

2012 ANNUAL REPORT

council for
geoscience

leading earth-science solutions



Council for Geoscience



Council for Geoscience

Annual Report of the Council for Geoscience for the period ended 31 March 2012

Vision:

Leading earth-science solutions

Mission:

To provide expert earth-science information and services to improve the management of natural resources and the environment for a better quality of life for all

Values:

- (i) Innovate and create through teamwork
- (ii) Excel through quality and performance
- (iii) Value diversity through trust and respect
- (iv) Invest in its people

Thrusts:

- Minerals Development
- Geoscience Mapping
- Water Resources Assessment and Protection
- Engineering Geoscience and Physical Geohazards
- Environmental Geoscience and Chemical Geohazards
- Education and Information
- Energy Geoscience

Focus Areas:

- Economic Growth
- Africa Development
- Innovation
- Rural Development and Poverty Eradication
- Regulatory Systems and Stakeholder Compliance
- Transformation
- Skills Development

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Prof P E Ngoepe
University of Limpopo

Chairperson of the Board



Dr G Graham
Council for Geoscience

Acting Chief Executive Officer



Mr I Abader
Department of Environmental Affairs



Ms S Mohale
Department of Mineral Resources



Dr D G Clarke
Department of Rural Development and Land Reform



Mr M Smith
Xstrata Coal



Ms K R Mthimunye
Bluewaves Consulting Services



Council for Geoscience



Mr K Hodges
Industrial Development Corporation

Alternate Members

Mr W Kleynhans
Alternate to Mr K Hodges
Industrial Development Corporation

Ms D Mochotlhi
Alternate to Mr M P Nephumbada
Department of Water Affairs

Mr D Mthembu
Alternate to Mr I Abader
Department of Environmental Affairs

Mr M Riba
Alternate to Dr D G Clarke
Department of Rural Develop-
ment and Land Reform



Mr M P Nephumbada
Department of Water Affairs

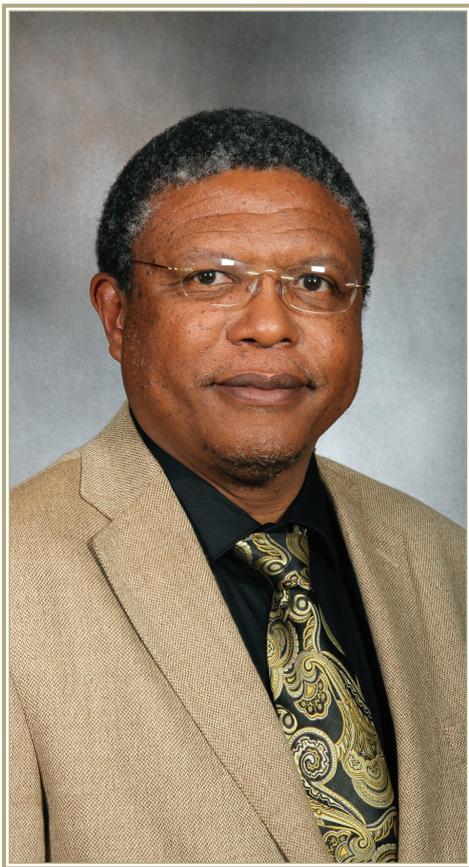
Dr C B Smith
Alternate to Prof J M Barton Jr
Geological Society of South Africa



Prof J M Barton Jr
Geological Society of South Africa

Review

CHAIRPERSON OF THE BOARD AND THE ACTING CHIEF EXECUTIVE OFFICER
OF THE COUNCIL FOR GEOSCIENCE



Prof P E Ngoepe



Dr G Graham

Leading earth-science solutions



Council for Geoscience

The 2011/12 financial year remained a year of challenge for the Council for Geoscience. The Management Board and the Executive Management of the Council for Geoscience developed and implemented short-term strategies to ensure the long-term sustainability of the organisation and direct costs were reduced to a minimum. During the latter part of the year, the Council for Geoscience found itself to be in an improved financial position and certain components of the Annual Technical Programme were re-instated.

During the year, the Council for Geoscience noticed a marked improvement in the availability of commercial geoscience-related projects, both nationally and internationally. The Council for Geoscience submitted twenty-one large tenders, all in excess of R1 million. To date, three have been awarded to the Council for Geoscience, one was cancelled and nine are still awaiting decision.

