountant le Molekodi wa Mananeo a Tshedimošo. O šomile bjalo ka Molaodimogolo go Kgoro ya Meetse le Kelelatšhila, Managing Director wa Integrated Business Control South Africa, Mohlankediphethišimogolo wa Matlotlo go diinstitšušene tše mmalwa tša dipanka le Molaodi wa Tekolo ya Dipuku wa Deloitte.

**Mna Paul Nel**

Leloko la Lekgotla



### **Bokgoni le maitemogelo**

Mna Malaza o be a thwetšwe bjalo ka leloko la Lekgotla leo le šielanago ka la 1 Mopitlo 2020. O na le lengwalo la Mastase la Business Administration, tikrii ya B Phil ka Knowledge and Information Management, tikrii ya Bachelor of Science gammogo le Management Development Programme le Gordon Institute for Business Science. Ke Mošomedi wa Taolo ya tša Tikologo yo a nago le maitemogelo ao a fetago a 18 ka lekaleng la mmušo. O šomile go Kgoro ya Meetse le Kelelatšhila le Kgoro ya Tikologo, Dithokgwa le Boreahlapi go maemo ao a fapafapanego. Gabjale ke Molaodimogolo yo a rwelego maikabarelo a go amogela tekolo ya kamego go tikologo go Kgoro ya Boreahlapi, Dithokgwa le Tikologo.

**Mna Sabelo Malaza**

Leloko la Lekgotla



### **Bokgoni le maitemogelo**

Mna Moatshe o be a thwetšwe bjalo ka leloko la Lekgotla leo le šielanago le Mdi Malie ka la 1 Mopitlo 2020. O na le lengwalo la Mastase wa taolo ya tša Tikologo le Higher Diploma ya Public Health. Gabjale o šomela DMRE bjalo ka Molaodimogolo wa Mine Environmental Management le gona o bile le seabe go tshamo ya dipholisi ya kgoro.

**Mna Andries Moatshe**

Leloko la Lekgotla

Lekgotla le obamela le go hlomphe mešomo ya bohlokamedi bja matlotlo yeo e hlathollwago go Karolo ya 50 ya PFMA Molao wa 1 wa 1999, wo o fetotšwego, wo, magareng ga tše dingwe, o nyakago gore, maloko a Lekgotla:

- a) A phethagatše mošomo wa tlhokomelo ya maemo a godimo go kgonthiša tšhireletšo ye e kwagalago ya dithoto le direktote tša mokgatlo;
- b) A šome ka botshepegi, potego, seriti le ka kgahlegelo ya CGS go laoleng merero ya matlotlo ya CGS;
- c) A se šome ka tsela ye e sa sepelelanego le maikarabelo ao a filwego maloko a Lekgotla;
- d) A se šomiše maemo a ona le/goba dikholego goba tshedimošo ya sephiri yeo a e hweditšego bjalo ka maloko a Lekgotla go ikhola goba go hola motho yo mongwe ka tsela ye e sa lokago, le
- e) A utolle goba a tsebiše dikgahlegelo tša thwii goba tše e sego tša thwii tše leloko goba molekane goba wa leloko a ka bago a na le tšona tše di ka bago le thulano ye e ka bago gona goba kgahlego.

Lekgotla le phethagatša ditsebišo tša ngwaga ka ngwaga tša kgahlego le tsebišo ya kgahlego ya komiti ye nngwe le e nngwe go kgonthiša gore maloko a utolla dithulano tše di lego gona goba tše di ukangwago go morero ofe goba ofe pele ga Bolaodi bja Boikarabelo. Maloko a Lekgotla le swanetše go ikgogela morago go ditshepedišo ge taba ye go rerišanwago ka yona ntle le Lekgotla le ka tšea sephetho ka tsela ye nngwe.

Go ya ka dipeakanyetšo tša Molao wa Tšeosantshe, Molao wa 100 wa 1993 wo o fetotšwego, ge o balwa le PFMA, Lekgotla le rwala maikarabelo ka phethagatšo ya mešomo ya CGS. Lekgotla le tla phethagatša taolo le go laola merero ya CGS, ya bea taetšo ye bohlokwa ya mokgatlo, le go dumelela ponelopele, maikarabelo, maikemišetšo a bohlokwa le dipholisi tša mokgatlo.

Go tlaletša, Lekgotla le beile leihlo go obamela dipholisi le phethagatšo tša dinepo tša saentshe, tshepedišo le tša matlotlo. Lekgotla le rwele maikarabelo e le noši a go netefatša gore CGS e na le gore e hlokomela mananeo ao a šomago gabotse, a go kgotsofatša le go dirwa phatlalatša a taolo ya matlotlo, taolo ya dikotsi le lekala la tekolo ya dipuku la ka gare, le kgwebišano ya toka, ya tekatekano, ya phenkgišano le ye e bitšego tšhelete ye ntši.

Lekgotla le na le maatla a go eta pele, go laola mošomo wa CGS, gomme e amogetše tlhako ye e kwagalago ya kabelo ya maatla go ya ka Karolo ya 56 ya PFMA, ye e abelanago

ka maatla a taolo ya tšatši ka tšatši ya merero ya CGS go CEO. Pholisi ya go abelana ka maatla ga e tšeele Lekgotla ka tsela efe goba efe maikarabelo a yona le boikarabelo bja mokgatlo.

## 2.3 Leano la Lekgotla le Maikarabelo a Lekgotla

Tšhata ya Lekgotla, yeo e lekodišišwago ngwaga ka ngwaga, a fana ka tše di latelago:

- a) Phethagatšo ya boetapele ya Lekgotla, go tšewa diphetho le tshepedišo ye bohlokwa;
- b) Tihamo ya Lekgotla;
- c) Boikarabelo, mešomo ya bohlokamedi bja matlotlo le go rwala maikarabelo;
- d) Melao ya maitshwano ya Lekgotla;
- e) Tihamo le go bewa ga dikomiti;
- f) Pušo le ditshepedišo tša dikopano;
- g) Taolo ya dithulano tša dikgahlego;
- h) Go rwala maikarabelo ga kamogelo ya maano a bohlokwa le go bewa leihlo ga phethagatšo ya mešomo le taolo;
- i) Phegelelo le kamogelo ya dipholisi;
- j) Taolo ya ditemošokotsi, le
- k) Kgetho, tihahlo le tekolo ya Lekgotla.

## 2.4 Tlhahlo ya Lekgotla

CGS e na le lenaneo la tlhahlo la Lekgotla.

## 2.5 Tlhahlo ya maloko a maswa a Lekgotla

Molaodimogolo wa tlhabollo o kgonthiša gore maloko a Lekgotla a hwetša tlhahlo ka tsela ye e kgotsofatšago le go se kgaotše le gore a ba le tsebo ye e hlokegago le kwešišo ya ditlwaetšo le ditheo tše kaonekaone tša tshepedišo ya kgwebo. Go hlaola dithutotlhahlo tša maleba le tše di nepilwego tša diinstitšušene tše di nago le bokgoni le go matlafatša bokgoni bja Lekgotla le go kgatha tema. Ka dipego tša kotara le dipholisi, maloko a Lekgotla a hwetša tshedimošo ka dibopego tša pušo tša CGS, diprotšeke tše bohlokwa le phethagatšo tša mokgatlo go ba kgontšha go fihlelela mešomo le maikarabelo a bona.



## 2.6 Dikopano tša Lekgotla

Lekgotla le swere dikopano tše tshela go ngwaga wa 2021/22. Mananeo ao a tšwelelago a hlatholla ka botlalo go tsenelwa ga dikopano ke yo mongwe le yo mongwe wa maloko a Lekgotla mo ngwageng.

### Lenaneo la 5: Dikopano tša Lekgotla

Maloko a Lekgotla	28 Moranang 2021	27 Mopitlo 2021	29 Mosegamanye 2021	28 Diphilane 2021	27 Pherekong 2022	Palo ya dikopano tše di tsenetšwego
Ngaka H Mathe (Modulasetulo)	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mna M Mabuza (CEO)	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mna X Mvinjelwa (Motlatša Modulasetulo)	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Ngaka T Khumalo#	Tsenetše kopano	Tsenetše kopano	Tshwarego	-	-	2/3
Mna S Malaza	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mdi D Mochotlhi	Tshwarego	Tshwarego	Tshwarego	Tshwarego	Tshwarego	0 (rometšwego go paka yeo. Leloko la go hlatlola le tsenetše dikopano ka moka)
Mna P Nel*	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mdi R Mdubeki	Tshwarego	Tsenetše kopano	Tsenetše kopano	Tshwarego	Tsenetše kopano	3
Mdi P Tsotetsi*	Tshwarego	Tshwarego	tshwarego	tshwarego	tshwarego	-
Adv. N Maake	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mna S Mokoena	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mdi A Chowan	Tsenetše kopano	Tshwarego	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	4
Ngaka J Mirembe	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tshwarego	4
Mna B Gerrys	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mna A Moatshe*	Tshwarego	Tsenetše kopano	Tshwarego	Tshwarego	Tsenetše kopano	2
Mdi S Malie#	Tsenetše kopano	Tsenetše kopano	-	-	-	2
Mdi L Madiba	Tshwarego	Tsenetše kopano	Tshwarego	Tshwarego	Tsenetše kopano	2

\* e šupa gore leloko ke la go šielana

# e šupa gore leloko le rotše modiro

- e šupa gore leloko le emišitše go ba leloko

## 2.7 Tefelo ya Lekgotla

Tefelo ya maloko a Lekgotla le beilwe ke Tona ya Methopo ya Diminerale le Enetši ka therišano le Tona ya Matlotlo, ka ge go laeditšwe go temošo ya 12 ya ditatamente tša ditšhelete.

**Lenaneo la 6: Tefelo ya maloko a Lekgotla (2021/22))**

Leina	Tefelo	Diputseletšo tše dingwe	Ditefelo tše dingwe gape	Palomoka
Ngaka Mathe H	44 606	-	-	44 606
Ngaka Mahachi J	-	-	-	-
Mna Mokoena S	111 888	-	969	112 857
Adv. Maake N	126 468	-	-	126 468
Mdi Chowan A	96 336	-	-	96 336
Mna Mvinjelwa X	129 218	-	-	129 218
Ngaka Mirembe J	-	-	-	-
Ngaka Khumalo T	-	-	-	-
Mdi Malie S	-	-	-	-
Mna Malaza S	-	-	-	-
Mna Nel P	-	-	-	-
Mdi Mdubeki R	-	-	-	-
Mdi Mochothli D	-	-	-	-
Mdi Tsotetsi P	-	-	-	-
Mdi Madiba L	-	-	-	-
Mna Moatshe A	-	-	-	-
Mna Gerrys B	-	-	-	-
Ngaka P Gwaze	-	-	-	-

\*Diputseletšo tše dingwe di akaretša tša tefelo ya tša mesepelo le ditshenyegelo tše nnyane

## 2.8 Dikomiti tša Lekgotla

Go ya ka Karolo ya 15 ya Molao wa Tšeosaentshe, Molao wa 100 wa 1993 wo o fetotšwego, Lekgotla le ka hlama komiti yeo e tla ya ka taelo ya Lekgotla, phethagatša mešomo yona yeo ya Lekgotla bjalo ka ge go laetšwa nako le nako. Go feta fao, Karolo ya 56 ya PFMA Molao wa 1 wa 1999, wo o fetotšwego o beakanyetša gore ye mengwe ye maikarabelo a Lekgotla a ka fiwa dikomiti tša Lekgotla le bataolo ba CGS ntle le go tšeela Lekgotla mešomo le maikarabelo a lona. Dikomiti tša Lekgotla, ka gona, di swanelwa ke go dira ditšhišinyo go Lekgotla ka bophara pele ga ge bataolo

ba phethagatšwa diphetho tšeo di tšerwego. Ka taelo ya Karolo ya 15 ya Molao wa Tšeosaentshe, Molao wa 100 wa 1993 wo o fetotšwego, Karolo ya 56 ya PFMA le ditšhišinyo tša King Code, Lekgotla le hlamilile ebile le abelane ka ye mengwe ya mešomo ya lona go makala a dikomiti tše di latelago tša Lekgotla:

- Komiti ya Tekolo ya Dipuku le Ditemošokotsi;
- Komiti ya Matlotlo;
- Komiti ya Sethekgeniki; le
- Komiti ya Bašomi, Diputseletšo le Ditlhabologo.

## 2.9 Komiti ya Tlhakišo le Ditemošokotsi

Komiti ya Tlhakišo le Ditemošokotsi e hlamilwe go ya ka Karolo ya 77 ya PFMA le Molawana wa 27 wa Kgoro ya Matlotlo ya Bosetšhaba. Komiti e phethagatša maikarabelo a yona go ya ka Tšhata ya Komiti ya Tlhakišo le Ditemošokotsi, yeo e laetšago tlhamego ya komiti, mešomo le maikarabelo. E tšwela pele go bea leihlo boleng le go botagala ga

tshedimošo ya matlotlo ya CGS yeo e šomišwago ke Lekgotla, ditatamete tša matlotlo tšeo di fiwago ke CGS le mešomo ye mengwe ya mokgatlo. E netefatša gore dikotsi tšeo di tšwelelago di lemogwa e sa le ka pela le gore magato a maleba a taolo le ao a šomago ka tshwanelo a a bewa go fokotša dikotsi tše. Tlhamo le go tsenela dikopano ga Komiti ya Tlhakišo le Ditemošokotsi go tloga go 1 Moranang 2021 go fihla go 31 Hlakola 2022 di tšwelela go lenaneo le le latelago.

### Lenaneo la 7: Dikopano tša Komiti ya Tlhakišo le Ditemošokotsi

Maloko a komiti	2021/2022						Dikopano tše di tsenetšwego
	20 Moranang	20 Mopitlo	27 Mosegamanye	30 Mosegamanye	20 Diphallane	20 Pherekong	
Mdi K Maroga (Modulasetulo)	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	6
Mdi D Morabe	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mna O Willcox	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	6
Ngaka T Khumalo#	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Adv. N Maake	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	6
Mdi A Chowan	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	6
Ngaka S Mngadi	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	6
Mna S Xulu	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Ms M Seane	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	6

# e šupa gore leloko le rotše modiro

### 2.9.1 Pego ya Komiti ya Tlhakišo le Ditemošokotsi

Dipego tša Komiti ya Tlhakišo le Ditemošokotsi tšeo e di hlamilwego ka maikarabelo a tšona di tšwelela go Karolo ya 77 ya PFMA le Molawana wa 27.1 wa Kgoro ya Matlotlo ya Bosetšhaba. Komiti e bega le gore e amogetše Tšhata ya Komiti ya Tlhakišo le Ditemošokotsi bjalo ka mabaka a yona a tšhupetšo a maleba, e laotše merero ya yona go obamela tšhata ye le gore e phethagaditše maikarabelo a yona ka moka ao a lego ka mo.

Ge e phethagatša mešomo ya ona, komiti e phethagaditše, magareng ga tše dingwe, mešomo ye e latelago:

### 2.9.2 Tekolo ya ditaolo tša ka gare

Komiti e file taelo, e beile leihlo le go lekola mešomo ya lekala la Tekolo ya Dipuku la ka Gare. Ka lekala la Tekolo

ya Dipuku la ka Gare, komiti e beile leihlo e sa kgaotše go šoma ka tshwanelo ya ditaolo tša ka gare le go lekola ge e ba lekala la Tekolo ya Dipuku tša ka Gare le fihleletše mešomo ya lona. Go dirilwe Tekodišišo ya Tiišetšo ya Boleng ya ka Ntle go ya ka dinyakwa tša International Standards for Professional Practice for Internal Auditing, Standards tšeo di amogetšwego ke Institute of Internal Auditors. Maikutlo ka kakaretšo ao a ntšhitšwego ke molekodi wa dipuku wa ka ntle ke a gore mošomo wa tekolo ya dipuku wa ka gare ka Kakaretšo o Sepelelana le Maemo le Melao ya Maitshwaro. Mo ngwageng wa 2021/22, ditaolo tša ka gare di begilwe gore di ka ba di kaonafetše ka tsela ye e bonagalago ka mafapheng a mangwe, le gore kelo ya taolo ka kakaretšo go begilwe gore e hloka kaonafatšo. Go na le sebaka sa kaonafatšo go:

- Supply Chain Management;
- Taolo ya Dithoto;

- c) Taolo ya Talente;
- d) Tshedimošo ya Phethagatšo;
- e) Tshedimošo ya Theknolotši;
- f) Taolo ya Dikotsi le Compliance; le
- g) Taolo ya Diprotšeke.

Komiti e bega gore magato a phošollo a phethagaditšwe go rarolla dikutollo ka moka tša mafokodi a taolo ya ka gare.

### 2.9.3 Tekolo ya pego ya ngwaga

Komiti e:

- a) Lekodišitše pego ya CGS ka ga tshedimošo ya phethagatšo ya kgwebišano;
- b) Lekodišitše dipholisi le ditlwaetšo tša diakhaonte tša CGS;
- c) Lekodišitše nepagalo le go ba le mohola ga tshedimošo ya matlotlo tšeo di filwego ke Molekodipharephare wa Dipuku;
- d) Lekotše, lekodišitše, le go rerišana le Molekodipharephare wa Dipuku ka ga Ditatamente tša Matlotlo tša Ngwaga tše di akareditšwego ka gare ga pego ya ngwaga;
- e) Lekodišitše pego ya taolo ya Molekodipharephare wa Dipuku le pego ya Molekodi wa Dipuku, le
- f) Go lebeletšwe tshedimošo ye e abilwego go komiti, e lekodišitše le go phetha gore Ditatamente tša Matlotlo tša Ngwaga di obamela dinyakwa tša PFMA, Melawana ya Kgoro ya Matlotlo ya Bosetšhaba le Ditheo tša Afrika-Borwa tša GRAP.

### 2.9.4 Taolo ya ditemošokotsi

Komiti e bega gore nakong ya ngwaga wo o lekodišišwago e dumeletše Retšisetara ya Ditemošokotsi tše Bohlokwa, Pholisi ya Twantšho ya Boradia le Bomenetša, yeo bašomi ba tsebišitšwego ka yona le go akaretšwa go tshepedišo ya CGS. Komiti e lekodišitše:

- a) Go amogelwa ga ditemošokotsi ka mokgatlo le dikelo tša kamogelo; le
- b) Go lebagana le ditemošokotsi tše kgolo tša ditšhelete, le taolo ye e nepilego go tšona go bea ka fase ga taolo le go tla ka magato a phokotšo a go lebagana le ditemošokotsi tšeo, go akaretša mekgwa ya go boloka serithi, ya tshepedišo ya maleba, go lemoga boradia, ya maanophethagattšo, le mananeo a tshedimošo ya theknolotši le dikgokagano, gammogo le a tielelo go masetlapelo le ditemošokotsi tša tšwetšopele ya kgwebo.

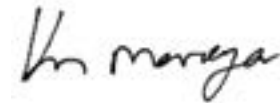
### 2.9.5 Tekolo ya ditatamente tša matlotlo

Komiti e lekodišitše le go rerišana le Molekodipharephare wa Dipuku ka ga ditatamente tša matlotlo tša CGS go ngwaga wo o fedilego ka la 31 Hlakola 2022. Komiti e lekodišitše le lengwalo la bataolo la Molekodipharephare wa Dipuku le dikarabo tša bataolo. Komiti e dumela gore ditatamente tša matlotlo di sepelelana, ka tsela yeo e sa sodišego, le dinyakwa ka moka tša PFMA le Ditheo tša Afrika-Borwa tša GRAP.

### 2.9.6 Pego ya Molekodi

Komiti ya Tekolo ya Dipuku le Ditemošokotsi e thabile go fana ka pego ya yona ya ngwaga wa ditšheletewo o fedielgo ka la 31 Hlakola 2022.

Komiti e lekodišitše leanophethagatšo la dikutollo tša tekolo ya dipuku la pele ga ngwaga gomme e bega gore go rarollotšwe palo ye e bonalago kudu ya dikutollo. Komiti e tla kgonthiša gore bataolo ba rarolla dikutollo ka moka tša tekolo ya dipuku tšeo sa go sa lebelelanwego le tšona. Komiti e dumela le go amogela diphetho/conclusions tša Molekodipharephare wa Dipuku ka ga ditatamente tša matlotlo le gore o akanya gore Ditatamente tša Matlotlo tša Ngwaga di swanetše go amogelwa le go balwa mmogo le pgo ya Molekodipharephare wa Dipuku.



**Mdi KM Maroga**

Modulasetulo

Komiti ya Tekolo ya Dipuku le Ditemošokotsi

31 Mosegamanye 2022

## 2.10 Maikarabelo a Komiti ya Matlotlo le tlhamego

Komiti ya Matlotlo ya CGS e filwe maatla a go lebelela le go šišinya gore Lekgotla le amogelle merero ye e latelago:

- Mešomo ye bohlokwa ya matlotlo;
- Go wa ga kgwebo le seemo sa matlotlo sa CGS;
- Go phumolwa ga dikoloto tše di ka se lefelwego;
- Diphapano tše di bonalago go ditekanyetšo tše di amogetšwego tša ngwaga le/goba ditekanyetšo tše di bušeditšwego go ya ka Leano la mananeo Sebopego le Bohlokwa;

- Tekanyetšo ye e šišinywago le ye e šomišwago ya ditshenyegelo tša letlotlo;
- Ditatemente tša matlotlo tša pego ya ngwaga;
- Dipholisi ka moka tšeo di nago le dikamego tša ditšhelete; le
- Taolo ya tshedimošo ya phethagatšo ya corporate ge e bapetšwa le tekanyetšo ye e dumeletšwego.

Komiti ya Matlotlo e bopša ke maloko a tshela ao e sego malokophethiši. Tshedimošo ka maloko e adilwe go lenaneo le le tšwelelago ka fase, leo le laetšago go tsenela dikopano go tloga ka la 1 Moranang 2021 go fihla ka la 31 Hlakola 2022.

### Lenaneo la 8: Dikopano tša Komiti ya Matlotlo

Maloko a komiti	2021/2022					Dikopano tše di tsenetšwego
	20 Moranang	20 Mopitlo	27 Mosegamanye	20 Diphallane	20 Pherekong	
Mna P Nel (Modulasetulo)	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mna S Mokoena	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mdi A Chohan	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mdi D Morabe	Tshwarego	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	4
Ngaka J Mahachi	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Adv. N Maake	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mna M Mabuza	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mna O Willcox	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5

## 2.11 Komiti ya Sethekgeniki

Komiti ya Sethekgeniki ya CGS e filwe maatla a go lebelela le go šišinya gore Lekgotla le amogele lenaneo le bohlokwa la saentshe le sethekgeniki la ngwaga ka ngwaga (e lego GTP) la mokgatlo, go lekola dipoelo tša saentshe le sethekgeniki le go bea leihlo go phethagatšwa ga leanophethagatšo la ICT gammogo le ditekolo tša mafelelo a ngwaga.

Tlhamo le go tsenela dikopano ga Komiti ya Sethekgeniki go tloga go 1 Moranang 2021 go fihla go 31 Hlakola 2022 di tšwelela go lenaneo le le latelago.

### Lenaneo la 9: Dikopano tša Komiti ya Sethekgeniki

Maloko a komiti	2021/22					Dikopano tše di tsenetšwego
	19 Moranang	19 Mopitlo	21 Mosegamanye	19 Diphallane	19 Pherekong	
Mna B Gerrys (Modulasetulo)	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mna X Mvinjelwa	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Ngaka M Mayekiso	Tsenetše kopano	Tshwarego	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	4
Ngaka J Mahachi	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mna S Malaza	Tshwarego	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	4
Ngaka S Mngadi	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mna S Mokoena	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mna M Mabuza	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5

## 2.12 Komiti ya Bašomi, Diputseletšo le Ditlhabologo

Komiti ya Bašomi, Diputseletšo le Ditlhabologo e filwe maatla a go lekodišiša le go šišinya tumelelo ya Lekgotla la maanophethagatšo ya methopo ya bašomi le dipholisi tša CGS, mmatlolo wa diputseletšo wa mokgatlo, ditefelo tša balaodiphethiši le dikokeletšo tša megolo tša ngwaga ka ngwaga. Gape e lekola le go dira ditšhišinyo mo go tefelo ya diputseletšo tša phethagatšo le go lebelela dipego tša phethagatšo ya mokgatlo go merero ye e amanago le bašomi, tekatekano mošomong, le merero ya tlhahlo le tlhabollo ya bašomi.

Tlhamo le go tsenela dikopano ga Komiti ya Bašomi, Diputseletšo le Thabologo go tloga go 1 Mopitlo 2021 go fihla go 31 Hlakola 2022 di tšwelela go lenaneo le le latelago.

### Lenaneo la 10: Dikopano tša Komiti ya Bašomi, Diputseletšo le Ditlhabologo

Maloko a komiti	2021/22					Dikopano tše di tsenetšwego
	19 Moranang	19 Mopitlo	21 Mosegamanye	19 Diphallane	19 Pherekong	
Mna R Mdubeki (Modulasetulo)	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tshwarego	Tsenetše kopano	4
Ngaka J Mirembe	Tsenetše kopano	Tshwarego	Tshwarego	Tshwarego	Tshwarego	1
Mdi S Malie#	Tsenetše kopano	Tshwarego	-	-	-	1
Ms M Seane	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Mna X Mvinjelwa	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5
Ngaka M Mayekiso	Tsenetše kopano	Tshwarego	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	4
Mna M Mabuza	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	Tsenetše kopano	5

# e šupa gore leloko le rotše modiro

- e šupa gore leloko le emišitše go ba leloko

# 3

## Taolo Ya Dikotsi

Lekgotla la CGS e rwele maikarabelo a go hlohleletša pušo ya taolo ya dikotsi ka tsela ya boetapele bjo šomago ka tshwanelo. Bataolo ba ikarabela go Lekgotla ka go kopantšhwa ga taolo ya ditemošokotsi ya mešomo ya tšatši ka tšatši ya CGS le go phethagatšwa le go bea leihlo ga tshapedišo ya taolo ya ditemošokotsi. Komiti ya Tekolo ya Dipuku le Ditemošokotsi ke komiti ye e ikemego ye e rwelego maikarabelo a go hlokomela go lebana le ditemošokotsi ye e amanago le taolo ya pušo le Ditemošokotsi go la CGS. CGS e thala retšisetara ya ditemošokotsi ye bohlokwa ngwaga ka ngwaga ye e theilwego go leanophethagatšo la mokgatlo, leo le beilego leihlo kotara ka kotara le yeo e fanago ka tiišetšo go Lekgotla yeo CGS e laolago ditemošokotsi tše di laeditšwego ka tshwanelo. Retšisetara ya ditemošokotsi ye bohlokwa gape le yona e alwa pele ga Lekgotla ngwaga ka ngwaga. Kotsi ye e ka hlagago e laolwa ka tsela ya diretšisetara tša ditemošokotsi tše di ka hlagago le retšisetara ya ditemošokotsi ya GTP.