The statutory programme of the organisation forms a key component of its mandate, and also provides an opportunity for young geoscientists to develop as researchers. While the temporary suspension of parts of the Annual Technical Programme resulted in a reduced statutory programme, the Board and Management are pleased to report that, despite the financial difficulties of the organisation, the technical performance of the Council for Geoscience for the past year was 95,4 per cent, which testifies to the dedication of its staff and the sound management of the organisation.

During 2008/09, the Council for Geoscience embarked on developing and implementing ISO 17025 for the Analytical Laboratory and ISO 9001 for the remainder of the organisation. Good progress has been made in the Analytical Laboratory. It is anticipated that final accreditation, with the completion of both ISO 9001 and 17025, will be achieved during the forthcoming year.

The Geoscience Amendment Act (Act No. 16 of 2010) was signed into law by the President of South Africa in December 2010. This Act extends the functions of the organisation to include the rendering of advisory services in respect of geohazards and geo-environ-

mental pollution. The organisation will also act as custodian for all geoscience information. As the Council for Geoscience has not received the required funding for the implementation of the Act, only sections of the Act entailing no financial implications have been submitted to the Department of Mineral Resources for proclamation.

The Council for Geoscience continued with its African agenda during the period under review. Geoscience information and expertise are critical for the sustainable development of Africa, when considering the mineral wealth of the continent, in particular, but are also necessary to address other important challenges such as water shortages, pollution and geohazards. In this regard, the organisation has been involved in a number of key projects for several years and it is envisaged that this involvement will remain and may be extended over time. Some examples of this involvement are:

- The compilation of the SADC hydrogeological map was a European-funded project that addressed the need to standardise the groundwater systems in the SADC region for further development and to create new fields for investigation, especially for transfrontier aquifer development.
- The Council for Geoscience is one of the partners in the AEGOS (African European Georesources Observation System) project that aims to develop a Pan-African spatial system capable of hosting and providing access to geological information, including groundwater, energy, raw materials and mineral resources.
- *AfricaArray*, which is an innovative programme, aims to promote, strengthen and maintain a workforce of highly trained geoscientists and researchers for Africa. Well-trained geoscience professionals are key to sustainable development as the demand for Africa's natural resources is ever increasing and Africa's environment is impacted by global change.
- The continuing provision of direct capacity building support to African Geological Surveys through various programmes and interventions such as seismology training and the provision of technical support. Countries that have received technical or training support include Namibia, Botswana,

Zimbabwe, Mozambique, Swaziland, Rwanda, the Democratic Republic of the Congo and Sudan.

- The Council for Geoscience, together with the Geological Society of South Africa, has won the bid to host the 35th International Geological Congress in 2016 in Cape Town. Good progress has been made with the preparations relating to this prestigious event.

A fundamental role of any national geoscience institution such as the Council for Geoscience has historically been the acquisition of new geoscience data. Traditionally this has taken the form of geological mapping, geophysical surveys and national or regional geochemical sampling programmes. The geological mapping of the country at a scale of 1:250 000 was completed recently after fifty years of systematic reconnaissance and surveys which included field and laboratory work supported by airborne geophysics. However, the increasing interest in and concern with dynamic systems, such as the environment and geohazards, are changing the traditional role of Geological Surveys worldwide. Extensive studies related to environmental and quality-of-life issues, land-use planning and development, and the monitoring and mitigation of geohazards are required. This implies that historical geoscience data gathering is no longer a 'once-off' process, but one that needs to be done increasingly on a continual, monitoring and real-time basis.

As an example of this type of investigation, the Council for Geoscience is developing remote-sensing techniques to better understand and predict the occurrence and impact of a wide range of geohazards. This information will be directly applicable to the planning and development options facing the country. Some of the geohazards to be investigated will include, for example, surface deformation associated with mining activities and water abstraction, sinkholes, earthquakes, geochemical hazards, groundwater vulnerability, problem soils, terrestrial erosion, coastal and beach erosion and landslides. The programme calls for capacity building initiatives, which will include graduate, MSc and PhD candidates.

Another example of this type of investigation is the involvement of the Council for Geoscience in the Strategic Water Management Programme. The

activities of the mining sector have resulted in serious environmental consequences and, in the case of the gold mines of the Witwatersrand, acid mine drainage. Given the magnitude and dynamics of the South African mining industry, it must be accepted that the challenges of mine water management cannot be administered by either Government or the mining sector alone.