Sebopego sa taolo sa pušo ya ditemošokotsi ya mokgatlo sa CGS se adilwe go sebopego se se latelago.



**CGS BOARD**



**AUDIT AND RISK COMMITTEE**



**EXCO**



**OPERATIONAL RISK  
MANAGEMENT COMMITTEE**



**RISK AND COMPLIANCE UNIT**

**Seswantšho sa 28: Sebopego sa taolo sa pušo ya ditemošokotsi tša mokgatlo sa CGS**

# 4

## Ditekolo Tša Dipuku Tša Ka Gare

Bataolo ba rwele maikarabelo a go akanyetša, go phethagatšo le go tšwela pele go lekodišiša ditaolo tša ka gare go fana ka tlišetšo ka go šoma gabotse le ka tsela ye e kgotsofatšago ya phethagatšo ya mešomo le go botagala ga go bega ga ditšhelete, le go šireletša le go tšwetša pele boikarabelo bja dithoto tša mokgatlo. Ditaolo tše di bea leihlo go CGS dinako ka moka ke bataolo le

bašomi, ka kgaoganyo ya mešomo ka tsela ya maleba. Lekala la Tekolo ya Dipuku le phethagatša ditekodišišo tša go ikema go nepagalo le go šoma ka tshwanelo ga ditaolo tše bjalo ka karolo ya leano le le dumeletšwego la ngwaga ka ngwaga la tekolo ya dipuku ya ka gare, le dipego tša lekala la tekolo ya dipuku la ka gare tše di adilwego go Komiti ya Tekolo ya Dipuku le Ditemošokotsi.

# 5

## Lekala La Tekolo Ya Dipuku La Ka Gare

Lekala la tekolo ya dipuku ya ka gare le hlamilwe go ya ka PFMA ebile le amogetše mokgwa wa tekolo ya dipuku ye e theilwego godimo ga dikotsi ye e sepelelanago le Ditheo tša Tlwaetšo ya Seprofešenale tša Lekala la Tekolo ya Dipuku ya ka Gare. Tšhata ya semmušo ya lekala la tekolo ya dipuku la ka gare e lekodišiša le go dumelelwa ke Komiti ya Tekolo ya Dipuku le Ditemošokotsi.

Leano la ngwaga ka ngwaga la lekala la tekolo ya dipuku la ka gare le dumeletšwe ke Komiti ya Tekolo ya Dipuku le Ditemošokotsi, gomme dipego tša lekala la tekolo ya dipuku la ka gare tša alwa pele ga komiti kotara ka kotara. Go dirilwe ditekolo tša tekolo sa seemo go dikutollo tša tekolo ya dipuku tša pele ga ngwaga. Lekala la Tekolo ya Dipuku la ka Gare le dirile dinyakišišo tša peleng go melato yeo e begilwego go mogala wa batho ba go hlaba mokgoši le mešomo ya nakwana ye e kgopelwago ke bataolo.



# 6

## Go Obamela Melao Le Melawana

CGS e obamela Melawana ya Kgoro ya Matlotlo ya Bosetšhaba ka tsela ya lenaneo la tekodišišo ya compliance le khalentara ya PFMA, tšeo di bewago leihlo le go mpshafatšwa. Go obamela melao le melawana go beilwe leihlo ka tsela ya mešomo ya Komiti ya tekolo ya Dipuku le Ditemošokotsi le yuniti ya Go obamela ditshepedišo go

maemo a phethagatšo ya mešomo, go lebeletšwe melao ya taolo ka moka ya CGS. Mananeo a tekodišišo ya go obamela melao le ona a a dirwa go melao le melawana ka moka yeo e dirišwago yeo e laeditšwego lenaneong la melao ya taolo ka moka le go bewa leihlo ka tsela ye e beakantšwego.

# 7

## Boradia Le Bomenetša

CGS e rwele maikarabelo a semolao go ya ka PFMA go tšea magato a go thibela tshenyegelo ye e sa dumelelwago, ye e sa tlwaelegago, ya tshenyho le go hloka mohola le ditahlegelo tše di tšwago go maitshwaro a bosenyi. Pholisi ya Twantšho ya Boradia le Bomenetša e lekodišišitšwe le go dumelelwa ka Pherekgong 2021, ebile go hlamilwe lenaneo la tshebotšo la go bololla diphiri ka go se tšweletše maina. Mošomo wo o sepedišwa ke khamphani ya ka ntle e lego Deloitte. Dipego di fiwa kgwedi ka kgwedi, le maitshwaro a boradia a a nyakišišwa ke balekodi ba dipuku ba ka gare le go begwa go Komiti ya Tlhagišo le Ditemošokotsi. Dikotsi tša boradia di laeditšwe nakong ya tshepedišo ya tekolo ya dikotsi le go bewa leihlo go diretšisetara tša go fapafapana tša dikotis go CGS.



*Research Vessel Nkosi se se šomišetšwago Kakanyo ya Mebepe ya Tšeosaentshe ya Mošwamawatlle*

# 8

## Go Fokotša Dithulano Tša Dikgahlego

Baabi ba dithoto le ditirelo ka moka ba CGS ba swanelwa ke go tlatša sengwalwa sa Kgoro ya Matlotlo ya Bosetšhaba ya motheo (SBD4 Tsebišo ya Kgahlego). Go lebeletšwe ditatofatšo tše di ka kgonagalago tša tsogolekobong le thulano ya dikgahlego, ge thentara ye e lego gona, goba karolo ya yona, e ka fiwa batho ba ba thwetšwego ke CGS, goba batho bao ba amanago le goba ba tswalanago le

yena, motho yo a thentarago goba moemedi wa gagwe yo a filwego tumelelo o swanetše go laetša maemo a gagwe go lekala le le lekolago. Go tlaleletša, bašomi ba CGS bao ba amegago go maloko a Komiti ya Bid Specification, Bid Evaluation le Adjudication a swanetše go tlatša difomo tša tsebišo le go se utolle sephiri go kopano ye nngwe le ye nngwe.

# 9

## Melao Ya Maitshwaro

Bašomi ka moka ba CGS ba obamela Sengwalwa sa Melawana ya Maitshwaro. CGS e ikemiseditse go mešomo ya kgwebišano ye ethical le toka le go tšwetša pele le setšo sa kgwebo seo se lego sa lekala, le gona e rwele maikarabelo go merero ya leago le tikologo. E dira bjalo ka go obamela boleng le ditheo tše di latelago:

- Toka le serithi go ditiro ka moka tša kgwebo, go akaretša go laola maitshwaro ya dithulano tša makgonthe goba tše di dirwago phatlalatša magareng ga dikamano tša batho le tša seprofešenale;
- Go hlompha ditokelo tša batho le serithi tša bašomi ka moka;
- Kamogelo ya ditšo, ditumelo, semorafe, bong le tlwaetšo ya bong tše di fapafapanego;
- Go tshephagala, go dira dilo phatlalatša le go rwala maikarabelo; le
- Go obamela ditheo tše di kwagalago tša pušo ya mohlakanelwa le go melao.

Go ya ka Sengwalwa sa Melawana ya Maitshwaro, batho ka moka bao ba emetšego CGS ba swanetše go boloka maemo a godimodimo a maitshwaro go tša kgwebo le serithi. Go feta fao, bašomi ka moka, borakotraka, dikhonsalthele le ba bangwe ba šoma legatong la mokgatlo ba swanetše go emela mokgatlo ka nepagalo le ka potego le go se amege go mošomo ofe goba ofe goba sekema se se nepilwego go hlalefetša motho ofe goba ofe ka tšhelete, thoto goba ditirelo. Tihompho le serithi tša CGS di bolokwa go bokgoni bja yona go šoma bjalo ka mokgatlo wo o laolwago ke mmušo wo o šomago ka tshwanelo.

# 10

## Mogwaledi Wa Lekgotla

Mogwaledi a Lekgotla o fana ka ditirelo tša keletšo go Lekgotla le go tsebiša maloko a Lekgotla ka diphetogo tša melao le ditlhabollo tše mpsha go pušo ya mohlakanelwa. Go feta moo, Mogwaledi wa Lekgotla o hlahla Lekgotla le dikomiti tša Lekgotla mabapi le ka moo go ka phethwago

maikarabelo go kgahlegelo ya mokgatlo. Mogwaledi wa Lekgotla o beakanya le go tsenela dikopano tša Lekgotla le tša dikomiti tša Lekgotla, le go rwala maikarabelo a go boloka dingwalwa ka moka tša dipholisi.

# 11

## Tiišetšo Ya Boleng

Go tšweletša dipolelo tša diteko tša tshekatsheko tše di nepagetšego le tše botegago le go amogelwa bjalo ka setlabela se se nago le system ya taolo ya maleba ya boleng, CGS e tšwela pele ka dipeakanyetšo tša go amogetšwa lengwalo la tumelelo semmušo la ISO 17025 go dilaporathori tša yona tša tshekatsheko. Se ke protšeke ye bohlokwa ka baka la gore laporathori ya go dira ditshekatsheko ye e filwego tumelelo e e bea maemong a makaone a phenkgišano ka tsela ya kgwebo, le go sepelelana le melawana ya maphelo le polokego. Dilaporathori mafelelong di hlola gore go be le go kgotsofala ga bašomi go go hlatlogilego le go kaonafatša tekatekano ya leinapapatšo. Tiišetšo ya mekgwa ya diteko tša tshekatsheko ke ye nngwe ya dinyakwa tše bohlokwa tša tshepedišo ya accreditation ya ISO 17025. Kamogelo ye e laolwago le maemo a tša tikologo tše bjalo ka borutho le themphereitšha ke ntlha

ye bohlokwa go tiišetšo ga maleba ga mekgwa ya diteko tša tshekatsheko. Gabjale, kamogelo le maemo a tša tikologo ga di laolwe. CGS e swaragane le mošomo wa go phethagatšha setšweletšwa sa taolo ya go fiša, go ntšha moya le go fehla moya go fihlelela dinyakwa tše. Lenaneo le le mo go 92% gore le phethwe le gona go letetšwe gore le ka bulwa mo mafelelong a Phato 2022, morago ga moo tiišetšo ya mekgwa ya diteko e tla thomiša ka mafolofolo. Kgatelopele go mešomo ye e beakantšwego ya go fiwa lengwalo la tumelelo semmušo la ISO 17025 e mo go 35% mo mafelelong a ngwaga wa ditšhelete wa 2021/22. Go tsenwe fase ka tshepedišo ya go fana ka setifikheiti ya ISO 9001 le go phethagatšwa ga mešomo ye e beakantšwego yeo e akaretšago mokgatlo ka moka e mo go 19% gomme go letetšwe gore kgatelopele e ka oketšega ka tsela ye e bonagalago ngwageng wa 2022/23.

# 12

## Maphelo, Polokego Le Tikologo

CGS e tšwela pele go kaonafatša peakanyetšo le tlhokomelo ya seemo se se bolokegilego le sa healthy sa mošomo go bohle. Go fihlelela seo, bataolo ba tšwela pele go kaonafatša go obamela go Molao wa Maphelo le Polokego Mošomong wa 85 wa 1993 le Melawana, le Molao wa Taolo ya tša Tikologo ya Bosetšhaba: Dilahlwa, 2008 (wa 59 wa 2008): Melawana ya Tlhopho le taolo ya Dilahlwa. Lenaneotekolo le le hlalošago ka botlalo la maphelo le polokego tša mošomong, yeo e lego ntlha ya ditherišano tša ka mehla dikopanong tša Komiti ya Tekolo ya Dipuku le Ditemošokotsi tša Lekgotla ke setlabela sa go bea leihlo go obamela melao le gona le šomišwa go ngwala fase dikaonafatšo tšeo di phethagatšwago. Lenaneotekolo la go obamela le na le seabe gape go temošokotsi ya mokgatlo ye e kopantšwego le mananeo tiišetšo.

Bataolo ba phethagadiše le magato a go thibela go phatlalala ga COVID-19 lefelong la mošomo le exposure ya batho bao ba kgokaganago le mokgatlo go sepelelana le Melawana ya

Mmušo le go abelana ka ditlabela tša tšhireletšo ya mmele tša maleba le tše di nyakegago.

Mešomo ya CGS e tšweletša mehuta ye e fapafapanego ya dilahlwa tšeo di nyakago taolo ya maleba go sepelelana le melao yeo e lego gona e bjalo ka Molao wa Taolo ya tša Tikologo wa Bosetšhaba: Dilahlwa, 2008 (Molao wa 59 wa 2008). Se se bohlokwa go šireletša tikologo le go kgonthiša gore maphelo le polokego ya bašomi le badudi ka kakaretšo. Dilahlwa tše dingwe di ka ba kotsi le go tšhilafatša tikologo. Ditlwaetšo tša taolo ye mpe ya dilahlwa le yona e ka baka tshenyego ya tikologo, yeo e ka bakago maemo a kotsi a maphelo go batho le diphoofolo ka bobedi. Go swaragane le protšeke ya taolo ya dilahlwa gomme phethagatšo ya yona ka botlalo e akanyetšwa ngwageng wa 2022/23. CGS e netefatša le gore ge go dirwa mešomo ye e ka bago le seabe go tikologo, seabe se se efogwe goba se fokotšwe ka kudu ka moo go ka kgonagalago.



Diteroune tše e lego tša CGS

# 13

## Lenaneo La Kgokagano Le Dikamano Le Bakgathatema

### 13.1 Go aga leswaokgwebo la CGS

Ngwageng wa 2021/22, CGS e kgokagantšwe mešomo ya temošo ka leswaokgwebo go hlatholla mešomo ya lona go bakgathatema. Se se akareditše ditiragalo, masoo, dikamano le bakgathatema, go kgatha tema go dikhonferentshe, dikamano le bobegaditaba, le go hloma le go hlokomela ditšhomišano le dikgwebišano tše bohlokwa.

#### Dintlha tše bohlokwa tša go aga leswaokgwebo di akareditše:

- Sengwalo sa bobegaditaba se gatišitšwe go kgatišo ya Mining Weekly mabapi le Council for Geoscience e begwa thwii ka ga phothale ya yona ya titšithale.
- Sengwalo sa bobegaditaba se gatišitšwe go Tšenale ya Green Economy yeo e nepilego go etišeng pele merero ya tša tikologo.
- Sengwalo sa bobegaditaba se gatišitšwe go News24 ka ga saete ya phaelote ya protšeke ya CCUS.
- Go gatišitšwe sengwalo sa bobegaditaba ka go kgatišo ya Mining Elites ye e theilwego go maatlafalo ya tikologo.
- Basadi ba CGS ba dirilwe phrofaele ka go Most Inspiring & Powerful Women Magazine.
- CGS e tšweletše ka go Sunday Times go sengwalo se se bolelago ka tlhohlo ya sinkhole ye pervasive.
- Palo ya dingwalo di gatišitšwe go mananeo a dikgakagano tša leago tše bjalo ka Eyewitness News, My Broadband, News24, IOL, le Times Live mabapi le meroromelo ya go fapafapana ye e hlagilego go kgabaganya le naga.
- Sengwalo sa bobegaditaba se gatišitšwe go Mining Review Africa ka ga tema ye e kgathwago ke CGS bjalo ka ketapele go mešomo ya go kopola ya meepo ka Afrika-Borwa.
- Sengwalo se tšweletše go kgatišo ya boditšhabatšhaba ka ga haeterokerafi le tikologo ya ka lewatleng ka Afrika-Borwa.

- Sengwalo sa bobegaditaba se gatišitšwe go kgatišobaka ya African Business ye e bolelago ka go naganišiša ka go kopolwa ga diminerale.
- Go bile le palomoka ya dipapatšo tše 24 tše di gatišitšwego go bobegaditaba bja tša kgwebo le tša kakaretšo.
- Ditaba tša ditiragalo tša nnete mabapi le ditšwelopele ka mekgahlo, maitekelo a kgokagano le bakgathatema, masolo, ditiragalo le tshedimošo ya tšeosaentshe di bile le seabe go kgolo ya go nanya ya balatedi go mananeo a kgokagano ya tša leago ya CGS a bjalo ka Facebook, Twitter le LinkedIn.

#### Dipoledišano tša bobegaditaba di akaretša:

- Ngaka Taufeeq Dhansay o swere dipoledišano go Radio 786 mabapi le bolkeno yeo e phulegilego go la Democratic Republic of Congo.
- CEO wa CGS, Mna Mosa Mabuza, o swere dipoledišano le Thabiso Tema wa Power FM ka ga taamane ye e hweditšwego go la Kwa-Hlathi.
- Sally Burdett wa eNCA o swere dipoledišano le Ngaka David Khoza malebana le tšhišinyego ya lefase yeo e hlagilego.
- CEO o swete dipoledišano go Power FM ka ga tekolo ya kgonagalo ya go rafša ga diminerale go la Limpopo.
- Eswatini TV e botšhišitše Mna Mosa Mabuza dipotšišo morago ga go hlongwa ga diphatišišo tša tšeofisikse tša moya wa lefaufaug ka CGS go la Eswatini.
- Mna Willem Meintjes o swere dipoledišano go Radio 702 malebana le melete ya go phohlela.

Go tlaeletša, CGS e arabile dipotšišo tše ntši go fetišiša tša go ikgetha tša go ngwalwa le tša kgokaganong ya inthanete mabapi le tšhišinyego ya lefase ka le ge ditiragalo tše di be di hlaga.

## Masolo le ditiragalo di akareditše:

Masolo a bohlokwa le ditiragalo ngwageng:

- CGS e dirile phrofaele ya baswa ba yona kgwedding ya Nwatobošego go mananeo a dikgokagano tša leago.
- Mo Kgwedding ya Basadi, lesolo la kwalakwatšo ya leago, le le tsebegago bjalo ka 'Women in Geoscience', le hlomilwe go mananeo a mantši go tsebiša ba bangwe bašomi ba basadi bao ba atlegilego ba CGS.
- Ngwaga wo o lekodišiwšago go bonwe go hlongwa lesolo la diphatišišo tša tšeofisikse tša moya a lefaufang ke CGS le tšhomišano le mmušo wa eSwatini.
- Lewedi e bone go ketekwa ga Kgwedi ya Bohwa go dikantoro tše di fapafapanego tša CGS le mananeo a dikgokagano tša leago, leo le kwalakwaladitšwego palaeoheritage ya Afrika-Borwa.
- Bjalo ka karolo ya go hloma temošo ya lesolo la Matšatši a 16 la Twantšho ya Dikgaruru kgahlanong le Basadi le Bana, go hlomilwe go agwa ga legora go kantorokgolo ya CGS go hlohleletša bašomi go bega tlhorišo goba dikgaruru go makala a tirišo ya molao.
- Molaetša wa bitio wo o nago le ngwaga o gatišitšwe wa go tšwa go CEO, Mna Mosa Mabuza, o rometšwe go bašomi. Molaetša wa ditumedišo tša sehla se seswa o rometšwe balatedi ba mananeo a go fapafapana a dikgokagano tša leago.
- CGS e kgathile tema go dikhonferentshe tša meepo tša meepo tše di kgokaganywago ke DMRE go la Limpopo, North West le Northern Cape. CEO o file polelo ka khwetšagalo ya diminerale ka diprofentsheng tše tšeo di ka goketšago dibaka tše mpsha tša dipeeletšo.
- Dibitio tša khamphani tša CGS di gatišitšwe ka go tšhanele ya YouTube ya Tšenale ya Green Economy, nepo e le go bontšha ditšweletšwa e ditirelo tša yona.
- Dipapatšo tša radio di gašitšwe go Leandra FM, Rise FM, Mix FM le VOC FM go la Mpumalanga go lemoša batheeletši ka ga protšeke ya CCUS.
- CGS e kgathile tema go masolo a temošo ka boikgethelo bja tša mošomo bja Petroleum Agency South Africa Upstream Training Trust tša diprofentshe tša Limpopo, KwaZulu-Natal le Western Cape go lemoša barutwana le go ba ruta mabapi le mešomo ya ditšeosantshe.

## 13.2 Kamano le bakgathatema

CGS e kwešiša gore, gore e kgone go phethagatša mošomo wa yona, e swanetše go boledišana le go kgokagana le bakgathatema ba go fapafapana, go akaretša bašomi, dikgoro tša mmušo tša boditšhabatšhaba, tša bosetšhaba, le tša profentshe, mebasepala, baetapele ba setšo, dihlongwa tše di laolwago ke mmušo, balemi, mekgatlo yeo e sego ya mmušo ya tša tikologo, mekgatlo ya dirutegi le ya seprofešenale, dikhamphani tša poraebete le setšhaba ka kakaretšo.

Mo ngwageng wo o lekodišiwšago, CGS e amogetše mokgwa wo o kopantšwego go kgokagano le bakgathatema wo o akaretšago go kwešiša, go beakanya le go laola tšeo bakgathatema ba di letetšego, tšeo ka moka di lego bohlokwa go maikarabelo a khamphani, pušo e kaone le go sepetša merero phatlalatša. Tsela ye e nepile go aga dikamano tše maatla tše di agišago le go maatlafatša tšhomišano le bakgathatema ba bohlokwa, kudukudu go dikarolo tšeo di lego bohlokwa go phethagatšo ka katlego ya diprotšeke tše bohlokwa tša CGS. Bataolo, bašomedi ba tša saentshe, sethekgeniki le ba thekgo ba mekgatlo ka moka ba amogetše mokgwa wo, woo gabjale o thomago go tšweletša dienywa tša phethagatšo ya protšeke.

Dikgokagano tše mmalwa di swerwe le bakgathatema ba bohlokwa go kgontšha go phethagatšwa gabonolo ga GTP, le diprotšeke le ditiragalo tša go akaretša khamphani ka bophara. Go lebeletšwe kamego ya leago le ekonomi ye unprecedented ye e amago le COVID-19, CGS e laetšwe ke DMRE go eta pele Lenaneo la Tsošološo ya Ekonomi le Reconstruction go ya ka ditharollo tša tšeosantshe go setšhaba se se gatelago pele le go tšwetša pele leano la phethagatšo ya digo kopola. Go beilwe pele diprotšeke tša mmalwa go rarolla ditlho tša ekonomi ka nageng.

### Limpopo Protšeke ya Lepanta la Greenstone

Kemedi ya CGS, ye e etilwego pele ke CEO, e fane ka pego ya kgatelopele ya Giyani Greenstone Belt go bakgathatema bao go rerišanwego e bona peleng le nakong ya go phethagatšwa ga dinyakišišo tša tšeosantshe go la Giyani. Bakgathatema ba ba akareditše eupša ba sa phaele ka thoko mebasepala, baetapele ba setšo le ditšhaba.

Nakong ya kgato ya pego ya kgatelopele, bakgathatema ba tsebišitšwe ka ga lenaneo la go tirila le le beakantšwego leo le beilwego go ditebanyo tša diminerale.

CGS e tšwetše pele ka boitlamo bja yona go aga bokgoni bja ditšhaba moo e šomago gona gomme go thwetšwe palomoka ya bašomi ba nakwana ba 44 ka go šielana go thuša dihlopha tša tšeofisikse, tšeokhemistri le bointšeneere le ditšeoahasate. Go katološa tsebo ye e lego gona, CGS e tsenetše tšhomišano ya framework le Yunibesithi ya Venda.

### **KwaZulu-Natal le Free State: IMMP**

CGS e swere dikopano tša yona le bakgathatema ba Masepala wa Selete wa King Cetshwayo, Selete sa iLembe, Selete sa uMzinyathi, Masepala wa Selegae wa Nkandla le Makgotla a Baetapele ba Setšo go peakanyo ya Geothermal Energy Potential of South Africa ye e phethagatšwego go la Shu Shu Hot Springs, KwaZulu-Natal.

Mabapi le dinyakišišo tša meetse a ka fase ga mabule tekolo ya khwetšagalo ya dimimerale, CGS, e etilwe pele ke CEO, e tsenetše dikopano tše mmalwa le bakgathatema go la KwaZulu-Natal le Free State go fana ka dipelo ka ga seemo sa dinyakišišo tše saentšhe tše di dirilwego. Morago ga diphetogo tša mmušo wa selegae, CGS e bile le dikopano tša go itsebiša go bakgathatema ba go fapafapana moo go kgethilwego boetapele bjo boswa morago ga dikgetho. Magareng ga tše dingwe, Selete sa uThukela District, Mebasepala ya Selagae ya Alfred Duma go la KwaZulu-Natal le Masepala wa Selagae wa Maluti-a-Phofung ka Free State e na le baetapele ba baswa ka tikologong ya dinyakišišo.

### **Eastern Cape le KwaZulu-Natal: Insizwa Complex**

CEO o etile pele dikopano tša boitebišo go bakgathatema ba bjalo ka Masepala sa Selete wa Ugu go la KwaZulu-Natal le Masepala sa Selete wa Alfred Nzo go la Eastern Cape gammogo le makgotla a baetapele ba setšo malebana le protšeke ya Insizwa Complex. Ka kakaretšo, bakgathatema ba be ba amogela dinyakišišo tše di beakantšwego gomme ditsebi tša saentshe di tohmile mošomo ka Lewedi 2021, ka go bea šedi go kgoboketšo ya disampole tša tšeokhemikhale le tša mabu.

### **Western Cape: Lenaneo la go Tirila la Karoo Deep**

Lenaneo la KDD le fane ka sebaka sa go tiišetša dikamano tša tšhomišano le masepala, balemi, ditšhaba le baetapele. Ka gona, maitekelo a magolo a dirilwe go tsenela dipoledišano tše di tseneletšego nakong ya go ba gona ga lenaneo la go tirila go la Beaufort West go kgonthiša go phethagatšwa gabonolo ga protšeke. Lenaneo la go tirila le fihleletše bokgoni bja lona bja sethekeniki ka botebo bja 2 978 m.

### **Mpumalanga: Kgolego ya khapone, tšhomišo le bobolokelo**

Go swana le theknolotši efe goba efe ye mpsha, protšeke ya CCUS e kgopetše dikopano tša dipoledišano tše di tseneletšego le bakgathatema ba bohlokwa go la Mpumalanga go tloga go mmušo wa profentshe, mebasepala ya selete le ya selegae, balemi, maloko a setšhaba le mekgatlo ye e sego ya mmušo ya tša tikologo. CEO o etile pele dikopano tše mmalwa le boetapele bja profentshe le mebasepala moo thekgo e e sa beelwago mellwane e filwego go lenaneo. Se se hlotše gore go be le framework ya tšhomišano magareng ga CGS le Masepala wa Selegae wa Govan Mbeki wo o abelanego ka naga ya dihektara tše 20 (polase ya Goedhoop 308/02) gore go phethagatšwe CCUS.

Go tlaleletša, protšeke e hweditše thekgo ye kgolo kudu lefaseng ka go amogelwa thušo ya mathomo ya thekgo ya ditšhelete go tšwa go Sekhwama sa Carbon Capture and Storage Capacity Building Trust sa Panka ya Lefase go tloga mola go amogelwago go fetošwa ga khamphani ye e rwelego maikarabelo a go hlongwa ga protšeke ya South African National Energy Development Institute go ya go CGS.

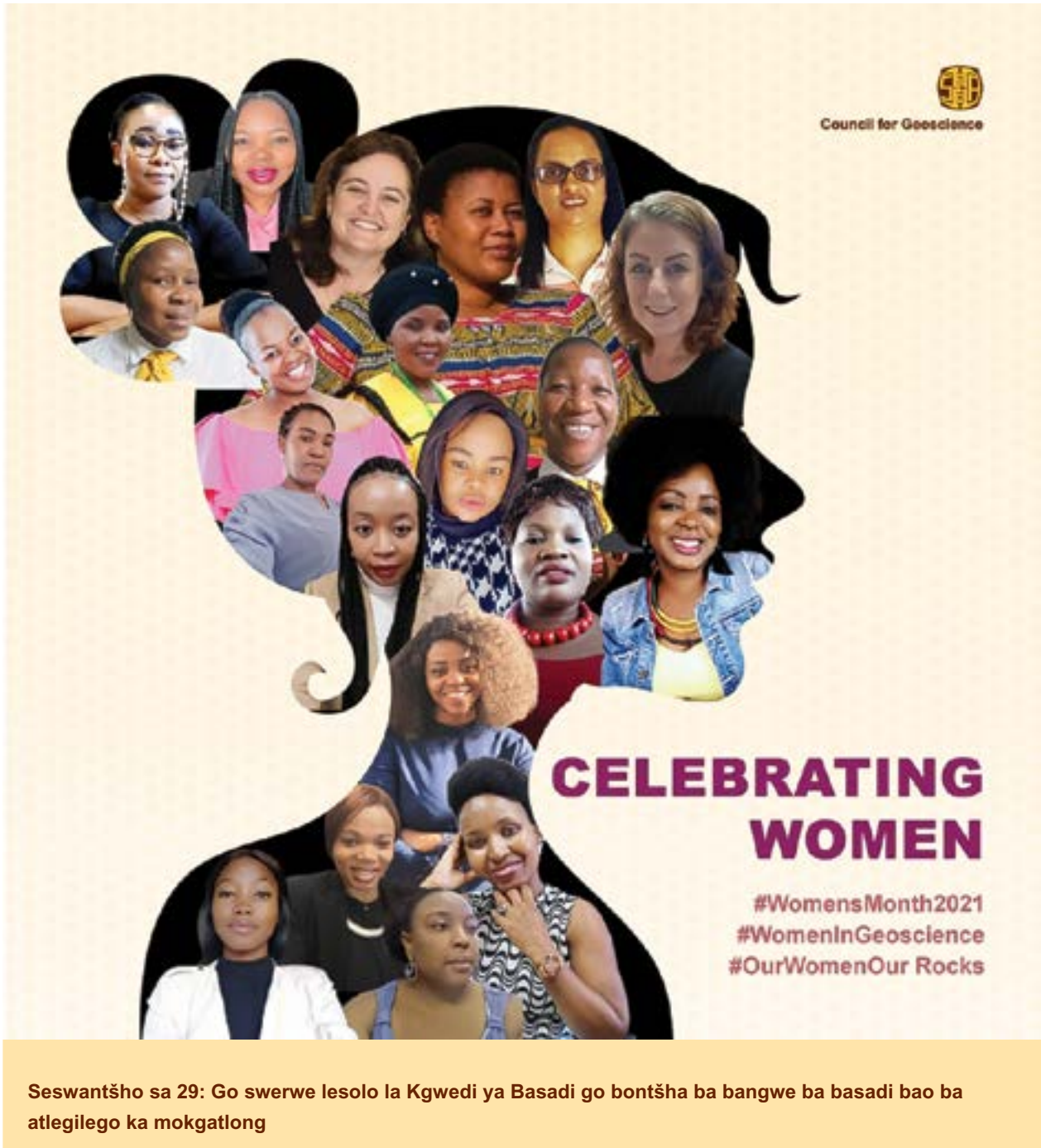
Go fihleletšwe ditumelelano tše mmalwa magareng ga CGS le bakgathatema mabapi le Intergovernmental Relations Framework le DDM ye e etilwego pele ke Ofisi ya Mopresitente gammogo le botiplomate. Ditumelelano di akareditše makala ao a latelago eupša di sa phaele ba bangwe ka ntle:

- SA Navy;
- African Exploration Mining and Finance Corporation;

- Masepala sa Selegae wa Govan Mbeki;
- National Home Builders Registration Council;
- Orion Minerals Limited;
- University of Johannesburg;
- Cape Peninsula University of Technology; le
- Science and Technology Research Partnership for Sustainable Development.

### 13.3 Maikarabelo tša leago setšhabeng

Memaseke ye e ngwadilwego leina ya CGS e filwe bagathatema ba bjalo ka makgotla a baetapele ba setšo go la Giyani, e lego Nhlungano Traditional Council, Kgoro ya Tlhabllo ya Ekonomi le Merero ya Setšo ya KwaZulu-Natal, Mpumalanga AgriSA, Secunda Farming Association, le Ngwako wa Baetapele ba Setšo wa Alfred Nzo.







**Seswantšho sa 30: Ngaka Souleymane Diop o botšiša dipotšišo nakong ya Lesolo la tša Boiphedišo la UTT ka Profentsheng ya Limpopo**



**Seswantšho sa 31: Ngaka Taufeeq Dhansay o hlaloša tšeolotši go barutwana go Lesolo la tša Boiphedišo la UTT ya Kapa Bodikela**



**Seswantšho sa 32: Mdi Ndivhuwo Mukosi o hlaloša mmepe wa tšeolotši go Lekgotla la Setšo la Hosi Tshabalala in Siyandhani**



**Seswantšho sa 33: Go hlongwa ga lesolo la Swaziland Airborne Geophysics Survey ka Nageng ya Eswatini**



**Seswantšho sa 34: Go kgatha tema ga CGS go Khonferentshe ya Dipeeletšo tša Meepo la DMRE ka Profentsheng ya North West**

# 14

## Phethagatšo Ya Tshedimošo Ya Go Obamela Melao Ya B-BBEE

Lenaneo le le latelago le phethilwe go ya ka go obamela dinyakwa tša Broad-based Black Economic Empowerment (B-BBEE) tša Molao wa B-BBEE wa 2013 le ge go laeditšwe ke Kgoro ya Kgwebo, Intastri le Phenkgišano.

### Lenaneo la 11: Tshedimošo ya phethagatšo ya go obamela molao wa B-BBEE

<b>Naa Kgoro / Lekala la Mmušo le dirišitše Sengwalwa sefe goba sefe sa Tlwaetšo ya Melawana ya Maitshwaro ya maleba (Sethifikeiti sa B-BBEE Legato la 1 – 8) malebana le tše di latelago:</b>		
<b>Dinyakwa</b>	<b>Phetolo Ee/Aowa</b>	<b>Ditherišano</b> <i>(akaretša ditherišano ka ga phetolo ya gago le go laetša gore ke magato afe ao a tserwego go obamela melao)</i>
Go laetša dinyakwa tša go ba le maswanedi tša go fana ka dilaesentshe, ditumelelano goba ditumelelo tše dingwe mabapi le mešomo ya ekonomi go ya ka molao ofe goba ofe?	Aowa	CGS ga e fane ka dilaesentshe, ga se mošomo wa yona. Go ntšhiwa ga dilaesentshe tša meepo go dirwa ke DMRE.
Go hlama le go phethagatša pholisi ya go etiša bathobaso pele morerong ya kgwebišano?	Ee	Go etiša bathobaso pele go dikgwebišano go akaretšwa ka go Pholisi ya Supply Chain Management le gona phethagatšo e tšwela pele go fihla ge go bea melao ye meswa ya Kgoro ya Matlotlo ya Bosetšhaba.
Go lebeletšwe dinyakwa tša go ba le maswanedi go thekišo ya dikgwebo tše di laolwago ke mmušo?	Aowa	Ga se mošomo wa CGS to rekiša dikgwebo tše di laolwago ke mmušo.
Go hlama dinyakwa tša go tsenela dikgwebišano le lekala la poraebete?	Ee	CGS e gwebišana le lekala la mmušo le gona kgwebišano ye nngwe le ye nngwe e na le dinyakwa tša yona tša moswananoši go lebeletšwe tsebo ya tšhomišano le ditumelelano.
Go laetša dinyakwa tša go fana ka diputseletšo, dithušo tša ditšhelete le dikema tša dipeeletšo go thekga Maatlafatšo ya Ekonomi ye e Theilwego godimo ga Bathobaso?	Aowa	CGS ga e fane ka dithušo tša ditšhelete le dikema tša dipeeletšo; le ge go le bjalo, dipasari di fiwa go go ya ka pholisi ya dipasari ya CGS.



*Go palega gampe ga matlapa a lekgwara a mengwageng ya Silurian ya Dipebogo tša Skurweberg tša mengwaga ya Silurian go la Stadsaal, Cederberg ye e nago le Klipbokberg ka morago*



## Karolo Ya D Taolo Ya Methopo Ya Bašomi

Karolo ye e fana ka makala a bohlokwa a lefapha la Methopo ya Bašomi go ngwaga wo o lekodišišwago, go akaretša maitekelo a tlhahlo le tlhabologo.

E akaretša le:

- Mananeo a kelo ya phethagatšo go lekola phethagatšo;
- Taolo ya go phelega gabotse ga bašomi go kgonthiša maphelo le go phelega gabotse ga bašomi;
- Mediro ye bohlokwa ya methopo ya bašomi ya ngwaga;
- Ditlhohlo tša sešego sa bašomi;
- Dinepo tša methopo ya bašomi; le
- Dipalopalo tša methopo ya bašomi.

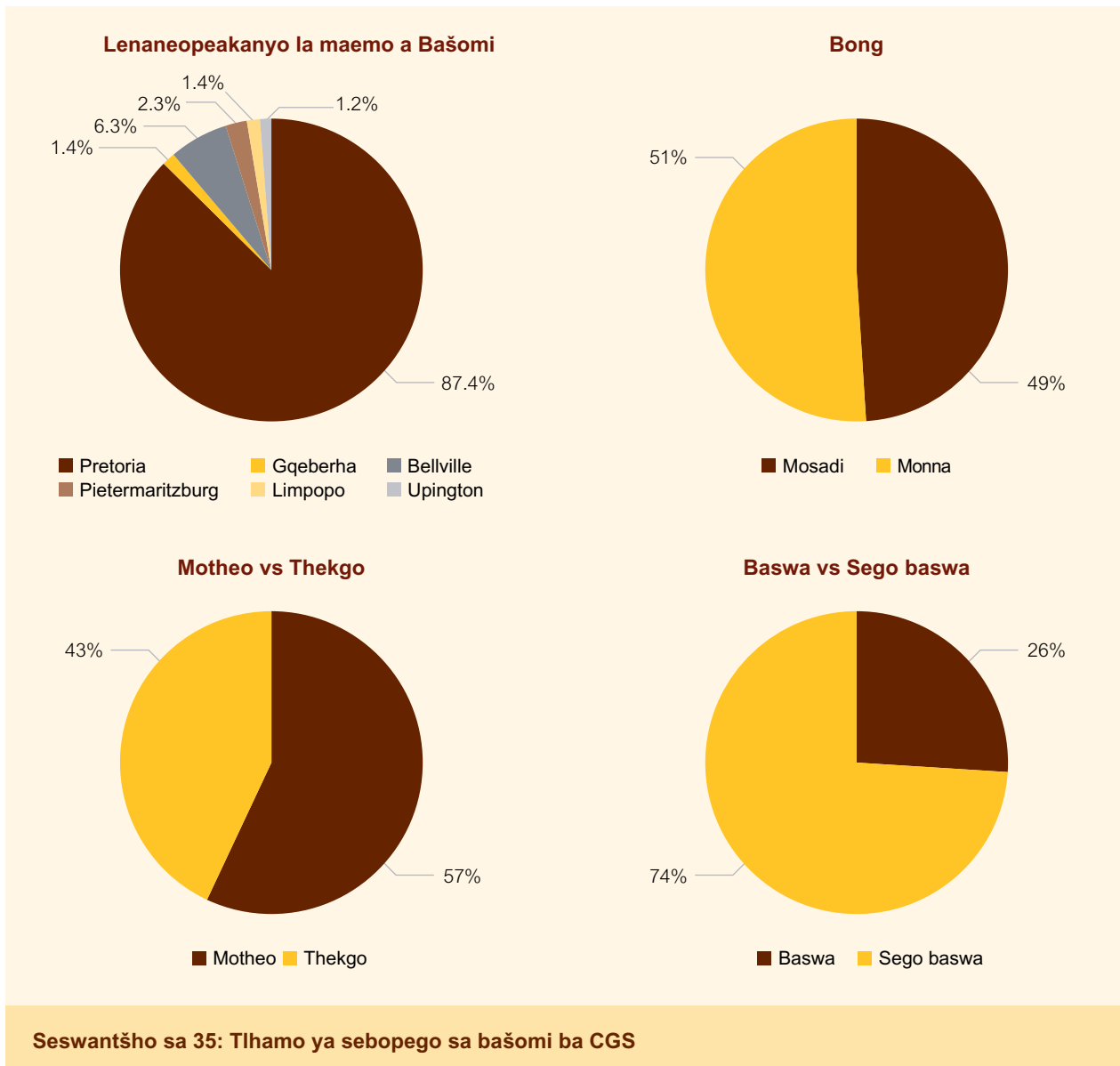
CGS e bona bašomedi ba yona bjalo ka mothopo wo bohlokwa go kabo ya dinepo tša yona tše bohlokwa. Go fihla mo, kgoro ya Methopo ya Bašomi ke mogwebišani yo bohlokwa ka mokgatlong yo tema ya yona e lego go kgonthiša gore CGS e goga šedi le go boloka methopo ye e nyakegago le bokgoni go tšwetša pele mešomo ya yona ya peomelao le maikemišetšo a bohlokwa.

# 1

## Kakaretšo Ya Merero Ya Methopo Ya Bašomi

### 1.1 Sebopego sa Bašomi

CGS e na le palo ya bašomi ba 431 go kgabaganya dilete tše tshela, e lego Pretoria (Kantorokgolo), Gqeberha, Bellville, Pietermaritzburg le Upington. Go tšona, 57% di ka makaleng a bohlokwa (tša saentshe) le tše 43% di ka go makala a thekgo. Mokgatlo o beeditšwe go fetišiša go bašomi ba yona ka focus ye kgolo go thwalo ya baswa le basadi, moo 26% tša palomoka ya bašomi ba welago go legoro la baswa gomme basadi ba bopa 49% tša bašomi, bjalo ka ge a laeditšwe go Seswantšho sa 35.



## COVID-19

Palomoka ya bašomi ba 258 ba dirilwe diteko tša COVID-19 ngwageng wo o lekodišišwago, moo ba 70 go hweditšwego ba na le phetetšo. CGS ga se ya itemogela mahu gomme bašomedi ka moka bao ba hweditšwego ba na le phetetšo ba fodile. CGS e tšwela pele go bea magato go sepelelana le melawaan ya mmušo go lwantšha go phatlalala ga leuba.

### 1.2 Mešomo ye Bohlokwa ya Methopo ya Bašomi le Diphihlelelo mo ngwageng

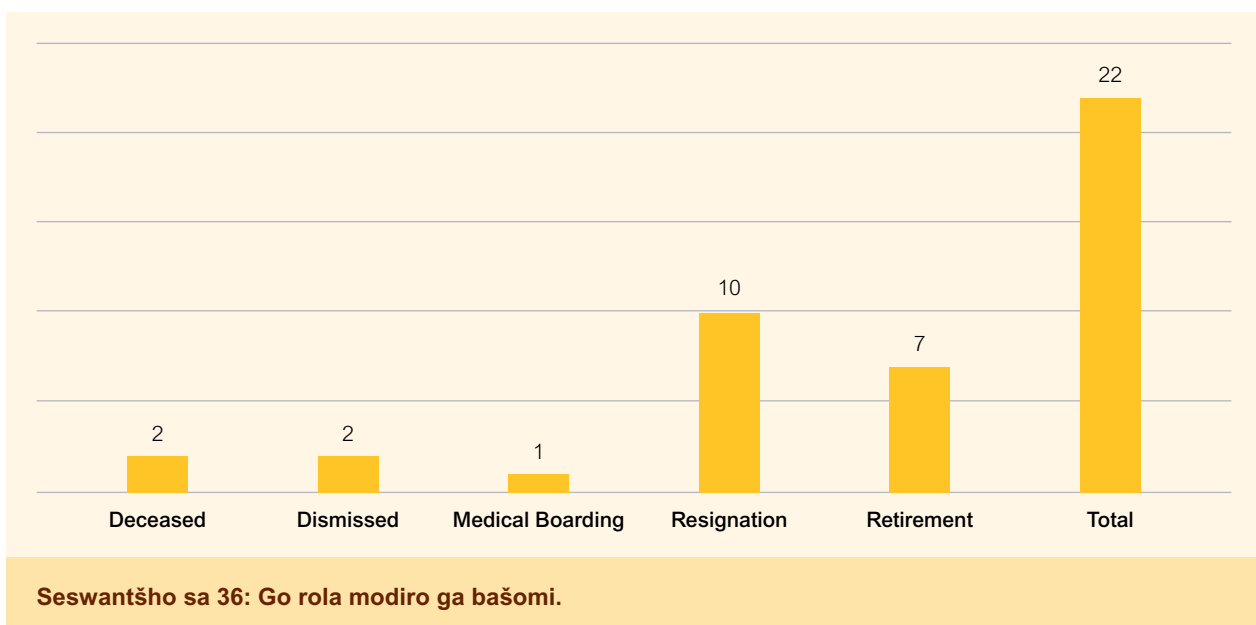
- Go swerwe wekešopo ya go laola maitshwaro ka lefelong la mošomo mo ngwageng wo o lekodišišwago. Wekešopo e maatlafaditše baokamedi le balaodi mabapi le go netefatšago gore go lalelwa maitshwaro lefelong la mošomo.
- Go phethagatšwa ga sebopego sa bašomi go thomišitšwe ka Lefapheng la Integrated Geoscience Development and Geoscientific Services. Go sa tsenwe fase ka tshapedišo gomme go akanywa gore e tla phethwa ngwageng wa ditšhelete wa 2022/23.
- Mo ngwageng wo o lekodišišwago, CGS e kgathile tema go meletlo ya kgetho ya mešomo ka diprofentsheng tša Kapa Bodikela, Kwazulu-Natal le Limpopo. Go tsena ka bogare mo ke karolo ya maitekelo a go-ya-go-ile a go hlohleletša baswa go akanya ka tšeosantshe bjalo ka kgetho ya mošomo ye ba ka akanyago ka yona.
- Phihlelelo ye bohlokwa ngwageng wo o lekodišišwago e amana le lefelo la mošomo la go se kgetholle go bagolofadi. Mokgatlo o fihleletše 1.86% ya tebanyo ya bagolofadi. Se e tloga e le phihlelelo ye kgolo, ka ge datha ya bjale e laetša gore boemedi bja bagolofadi bo be bo eme go 1.3% mo mengwageng ye meraro ya palomoka ya batho bao ba kgathago tema go ekonomi

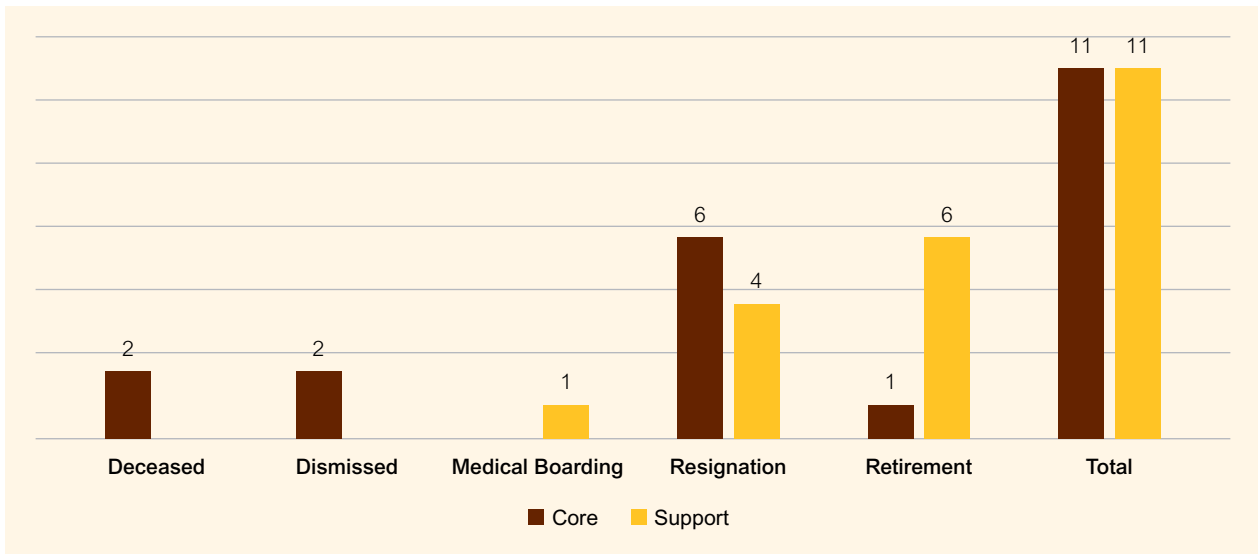
(Commission for Employment Equity, 2020/21 Annual Report). Mokgatlo o tla tšwela pele go hlohleletša baswa go itšweletša le go thekga bao ba tšweleditšwego.

- Phihlelelo ye bohlokwa go ngwaga wo o lekodišišwago e akaretša ditherišano tša megolo tša katlego le ditumelelano le mokgatlo wa bašomi tše di amogetšwego ke Lekgotla.
- CGS e swere Wekešopo ya Go phelega Gabotse ga Monagano ya katlego go thekga bašomi nakong ya mabaka a bothata a leuba le kotsi la Covid-19. Go feta moo, dingwalwa tša mabapi le go phelega gabotse di ile tša abelanwa le bašomi.
- Bjalo ka institšušene ya tša saentshe, CGS e kwalakwaditše le go fa bakgopedi ba dipasari bao ba nago le maswanedi dipasari go magoro a mabedi (pasari ya go ithuta o le mošomong) le baithuti bao e sego bašomi (pasari ya go ithuta dinako ka moka) go ba le seabe go maitekelo a mmušo a tlhabollo ya bokgoni le go hlola dibaka tša mošomo.