The Inter-Ministerial Committee (IMC) on Acid Mine Drainage (AMD) appointed a Team of Experts which reported on the assessment and reappraisal of the situation with respect to acid mine drainage, focusing on the Witwatersrand goldfields. The Council for Geoscience took cognisance of the recommendations of the IMC Report that had been made public in 2010/11 and implemented various programmes to address the problems identified. Furthermore, staff of the Council for Geoscience continued to participate in activities coordinated by the Inter-Governmental Task Team which reports to the Inter-Ministerial Committee. This ensures alignment of the related programmes and prevents the duplication of efforts by State Institutions.

The Council for Geoscience, together with Eskom and the Department of Mineral Resources, has completed a project to identify and provide technical and financial support to junior/BEE miners. The objective of the project is to assist junior/BEE participation in the mainstream coal industry.

The Council for Geoscience, together with the South African Centre for Carbon Capture and Storage (SACCCS), has been investigating the financial and geological feasibility, legal requirements and a geographical information management system for carbon capture and storage in South Africa. The Council for Geoscience is in charge of assessing the effective storage capacity of the Zululand and Algoa Basins. These investigations form a critical requirement for the South African Roadmap for Carbon Capture and Storage with the aim of performing CO₂ test injections in South Africa by 2016.

The Mineral Resources of South Africa Handbook is in the process of being updated with the assistance of specialist scientists from academia and industry.

The Council for Geoscience has recently received an allocation of R200 million as part of an economic competitiveness support package that will be appropriated over a period of three years and that will allow the organisation to make a significant contribution through the identification of new target areas with mineral potential, hence promoting the mining industry in South Africa and ultimately attracting investment into the industry. Part of this allocation will be applied to maintain the buildings and facilities of the Council for Geoscience.

As of 1 November 2011, Dr Thibedi Ramontja, the CEO of the Council for Geoscience, was appointed as the Director-General for the Department of Mineral Resources. Dr Gerhard Graham was appointed as the acting CEO for the interim period.

The Board and Management of the Council for Geoscience are highly thankful for the dedication, loyalty and commitment shown by the staff in the difficult and volatile financial times that the organisation has experienced since 2009.

The Management Board and Executive Management of the Council for Geoscience would like to thank the Ministers and staff of the Departments of Mineral Resources and of Science and Technology for their valued support.



Prof P E Ngoepe

Chairperson: Management Board of the
Council for Geoscience



Dr G Graham

Acting Chief Executive Officer

Abridged Board Charter

PER PFMA AND PROTOCOL ON CORPORATE GOVERNANCE

Board Charter

A Board Charter was developed and established for the Management Board of the Council for Geoscience. The Charter defines the governance parameters within which the Board exists and sets out specific responsibilities to be discharged by the Board.

The Board is fully committed to applying the fundamental principles of good governance, transparency, integrity, accountability and responsibility in all dealings by, in respect and on behalf of the Council for Geoscience. It accordingly embraces the principles of good governance as set out in the Public Finance Management Act (Act No. 1 of 1999, as amended) and the Protocol on Corporate Governance in the Public Sector.

The Charter confirms the Board's

- role in exercising leadership, judgement and providing strategic direction
- composition
- accountability
- fiduciary duties and responsibilities
- code of conduct
- appointment of committees
- governance and meeting procedures
- duty to declare conflict of interests
- responsibility for adoption of strategic plans
- monitoring of operational performance and management
- determination of policy and processes to ensure the integrity of the Council for Geoscience's risk management and internal controls
- communications policy
- Director selection, orientation and evaluation.

The Board Charter is reviewed, as and when necessary, to ensure that it remains relevant to the business objectives of the Council for Geoscience.

Statement of Responsibility

Council for Geoscience Responsibility of the Management Board for the Annual Financial Statements

The Board Members are responsible for the monitoring, preparation and the integrity of the financial statements and related information included in this annual report.

For the Board to discharge its responsibilities, Management has developed and continues to maintain a system of internal controls. The Board has the ultimate responsibility for the system of internal controls and reviews its operation primarily through management structures.

The internal controls include a risk-based system of internal accounting and administrative controls designed to provide reasonable, but not absolute assurance that assets are safeguarded and that transactions are executed and recorded in accordance with generally accepted business practices and the policies and procedures of the Council for Geoscience. These controls are implemented by trained and skilled personnel, with an appropriate segregation of duties, and are monitored by Management. These include a comprehensive budgeting and reporting system operating within strict deadlines and an appropriate control framework.