### 1.3 Tshekatsheko ya Go rola modiro ga Bašomi

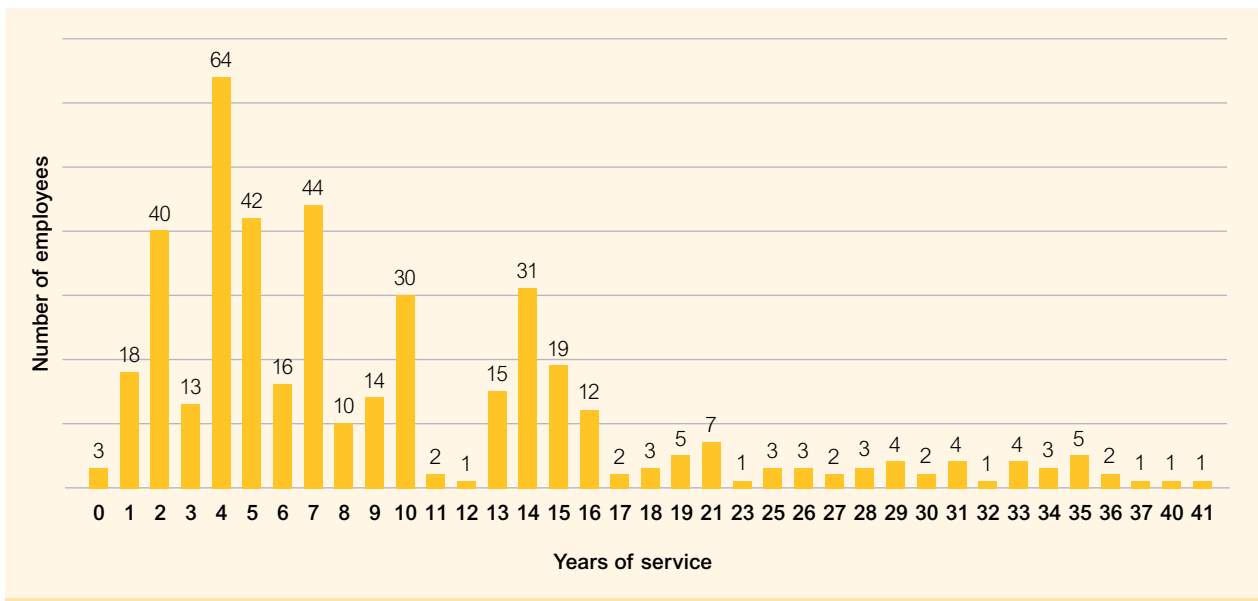
Go rola modiro ga bašomi go bopa phesente ya bašomi bao ba tlogetšego CGS ngwageng wo o lekodišišwago, gammogo le kelo ya go tlatšwa ga dikgoba. Ngwaga o fedile ka go rola modiro ga bašomi ba 4.99%, e lego fasana go 10% tše di lebeletšwego. Kelo ye e hlolwa ke maitekelo a go goketša bašomi a bjalo ka go ithuta le go ithabolla le mananeo a angwe a go thekga bašomi. Go rola modiro e bile 45%, mola 32% tša go rola modiro e bile ka lebala la bogolo. Ka ge go laetšwa go Seswantšho sa 37, go na le tekatekano ya 50% tša go rola modiro ka moka magareng ga lekala la motheo le la thekgo, le gona 60% tša go rola modiro e be e le tša lekala la motheo.





**Seswantšho sa 37: Go rola modiro ga bašomi ba lekala la thekgo le motheo**

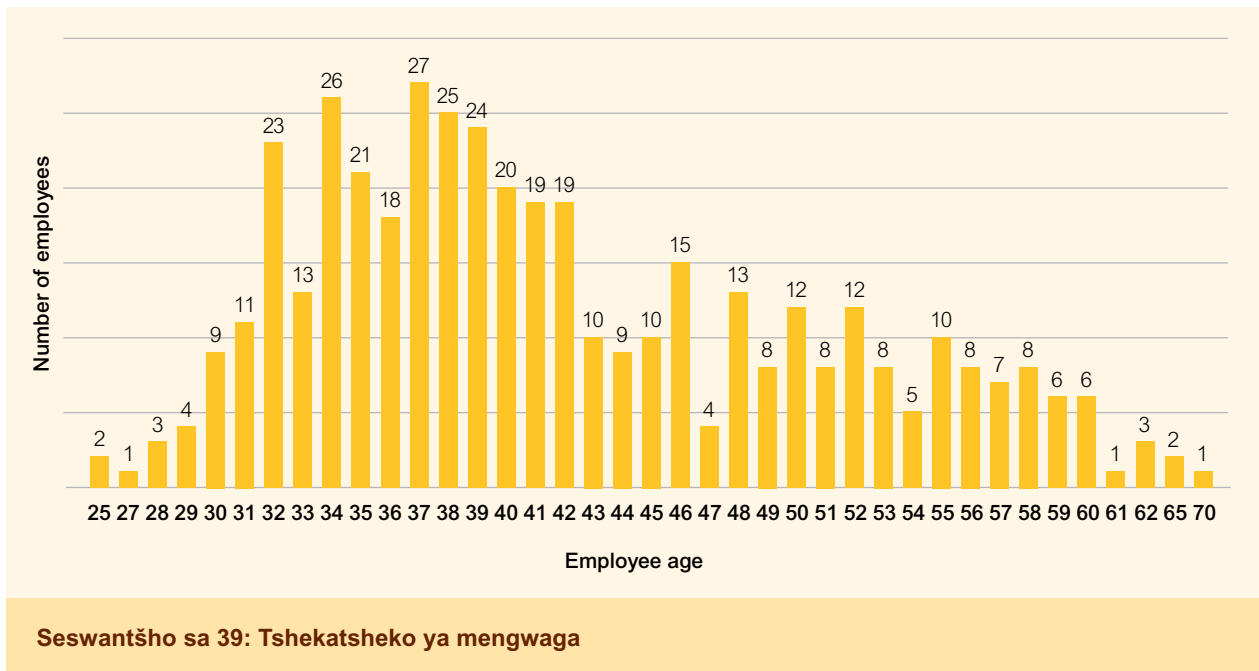
### 1.4 Palomoka ya Mengwaga ya Bašomi



**Seswantšho sa 38: Palomoka ya mengwaga ya bašomi**

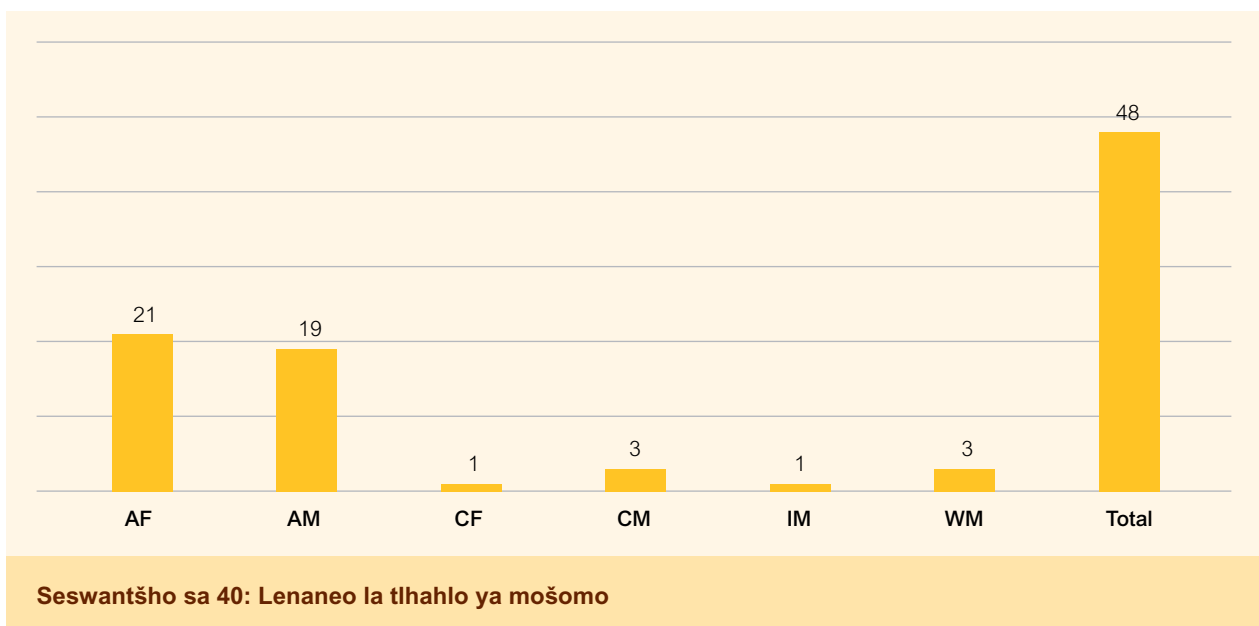
Diphesente tše masometshelaseswai tša bašomi di na le nako ya mengwaga ye mehlano goba go feta ba le CGS. Le ge e le gore bao e lego gore ke kgale e le bašomi ba na le tsebo mabapi setšo sa mokgatlo, ditirelo le mošomo, go bohlokwa gore go be le tekanyetšo le bašomi ba baswa ka ge ba tliša dikgopolo tše mpsha. CGS e tšwelwa mohola ke go ba le magoro ka bobedi.

## 1.5 Tshekatsheko ya Mengwaga ya Bašomi



Diphesente tše masomepeditshela tša bašomi ke baswa, go tloga go 30% go ngwaga wa ditšhelete wa mafelelo. Le ge e le gore palo ya baswa e fokotšegile, CGS e kgonne go tšwela pele go se lahlegelwe ke bašomi. CGS e tšwela pele go fa baswa dibaka ge ba itšweletša. Mananeo ao a lego gona a akaretša dipasari, ditlhallo mošomong, mananeo a tlhallo le a go eletšana le baswa.

## 1.6 Lenaneo la tlhahlo ya mošomo



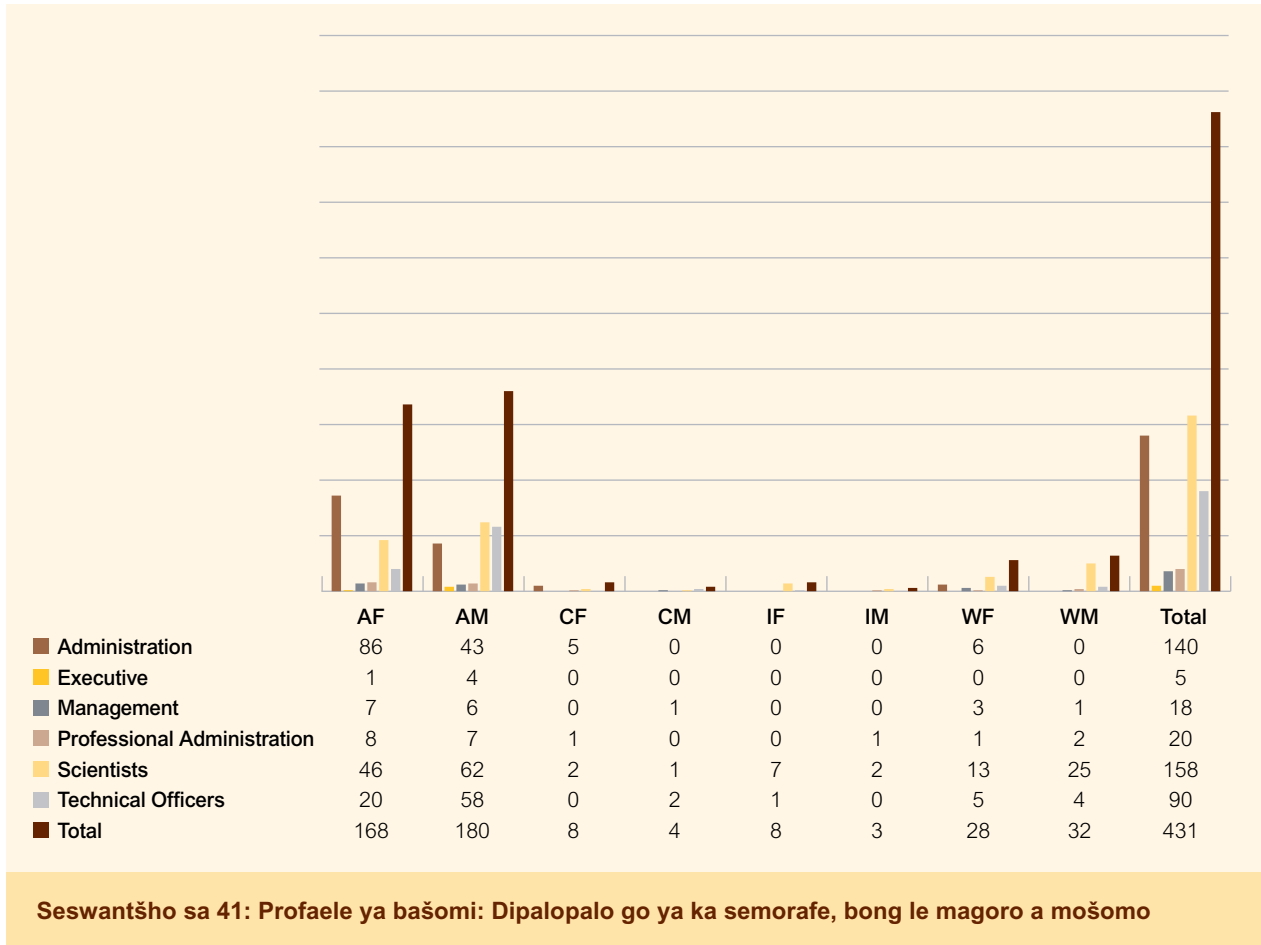
Dipalopalo tše di fana ka kakaretšo ya lenaneo la tlhahlo ya mošomo go ngwaga wo o lekodišišwago.

**Lemoga:** AF – Basadi ba Bathobaso; AM – Banna ba Bathobaso; IM – Banna ba Maindia; WF – Basadi ba Bathobašweu; WM – Banna ba Bathobašweu; CF – Basadi ba Bammala; CM – Banna ba Bammala



CGS gabjale e na le bašomi bao ba tsenetšego tlhahlo ya mošomo ba 48 go lenaneo leo le tšeago mengwaga ye mebedi. Diphesente tše masomehlanoseswai tša bao ba tsenetšego tlhahlo ya mošomo ba beilwe go lekala la motheo, mola tše 42% ba le go lekala la tša thekgo. Lenaneo le fa baithuti tshedimošo yeo ba e hlokago kudu ya boitlwaetšo bja mošomo go oketša dikgonagalo tša bona tša go ikhweletša mošomo. Ba bangwe ba baithuti ba fiwa mešomo ya go-ya-go-ile mola ba bangwe ba fiwa dikontraka tše di beetšwego nako nakong ya le ka morago ga go phetha lenaneo la bon la tlhahlo, go latela tshepedišo ye e tseneletšego morago ga kwalakwatšo ya mošomo.

### 1.7 Tshekatsheko ya Bašomi



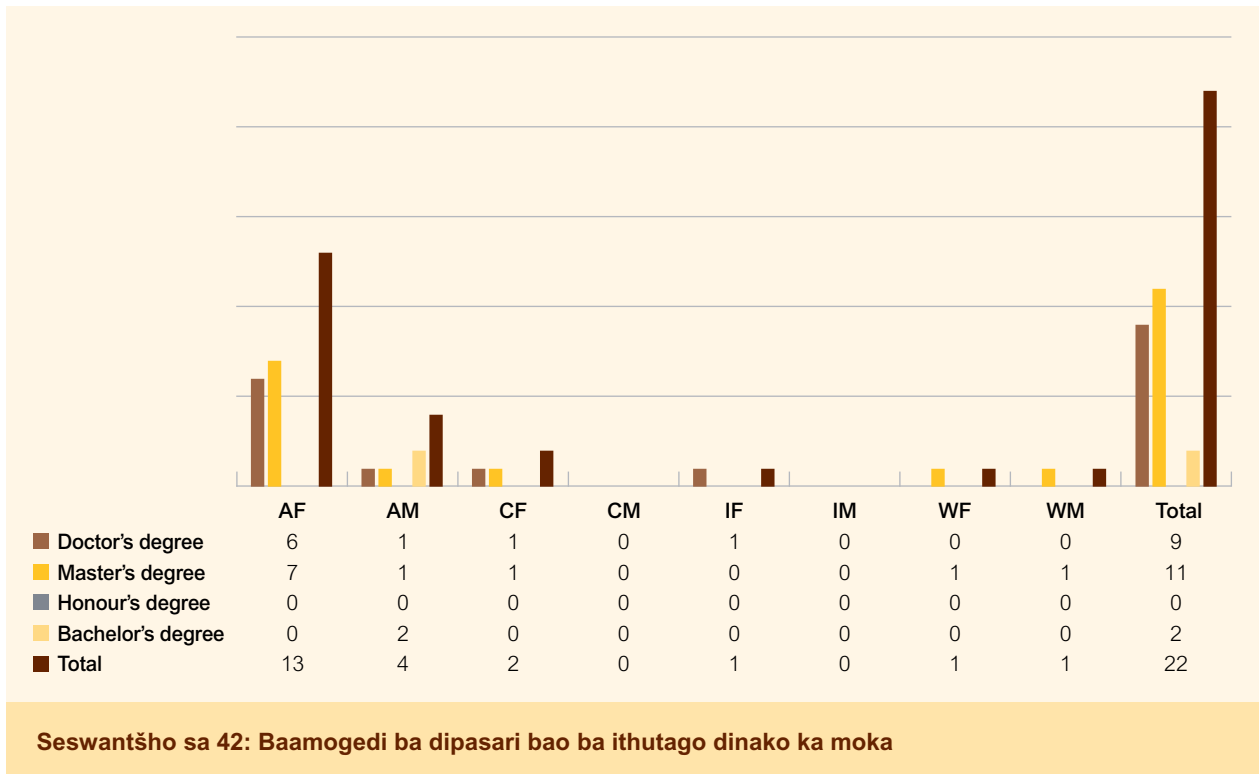
**Lemoga:** AF – Mosadi wa Mothomoso; AM – Monna wa Mothomoso; CF – Mosadi wa Bammala; CM – Monna wa Bammala; FNF – Mosadi wa go tšwa dinageng di šele; FNM – Monna wa go tšwa dinageng di šele; IF – Mosadi a Moindia; IM – Monna wa Moindia; WF – Mosadi wa Mothomošweu; WM – Monna wa Mothomošweu

Le ge e le gore boemedi go ya ka bong di fihleletšwe maamong a mokgatlo, go sa na le sebaka sa go kaonafatša boemedi go maemo a mangwe a bohlokwa. Go laetša gore, 51% tša basadi ba batho baso ba swere maemo a tša tshepedišo, mola 4.2% ba le maamong a bolaodi. Bataolo ba akanya go tšea magato a maatlafatšo go kgonthiša gore bontši bja basadi ba Bathobaso ba thwalwa maamong a bohlokwa.

## 1.8 Dipasari

### 1.8.1 Baamogedi ba dipasari bao ba ithutago dinako ka moka

Lenaneo la pasari ya go ithuta dinako ka moka le thekga baithuti bao ba nago le talente go tšwa malapeng o a ithhokelago bao ba palelwago ke go lefela dithuto tša maemo a godimo. Mo ngwageng wa dithuto wa 2021, baithuti ba 22 ba hweditše thekgo. Seswantšho sa 42 se fana ka profaele ya baithuti bao ba ithutago dinako ka moka ngwageng wo o lekodišišwago.

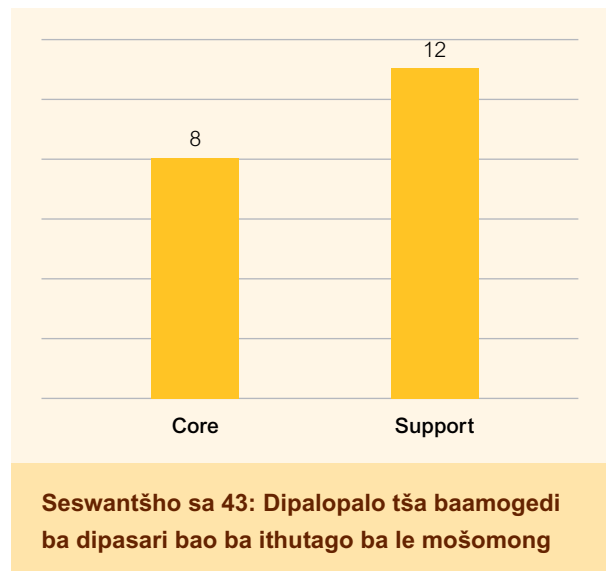


**Lemoga:** AF – Basadi ba Bathobaso; AM – Banna ba Bathobaso; CF – Basadi ba Bammala; CM – Bana ba Bammala; IF – Basadi ba Maindia; IM – Banna ba Maindia; WF – Basadi ba Bathobašweu; WM – Banna ba Bathobašweu

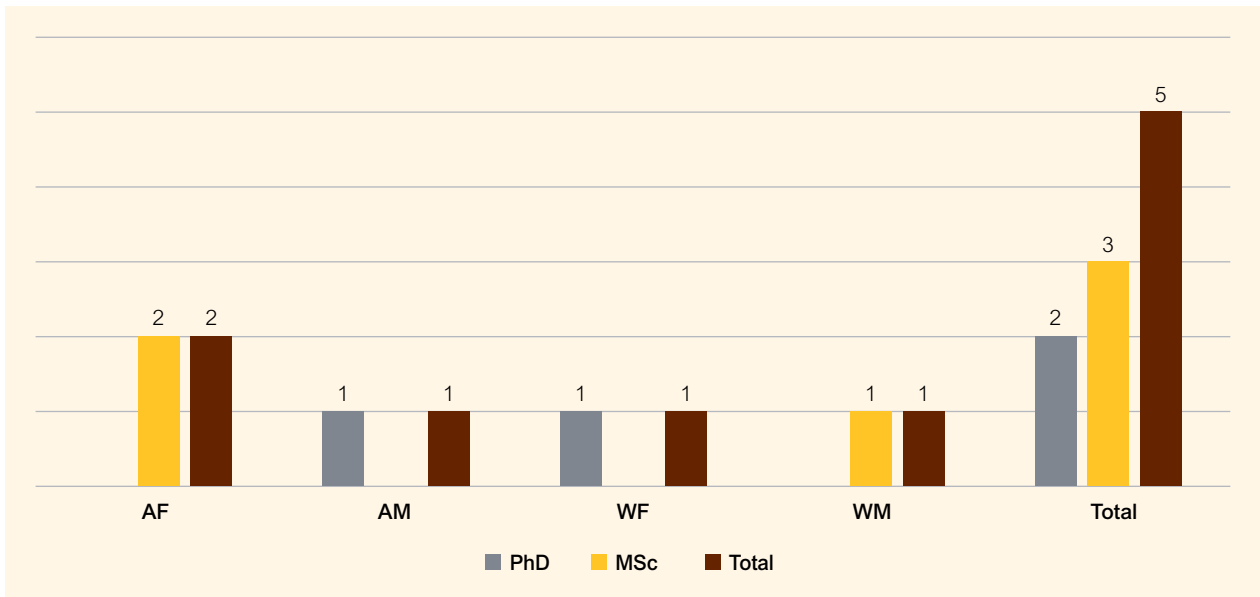
Go baamogedi ba dipasari ba 22 ba go ithuta dinako ka moka, 59% ke basadi ba Bathobaso mola 18% e le banna ba Bathobaso. 67% ya baamogedi ba senyane dipasari ba go ithuta dinako ka moka ba PhD ba basadi ba Bathobaso. Se se bontšha boitlamo bja CGS bja go maatlafatša basadi go tikologo ya tšeosaentshe.

### 1.8.2 Baamogedi ba dipasari bao ba ithutago ba le mošomong

Dipasari tša go ithuta o le mošomong di fiwa bašomedi ba CGS go tšwetša pele dithuto tša saentshe le tše e sego tša saentshe. Lenaneo la pasari ya go ithuta o le mošomong le bohlokwa go CGS go tšwetšopele ya mošomo le maanophethagatšo a go goketša bašomi. Go bile le baamogedi ba dipasari ba baswa ba 19 bao ba ithutago ba le mošomong ngwageng wo o lekodišišwago. Baamogedi ba dipasari ba seswai ka lekaleng la motheo le ba 11 ka lekaleng la thekgo—63% ya palomoka ya basadi, le 37% ya banna. Se ke taetšo ye nngwe ya boitlamo bja CGS bja go maatlafatša bašomi. Seswantšho sa 43 se laetša baamogedi ba dipasari bao ba ithutago ba le mošomong go ngwaga wo o lekodišišwago.



Seswantšho sa 44 se laetša baamogedi ba dipasari bao ba ithutago ba le mošomong ba ditikirii tša PhD le Mastase ngwageng. Lemoga, 60% tša baamogedi ba dipasari ke basadi gomme 40% ke banna. Go feta moo, bathobaso ba bopa 60%.



**Seswantšho sa 44: Baamogedi ba dipasari ba go ithuta ba le mošomong ba Bongaka le Mastase**



*Dikherisetale tša Spodumene ka gare ga diphekmathaete ka Profentsheng ya Kapa Leboa*

## 1.9 Maitekelo a Ditlhahlo tše di Phethilwego Mo Ngwageng

**Lenaneo la 12: Lenaneo la maitekelo a tlhahlo le palo ya bao ba tsenetšego tlhahlo**

Tlhahlo	Palo ya batlakopanong
Mošomi wa Thušo ya Pele	46
Dithekniki tša Ditirelo tša Ditimamollo tša Motheo (Dihlopha tša 1 le tša 2)	41
Fokelifithe (Dihlopha tša 1 le tša 2)	19
Go laola Maitshwaro	28
Softewere ya Leapfrog	13
Taolo ya Ditemošokotsi tša Boradia	1
Mananeo a Taolo ao a Kopantšwego a SHEQ & Ditemošokotsi & Tlhakišo	1
Taolo ya Makgonthe ya Bakgathatema	5
Thutišo ya tša Meromelo go ACG Mine	3
Tlhamo ya mmatlolo wa Meetse a ka fase ga Mabu ka QGIS	1
POPIA: Wekešopo ya Molao wa Tšhireletšo ya Tshedimošo ya Sephiri	1
Wekešopo ya SCM- The National Public Sector Clean Audit Turnaround Indaba 2021	6
Matseno go Mananeo a Tshedimošo ya tša Tikologo (GIS)	1
FSSC 22000 V5.1 Kwešišo le phethagatšo ya Food Safety Systems Certification Go lebeletšwe ISO 22000:2018 le Dinyakwa tša Sekema sa FSSC	2
Peakanyetšo ya Seemo le Maanophethagatšo	1
Tlhahlo ya ditaolo	4
Theraka ya go fihlelela mohlagase	10
Performing an Effective Quality Assessment (PEQA)	1
Tekolo ya IT ya Balekodi ba dipuku ba Non-I.T. (Motheo wa Tekolo ya I.T.) (Basics of I.T. Auditing [BITA])	1
Dinyakišišo ya Boradia (Fraud Investigations [FRIN])	1
Togamaano ya HR & BP	2
Tlhahlo ya Nebosh	2
Management Executive Development Programme (MEDP)	6
Molao wa POPI (Dikamano tša Bašomi)	2
Go ba modulasetulo wa Ditheeletšo tša Kgalemo (Dikamano tša Bašomi)	2
Maitshwaro Mošomong le go Rakwa Mošomong (Dikamano tša Bašomi)	2
Moemedi wa tša Maphelo le Polokego	4
Go laola Phethagatšo ye e sa Kgotsofatšego ya Mošomo/Go palelwa ke go phetha mešomo (Dikamano tša Bašomi)	2
Khonferentshe ya International Mine Water Association	10
3 <sup>rd</sup> Australasian Exploration Geoscience Conference (AEGC)	1
Matseno go tšhilafatšo ya moya	4
	<b>223</b>

## 1.10 Go matlafatša Basadi

Go sepelelana le dintlha tše bohlokwa tša tekatekano mošomong tša naga, CGS e tšea maikarabelo a yona go fetišiša go matlafatša basadi, kudukudu ditšhaba tše di di bego di hlokomologilwe nakong ya kgale, le go godiša ditirelo tša saentshe le thekgo tša motheo wa methopo ya bašomi yeo e elago tlhoko bong. Batho ba rena ba rata seo ba se dirago, ka ge diprofaele tše di latelago tše tharo e le tše dingwe tša performers ba rena ba maemo a godimo go ka hlatsela.



**Ngaka Maphuti Kwata**

### **Naa o thwetšwe bjalo ka mošomi wa CGS go tloga neng?**

Ke thwetšwe go CGS bjalo ka yo a hwetšago tlhahlo ya mošomo ka 2005 gomme ke na le maitemogelo a mengwaga ye 17 a mošomo le a dinyakišišo. Ke ile ka hlatlošetšwa maamong a Mohlankedi wa Sethekgeniki ka 2007, maamong a Setsebi sa maemo a fase tša Saentshe ka 2009 le maamong Setsebi sa Saentshe ka 2018 ka gare ga Yuniti ya Kgwebo ya Meetse le Tikologo.

### **Naa dikgahlego tša gago tša dinyakišišo ke eng?**

Dikgahlego tša ka tša dinyakišišo di ka hlalošwa ka bophara ka fase ga dinyakišišo tša go amana le lefase, kudukudu, go bewa leihlo ga boleng bja moya wa tikologo (e lego dinyakwa tša ditšhilafatši tša moya, ditšhilafatši tše di huetšago klaemete tša nako ye kopana, ditšhilafatši tše dingwe tše kotsi gašoro tše di ka hemiwago); go bewa leihlo ga lerole la lefaufang; go bewa leihlo ga boleng bja meetse le go sampola mabu/leraga; kelo ya go ela ga melapo; go lekolwa ga dikelo tša ditšhilafatši tša kgase go tšwa methopong ya tlaleletšo yeo e swanago le lekala la Ditirelo tša Boso la Afrika-Borwa le Sentinel 5-P Satellite, bjbj. Gabjale ke etile pele mmogo sehlopha sa mošomo seo se nepilego go laetša dikelo tša mekhuri wa moya wa lefaufang go tšwa ditikolong tše di fapafapanego tša receptor go la Gauteng, diprofentsheng tša Limpopo le Mpumalanga.

### **Ke eng seo o bego a nyaka go ithutela sona ge o be o le mphantong wa marematlou?**

Ke be ke nyaka go ba ngaka, eupša Modimo o bile le maano a mangwe go nna. Ke ikhomotša ka molaetša wa go

tšwa go Jeremia 29:11 moo Modimo a declared gore “Ka gore ke a tseba maamo ao ke nago le ona go wena”. Ke thabile ka gore ke feleleditše ke le setsebi sa tša tikologo, yeo e ntumelelago go tšwela pele go hlankela setšhaba. Ke gopola gape ke sa le mosetsana ke botša tate gore ke nyaka go swana le yena gomme ke be ke sa tsebe gore ke tla feleletša ke le lefapheng leo le sepelelanago le seo a ithutetšego sona.

### **Naa CGS e go thušitše bjang go fihlelela ditoro tša gago?**

Ke gopola kudu tšeo ke di diragetšego mo o ka rego di diragetše maabane. Ke thomile bjalo ka intern ke šoma go Laporathori ya tša Tikologo, moo ke bego ke e ya mošomong le sehlopha sa bookamedi bja tša tikologo (bookamedi bja boleng bja meetse, disampole tša mafelo a monola, bjbj), ge lekala le be le bitšwa Yuniti ya tša Tikologo. Ke ile ka hlohleletšwa go tšwela pele ka dithuto tša ka tša ka morago ga lengwalo la mathomo la yunibesithi ke bašomimmogo ba bantši, seo ke se dirilego. Ke be ke tseba sekolo ebile ke šoma ka maatla go diprotšeke tše di fapafapanego ka fase ga Yuniti ya tša Tikologo. CGS e bile e mmatlafaditše go tšea maemo a boetapele ka go mediro ye ke šomago go yona le gona ke filwe maatla a go ba le kgatha tema go dikarolo tše di fapafapanego tša tlhahlo le go ruta bašomi ba baswa le ba bannyane ba tša saentshe. Ke kgokagana le bašomimmogo le bantši le gona re tšwela pele go ithuta go tšwa go ba bangwe. Ke leboga katlego ya ka go bašomimmogo ba bantši bao ba ntlhohleleditšego, ba bangwe ga bona ba ntlahlile, gomme ba bangwe ba mphile maele a bohlokwa ao a nthušetšego ka tšwelopele ya ka bjalo ka setsebi sa tša saentshe. Go ala dipego tša CGS diwekešopo tša kotara ka kotara di nthušetše go gola bjalo ka mokgathatema gomme gabjale ke mokgathatema go dikhonferentshe tša ka nageng le tša boditšhabatšhaba, kudukudu go merero ye e amanago le boleng bja moya. Gape ke okeditše le rekote ya ka ya dikgatišo le go phetha PhD ya ka ka lefapheng la Saentshe ya Tikologo le Yunibesithi ya Afrika-Borwa ge ke le CGS.

### Ke tema efe ye o e kgathago gabjale?

Ke Mothuša Molaodi wa Protšeke ya Meetse a Moepong. Ke thuša sehlopha ka dipotšišo tša kakaretšo tše di amanago le mešomo a thekgo ye bjalo ka dithekišetšano goba matlotlo, le gona ke tliša/laola ditlhohleletšano le dikgopelo tše dingwe tše di amanago le protšeke le go bega/fetišetša merero yeo e ka se rarollwego go legato la protšeke. Ke thuša le ka go šala morago go tlišwa ga dipego tša kgwedi le tša kotara, go tlišwa ga dingwalwa tša dipego tša kotara le go fana ka dipoelo go badiriši, go šala morago go tšweletša mabaka, dikgopelo tša dikhotheišene le mananetheko, le go rulaganya dipego gammogo le go ngwala dikakaretšo tša lekgotla le tša sethekgeniki.

Ke šoma gape bjalo ka moetapelemmogo wa mediro ye mebedi ya boleng bja moya ka fase ga diprotšeke tše pedi tše di kgaoganego ka gare ga Yuniti ya Meetse le Tikologo. Mošomo wa boleng bja moya ka fase ga Dinyakišišo tše di Kopantšwego go protšeke ya Tswalelo ya Moepo e beile šedi go dintlha tše bohlokwa tše di fapafapanego tše di ka hemiwago. Le bea leihlo dikelo tša faepa ya marela a lefaufaug le dikelo tše dingwe tša ditšhilafatši tše kotsi tše di ka hemiwago tikologong yeo go dulago batho yeo e lego kgauswi le methopo ya tša meepo ya ditšhilafatši tša moya. Gape re bea leihlo le mafelo a botšhollelo bja dilahlwa tša meepong ya marela tše di tsošološwego le ditharollo tše proactive. Gagologolo, re beile šedi go tšhilafatšo ya tikologo ya ditšhilafatši tše tša go hemiwa, tshenyego ya tšona ya tikologo, mesepelo le diamogedi tše di lego kotsing.

Mošomo wa boleng bja moya ka gare ga go tšwelela mmogo ga mošomo wa tša Meepo le Tikologo ka fase ga protšeke ya Meetse a Moepo ye e beilego šedi go ditšhilafatši tše di tlwaelegilego tša moya le ditšhilafatši tša kgapeletšo tša klaemete tša nako ye kopana. Gabotsebotse, re nyakišiša ka ga tlhamego, tlhamo, khemistri, le diabe tša ditšhilafatši tša moya ka gare ga karolo ya fasana ya atmosfere yeo e nago le moya wo re o hemago. Re nyakišiša ya diabe tša ditšhilafatši tša maphelo a batho, khwetšagalalo ya esiti, go ruthufatšwa ga karolo ya fasana ya atmošefere, bjj. Re lekola datha ya tlaleletšo go tšwa go methopo ye e botegago e bjalo ka lekala la Ditirelo tša Boso tša Afrika-Borwa le Khamphani ya Sathalaete ya European 5-P Sentinel le go šomiša datha go hlama

ditšhate le mebepe ya kotsi ya tšhilafatšo ya moya. Gape ke etile pele mmogo lekala la kelo ya moya wa lefaufaug wa CO2 ka fase ga tšhomišo ya bobolokelo bja kgolego ya khapone.

Ke na le maitemogelo ao a tseeneletšego a dinyakišišo ao a amago dinyakišišo mabapi le lefapha la dinyakišišo tša go amana le lefase, kudukudu, go lekodišišwa ga boleng bja moya le tlhamego, go sampolwa le go sekasekwa ga mabu/motepa, go lekodišišwa ga boleng bja meetse le dikelo tša kelo ya meela, go fana ka porofaele ya naga le sekgoba ya ditšhilafatši tša tikologo, bjj. Ke na le batho ba bantši bao ke kgokaganago le bona ka go CGS le go mekgatlo ye e swanago le lekala la Ditirelo tša Boso la Afrika-Borwa, diyunibesithi, mebasepala le dikgoro tše dingwe tša mmušo. Ke tšwela pele go kaonafatša le go oketša tsebo le bokgoni tša ka mafapheng a saentshe ya tša tikologo le tšeosaentshe, le go ba le seabe go phokotšo ya diabe tša tšhilafatšo le ditlhohlo tša phetogo ya klaemete ka Afrika-Borwa le ka seleteng.

Ke leloko le le ingwadišitšwego la mekgato ya tša saentshe ya South African Council for Natural Scientific Professions le National Association of Clean Air. Ke leboga thekgo ya mookamedi wa ka Moprof. SJ Moja, yo a tšwelago pele go ba moeletši wa ka.

### Naa mošomo wo o akaretša eng le gona ke eng ka ona seo se go tšwelago mohola?

Tema ya ka e akaretša dinyakišišo tša tikologo (go bea leihlo boleng bja meetse, boleng bja moya le go bea leihlo lerole) le go šišinya magato a phokotšo le taolo mabapi le ka moo go ka fokotšwego le go laolwago go lebana le lerole. Go eta pele diprotšeke tše tharo tša mošomo ka fase ga Dinyakišišo tše di Kopantšwego mabapi le Go tswalelwa ga Meepo, Lenaneo la Taolo ya Meetse le Tikologo le tšhomišo le bobolokelo bja Carbon capture di ntšwela mohola.

### Naa tema ye o kgathago e amana bjang le dinepo tša maanophethagatšo a CGS?

Mošomo wa rena wa go bea leihlo le go ela ditšhilafatši tša kgase tše di absorbing radieišene o tla contribute go datha ya motheo yeo e nyakegago go magato a phokotšo ya phetogo ya klaemete. Kudukudu, re beile šedi ya rena go khemistri, mosepelo le dikelo tša absorbers tša phišo

go swana le ozoune (O3), metheine (CH4), khapone-taeoksaete (CO2) le khapone ye ntsho. Sa bobedi, mošomo wa rena go marela o tla tšweletša datha yeo e tla fanago ka ditšhišinyo tša lefelo le tikologo tše di kwagalago tšeo di sepelelanago le lefelo.

### **Ke eng seo se go hlohleletšago?**

Kganyogo ya ka ke go ba le bokgoni bja mmotlolo wa tšhilafatšo ya moya, bjo ke dumelago gore bo tla oketša bohlokwa bja mošomo wa ka. Ke sentše nako, eupša ke tsene fase ka yona.

### **Ge o lebelela morago, o ka re nkabe o kgethile mošomo wo o fapanego?**

Aowa, ke rata go ba setsebi sa tša tikologo ka gore e katološitše bokgoni le tsebo tša ka ka ge e sepelelana le mafapha a

mangwe a go fapafapaana a bjale ka saentshe ya Lefase, boentšhinere, tšeofisiksi, go lemoga go tšwa kgole, dihuto tša meroromelo ya lefase, temogo ya diminerale le enetši.

### **O ka hlohleletša bjang:**

#### **Baswa bao ba nyakago go latela dithuto tša gago?**

Nka hlohleletša baswa gore ba itshephe le go ba le lerato go se sengwe le se sengwe seo ba se dirago. Leeto e ka ba le letelele, eupša o tla iteboga mafelelong.

#### **Bašomi bao ba nago le phišegelo ba CGS ba maamong a ka fase ga gago?**

Se sengwe le se sengwe se a kgonagala ge fela o dumela go bona le kudu le ka tlhohleletšo, tumelo, le maikemišetšo a go nyaka go šoma ka maatla le go ithuta ka kudu ka moo o ka kgonago.



**Ngaka Haajierah Mosavel**

### **Naa o thwetšwe bjalo ka mošomi wa CGS go tloga neng?**

Ke bile karolo ya sehlopha sa CGS ka la 1 Lewedi 2014.

### **Ke eng seo o bego a nyaka go ithutela sona ge o be o le mphantong wa marematlou?**

Peleng, ke be ke nyaka go ba mohlami wa mananeokhomphutha eupša ke kopane le setsebi sa tšeolotši mo gareng ga ngwaga wa ka wa marematlou gomme sa ntlhohleletša gore saentshe ya Lefase e be e le kgahliša ebile e le mošomo wa boithabišo.

### **Naa CGS e go thušitše bjang go fihlelela ditiro tša gago?**

CGS e mphile tshedimošo ka dintlha tša go fapafapana tša tšeolotši ka tikologo ya mošomo, go ralala le dilete go kgabaganya Afrika-Borwa le go ntumelela go tšwetša pele dithuto tša ka. Ke hweditše PhD ya ka Yunibesithing ya Kapa Bodikela ka thekgo le tlhahlo ya CGS le bašomi ba bagolo. CGS e na le diprotšeke tša maemo a godimo, mohlala, Lenaneo la go bora melete la Karoo Deep, protšeke ya Kgolego ya Khapone le Tšhomišo le go thalwa ga mebepe ya ka Nageng-ya Dinagantle, go tšweletša bašomi ba maemo a godimo kudu go utolla tshedimošo ye bohlokwa ya tšeolotši.

### **Ke tema efe ye o e kgathago gabjale?**

Ke setsebi sa saentshe ka Yuniting ya Kgwebo ya Diminerale le Enetši.

### **Naa mošomo wo o akaretša eng le gona ke eng ka ona seo se go tšwelago mohola?**

Mošomo wa ka o akaretša dinyakišišo tša go fapafapana tša lefapha le/goba tša laporathori ka mafapha a go fapafapana a tša tšeosaentshe. Ke dira dinyakišišo tšeo di amago go thala mebepe, go tsenywa ga tshedimošo ye bohlokwa, le go kgoboketša datha, go hlopšha ga mebepe le dipego tšeo di rarollago mathata a go hlakahlakana go mafapha a go fapafapana a tšeosaentshe. Mošomo wa ka o akaretša gape le go fana ka maele go tlhamo ya ditšhišinyo tša protšeke, ditšhišinyo tša kontraka le go fana ka maele a saentshe ka lekaleng le setšhaba le mmušo.

Go a thabiša go tseba gore ke na le seabe go dinepo le ponelopele ya CGS gammogo le setšhaba ka kakaretšo ka go thuša go dinepo tša tlhabologo ye maatlafetšego tša Afrika-Borwa. Go kgona go abelana ka tsebo ya ka le ba bangwe le go ithuta go tšwa go bona kgafetšakgafetša.

### **Naa tema ye o kgathago e amana bjang le dinepo tša maanophethagatšo a CGS?**

Diprotšeke tša CGS di na le seabe go Leano la Tlhabollo la Bosetšhaba leo le nepilego go maatlafalo ya tikologo, kgolo ya ekonomi, thwalo, bodiidi, thuto le tlhahlo tše di thekgago Dinepo tša Tlhabologo ye e Maatlafetšego tša UN.

### **Ke eng seo se go hlohleletšago?**

Go letela dipoelo tša ka pejana. Dilo di tšea nako gomme o swanetše go ba le kgotlelelo. Ka peakanyo ye bohlokwa le tšhomišano le ba bangwe, tlhohlo ye e ka aroganywago go ba dinepo tše nnyane tšeo di ka fihlelelago gore go fihlelelwe dinepo tše kgolo.

### **Ge o lebelela morago, o ka re nkabe o kgethile mošomo wo o fapanego?**

Aowa, lerato la ka la saentshe ya Lefase le thomile ke le yunibesithi. Saentshe ke thuto ye e kgahlišago yeo e ka go kgotsofatšago. Bjalo ka ditsebi tša saentshe re nyakana le tsebo, ra utolla, ra itlhagišetša le go laetša maitemogelo. Ka mehuta ka moka ya dikatlego, katlego ke saentshe ye e tlogo go tšwa go bao ba e kgotlelelago nako ye telele.

### **O ka hlohleletša bjang:**

#### **Baswa bao ba nyakago go latela dithuto tša gago?**

Ke tla rata go ba le sebaka sa go dira letšatši la tlhahlo ka mešomo mo dikolong moo ke ba hlathollelago ka thuto ye ke e kgethilego. Bontši bja baithuti, go swana le na

bonnyaneng, ga ba na tsebo ya gore ke eng go ba setsebi sa tšeolotši, kudukudu baithuti bao ba tšwago ditšhabeng tšeo di itlhokelago. Ba phela ba e gakantšha le go ba setsebi sa akhiolotši! Ke rata go swara lesolo la kgetho ya mošomo legatong la CGS ka go etela dinagamagaeng (kereiti ya 1 go fihla go kereiti ya 12) go ba lemoša thuto/thutišo ye ka tsela ya dibilitio, maitekelo le ditlhagišo tša live. Se se ka katološetšwa ka go laletša ba bangwe ka go etela lefelong la mošomo moo ba tla bonago le go itemogela lehlakore la phethagatšo ya mošomo: "Letšatši goba a mabedi ka bophelo bja setsebi sa tšeolotši!"

Tsela ye nngwe e tla ba go ba karolo ya ditiragalo tšeo di swarago masolo a kgetho ya mošomo moo re tla bego re swere dikopano tša dipotšišo le dikarabo go hlohleletša kgahlego go mošomo wo ke o kgethilego. Go šoma mmogo le dikolo go fana ka dipasari le go goketša baswa go tloga mengwageng ye mennyane gore ba ka ba le ponelopele goba nepo yeo ba ka e fihlelelago.

### **Bašomi bao ba nago le phišegelo ba CGS ba maemong a ka fase ga gago?**

Bašomi bao ba nago le phišegelo ba swanetše go hlohleletšwa le go šušumetšwa go gatela pele dinako ka moka. Ba swanetše go fiwa dibaka tša go kgatha ditema tša boetapele go mešomo ye e fapafapanego ya diprotšeke. Ba swanetše go fiwa dibaka tša go šoma go feta bogolo bja mešomo wa bona le dibaka tša go itšhupa. Lefelo la mošomo le swanetše go ba tikologo ya tlhabollo le seprofešenale. Bophelo bo fetoga dinako ka moka le saentshe e ka tsela yeo. Ge go sa hlolwe dibaka go batho lefelong la mošomo, kelo ya mošomo wo o tšweletšwago e tla ema felo gotee. Go ka se be le ditlhohlo goba mafolofolo a maswa go tšweletša bokgoni bja bona Ke tloga ke rata go hlola dibaka moo batho ba ka laetšago phišegelo le go ba le kgatelopele ka lefelong la mošomo. Ke hweditše tlhahlo go tšwa go motho yoo a mphilego sebaka sa go tšweletša mabokgoni a ka, go atlega go dihlotlo gomme ka seo, ke ikhweleditše maitemogelo a maleba a go itšhušumetša go dikgonagalo le diphihlelelo tša godimodimo. Lefelo la mošomo leo le fanago ka dibaka go batho ke lefelo leo le golago ka katlego. Boetapele ga se bogoši bjoo bo laolwago ke motho o tee, eupša ke maemo ao a netefatšago gore boleng bja boetapele bo be gatetšego pele go leloko le lengwe le le lengwe la lefelo la lona la mošomo. Moetapele yo mokaone o tla facilitate tlhabologo/tšwelopele ya batho dinako ka moka le gona ka tsela yeo bašomi bao ba nago le phišegelo ba tla phegelela go dira bokaone dinako ka moka.





**Mdi Gracy Lekwara**

### **Naa o thwetšwe bjalo ka mošomi wa CGS go tloga neng?**

Ke bile karolo ya CGS ka la 1 Diphlane 2006 bjalo ka Payroll Administrator.

### **Ke eng seo o bego a nyaka go ithutela sona ge o be o le mphantong wa marematlou?**

Ke be ke rata dithuto tša akhaonting gomme ke be ke nyaka go ba chartered accountant.

### **Naa CGS e go thušitše bjang go fihlelela ditoro tša gago?**

Morago ga go ba karolo ya CGS ka Ofising ya Pheyi-rola, ke ile ka fiwa sebaka sa go tsenela ditlhahlo tša go fapafapana tšeo di bego di sepelelana le mošomo wa ka. Ditlhahlo di kaonafaditše mabokgoni a ka ka mošomo le tsebo ya pheyi-rola tšeo di okeditšego boleng mabapi le ka moo ke phethagaditšego mošomo ka Ofising ya Pheyi-rola. Ka thekgo ya sehlopha sa Bataolo le kgatelopele le kgolo ya ka go pheyi-rola, ke ile ka hwetša tihatlošo ka Ofising ya Pheyi-rola.

### **Ke tema efe ye o e kgathago gabjale?**

Mookamedi wa Pheyi-rola ka Ofising ya Pheyi-rola.

### **Naa mošomo wo o akaretša eng le gona ke eng ka ona seo se go tšwelago mohola?**

Mošomo wa ka o akaretša Ofisi ya Pheyi-rola le go netefatša gore bašomi ba CGS le lefša ka nako le gore ditefo kamoka tša makala a boraro tšeo re swanetšego go di lefa. Mošomo wa ka o akaretša gore CGS e obamela melao ka moka ya metšhelo ye e lego gona le melao ya bašomi, melawana le ditaello go kgonthiša gore bobedi bašomi le CGS ba šireleditšwe. Mošomo wo o tloga o kgotsofatša ka ge o hlama tikologo yeo ke agago ebile ke laolago dikamano tša bašomi ba CGS go magato ka moka. Mošomo wa ka o ntumelela gore ke diriše ye nngwe

ya ditokelo tša bašomi mošomong: go lefa megolo yeo e ba swanetšego le go e lefa ka nako.

### **Naa tema ye o kgathago e amana bjang le dinepo tša maanophethagatšo a CGS?**

CGS e akanya go hlama mokgatlo wo maatlafetšego wa ditšhelete woo o šomago gabotse le ka tshwanelo. Ofisi ya Pheyi-rola e thuša CGS go fihlelela dinepo tšeo ka go kgonthiša gore mokgatlo o obamela melao le dipholisi ka moka tše di beilwego. Go tloga go lefša ga megolo ya bašomi le ditefelo go makala ao a boraro, Ofisi ya Pheyi-rola kgonthiša gore ditefo di dirwa ka nepagalo le ka nako, go efofa dikhwiri dife goba dife tša tekolo ya dipuku goba ditefelo tša go fetišiša tšeo di ka bakelago CGS mathata le gona di ka baka go dira gore go mokgatlo o hwetše dipoelo tše di sa kgahlišego tša ditšhelete.

### **Ke eng seo se go hlohleletšago?**

Taolo ya nako e bohlokwa go Ofisi ya Pheyi-rola ka ge mošomo o le boima kudu. Ka dinako tše dingwe ke tla bea diiri tše ntši go kgonthiša gore ditefelo di phethwa ka nepagalo le ka la 15 goba 30 la kgwedi ye nngwe le ye nngwe ntle le go diegišwa.

### **Ge o lebelela morago, o ka re nkabe o kgethile mošomo wo o fapanego?**

Aowa. Ke rata ebile ke hlompha mošomo woo ke o dirago.

### **O ka hlohleletša bjang:**

#### ***Baswa bao ba nyakago go latela dithuto tša gago?***

E ba le lerato ka ga mošomo wa gago ka ge pheyi-rola e le ofisi ye e šomago ka tshedimošo ye bohlokwa kudu moo tshwara ya sephiri e lego bohlokwa. O swanetše go rata seo o se dirago le go hlohleletšwa le go kgotsofatšwa ke seabe se o tla bago o se dira go mokgatlo ofe goba ofe.

#### ***Bašomi bao ba nago le phišegelo ba CGS ba maemong a ka fase ga gago?***

O šome ka maatla le gabotse le maloko a sehlopha sa gago. Mošomo wo re o dirago o nyaka maitapišo a sehlopha, le gona re swanetše go thekgana le go kgona go fihlelela dinepo le maikemišetšo a CGS. E ba le moya wa go ithuta le go fihlelela tsebo ye e hlokegago go go thuša go atlega.