The Board is accountable for the process of risk management and the system of internal controls for the Council for Geoscience. This process is regularly reviewed for effectiveness and for establishing appropriate risk and control policies, and communicating

these throughout the organisation. There is an ongoing process for identifying, evaluating and managing the significant risks faced by the organisation. The process has been in place for the period under review, up to the date of approval of the annual report and financial statements.

There is an adequate system of internal controls in place to mitigate any significant risk faced by the organisation to an acceptable level. This system is designed to manage, rather than eliminate, the risk of failure and to maximise the opportunities to achieve business objectives.

There is a documented and tested process in position that will allow the organisation to continue its critical business processes in the event of a disastrous incident impacting on its activities.

The external auditors are responsible for reporting on the financial statements. These financial statements are prepared in accordance with South African Statements of Generally Recognised Accounting Practices and incorporate disclosure in line with the accounting philosophy of the company. The financial statements are based on appropriate accounting policies that are consistently applied and supported by reasonable and prudent judgements and estimates.

The Board Members believe that the organisation will be a going concern in the year ahead; for this reason

they continue to adopt the going-concern basis in preparing the financial statements of the Council for Geoscience.

The Board Members are not aware of any matter or circumstance arising since the end of the financial year, not otherwise dealt with in the Council for Geoscience's annual financial statements, that would

affect the operations of the organisation or the results of its operations significantly.

The annual financial statements for the year 2011/12 were approved by the Accounting Authority in terms of section 51(1)(f) of the Public Finance Management Act (Act No. 1 of 1999, as amended) on 26 July 2012 and are signed on its behalf by:



Prof P E Ngoepe

Chairperson: Management Board of
the Council for Geoscience



Prof J M Barton Jr

Member: Management Board of the
Council for Geoscience

31 July 2012
Pretoria

Report of the Auditor-General

TO PARLIAMENT ON THE COUNCIL FOR GEOSCIENCE

REPORT ON THE FINANCIAL STATEMENTS

Introduction

1. I have audited the financial statements of the Council for Geoscience set out on pages 37 to 64, which comprise the statement of financial position as at 31 March 2012, the statement of financial performance, statement of changes in net assets and the cash flow statement for the year then ended and the notes, comprising a summary of significant accounting policies and other explanatory information.

Accounting authority's responsibility for the financial statements

2. The accounting authority is responsible for the preparation and fair presentation of these financial statements in accordance with Generally Recognised Accounting Practice and the requirements of the Public Finance Management Act, 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.

Auditor-General's responsibility

3. My responsibility is to express an opinion on these financial statements based on my audit. I conducted my audit in accordance with the Public Audit Act of South Africa, 2004 (Act No. 25 of 2004) (PAA), the *General Notice* issued in terms thereof and International Standards on Auditing. Those standards require that I comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.
4. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements 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 entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.
5. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Opinion

6. In my opinion, the financial statements present fairly, in all material respects, the financial position of the Council for Geoscience as at 31 March 2012 and its financial performance and cash flows for the year then ended in accordance with Generally Recognised Accounting Practice and the requirements of the Public Finance Management Act.

REPORT ON OTHER LEGAL AND REGULATORY REQUIREMENTS

7. In accordance with the PAA and the *General Notice* issued in terms thereof, I report the following findings relevant to performance against predetermined objectives, compliance with laws and regulations and internal control, but not for the purpose of expressing an opinion.

Predetermined objectives

8. I performed procedures to obtain evidence about the usefulness and reliability of the information in the corporate scorecard as set out on pages 30 to 34 of the annual report.
9. The reported performance against predetermined objectives was evaluated against the overall criteria of usefulness and reliability. The usefulness of information in the annual performance report relates to whether it is presented in accordance with the National Treasury annual reporting principles and whether the reported performance is consistent with the planned objectives. The usefulness of information further relates to whether indicators and targets are measurable (i.e. well defined, verifiable, specific, measurable and time bound) and relevant as required by the *National Treasury Framework for managing programme performance information*.
10. The reliability of the information in respect of the selected objectives is assessed to determine whether it adequately reflects the facts (i.e. whether it is valid, accurate and complete).

Additional matters

11. Although no material findings concerning the usefulness and reliability of the performance information were identified in the corporate scorecard, I draw attention to the following matters below.

Achievement of planned targets

12. Of the total number of planned targets, only 24 were achieved during the year under review. This represents 32% of total planned targets that were not achieved during the year under review. This was as a result of the institution not considering relevant systems and evidential requirements during the annual strategic planning process.

Material adjustments to the corporate scorecard

13. Material misstatements in the corporate scorecard were identified during the audit, all of which were corrected by management.

Compliance with laws and regulations

14. I performed procedures to obtain evidence that the entity has complied with applicable laws and regulations regarding financial matters, financial management and other related matters. My findings on material non-compliance with specific matters in key applicable laws and regulations as set out in the *General Notice* issued in terms of the PAA are as follows:

Annual financial statements, performance and annual report

15. The financial statements submitted for auditing were not prepared in some material respects in accordance with the requirements of section 55(1) of the PFMA. Material misstatements of irregular expenditure, capital and current assets identified by the auditors were subsequently corrected, resulting in the financial statements receiving an unqualified audit opinion.

Procurement and contract management

16. Contracts were awarded to bidders who did not submit a declaration on whether they are employed by the state or connected to any person employed by the state, which is prescribed in order to comply with Treasury regulation 16A8.3.

Expenditure management

17. The accounting authority did not take reasonable steps to prevent irregular expenditure, as required by section 51(1)(b)(ii) of the PFMA.

Internal control

18. I considered internal control relevant to my audit of the financial statements, corporate scorecard and compliance with laws and regulations. The matters reported below under the fundamentals of internal control are limited to the significant deficiencies that resulted in the findings on the corporate scorecard and the findings on compliance with laws and regulations included in this report.

Leadership

19. There is a lack of monitoring and supervision undertaken to enable management to determine whether there are adequate internal controls to ensure compliance with laws and regulations.
20. Deficiencies in controls to address the systems of collection and verification of performance information were identified and as a result corrections were made to tested performance measure results.

Financial and performance management

21. The information systems used for the recording and processing of transactions is not used to produce reliable information without extensive manual intervention for preparation of the annual financial statement at year end.

Auditor-General

Pretoria
31 July 2012



AUDITOR - GENERAL
SOUTH AFRICA

Auditing to build public confidence

Executive Report

Mandate of the Council for Geoscience

The Council for Geoscience is mandated to gather, compile, interpret and disseminate geoscience knowledge for South Africa, as provided for by the Geoscience Act (Act No. 100 of 1993). This mandate includes the following:

- a) The systematic reconnaissance and documentation of the geology of the earth's surface and continental crust, including all offshore areas within the territorial boundaries of South Africa.
- b) The compilation of all geoscience data and information, particularly the geological, geophysical, geochemical and engineering-geological data in the form of maps and documents, which are placed in the public domain.
- c) Basic geoscience research into the nature and origin of rocks, ores, minerals, geological formations, the history and evolution of life and the formation of the earth with a view to understanding the geological processes of both the past and present and to compile and publish such research findings nationally and internationally to contribute to the understanding of the earth, its evolution and its resources.
- d) The collection and curation of all geoscience data and knowledge on South Africa in the National Geoscience Repository. This repository houses a large and growing collection of geoscience information on all the countries of the African continent. This information also includes data that were received from mining companies, universities and research institutions worldwide. Public access to all geoscience information is subject to existing legislation, arranged through the mandate of the Council for Geoscience.
- e) The rendering of geoscience knowledge services and advice to the State to enable informed and scientifically based decisions on the use of the earth's surface and the earth's resources, within the territory of South Africa.
- f) The management of a number of national geoscience facilities on behalf of the country. These include the National Seismograph Network, an Infrasound Observatory, the National Borehole Core Repository, the National Geoscience Museum and the National Geoscience Library.
- g) As part of its seismological monitoring function, the Council for Geoscience contributes to the verification of global compliance to the ban on underground, underwater and upper atmospheric nuclear explosions in terms of the Comprehensive Nuclear Test Ban Treaty (CTBT), by making data available from stations located on South African territory.
- h) Provide geoscience data and products to external clients, both nationally and internationally. These services are to be rendered on a full cost-recovery basis.

Legislative and Corporate Governance Requirements

The Council for Geoscience was established in terms of the Geoscience Act (Act No. 100 of 1993). This Act also established the mandate and national responsibilities of the organisation. The Council for Geoscience was listed as a schedule 3A Public Entity

in terms of the Public Finance Management Act (Act No. 1 of 1999), as amended by Act No. 29 of 1999.

The Amendment Act of the Council for Geoscience was approved during 2010, signed into power by the President of South Africa in December 2010 and the regulations of the Act were drafted.