### 1.11 Dikamano le Bašomi

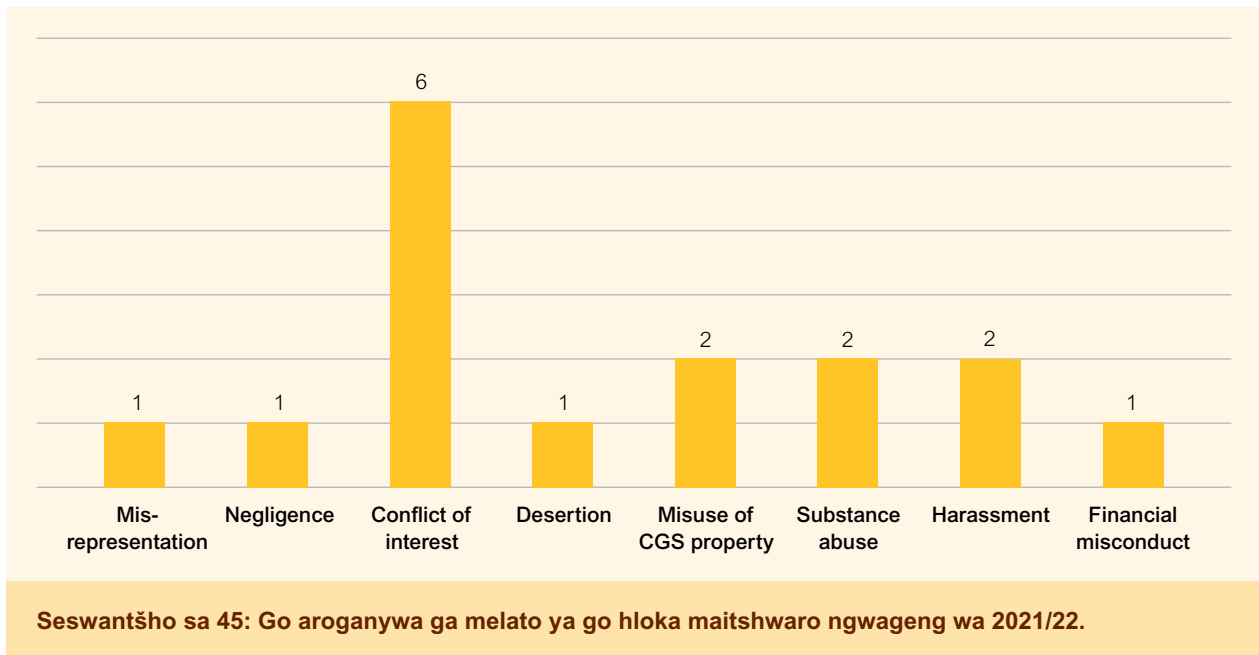
Mo ngwaneng wo o lekodišišwago, go begilwe melato ye mentši ya go hloka maitshwaro le maipelaetšo. Go se obamele melao go go bonagetšego kudu e bile dithulano tša dikgahlego, gwa latelwa ke tšhomišompe ya dithoto tša CGS, tšhomišompe ya diokobatši le tlhorišo. Misrepresentation, go hloka šedi, tlhokomologo le maitshwarompe a ditšhelete di bile le go tshela melao go tee go gongwe le go gongwe. CGS e tšwela pele go hlohleletša bašomi go obamela dipholisi le ditshepedišo ka interventions tša go fapafapana go efoga go se obamele dipholisi. Go beilwe magato a phošollo bjalo ka taolo ya consequence go gapeletša go obamela melao.

### 1.12 Polokego le Kgobalo ye e Hlotšego Tshenyoye ya Nako

Go begilwe melato ye šupa ya bašomi ba go hwetša kgobalo mošomong mo ngwageng wo o lekodišišwago gomme go tšewa magato a go thibela go ipušeletša.

### 1.13 Mešomo ye e Beakantšwego ya 2022/23

- a) Dikontraka tša phethagatša ya mešomo ka maemo ka moka a tša saentshe;
- b) Taolo le Tekolo ya Phethagatšo – go tsenela dikontraka, tekolo ya gare ga ngwaga le tekolo ya mafelelo;
- c) Go tlišwa ga Leano la Bokgoni bja Mošomong go Mining Qualification Authority;
- d) Go tšweletšwa le phethagatšo ya mananeo a taolo ya Talente;
- e) Tlhabollo le phethagatšo ya leano la tlhahlo;
- f) Tekodišišo ya go-ya-go-ile ya dipholisi; le
- g) Diphatišišo tša Kgotsotfalo ya Bašomi.





*Tlhahlobo ya dikarolo tša di fapanego tša kgogolego tša mengwaga ya Cambrian tša Sehlopha sa Klipheuvel go la Olifantsrivierberg, Eendekuil*



*Ditshakatsheko tša XRF ya go swarwa ka seatla nakong ya lenaneo la go tirila go la Giyani*

## Kgaolo Ya E Tshedimošo Ya Matlotlo

Karolo ye ya pego e fana ka tshedimošo ya seemo se sebotse sa matlotlo sa mokgatlo le go akaretša dintlha tše di latelago:

- Pego ya CFO, yeo e akaretšago tekolo ya matlotlo ka kakaretšo le merero ye e amanago le mešomo ye e šišinywago, go bolokwa ga mašaledi, tshepedišo ya kgwebišetšano ya ditheko, pego ya tekolo ya dipuku le maano a ka moso.
- Pego ya Molekodipharephare wa Dipuku go Palamente ka ga CGS. Pego ye e fana ka maikutlo malebana le toka ya Ditatamete tša Matlotlo tša Ngwaga ka ngwaga ka go ala pego ya seemo sa matlotlo sa mokgatlo, tšhomišo ya ditšhelete, taolo ya tšhelete ye nnyane go ya ka Ditheo tša Afrika-Borwa tša GRAP le dinyakwa tša PFMA go dintlha ka moka tše bohlokwa. E bega ka ga phethagatšo ya mešomo mabapi le go obamela melao, tekolo ya dipuku ya ka gare le merero ye e amanago le tšona.
- Ditatamete tša Matlotlo tša Ngwaga ka ngwaga, tše di bopšago ke Setatamete sa Maemo a Matlotlo, Setatamete sa Phethagatšo ya Matlotlo, Setatamete sa Diphetogo go Dithoto tša Nete, Setatamete sa Kelo ya Tšhelete ya Seatla le Dinoutse go Ditatamete tša Matlotlo.

# 1

## Pego Ya Mohlankedimogolo Wa Matlotlo



**Mna Leonard Matsepe**

Mohlankedimogolo Wa Matlotlo

“Gore go tšweletšwe go ba le kgahlego ka intastering ya mešomo ya go kopola, CGS e tšweletša go beeletša go phedišo ya peeletšo ya mešomo ya go kopola, ka tsela ya kabo ya tshedimošo ya motheo le ye e bilego le mohola go tšeosaentshe. Ka kakaretšo, CGS e tla oketša go kgatha tema ga yona ka go dikgato tša moragorago tša molokoloko wa boleng bja tša moepo wa pele ga diphekgišano. Maanophethagatšo a mmalwa ao a tseneletšego a utollotšwe go akaretšwa tšhomišano le diinstitšušene le bakgathatema ba bangwe, ka temošo ya gore ba se gatake mešomo ya dinyakišišo. Se se tla nyaka peeletšo ye kgolo ya matlotlo yeo e tla tlogago e tšweletša dipoelo tše kgolo kudu.”

### Tihalošo

Council for Geoscience e ngwadišitšwe bjalo ka Šetule 3A ya Setheo sa Mmušo go ya ka Molao wa Taolo ya Matlotlo wa Setšhaba, Molao wa 1 wa 1999. Maikemišetšo ao a bakilego go hlongwa ga CGS ke go hlama le go gatiša ditšweletšwa tša tsebo tša tšeosaentshe tša maemo a godimo le go aba ditirelo tše di amanago le tšeosaentshe go setšhaba sa Afrika-Borwa le intasteri.

### Maemo a matlotlo

Taetšo ya letlakala la palantshe ka palogare ta kelo ya kgolo ya 7% e bolokilwe mo mengwageng ye 12 ye e fetilego. CGS e na le palomoka ya dithoto tša boleng bja dimilione tše R727.4 le kelo ya liquidity ya 1.2:1 go ngwaga wa ditšhelete wo o begilwego.

### Thoto le ditlabela

Go dirilwe peeletšo ya tšhelete ya dimilione tše R44.7 go thoto, ditlabela le dithoto tše intangible mo ngwageng. Dipeeletšo tše di tšwelago pele go mananeokgoparara le ditlabela e dula e le ntlha ye bohlokwa ya dinolofatši tša maemo a godimo le ditlabela tše di a rekwa le go hlokomelwa.

## Taolo ya tšhelete ya seatla

TKheše le ditekano tša kheše di fokotšegile go tloga go dimilione tše R358 ka 2021 go fihla ka tše R293 ka 2022, tša baka kelelo ya ya kheše ya nete ya dimilione tše R65.1. Peeletšo ye e hloletšwe go thekga potlakišo ya tsošološo ya ekonomi ka tsela ya phethagatšo ya lenaneo la tšeosaentshe.

## Ditlhoaho tše di lego gona

Ditatemente tša Matlotlo a Ngwaga wa ngwaga wa CGS di beakantšwe go ka tshwanelo. Balaodiphethiši ba phethagaditše tekodišišo ya bokgoni bja CGS go tšwelopele bjalo ka tlhobaelo ka bokamoso bjo bo letetšwego ka moso le go thewa godimo ga tekodišišo ye, e akanya gore go alwa ga ditatemente tša matlotlo ka maamong a e nepagetše.

## Ditiragalo tša ka morago ga tšatšikgwedi ya go ala pego

Leanophethagatšo la go Kopola la Intasteri ya tša Meepo ya Afrika-Borwa le Leano la yona la Phethagatšo la 2022, leo le nepilego go goga šedi ya dipeeletšo ka tsela ya go tsošološa leanophethagatšo la go kopolwa ga tša meepo le le hlohleletšago go rafša ga dimineralo go go tseneletšego, theknolotši ye e hlwekilego, tlhwekišo le makala a kabo le ditirelo tša meepo. Se se nyaka gore CGS e phethagatše a mangwe a mapheko ao a laeditšwego go Leano la Phethagatšo la go Kopola la Afrika-Borwa.

## Kgopelo ya go bolokwa ya mašaledi

Go ya ka Karolo ya 53(3) ya PFMA wa 1999, CGS e swanetše go hwetša tumelelo go tšwa go Kgoro ya Matlotlo ya Bosetšhaba go boloka mašaledi. Go hweditšwe tumelelo ya tšhomišo ya mašaledi ao a kgobokeditšwego a tlhokomelo le peeletšo go ditlabela le mananeokgoparara a saentshe, le go phethagatšwa ga leanophethagatšo la repositioning. Go tla dirwa kgopelo ye mpsha go ngwaga wo o lekodišišwago.

## Lekala taolo ya dithekišetšano

Lekala la Taolo ya Dithekišetšano e šoma ka fase ga Mohlankedimogolo wa Matlotlo. Yuniti ye ya kgwebo e fana ka lenaneo la maleba la dithekišetšano e kabo ya didirišwa, leo le sepetšwago ka toko, phatlalatša, le ka phenkgišano le ka go boloka tšhelete, gomme le hlamilwe go ya ka Karolo ya 54 ya PFMA ya 1999 (wo o fetotšwego ke Molao wa 29 wa 1999). Go ya ka BBBEE, Karolo ya 13G (1) ya Molao wa B-BBEE, CGS e obametše Management Control and Enterprise Supplier Development.

## Merero ya pego ya tekolo ya dipuku

Dintlha tše di tšweleditšwego ka pegong ya tekolo ya dipuku ya Molekodipharephare wa Dipuku di fiwa šedi go kgonthiša go fihlelelwa ga pego ye e sa kgahlišego ya tekolo ya dipuku. CGS e fihleletše pego ye e sa kgahlišego ya tekolo ya dipuku go tšwa go Molekodipharephare wa Dipuku go ngwaga wo o fedilego wa 31 Hlakola 2022 le gona e tla tšwela pele go kaonafatša seemo sa taolo ya dipuku ya ka gare.

## Boikemo mererong ya matlotlo

Go kgonthiša maatlafalo ya matlotlo, CGS e ikemišeditše ka go šomiša tshedimošo ya yona ye ntši ya tšeosaentshe, tsebo le maatla a tsebo go tšweletša ditšhišinyo tša boleng tša bobedi peeletšo ya matlotlo le tša kgwebo.

# 2

## Pego Ya Molekodipharephare Wa Dipuku Go Palamente Ka Ga Council for Geoscience

### Pego ka ga tekolo ya ditatamente tša matlotlo

#### Maikutlo

1. I have audited the financial statements of the Council for Geoscience (CGS) set out on pages 121 to 158, which comprise the statement of financial position as at 31 March 2022, statement of financial performance, statement of changes in net assets, cash flow statement and statement of comparison of budget and actual amounts for the year then ended, as well as notes to the financial statements, including a summary of significant accounting policies.
2. In my opinion, the financial statements present fairly, in all material respects, the financial position of the Council for Geoscience as at 31 March 2022, and its financial performance and cash flows for the year then ended in accordance with Standards of Generally Recognised Accounting Practice (Standards of GRAP) and the requirements of the Public Finance Management Act 1 of 1999 (PFMA).

#### Tšweletšo ya maikutlo

3. I conducted my audit in accordance with the International Standards on Auditing (ISAs). My responsibilities under those standards are further described in the Auditor-General's responsibilities for the audit of the financial statements section of my report.
4. I am independent of the public entity in accordance with the International Ethics Standards Board for Accountants' *International code of ethics for professional accountants (including International Independence Standards)* (IESBA code) as well as other ethical requirements that are relevant to my audit in South Africa. I have fulfilled my other ethical

responsibilities in accordance with these requirements and the IESBA code.

5. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

#### Kgatelelo ya dintlha tše bohlokwa

6. I draw attention to the matter below. My opinion is not modified in respect of this matter.

#### Ditshenyegelo tše di sego bohlokwa le tša tshenyoy ditšhelete

7. As disclosed in note 23 to the financial statements, fruitless and wasteful expenditure of R18 496 000 that was incurred in the previous years was still under investigation.

#### Maikarabelo a a bolaodi go ditatamente tša ditšhelete

8. The accounting authority is responsible for the preparation and fair presentation of the financial statements in accordance with the Standards of GRAP and the requirements of the PFMA, and for such internal control as the accounting authority determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.
9. In preparing the financial statements, the accounting authority is responsible for assessing the public entity's ability to continue as a going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting unless the appropriate governance structure either intends to liquidate the public entity or to cease operations, or has no realistic alternative but to do so.

## Maikarabelo a molekodi wa dipuku le tlaego tša ditšhelete

10. My objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with the ISAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.
11. A further description of my responsibilities for the audit of the financial statements is included in the annexure to this auditor's report.

## Pego ka ga tekolo ya dipuku ya pego ya phethagatšo ya mešomo ya ngwaga ka ngwaga

### Matseno le bogolo

12. In accordance with the Public Audit Act 25 of 2004 (PAA) and the general notice issued in terms thereof, I have a responsibility to report on the usefulness and reliability of the reported performance information against predetermined objectives for selected programme presented in the annual performance report. I performed procedures to identify material findings but not to gather evidence to express assurance.
13. My procedures address the usefulness and reliability of the reported performance information, which must be based on the public entity's approved performance planning documents. I have not evaluated the completeness and appropriateness of the performance indicators included in the planning documents. My procedures do not examine whether the actions taken by the public entity enabled service delivery.

My procedures do not extend to any disclosures or assertions relating to the extent of achievements in the current year or planned performance strategies and information in respect of future periods that may be included as part of the reported performance information. Accordingly, my findings do not extend to these matters.

14. I evaluated the usefulness and reliability of the reported performance information in accordance with the criteria developed from the performance management and reporting framework, as defined in the general notice, for the following selected programme presented in the public entity's annual performance report for the year ended 31 March 2022:

Programme	Pages in the annual performance report
Programme 4 – Delivery of the mandate	37

15. I performed procedures to determine whether the reported performance information was properly presented and whether performance was consistent with the approved performance planning documents. I performed further procedures to determine whether the indicators and related targets were measurable and relevant, and assessed the reliability of the reported performance information to determine whether it was valid, accurate and complete.
16. I did not identify any material findings on the usefulness and reliability of the reported performance information for this programme:
  - Programme 4 – Delivery of the mandate

### Ntlha ye nngwe

17. I draw attention to the matter below.

### Phihlelelo ya ditebanyo tše di beakantšwego

18. Refer to the annual performance report on pages 34 to 38 for information on the achievement of planned targets for the year and management's explanations provided for the under/over achievement of targets.



## Pego ka ga tekolo ya go obamela melao

### Matseno le Bogolo

19. In accordance with the PAA and the general notice issued in terms thereof, I have a responsibility to report material findings on the public entity's compliance with specific matters in key legislation. I performed procedures to identify findings but not to gather evidence to express assurance.
20. I did not identify any material findings on compliance with the specific matters in key legislation set out in the general notice issued in terms of the PAA.

### Tshedimošo ye nngwe

21. The accounting authority is responsible for the other information. The other information comprises the information included in the annual report, which includes the audit committee's report. The other information does not include the financial statements, the auditor's report and those selected programmes presented in the annual performance report that have been specifically reported in this auditor's report.
22. My opinion on the financial statements and findings on the reported performance information and compliance with legislation do not cover the other information and I do not express an audit opinion or any form of assurance conclusion on it.
23. In connection with my audit, my responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the

financial statements and the selected programmes presented in the annual performance report, or my knowledge obtained in the audit, or otherwise appears to be materially misstated.

24. If based on the work I have performed, I conclude that there is a material misstatement in the other information, I am required to report that fact. I have nothing to report in this regard.

### Mathata a ditaolo tša ka gare tša tshepedišo

25. I considered internal control relevant to my audit of the financial statements, reported performance information and compliance with applicable legislation; however, my objective was not to express any form of assurance on it. I did not identify any significant deficiencies in internal control.

*Auditor-General*

Pretoria

30 July 2022



AUDITOR-GENERAL  
SOUTH AFRICA

*Auditing to build public confidence*

# Mametletšo – Maikarabelo a Molekodipharephare wa Dipuku mabapi le tekolo ya dipuku

1. As part of an audit in accordance with the ISAs, I exercise professional judgement and maintain professional scepticism throughout my audit of the financial statements and the procedures performed on reported performance information for selected programme and on the public entity's compliance with respect to the selected subject matters.

## Ditatemente tša matlotlo

2. In addition to my responsibility for the audit of the financial statements as described in this auditor's report, I also:
  - identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error; design and perform audit procedures responsive to those risks; and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations or the override of internal control
  - obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the public entity's internal control
  - evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the board of directors, which constitutes the accounting authority
  - conclude on the appropriateness of the accounting authority's use of the going concern basis of accounting in the preparation of the financial statements. I also conclude, based on the audit evidence obtained, whether a material uncertainty exists relating to events or conditions that may cast significant doubt on the ability of the Council

for Geoscience to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the financial statements about the material uncertainty or, if such disclosures are inadequate, to modify my opinion on the financial statements. My conclusions are based on the information available to me at the date of this auditor's report. However, future events or conditions may cause a public entity to cease operating as a going concern

- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and determine whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation
- obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the group to express an opinion on the consolidated financial statements. I am responsible for the direction, supervision and performance of the group audit. I remain solely responsible for my audit opinion.

## Kgokagano le bao ba rwelego maikarabelo a tša puso

3. I communicate with the accounting authority regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.
4. I also provide the accounting authority with a statement that I have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on my independence and, where applicable, actions taken to eliminate threats or safeguards applied.

# 3

## Tlalego ya ditšhelete Ngwaga Ka Ngwaga Tša mo ngwageng o Fedilego Ka La 31 Hlakola 2022

### Tlalego ya Maemo a Ditšhelete

ka la 31 Hlakola 2022

	Notes	2022 R'000	2021 (Restated) R'000
<b>Assets</b>			
<b>Non-current assets</b>			
Property and equipment	3	341 983	334 694
Intangible assets	4	5 641	7 167
Heritage assets	27	17 562	17 562
<b>Current assets</b>			
Inventories	5	5	5
Trade and other receivables from exchange transactions	7	69 181	22 528
Cash and cash equivalents	8	292 997	358 362
<b>Total assets</b>		<b>727 369</b>	<b>740 318</b>
<b>Net assets and liabilities</b>			
Accumulated surplus		423 940	436 115
<b>Non-current liabilities</b>			
Post-employment benefit liabilities	6	11 530	11 260
<b>Current liabilities</b>			
Trade and other payables	9	52 157	68 134
Deferred income	10	205 183	191 337
Accruals	11	34 559	33 472
<b>Total net assets and liabilities</b>		<b>727 369</b>	<b>740 318</b>

# Tlalego ya Phethagatšo ya Ditshelete

go Paka ye e Fedilego ka la 31 Hlakola 2022

	Notes	2022 R'000	2021 (Restated) R'000
<b>Total revenue</b>		<b>583 211</b>	<b>525 886</b>
Revenue from exchange transactions	12	256 968	272 193
Revenue from non-exchange transactions	12	326 243	253 693
<b>Total cost of projects</b>		<b>(268 543)</b>	<b>(194 862)</b>
Cost of commercial projects	12	(83 215)	(14 932)
Cost of statutory projects	12	(185 328)	(179 930)
<b>Gross surplus</b>		<b>314 668</b>	<b>331 024</b>
Administrative expenses		(325 918)	(324 497)
Other operating expenses	12	(905)	(19 580)
<b>Surplus from operations</b>		<b>(12 155)</b>	<b>(13 052)</b>
Finance cost	13	(20)	(14)
<b>Net (deficit)/surplus for the year</b>		<b>(12 175)</b>	<b>(13 066)</b>

# Tlalego ya Diphetogo go Dithoto tša goshala

## go Paka ye e Fedilego ka la 31 Hlakola 2022

	Notes	Accumulated surplus R'000	Total R'000
<b>Opening balance at 31 March 2020</b>		<b>384 134</b>	<b>384 134</b>
Net surplus for the period		65 047	65 047
<b>Restated balance at 31 March 2020</b>		<b>449 181</b>	<b>449 181</b>
Net loss for the period		(773)	(773)
Correction of prior period error	25	(12 293)	(12 293)
Restated net loss for the period		(13 066)	(13 066)
<b>Restated balance at 31 March 2021</b>		<b>436 115</b>	<b>436 115</b>
Net loss for the period		(12 175)	(12 175)
<b>Balance at 31 March 2022</b>		<b>423 940</b>	<b>423 940</b>

# Tlalego ya Kelo ya Tšhelete

ya Seatla ya Paka ye e Fedilego ka la 31 Hlakola 2022

	Notes	2022 R'000	2021 (Restated) R'000
<b>Cash inflow from operating activities</b>		<b>(21 244)</b>	<b>173 827</b>
Cash receipts from customers		525 052	525 901
Cash paid to suppliers and employees		(556 123)	(364 629)
Cash generated from operations	14	(31 070)	161 272
Interest received	12	9 846	12 569
Finance cost	13	(20)	(14)
<b>Cash outflow from investing activities</b>		<b>(44 121)</b>	<b>(47 479)</b>
Acquisition of:			
Property and equipment	15.1	(44 554)	(40 779)
Intangible assets	15.2	(187)	(7 333)
Proceeds from sale of asset	12	-	29
Insurance proceeds for property and equipment	3.1	620	604
<b>Net increase/(loss) in cash and cash equivalents</b>		<b>(65 365)</b>	<b>126 349</b>
<b>Cash and cash equivalents at beginning of period</b>	8	<b>358 362</b>	<b>232 013</b>
<b>Cash and cash equivalents at end of period</b>	8	<b>292 997</b>	<b>358 362</b>

# 1 Melao ya maikarabelo a ditshetele

## ya Ngwaga wo o Fedilego ka la 31 Hlakola 2022

### 1.1 Basis of preparation

#### Statement of compliance

1. The financial statements have been prepared in accordance with the Standards of Generally Recognised Accounting Practices (GRAP) including any interpretations, guidelines and directives issued by the Accounting Standards Board.

The financial statements have been prepared on the historic cost basis and accounting policies are consistent with prior years.

These Annual Financial Statements have been prepared on a going concern basis, i.e. the assumption that the Council for Geoscience will continue to operate as a going concern for at least the next twelve months.

2. The Cash Flow Statement has been prepared in accordance with the direct method.
3. Specific information is presented separately on the Statement of Financial Position such as:
  - a) receivables from non-exchange transactions, including taxes and transfers;
  - b) taxes and transfers payable;
  - c) trade and other payables from non-exchange transactions.

The budget reporting standard does not apply to the Council for Geoscience as our budget is tabled as part of the Department of Mineral Resources and Energy's budget.

### 1.2 Revenue recognition

Revenue comprises the revenue from non-exchange transactions recognised as income in the current year, contract income and sales of publications.

The Council for Geoscience measures revenue at the fair value of the consideration received or receivable. Revenue is recognised only when it is probable that the

economic benefits associated with a transaction will flow to the Council for Geoscience, and the amount of revenue and associated costs incurred or to be incurred, can be measured reliably.

#### 1.2.1 Revenue from non-exchange transactions

The Council for Geoscience receives grants in the form of a baseline allocation from the Department of Mineral Resources and Energy.

Revenue from non-exchange transactions that are conditional grants is recorded as deferred income when it is received. It is then recognised as income proportionate to the costs incurred.

Other baseline allocation funds are recognised as revenue upon receipt.

#### 1.2.2 Revenue from exchange transactions

Revenue from exchange transactions comprises sales and contract revenue as follows:

##### Sales revenue

Sales revenue represents the invoiced value of goods and services supplied by the Council for Geoscience. This revenue is recognised when the revenue recognition criteria are met.

##### Contract revenue

Revenue from contracts is recognised by means of progress payments over the duration of the contracts. Revenue from contracts in progress is recognised when the revenue criteria are met. When the outcome of a contract can be estimated reliably, revenue is recognised by referring to the stage of completion of the contract outcome.

### 1.3 Interest received

Interest is recognised on a time proportionate basis with reference to the principal amount receivable and the effective interest rate applicable.

# 1 Melao ya maikarabelo a ditshetele

## (tšwetšwapele)

### 1.4 Property and equipment

Property and equipment are tangible non-current assets that are held for use in the production or supply of goods or services, or for administrative purposes, and are expected to be used during more than one period.

The cost of an item of property and equipment is recognised as an asset when:

- it is probable that future economic benefits associated with the item will flow to the Council for Geoscience; and
- the cost of the item can be measured reliably.

Land and buildings were valued at initial recognition and subsequently only the building is depreciated on a straight-line method.

Costs include costs incurred initially to acquire or construct an item of property and equipment and costs incurred subsequently to add to, replace part of, or service it. If the cost of a replacement part is recognised in the carrying amount of an item of property and equipment, the carrying amount of the replaced part is derecognised.

Property and equipment are carried at cost less accumulated depreciation and any impairment losses.

Day-to-day expenses incurred on property and equipment are expensed directly to surplus or deficit for the period.

Where an asset is acquired at no cost, or at a nominal cost, its cost is its fair value as at date of acquisition.

A major refurbishment that meets the recognition criteria of an asset is capitalised.

Depreciation is provided on all property and equipment other than freehold land, to write down the cost, less residual value, on a straight line basis over its average useful lives, as follows:

Land	Not depreciable
Buildings	30 years
Motor vehicles	5 to 12 years
Equipment	5 to 12 years
Aircraft and Helicopter – Body	15 to 17 years
Aircraft and Helicopter – Components	Useful hours as per South African Civil Aviation Authority
Boat	10 years
Office furniture	20 to 25 years
Computer equipment	6 to 13 years
Specialised equipment	15 years

The depreciation charges for each period are recognised in the Statement of Financial Performance, unless it is included in the carrying amount of another asset.

The average useful lives and residual values are reviewed on an annual basis and changes are reflected as changes in accounting estimates on a prospective basis.

### 1.5 Intangible assets

An intangible asset is recognised when:

- it is probable that the expected future economic benefits that are attributable to the asset will flow to the entity; and
- the cost of the asset can be measured reliably.

Capitalised computer software is carried at cost less accumulated amortisation and less accumulated impairment losses. Computer software is tested annually for impairment or changes in estimated future benefits. Amortisation is provided to write down the intangible assets to their residual value, on a straight-line basis, being two to ten years.

### Research and development

Expenditure on research activities is recognised as an expense in the period in which it is incurred.



# 1 Melao ya maikarabelo a ditshetele

## (tšwetšwapele)

An internally generated intangible asset arising from research and development is recognised as part of intangible assets only if all of the following conditions are met:

- an asset is created that can be identified;
- it is probable that the asset created will generate future economic benefits;
- the development cost of the asset can be measured reliably.

Where no internally generated intangible asset can be recognised, development expenditure is recognised as an expense in the period in which it is incurred. Internally generated assets are amortised on a straight-line basis over their useful lives.

### 1.6 Heritage assets

Heritage assets are assets held for their cultural, environmental or historical significance. Heritage assets are initially recognised at deemed cost which has been determined, due to the nature of heritage assets, by specialist valuers. Heritage assets are reflected at deemed cost and are not depreciated. At each reporting date heritage assets are assessed for indications of impairment. If any such indication exists, an estimate of the recoverable amount or the recoverable service amount of the heritage assets will be determined and tested against the carrying amount.

### 1.7 Inventories

The Council for Geoscience is a custodian of scientific information that produces publications in the form of books, maps and map explanations etc. These publications are distributed to the public for free or at a nominal charge.

Inventories are initially measured at deemed cost (fair value).

### 1.8 Translation of foreign currencies

#### Foreign currency transactions

A foreign currency transaction is recorded, on initial recognition in Rand, by applying to the foreign currency amount the spot exchange rate between the Rand and the foreign currency at the date of the transaction.

#### At each balance sheet date:

- foreign currency monetary items are translated using the closing rate.

Exchange differences arising on the settlement of monetary items or on translating monetary items at rates different from those at which they were translated on initial recognition during the period or in previous Annual Financial Statements are recognised in the Statement of Financial Performance in the period in which they arise.

Cash flows arising from transactions in a foreign currency are recorded in Rand by applying to the foreign currency amount the exchange rate between the Rand and the foreign currency at the date of the cash flow.

### 1.9 Deferred income

Deferred Income is accounted for in the Statement of Financial Position. The related revenue is recognised on an accrual basis in the Statement of Financial Performance in the period in which it satisfies the revenue recognition criteria.

### 1.10 Retirement benefit costs

#### Short-term employee benefits

The cost of short-term employee benefits (those payable within twelve months after the service is rendered, such as bonuses, paid vacation leave and sick leave) is recognised in the period in which the service is rendered and is not discounted.

# 1 Melao ya maikarabelo a ditshetele

## (tšwetšwapele)

The expected cost of compensated absences is recognised as an expense as the employees render services that increase their entitlement or, in the case of non-accumulating absences, when the absence occurs.

### Defined contribution and defined benefit plans

The Council for Geoscience operates both a defined contribution pension and provident fund and a defined benefit plan in respect of post-retirement medical aid contributions. For the defined benefit plan, the defined benefit obligation and the related current service cost, is determined by using the projected unit credit method. The defined benefit plan is subject to an annual actuarial valuation. The qualifying plan asset of this scheme is held and administered by Momentum Group Limited.

The actuarial gains or losses are further limited to the extent that the net cumulative unrecognised actuarial gains or losses (before recognition of that actuarial gain or loss) exceed the unrecognised part of the transactional liability. Payments to defined contribution retirement benefit plans are charged to the Statement of Financial Performance in the year to which they relate.

### 1.11 Provisions and contingent liabilities

Provisions are recognised when:

- the entity has a present obligation as a result of a past event;
- it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation; and
- a reliable estimate can be made of the obligation.

The amount of a provision is the present value of the expenditure expected to be required to settle the obligation.

### Commitments

The Council for Geoscience classifies commitments as contracted future transactions that are non-cancellable or only cancellable at significant cost, and that will normally result in the outflow of cash.

This excludes steady routine transactions such as salary commitments relating to employment contracts or social security benefits.

A distinction is made between operational and capital commitments.

Disclosure is made of the aggregate amount of operational and capital expenditure contracted for at the reporting date, to the extent that the amount has not been recorded in the financial statements.

If a commitment is for a period longer than a year, it is stated in the note to the commitments.

Disclosure of expenditure that has been approved, but that has not yet been contracted for, is made.

## 1.12 Financial instruments

### Initial recognition

The entity classifies financial instruments, or their component parts, on initial recognition as a financial asset, a financial liability or an equity instrument in accordance with the substance of the contractual arrangement.

Financial assets and liabilities are recognised on the entity's Statement of Financial Position when the Council for Geoscience becomes party to the contractual provisions of the instrument.

Financial assets and liabilities are initially recognised at fair value.

### Derecognition of financial instruments

The entity derecognises a financial asset only when the contractual rights to the cash flows from the asset expire, or it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another entity.

The entity derecognises financial liabilities when the entity's obligations are discharged, cancelled or they expire.

# 1 Melao ya maikarabelo a ditshetele

## (tšwetšwapele)

### Impairment of loans and receivables

Financial assets are assessed for indicators of impairment at each balance sheet date. Financial assets are impaired where there is objective evidence that, as a result of one or more events that occurred after the initial recognition of the financial asset, the estimated future cash flows of the investment have been impacted.

The carrying amount of trade receivables is reduced through the use of an allowance account (bad debt provision). When a trade receivable is considered uncollectible, it is written off against the allowance account. Subsequent recoveries of amounts previously written off are credited against the allowance account. Changes in the carrying amount of the allowance account are recognised in surplus or deficit.

Fair values of trade and other payables are determined at a price charged at transaction date and impaired when indicators of impairment are present. At period end there were no differences between the book value and the fair values of trade and other payables.

### Fair value of trade and other receivables

Fair values of trade and other receivables are determined at a price charged at transaction date and impaired when indicators of impairment are present. At period end there were no differences between the book value and the fair values of trade and other receivables because of the short-term maturity.

### Financial assets carried at amortised cost

Loans and receivables are measured at amortised cost less any impairment losses recognised to reflect irrecoverable amounts. Impairment is determined on a specific basis, whereby each asset is individually evaluated for impairment indicators. Write-offs of these assets are expensed in surplus or deficit.

### Cash and cash equivalents

Cash and cash equivalents are short-term, highly liquid investments that are readily convertible to known amounts of cash. Cash and cash equivalents are measured at fair value.

### Financial liabilities carried at amortised cost

Trade and other payables are initially measured at fair value and are subsequently measured at amortised cost.

### 1.13 Operating leases

Leases of assets under which all the risks and rewards of ownership are effectively retained by the lessor are classified as operating leases. Lease payments under an operating lease are recognised as an expense on a straight-line basis over the lease term.

Any contingent rents are expensed in the period they are incurred.

### 1.14 Impairment

The Council for Geoscience identifies cash-generating assets as assets that are managed with the objective of generating a commercial return, and non-cash-generating assets as assets that do not generate market related cash flows from that asset.

The entity assesses at each balance sheet date whether there is any indication that an asset may be impaired. If there is any indication that an asset may be impaired, the recoverable amount is estimated for the individual asset. The recoverable amount of an asset is the higher of fair value less assumed costs to sell and its value-in-use.

If the recoverable amount of an asset is less than its carrying amount, the carrying amount of the asset is reduced to its recoverable amount. That reduction is an impairment loss recognised immediately in surplus or deficit.

At each reporting date the entity assesses impairment losses recognised in prior years for continued existence or decreases. If such indication exists, the recoverable amounts of those assets are estimated. The increase in the carrying amount of an asset attributable to a reversal of an impairment loss does not exceed the carrying amount that would have been determined had no impairment loss been recognised for the asset in prior periods. A reversal of an impairment loss of assets carried at cost less accumulated depreciation or amortisation is recognised immediately in surplus or deficit.

# 1 Melao ya maikarabelo a ditshetele

## (tšwetšwapele)

### 1.15 Critical accounting estimates and judgements

#### Provision for bad debts

Past experience indicates a reduced prospect of collecting debtors over the age of four months. Debtor balances are regularly assessed by management and provided for in line with the policy.

#### Provisions

Provisions were raised and management determined an estimate based on the information available and in line with the policy.

#### Property and equipment

Management has made certain estimations with regard to the determination of estimated useful lives and residual values of items of property and equipment.

#### Leases

Management has applied its judgement to classify all lease agreements that the entity is party to as operating leases, as they do not transfer substantially all risks and ownership to the entity. Furthermore, as the operating lease in respect of premises is only for a relatively short period of time, management has made a judgement that it would not be meaningful to classify the lease into separate components for the land and for the buildings for the Polokwane office current lease, and the agreement will be classified in its entirety as an operating lease.

### 1.16 Sources of estimation uncertainty

There are no key assumptions concerning the future and other key sources of estimation uncertainty at the balance sheet date that could have a significant risk of causing material adjustment to the carrying amounts of assets and liabilities within the next financial year.

### 1.17 Irregular expenditure

Irregular expenditure is recorded in the notes to the financial statements when confirmed. The amount recorded is equal to the value of the irregular expenditure incurred, unless it is impractical to determine, in which case reasons therefore must be provided in the notes. Irregular expenditure receivables are measured at the amount that is expected to be recovered and are de-recognised when settled or written off as irrecoverable.

Irregular expenditure must be removed from the balance of the irregular expenditure notes when it is either:

- condoned by the relevant authority if no official was found to be liable in law;
- recovered from an official liable in law;
- written-off if it's irrecoverable from an official liable in law; or
- written-off if it's not condoned and not recoverable.

### 1.18 Fruitless and wasteful expenditure

Fruitless and Wasteful Expenditure is expenditure that was made in vain and would have been avoided had reasonable care been exercised. Fruitless and wasteful expenditure where identified is accounted for in the related year. The expenditure is accordingly classified with its nature, and where subsequently recovered or written off, it is accounted for accordingly in surplus or deficit.

### 1.19 Post-reporting date events

Events after the reporting date are those events, both favourable and unfavourable, that occur between the reporting date and the date when the financial statements are authorised for issue. Two types of events can be identified:

- Those that provide evidence of conditions that existed at the reporting date (adjusting events after the reporting date)
- Those that are indicative of conditions that arose after the reporting date (non-adjusting events after the reporting date).

# 1 Melao ya maikarabelo a ditshetele

## (tšwetšwapele)

The Council for Geoscience will adjust the amounts recognised in the financial statements to reflect adjusting events after the reporting date once the event has occurred.

The Council for Geoscience will disclose the nature of the event and estimate its financial effect or a statement that such estimate cannot be made in respect of all material non-adjusting events, where non-disclosure could influence the economic decisions of users taken on the basis of the financial statements.

### 1.20 Related party transactions

Individuals as well as their close family members, and/or entities are related parties if one party has the ability, directly or indirectly, to control or jointly control the other party or exercise significant influence over the other party in making financial and/or operating decisions. Management is regarded as a related party and comprises the Board members and senior management. Related party transfers/payments of appropriated funds, specific-purpose allocations, etc. would generally fall under the disclosure exemption in GRAP 20, and such transfers and allocations are therefore part of the normal supplier and/or client/recipient relationships and are therefore not disclosed.

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

ya Ngwaga wo o Fedilego ka la 31 Hlakola 2022

## 2 New standards and interpretations

### 2.1 Standards and interpretations issued, but not yet effective

The Council for Geoscience has not applied the following standards and interpretations, which have been approved but are not yet effective for accounting periods 2021/22:

GRAP statement	Description	Impact	Effective date
GRAP 25	Employee Benefits	None	To be determined
GRAP 104	Financial Instruments (revised)	None	To be determined

## 3 Property and equipment

2022	Land R'000	Buildings and Fixtures R'000	Equipment* R'000	Office furniture R'000	Aircraft and boat R'000	Motor vehicles R'000	Computer equipment R'000	Total R'000
Gross carrying amount	18 231	233 716	202 459	14 265	24 859	26 899	62 934	583 363
Accumulated depreciation at the beginning of the period	(1 600)	(74 644)	(121 646)	(9 331)	(9 760)	(15 624)	(16 064)	(248 669)
<b>Opening net carrying amount at 31 March 2022</b>	<b>16 631</b>	<b>159 072</b>	<b>80 813</b>	<b>4 934</b>	<b>15 099</b>	<b>11 275</b>	<b>46 870</b>	<b>334 694</b>
Movements during the period:								
Work in progress (refer to note 3.2)	-	21 369	(195)	-	-	-	(2 988)	18 186
Acquisitions	-	-	11 726	721	-	4 133	9 789	26 369
Disposals	-	-	(72)	(134)	(3)	(32)	(108)	(349)
Disposals – Cost	-	-	(4 438)	(852)	(67)	(319)	(1 238)	(6 914)
Disposals – Depreciation	-	-	4 366	718	63	287	1 130	6 565
Depreciation	-	(6 378)	(21 329)	(485)	(742)	(2 571)	(5 411)	(36 917)
<b>Closing net carrying amount at 31 March 2022</b>	<b>16 631</b>	<b>174 062</b>	<b>70 942</b>	<b>5 037</b>	<b>14 354</b>	<b>12 805</b>	<b>48 152</b>	<b>341 983</b>
Gross carrying amount	18 231	255 085	209 552	14 134	24 792	30 713	68 497	621 001
Accumulated depreciation/impairment	(1 600)	(81 022)	(138 609)	(9 098)	(10 439)	(17 908)	(20 345)	(279 018)

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetswapele)

## 3 Property and equipment (continued)

2021	Land R'000	Buildings and Fixtures R'000	Equipment* R'000	Office furniture R'000	Aircraft and boat R'000	Motor vehicles R'000	Computer equipment R'000	Total R'000
Gross carrying amount	18 231	210 421	196 458	13 325	23 555	26 900	54 176	543 066
Accumulated depreciation at the beginning of the period	(1 600)	(68 618)	(99 302)	(8 744)	(9 284)	(13 058)	(12 445)	(213 051)
<b>Opening net carrying amount at 31 March 2021</b>	<b>16 631</b>	<b>141 803</b>	<b>97 156</b>	<b>4 581</b>	<b>14 271</b>	<b>13 842</b>	<b>41 731</b>	<b>330 015</b>
Movements during the period:								-
Work in progress (refer to note 3.2)	-	23 295	(27 167)	-	(1 282)	-	(6 032)	(11 186)
Reversal of impairment	-	315	-	-	-	-	-	315
Acquisitions	-	-	33 269	1 121	2 585	-	14 990	51 965
Disposals	-	-	(10)	(40)	-	(1)	(119)	(170)
Disposals – Cost	-	-	(102)	(181)	-	(1)	(199)	(483)
Disposals – Depreciation	-	-	92	141	-	-	80	313
Depreciation	-	(6 341)	(22 436)	(728)	(475)	(2 566)	(3 699)	(36 245)
<b>Closing net carrying amount at 31 March 2021</b>	<b>16 631</b>	<b>159 072</b>	<b>80 813</b>	<b>4 934</b>	<b>15 099</b>	<b>11 275</b>	<b>46 870</b>	<b>334 694</b>
Gross carrying amount	18 231	233 716	202 459	14 265	24 859	26 899	62 934	583 362
Accumulated depreciation/impairment	(1 600)	(74 644)	(121 646)	(9 331)	(9 760)	(15 624)	(16 064)	(248 669)

\* Equipment includes the following categories of equipment: Specialised Equipment, Audio and Visual, Technical Equipment, Office Equipment, and Scientific Equipment

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 3 Property and equipment (continued)

The transfer of the following land and buildings as stipulated under Section 26 of the Geoscience Act (Act No. 100 of 1993) has not yet been completed.

Location	Fair value at date of transfer R'000
474 Carl Street, Town Lands 351JR, Pretoria West	2 800
280 Pretoria Street, Silverton, Pretoria	94 000

Details regarding land and buildings are kept at the Council for Geoscience head office and will be supplied upon written request.

### 3.1 Compensation from third parties for property and equipment lost

	2022 R'000	2021 R'000
Proceeds from insurance	620	604

### 3.2 Property and equipment in the process of being constructed

Cumulative expenditure recognised in the carrying value of property and equipment being developed/constructed

	Buildings and fixtures R'000	Equipment* R'000	Aircraft and boat R'000	Total R'000
Gross carrying amount	70 211	23 933	1 040	95 184
<b>Opening net carrying amount at 31 March 2021</b>	<b>70 211</b>	<b>23 933</b>	<b>1 040</b>	<b>95 184</b>
Movement	21 369	(3 183)	-	18 186
<b>Closing net carrying amount at 31 March 2022</b>	<b>91 580</b>	<b>20 751</b>	<b>1 040</b>	<b>113 371</b>



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(tšwetšwapele)

## 3 Property and equipment (continued)

### Property and equipment in the process of being constructed with delays

Included in the work in progress for buildings and fixtures is a carrying amount of R81.090 million in respect of a ventilation system in the Silverton building that has been delayed.

	<b>Buildings and fixtures R'000</b>
Gross carrying amount	59 593
<b>Opening net carrying amount at 31 March 2021</b>	<b>59 593</b>
Movement	21 497
<b>Closing net carrying amount at 31 March 2022</b>	<b>81 090</b>

Repairs and maintenance expenditure incurred for the year to repair and maintain property and equipment.

	<b>2022 R'000</b>	<b>2021 R'000</b>
<b>Repairs and maintenance</b>		
Land and buildings	8 413	4 751
Office equipment and furniture	77	4
Technical and scientific equipment	1 910	2 482
Computer equipment	55	163
Aircraft	210	127
	<b>10 665</b>	<b>7 527</b>

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 4 Intangible assets

	2022 R'000	2021 R'000
<b>Computer software</b>		
Gross carrying amount	16 833	9 501
Accumulated amortisation	(9 666)	(8 166)
<b>Opening net carrying amount at 31 March 2021</b>	<b>7 168</b>	<b>1 335</b>
Movements during the period:		
Acquisitions	187	7 333
Disposals	(9)	-
Disposals – Cost	(269)	-
Disposals – Amortisation	259	-
Amortisation	(1 704)	(1 501)
<b>Closing net carrying amount at 31 March 2022</b>	<b>5 641</b>	<b>7 167</b>
Gross carrying amount	16 752	16 833
Accumulated amortisation	(11 111)	(9 666)

## 5 Inventories

	2022 R'000	2021 R'000
Publication inventories	5	5

## 6 Retirement benefit

### 6.1 Post-retirement medical aid fund (PRM)

The Council for Geoscience has made provision for the medical aid fund covering all its qualifying employees. All eligible employees are members of the defined benefit scheme. To improve management of this defined benefit scheme the Council for Geoscience established a qualifying plan asset in October 2010 which is held and administered by Momentum Group Limited and evaluated annually as at 31 March.

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## 6 Retirement benefit (continued)

The amount recognised in the Statement of Financial Performance is determined as follows:

	2022 R'000	2021 R'000
Current service costs	52	48
Interest charge	2 350	2 074
Expected return on planned assets	(1 306)	(1 517)
Actuarial (gain)/loss recognised	(434)	3 947
Recognition of loss on asset realisation	(392)	(2 959)
	<b>270</b>	<b>(1 593)</b>

The amount included in the Statement of Financial Position arising from the Council for Geoscience obligation in respect of PRM is as follows:

	2022 R'000	2021 R'000	2020 R'000	2019 R'000	2018 R'000
Present value of fund obligations	25 894	26 070	24 348	(15 094)	25 565
Fair value of planned assets	(14 364)	(14 810)	(15 094)	8 035	(17 530)
<b>Liability recognised in Statement of Financial Position</b>	<b>11 530</b>	<b>11 260</b>	<b>9 254</b>	<b>(7 059)</b>	<b>8 035</b>

Movement in net liability during the period is as follows:

	2022			2021		
	Liability	Planned asset	Net	Liability	Planned asset	Net
Liability at beginning of period	26 070	-	26 070	24 348	-	24 348
Value of planned assets at beginning of period	-	(14 810)	(14 810)	-	(15 094)	(15 094)
	<b>26 070</b>	<b>(14 810)</b>	<b>11 260</b>	<b>24 348</b>	<b>(15 094)</b>	<b>9 254</b>
Interest charge/expected return of planned asset	2 350	(1 306)	1 044	2 562	(1 541)	1 021
Contributions received	-	(392)	(392)	-	(1)	(1)
Current service costs	52	-	52	37	-	37
Benefits paid	(2 373)	2 373	-	(2 311)	2 311	-
Actuarial (gain)/loss	(205)	(229)	(434)	1 434	(485)	949
<b>Closing balance</b>	<b>25 894</b>	<b>(14 364)</b>	<b>11 530</b>	<b>26 070</b>	<b>(14 810)</b>	<b>11 260</b>

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 6 Retirement benefit (continued)

### Contributions expected to be paid

Top up payments are expected to be made during the 2022/23 financial year.

Expected rate of return on assets	9.98%
<b>Assumptions</b>	
Discount rates	9.98%
Basis of discount rates: JSE zero coupon bond yield after the market closed on 31 March 2022	
Return on assets	9.98%
Expected salary increases	4.23%
Healthcare cost inflation rate	7.78%

### Sensitivity analysis-on accrued liability (R Millions) for the year ended 31 March 2022

Assumption	Change	In service	Continuation	Total	Change
Central assumptions	-	2.248	23.646	25.894	-
Healthcare inflation	1%	2.590	25.435	28.025	8%
	-1%	1.964	22.047	24.011	-7%
Discount rate	1%	1.972	22.090	24.062	-7%
	-1%	2.586	25.414	28.000	8%
Post-retirement mortality	-1 year	2.322	24.692	27.014	4%
Average retirement date	-1 year	2.322	23.646	25.968	0%
Continuation of membership at retirement	-10%	2.024	23.646	25.670	-1%

The preceding table above indicates, for example that if medical inflation is 1% greater than the long-term assumptions made, the liability will be 8% higher than that shown.

### Sensitivity analysis for current service and interest cost (R Millions) for the year ended 31 March 2022

Assumption	Change	Current service	Interest cost	Total	Change
Central assumptions	-	51 647	2 353 673	2 405 320	-
Healthcare inflation	1%	61 841	2 560 042	2 621 883	9%
	-1%	43 416	2 171 606	2 215 022	-8%
Discount rate	1%	43 623	2 407 098	2 450 721	2%
	-1%	61 728	2 286 708	2 348 436	-2%
Post-retirement mortality	-1 year	53 302	2 460 072	2 513 374	4%
Average retirement date	-1 year	56 581	2 367 250	2 423 831	1%
Continuation of membership at retirement	-10%	46 509	2 333 705	2 380 214	-1%

The preceding table above indicates, for example, that if medical inflation is 1% greater than the long-term assumptions made, the liability will be 9% higher than that shown.

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 6 Retirement benefit (continued)

### 6.2 Pension and provident fund benefits

The Council for Geoscience and its employees contribute to a defined contribution plan. The assets of the scheme are held separately from the Council for Geoscience in funds under the control of trustees. The total cost charged to income of R16.072 million (2021: R15.591 million) represents equal contributions of 7.5% by the employer and employee.

## 7 Trade and other receivables from exchange transactions

	2022 R'000	2021 R'000
Trade receivables	31 493	5 503
Contract customers	28 182	9 006
Other receivables	11 758	10 044
	71 433	24 554
Less – Provision for bad debts	(2 252)	(2 026)
	<b>69 181</b>	<b>22 528</b>
<b>Provision for bad debts</b>		
Opening balance	2 026	2 047
Movement	226	(21)
Closing balance	2 252	2 026
<b>Analysis of impairment</b>		
Long overdue debtors considered impaired	2 252	2 026
	<b>2 252</b>	<b>2 026</b>

There is no difference between the fair value of trade and other receivables and their book value.

## 8 Cash and cash equivalents

Cash and cash equivalents at the end of the period are represented by the following balances:

	2022 R'000	2021 R'000
Cash at bank	116 907	26 800
Call accounts	176 091	331 562
	<b>292 997</b>	<b>358 362</b>

There is no difference between the fair value of cash and cash equivalents and their book value.

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 9 Trade and other payables

	2022 R'000	2021 R'000
Trade payables	21 430	21 673
Other payables	30 728	46 461
	<b>52 157</b>	<b>68 134</b>

There is no difference between the fair value of trade payables and their book value.

## 10 Deferred income

### Exchange revenue

	2022 R'000	2021 R'000
<b>10.1 Deferred income arising as a result of an agreement entered into with the Department of Science and Innovation to develop an intellectual property management office (Geoscience Act par 5(1)(g))</b>		
Carrying amount at the beginning of period	2 607	2 609
Amounts used during the period	-	(2)
Carrying amount at the end of period	2 607	2 607
<b>10.2 Deferred income arising as a result of an agreement with the Organisation of African Geological Surveys</b>		
Carrying amount at the beginning of period	293	248
Amounts received	42	45
Carrying amount at the end of period	335	293
<b>10.3 Deferred income arising as a result of an agreement with the Department of Science and Innovation for the environmentally friendly and efficient methods for the extraction of Rare Earth Elements</b>		
Carrying amount at the beginning of period	-	182
Amounts used during the period	-	(182)
Carrying amount at the end of period	-	-

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 10 Deferred income (continued)

	2022 R'000	2021 R'000
<b>10.4 Deferred income arising as a result of an agreement entered into with the National Research Foundation</b>		
Carrying amount at the beginning of period	110	110
Carrying amount at the end of period	110	110
<b>10.5 Deferred income arising as a result of Carbon Capture, Utilisation and Storage (CCUS) project</b>		
Carrying amount at the beginning of period	81 810	-
Amounts received	-	90 000
Amounts used during the period	(24 369)	(8 190)
Carrying amount at the end of period	57 441	81 810
<b>10.6 Deferred income arising as a result of CCUS project funded by the World Bank</b>		
Amounts received	101 000	-
Carrying amount at the end of period	101 000	-
<b>10.7 Deferred income arising as a result of an agreement entered into with the Department of Mineral Resources and Energy to develop and implement various measures to mitigate the effect of mining-induced contamination</b>		
Carrying amount at the beginning of period	106 518	105 002
Amounts received	50 819	248 537
Amounts used during the period	(113 647)	(247 021)
Carrying amount at the end of period	43 690	106 518
<b>Total deferred income</b>	<b>205 183</b>	<b>191 337</b>

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 11 Accruals

	2022 R'000	2021 R'000
<b>Accruals for leave pay</b>		
Carrying amount at the beginning of period	27 216	19 804
Provision current period	3 770	9 133
Amounts used during the current period	(2 521)	(1 721)
<b>Carrying amount at the end of period</b>	<b>28 465</b>	<b>27 216</b>
<p>The leave pay provision relates to the estimated liabilities as a result of leave days due to employees.</p>		
<b>Accruals for 13<sup>th</sup> cheque</b>		
Carrying amount at the beginning of period	6 256	5 395
Provision current period	(162)	861
<b>Carrying amount at the end of period</b>	<b>6 094</b>	<b>6 256</b>
<p>The 13<sup>th</sup> cheque accrual relates to the structuring of employee costs to company and is paid out on employees' birthdays.</p>		
<b>Total accruals</b>	<b>34 559</b>	<b>33 472</b>



# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 12 Surplus/Deficit from operations

	2022 R'000	2021 R'000
Operating surplus/deficit is arrived at after taking the following items into account:		
<b>Revenue</b>	<b>583 953</b>	<b>525 886</b>
<b>Non-exchange revenue</b>		
Total grant received	377 062	502 230
Project related revenue	(50 819)	(248 537)
<b>Total non-exchange revenue</b>	<b>326 243</b>	<b>253 693</b>
<b>Exchange revenue</b>		
Department of Mineral Resources and Energy project related revenue	113 647	224 351
Contracting revenue	104 726	19 872
Publication revenue	3 198	3 337
Carbon Capture, Utilisation and Storage	24 369	8 190
	<b>245 939</b>	<b>255 750</b>
<b>Other exchange revenue</b>		
Foreign currency gains	44	627
Proceeds from sale of asset	-	29
Recovery of asset losses	620	604
Sundry income	912	2 908
	<b>1 576</b>	<b>4 168</b>
<b>Interest received</b>		
- Interest income on call accounts	7 006	8 345
- Interest* income on current accounts	2 447	3 930
	<b>9 453</b>	<b>12 275</b>
<b>Total exchange revenue</b>	<b>256 968</b>	<b>272 193</b>

\* includes interest accrued to the amount of R441 912

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 12 Surplus/Deficit from operations (continued)

	2022 R'000	2021 R'000
<b>Total cost of contracts</b>	<b>268 543</b>	<b>194 862</b>
<b>Cost of commercial projects</b>		
Direct cost	64 621	5 710
Personnel expenditure	18 594	9 222
	83 215	14 932
<b>Cost of statutory projects</b>		
Direct cost	55 618	51 789
Personnel expenditure	129 710	128 141
	185 328	179 930
<b>Administrative expenses include:</b>		
Audit fees	3 671	2 873
- Current period	2 895	1 786
- Internal audit	219	955
- Fee for other services	558	131
Provision for bad debts	226	(21)
Depreciation – on owned assets	36 916	36 245
- Buildings	6 378	6 341
- Equipment	21 329	22 436
- Office furniture	484	728
- Motor vehicles	2 571	2 566
- Aircraft	443	282
- Boat	299	193
- Computer equipment	5 411	3 699
Reversal of impairment	-	315
Amortisation – intangible assets		
- Computer software	1 704	1 501
Rentals in respect of operating leases		
- Land and buildings	6 614	843
- Multifunctional printers	887	855

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 12 Surplus/Deficit from operations (continued)

	2022 R'000	2021 R'000
<b>Other operating expenses</b>		
Net loss on disposal of equipment	72	10
Net loss on disposal of vehicles	32	-
Net loss on disposal of intangible assets	9	-
Net loss on disposal of computer equipment	108	120
Net loss on disposal of office furniture	134	40
Net loss on disposal of boat	3	-
Write-off work in progress – HVAC	-	18 496
Foreign currency losses	548	914
	905	19 580
<b>Staff costs</b>	<b>340 464</b>	<b>337 293</b>
Included in staff costs are:		
Defined benefit plan expense for the post-retirement medical aid fund	270	2 036
- Current service cost	52	37
- Interest cost	2 350	2 562
- Expected return on plan assets	(1 306)	(1 541)
- Recognised actuarial (gain)/loss	(434)	979
- Recognition of loss on asset realisation	(392)	(1)
Defined contribution plan expenses for the pension and provident fund	16 072	15 591

## Emoluments

	2021/22				Total R'000
	Pensionable salary R'000	Performance bonus R'000	Provident/ Pension fund contributions R'000	Other contributions* R'000	
<b>Senior management</b>					
Mr Mabuza M	3 656	404	222	921	<b>5 203</b>
Mr Matsepe LD	2 577	304	157	130	<b>3 168</b>
Ms Shelembe PR	1 941	220	127	550	<b>2 839</b>
Dr Tshipa J	2 057	195	123	279	<b>2 655</b>
Dr Khoza TD	1 949	213	119	108	<b>2 389</b>

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 12 Surplus/Deficit from operations (continued)

	2020/21				Total R'000
	Pensionable salary R'000	Performance bonus R'000	Provident/ Pension fund contributions R'000	Other contributions* R'000	
<b>Senior management</b>					
Mr Mabuza M	3 114	334	188	678	<b>4 314</b>
Mr Matsepe LD	2 577	298	157	552	<b>3 584</b>
Ms Shelembe PR	1 941	236	127	437	<b>2 741</b>
Dr Tshipa J	2 057	238	123	457	<b>2 875</b>
Dr Khoza TD	1 949	233	119	427	<b>2 728</b>

\* Other contributions relate to employer contributions towards statutory deductions and leave.

### Board emoluments

Non-executive Board members	2022 R'000	2021 R'000
Dr Mathe H	45	176
Dr Mahachi J	-	107
Mr Koloji K	-	-
Mr Mvinjelwa X	129	129
Mr Mokoena S	113	131
Adv. Maake N	126	113
Ms Chowan A	96	150
Dr Mirembe J	-	-
Dr Khumalo T – Resigned 31 October 2021	-	-
Mr Malaza S	-	-
Mr Nel P	-	-
Ms Mdubeki R	-	-
Ms Mochothli D	-	-
Ms Tsotetsi P	-	-
Ms Madiba L	-	-
Mr Moatshe A	-	-
Mr Gerryts B	-	-
	<b>509</b>	<b>806</b>

## 13 Finance cost

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

	2022 R'000	2021 R'000
Finance cost on motor vehicle fleet cards	20	14

## 14 Reconciliation of net surplus/(loss) for the period to cash-generated from operations

	2022 R'000	2021 R'000
Net surplus for the period	(12 175)	(13 066)
Interest	20	14
Depreciation on property and equipment	36 916	36 245
Amortisation – Intangible assets	1 704	1 501
Reversal of impairment of assets	-	(315)
Proceeds from sale of assets	-	(29)
Compensation from third parties for property and equipment lost	(620)	(604)
Net loss on disposal of fixed assets	358	170
Interest earned	(9 846)	(12 569)
Provision for post-retirement medical aid benefits	270	2 006
Operating cash flows before working capital changes	16 627	13 353
Working capital changes:		
Increase in provision for accumulated leave pay and 13 <sup>th</sup> cheque	1 088	8 273
(Increase)/Decrease in trade and other receivables	(46 653)	16 762
Increase/(Decrease) in trade and other payables	(15 977)	39 690
Increase/(Decrease) in deferred income	13 845	83 194
<b>Cash generated from operations (including finance costs)</b>	<b>(31 070)</b>	<b>161 272</b>

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 15 Acquisition of:

	2022 R'000	2021 R'000
<b>15.1 Property and equipment</b>		
Land and buildings	-	-
Equipment	11 726	33 269
Office furniture	721	1 121
Aircraft and boat	-	2 585
Motor vehicles	4 133	-
Computer equipment	9 789	14 990
	26 369	51 965
<b>Work in progress – Acquisitions</b>		
Land and buildings	21 369	23 295
Computer equipment	(2 988)	(6 032)
Equipment	(195)	(27 167)
Aircraft and boat	-	(1 282)
	18 186	(11 186)
<b>Total acquisitions</b>	<b>44 554</b>	<b>40 779</b>
<b>15.2 Intangible assets</b>		
Computer software	187	7 333
	<b>187</b>	<b>7 333</b>

## 16 Contingent liability

	2022 R'000	2021 R'000
<b>16.1 Pending legal action</b>		
The Council for Geoscience has an estimated legal liability due to pending labour cases	476	-
	<b>476</b>	<b>-</b>

## 17 Taxation

No provision for income tax was made as the Council for Geoscience is exempted in terms of Section 10(1)(Ca)(i) of the Income Tax Act.

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 18 Operating lease commitments

	2022 R'000	2021 R'000
<b>18.1 Lease of office space</b>		
The operating lease between a supplier and the Council for Geoscience was entered into from 1 December 2017 to 30 November 2023.		
At reporting date, the outstanding commitments under non-cancellable operating leases, which fall due are as follows:		
Up to 1 year	562	674
2 to 5 years	495	1 209
<b>Total lease commitments</b>	<b>1 057</b>	<b>1 883</b>
<b>18.2 Lease of office printing equipment</b>		
The operating lease contracts with suppliers are from 1 May 2021 to 30 January 2025.		
At the reporting date, the outstanding commitments under non-cancellable operating leases, which fall due are as follows:		
Up to 1 year	2 847	792
2 to 5 years	3 480	-
<b>Total lease commitments</b>	<b>6 327</b>	<b>792</b>
<b>18.3 Commitments</b>		
Operating expenditure		
Approved and contracted	130 916	41 024
Approved but not yet contracted	28 201	13 170
<b>Capital expenditure</b>		
Approved and contracted: Property and equipment	71 858	55 234
Approved but not yet contracted: Property and equipment	-	10 281
<b>Total commitments</b>	<b>230 974</b>	<b>119 709</b>
<b>Commitments</b>		
Up to 1 year	35 405	50 098
2 to 5 years	195 570	69 611
<b>Total commitments</b>	<b>230 974</b>	<b>119 709</b>

The Council for Geoscience has usage-based contracts for the provision of the following services:

- Sampling Services Geophysics
- Accommodation and travel
- Courier services

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 19 Financial instruments

Financial instruments consist of cash and cash equivalents, investments with financial institutions, trade and other receivables and trade and other payables.

### 19.1 Credit risk

Financial assets, which potentially subject the Council for Geoscience to concentrations of credit risk, consist principally of cash, short-term deposits and trade receivables. The Council for Geoscience's cash equivalents and short-term deposits are placed with high credit quality financial institutions. Trade receivables are presented net of the allowance for doubtful debts. Credit risk with respect to trade receivables is limited due to the large number of customers being dispersed across different industries and geographical areas. Accordingly the Council for Geoscience has no significant concentration of credit risk.

The carrying amounts of financial assets included in the Statement of Financial Position represent the Council for Geoscience's exposure to credit risk in relation to those assets.

Trade and other receivables are controlled by well-established policies and procedures which are reviewed and updated on an ongoing basis. The Council for Geoscience does not have any significant exposure to any individual customer or counterparty.

Trade receivables and other payables are carried at amortised costs. Refer to notes 7 and 9.

### 19.2 Interest rate risk

The organisation's exposure to interest rate risk and the effective interest rates on the financial instruments at reporting date are: 31 March 2022.

	Weighted average effective interest rate 2022 %	Weighted average effective interest rate 2021 %
<b>Assets</b>		
Cash	1.00%	1.00%
Call accounts	3.94%	3.64%

#### Short-term deposits

The risk is perceived to be low due to the following factors:

- Funds are only invested with approved financial institutions according to the policy of the Council for Geoscience.
- Short-term deposits are only reinvested or invested with management approval.



# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 19 Financial instruments (continued)

### 19.3 Foreign currency risk

The Council for Geoscience undertakes certain transactions denominated in foreign currencies, hence exposures to exchange rate fluctuations arise. It is not policy for the Council for Geoscience to take out cover on these outstanding foreign currency transactions due to the fact that these transactions take place on an ad hoc basis. The Council for Geoscience exposure at 31 March 2022 is disclosed in note 20.

### 19.4 Airborne operations risk

It is the policy of the Council for Geoscience to transfer risk in respect of airborne operations to third parties, namely insurance and an external operator.

## 20 Foreign currency exposure

	2022			2021		
	Exchange rate	Foreign amount '000	R-value R'000	Exchange rate	Foreign amount '000	R-value R'000
<b>20.1 Trade receivables</b>						
<b>Foreign currency</b>						
US\$	R14.39330	\$28	399	R14.56250	\$28	404
<b>20.2 Banks</b>						
<b>Foreign funds</b>						
Euro	R15.86860	€240	3 808	R17.06900	€240	4 097

## 21 Related-party transactions

During the period, the following related-party transactions took place between the Council for Geoscience and the Department of Mineral Resources and Energy:

	2022 R'000	2021 R'000
Total grant received	377 062	502 230

Refer to note 10 for further details regarding transactions with the Department of Mineral Resources and Energy. All other related-party transactions were concluded at arm's length.

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 21 Related-party transactions (continued)

	2022 R'000	2021 R'000
<b>Relationships:</b>		
Parent National Department: Department of Mineral Resources and Energy		
Other Government Departments and Entities: South African National Energy Development Institute	-	90 000

The Council for Geoscience has been appointed as the implementing agency of the Carbon Capture, Utilisation and Storage (CCUS) project. The Director-General of Mineral Resources and Energy requested South African National Energy Development Institute (SANEDI) to transfer the MTEF funding allocations that were made available for the CCUS project to the CGS.

Refer to note 10 for further details regarding transactions with South African Energy Development Institute.

## 22 Irregular expenditure

	2022 R'000	2021 R'000
Opening balance	1 695	-
Irregular expenses identified in the current year	-	1 695
Expenditure condoned	(1 695)	-
	-	<b>1 695</b>

### Details of irregular expenditure identified in the current year

Non-compliance with National Treasury's instruction note 5 of 2020/21 'Emergency Procurement in Response to National State of Disaster'. National Treasury Practice note number 5 was repealed by National Treasury Practice note number 11 with effect from 1 September 2020. The contract variation of 25% for internet services was concluded after the instruction note 5 of 2020/21 was repealed on 26 August 2020. No loss has been incurred as services were rendered. National Treasury condoned the irregular expenditure on 30 April 2021.

Disciplinary steps were taken against the employee that caused the irregular expenditure and they have since resigned

	-	1 695
	-	<b>1 695</b>

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 23 Fruitless and wasteful expenditure

	2022 R'000	2021 R'000
Opening balance	18 496	-
Fruitless and wasteful expenditure identified in the current year	-	18 496
	<b>18 496</b>	<b>18 496</b>

### Determination

Fruitless and wasteful expenditure was identified in regards to the implementation of the humidity, ventilation and airconditioning (HVAC) system up to 2017. The work was found to be technically not acceptable and needed remediation. Management remains committed to eliminating and avoiding any fruitless and wasteful expenditure.

### Investigation

The Council for Geoscience has commenced with investigative procedures and has engaged legal services to recover the costs and damages.

## 24 Events after reporting date

### Non-adjusting events

#### Eminent acquisition of assets

Acquisition of equipment in support of the geoscience programme. The estimated cost for this acquisition is at R6 million.

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 25 Correction of prior year error

		2022 R'000	2021 R'000
<b>Nature</b>	<b>Period</b>		
A correction was made to the financial statements on VAT expenditure that was not recognised in the period to which it relates.	31 March 2020	-	5 149
A correction was made to payables in the prior period relating to the allocation of payments.	31 March 2020	-	(3 100)
A correction was made to the financial statements on other income that was not recognised in the period to which it relates.	31 March 2020	-	(2 882)
A correction was made to the financial statements to depreciation/amortisation for the prior period.	31 March 2020	(121)	(2 383)
A allocation correction was made from expenditure and capitalised.	31 March 2020	-	(65)
A correction was made to expenditure that was not recognised in the correct period.	31 March 2021	11 191	12
An adjustment was made to payables in the prior period relating to a construction project retention.	31 March 2020	-	(637)
An adjustment was made to deferred income in the prior period relating to a construction project retention.	31 March 2020	-	(197)
A correction was made to the financial statement to revenue for the prior period.	31 March 2021	(8)	-
A correction was made to expenditure that was previously capitalised.	31 March 2021	1 231	-
		12 293	(4 101)
<b>Effect</b>			
<b>Statement of Financial Performance as at 31 March 2020</b>			
Revenue recorded in the incorrect period – CCUS		(8)	(3 079)
Expenditure recorded in the incorrect period		11 191	5 161
Payment incorrectly allocated		-	(3 100)
Retention on projects recorded in the incorrect period		-	(637)
Depreciation/amortisation recorded in the incorrect period		(121)	(2 383)
Work in progress/assets captured as an expense		-	(65)
Reallocation of expenditure erroneously capitalised		1 231	-
		12 293	(4 101)

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 25 Correction of prior year error (continued)

	2022 R'000	2021 R'000
<b>Effect</b>		
<b>Statement of Financial Position as at 31 March 2020</b>		
Government Grant Project Related Revenue Recognised – Deferred income	-	976
Retention on projects not provided for – Payables	-	637
Capitalisation of VAT on asset	-	1 319
Payment incorrectly allocated	-	3 100
Expenditure recorded in the incorrect period not provided for	(11 191)	(6 480)
Revenue recorded in the incorrect period – Debtors	8	2 103
Accumulated depreciation/amortisation recorded in the incorrect period	121	2 383
Reallocation of expenditure erroneously capitalised	(1 231)	
Work in progress/assets captured as an expense	-	65
<b>Statement of Net Assets for the period ended 31 March 2019</b>		
Accumulated surpluses	(12 293)	4 101
<b>Correction of prior year disclosure</b>		
<b>Nature</b>		
<b>Disclosure as at 31 March 2021</b>		
<b>Restatement of closing balances of cumulative expenditure recognised in the carrying value of property and equipment being developed/constructed and cost:</b>		
Buildings and fixtures	(139)	-
Office furniture	139	-
<b>Restatement of accumulated depreciation</b>		
Vehicles other	(39)	-
Boat	39	-
<b>Restatement of closing balances of commitments</b>		
Approved and contracted	(1 695)	-
<b>Effect</b>		
None (only disclosure item)		

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 26 Change in accounting estimate

The useful lives of property and equipment were reassessed. This resulted in a change of estimated remaining lives of certain assets in the categories listed below:

### Useful lives

	Old	New
Equipment	5–7 years	5–12 years
Office furniture	20 years	20–25 years
Motor vehicles	5–8 years	5–12 years
Computer equipment	6 years	6–13 years
Computer software	2–5 years	2–10 years

The effect of the change in accounting estimate has resulted in depreciation amounting to R2 087 864 in 2021/22.

The change of R4 175 729 will be reflected in future periods.

The residual values of property and equipment was reassessed. This resulted in a change of estimated residual values of assets in the categories listed below:

### Residual values

	Old	New
Equipment	5% of cost	0% of cost
Office furniture	5% of cost	0% of cost
Computer equipment	5% of cost	0% of cost
Vehicles other	10% of cost	0% of cost

The effect of the change in accounting estimate has resulted in depreciation amounting to R3 425 263 (2020/21).

	2022 R'000	2021 R'000
Due to the change in accounting estimate regarding the useful life and residual values of assets, the depreciation expense is reported at:	31 500	27 593
Equipment	21 329	19 914
Office furniture	484	299
Motor vehicles	2 571	2 580
Computer equipment	5 411	3 299
Computer software	1 704	1 501

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 26 Change in accounting estimate (continued)

	2022 R'000	2021 R'000
Depreciation expense using the previous rates would have been reported at:	33 587	24 311
Equipment	22 909	17 405
Office furniture	595	(129)
Motor vehicles	2 658	2 540
Computer equipment	5 640	2 921
Computer software	1 784	1 574
Difference – useful lives	2 087	(144)
Equipment	1 580	(71)
Office furniture	111	8
Motor vehicles	87	14
Computer equipment	229	(22)
Computer software	80	(73)
Difference – residual values	-	3 425
Equipment	-	2 580
Office furniture	-	420
Computer equipment	-	400
Vehicles other	-	25

# Dinhla ka ditlalego tsa ditshelete Ngwaga ka ngwaga

(tšwetšwapele)

## 27 Heritage assets disclosure

GRAP 103 defines heritage assets as assets which have a cultural, environmental, historical, natural, scientific technological or artistic significance and are held indefinitely for the benefit of present and future generations.

Certain heritage assets are described as inalienable items thus assets which are retained indefinitely and cannot be disposed of without consent as required by law or otherwise.

	2022 R'000	2021 R'000
<b>Nature</b>		
The Council for Geoscience has the following different classes of heritage assets:		
- Gemstone collections	1 445	1 445
- Meteorite collections	2 804	2 804
- Mineral collections	13 313	13 313
	<u>17 562</u>	<u>17 562</u>

The heritage assets were at initial recognition valued at fair value using evaluators with the following credentials:

- Fossils – Professor for Paleontological Research, University of the Witwatersrand
- Mineral collections – MSc Geology and Professor and Chairman of the Department of Geology, University of the Witwatersrand
- Meteorite collections – Author of “Meteorites”, private collector of meteorites
- Gemstones – MSc Geology

Various valuation methods were used taking into account the different types of heritage assets held by the Council for Geoscience.

The valuations reports are held at the Council for Geoscience offices and are available for inspection.

The Palaeontological (fossil) assets have no monetary value as legislation does not permit the purchase or sale of fossils. (National Heritage Resources Act 1999 par 35(4)(c)).

The Council for Geoscience is in possession of old scientific equipment only for display purposes. This equipment does not carry any value.







# Tshedimošo ya boikgokaganyo

## Pretoria

280 Pretoria Street  
Silverton  
Pretoria  
South Africa

Private Bag X112  
Pretoria 0001  
South Africa

Mogala: +27 (0)12 841 1911  
Fekese: +27 (0)12 841 1221  
Emeile: [info@geoscience.org.za](mailto:info@geoscience.org.za)  
Wepsaete: [www.geoscience.org.za](http://www.geoscience.org.za)

## Bellville

3 Oos Street  
Bellville  
South Africa

PO Box 572  
Bellville 7535  
South Africa

Mogala: +27 (0)21 943 6700  
Fekese: +27 (0)21 946 4190  
Emeile: [info@geoscience.org.za](mailto:info@geoscience.org.za)  
Wepsaete: [www.geoscience.org.za](http://www.geoscience.org.za)

## Pietermaritzburg

139 Jabu Ndlovu Street  
Pietermaritzburg  
South Africa

PO Box 900  
Pietermaritzburg 3200  
South Africa

Mogala: +27 (0)33 345 6265/6  
Fekese: +27 (0)86 675 6880  
Emeile: [info@geoscience.org.za](mailto:info@geoscience.org.za)  
Wepsaete: [www.geoscience.org.za](http://www.geoscience.org.za)

## Polokwane

30A Schoeman Street  
Polokwane  
South Africa

PO Box 620  
Polokwane 0700  
South Africa

Mogala: +27 (0)15 295 3471  
Fekese: +27 (0)15 295 2826  
Emeile: [info@geoscience.org.za](mailto:info@geoscience.org.za)  
Wepsaete [www.geoscience.org.za](http://www.geoscience.org.za)

## Gqeberha (Port Elizabeth)

16 2<sup>nd</sup> Avenue  
Walmer  
Gqeberha (Port Elizabeth)  
South Africa

PO Box 5347  
Walmer 6065  
South Africa

Mogala: +27 (0)41 581 1164/1128  
Fekese: +27 (0)41 581 1165  
Emeile: [info@geoscience.org.za](mailto:info@geoscience.org.za)  
Wepsaete: [www.geoscience.org.za](http://www.geoscience.org.za)

## Upington

24 Josling Street  
Upington  
South Africa

PO Box 775  
Upington 8800  
South Africa

Mogala: +27 (0)54 332 1403  
Fekese: +27 (0)54 332 3961  
Emeile: [info@geoscience.org.za](mailto:info@geoscience.org.za)  
Wepsaete: [www.geoscience.org.za](http://www.geoscience.org.za)



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