Overview of Business Operations

The finances of the organisation remained in a precarious position during the first half of the period under review. The requests for additional funding had been unsuccessful, hence the organisation continued to contain costs as per its short-term turnaround strategy.

Twenty-one tenders were submitted during the period under review, reflecting an upturn in commercial opportunities.

During the second half of the financial year, the Council for Geoscience found itself to be in a better financial position and the Annual Technical Programme was re-instated.

The reduced Annual Technical Programme made good progress in terms of achieving targets and improving performance. In this regard, the technical performance of the Council for Geoscience for the period under review was 95,4 per cent. Some key highlights of the programme follow in the paragraphs below.

The Council for Geoscience has elevated the Strategic Water Management Project (SWMP) that started with the Witwatersrand area to a national level. The new project will consider environmental impacts from past and current mining activities. The sources and impacted areas of the country are classified into 13 geo-environmental provinces in South Africa. The investigative studies include remote sensing, hydrogeology, hydrology, water quality monitoring (chemistry and acid mine drainage), ecotoxicology, physical hazard assessments, geophysics and GIS functions. During the period under review, the Olifants and Komati–Crocodile River catchment areas have been investigated. Field work in respect of the

listed tasks and a technical report were completed for the Olifants River catchment area. A technical report on the acid mine drainage of the Komati–Crocodile catchment area will be completed during the forthcoming financial year.

A report and database on the coal resources and reserves of South Africa have been completed by the Council for Geoscience. The project is of national interest to manage the future energy needs in an optimal and responsible manner, to identify potential new coal resources, as well as to the coal export initiative of the country.

Significant resources have been devoted to the generation of an industrial minerals inventory for South Africa. The prioritisation of industrial minerals for commodity analysis will depend on factors such as the current value of the mineral commodity and its application nationally and internationally. The geoscience information produced by the Council for Geoscience on, for instance, building and construction materials, and agricultural and industrial minerals can facilitate the production of the raw materials necessary to house, feed and clothe the people of South Africa.

The Council for Geoscience is developing programmes on strategic minerals which are defined as metals critical to industry and which have a ready market either in or outside South Africa. Examples of strategic metals include, amongst others, indium, rare-earth elements, uranium and lithium and their potential replacements. One of the main objectives of these programmes includes the discovery and recovery modalities of rare-earth element deposits in South Africa. Deposits from the Kalahari Manganese Field, carbonatite rocks and Bushveld-age granites and rhyolites have been identified as potential sources of rare-earth elements.

Both the Zululand and the Algoa Basins are being assessed for their effective CO₂ storage capacities. These studies, recommended earlier by the Atlas on the Geological Storage of Carbon Dioxide in South Africa, form an important element of South Africa's Carbon Capture and Storage Roadmap, which aims to achieve CO₂ test injection by 2016. The Zululand Basin desk study, funded by United Kingdom Depart-

ment of the Environment and Climate Change, has identified information gaps in existing data and planning for additional field work to complete the gaps is in progress.

The Algoa Basin study has been completed and submitted recently for evaluation. Like the Zululand study, the Algoa Basin report has also identified insufficient data to complete an effective CO₂ storage capacity assessment, which will necessitate further data acquisition by means of field work. The Algoa study, which is funded by EuropeAid, involves coworkers from the British Geological Survey, the Netherlands Organisation for Applied Scientific Research and a local law firm. The Council for Geoscience is responsible for the geological assessments and for developing a GIS database depicting CO₂ sources and sinks countrywide. The law firm is assessing the legal and regulatory environment for carbon capture and storage and the funding consultant is considering international and local financing mechanisms for carbon capture and storage in South Africa. The Council for Geoscience has also participated in the delivery of a CO₂ Test Injection scoping report.

Work being undertaken by the Council for Geoscience in support of a Probabilistic Seismic Hazard Analysis (PSHA) for the proposed nuclear site at Thyspunt constitutes geological field investigations and a PSHA following the Level 3 methodology, published by the Senior Seismic Hazard Assessment Committee (SSHAC) in the United States of America. Information collected in the vicinity of the Thyspunt nuclear site and possible surrounding seismotectonic sources includes data on the regional geology and tectonic setting, neotectonic setting, geophysical and catalogue data, and recurrence calculations. Good progress has been made with the field data collection. The Council for Geoscience Nuclear Geohazards Group involved in this work received official ISO 9001 certification for the quality management systems.

During the period under review, the Council for Geoscience constructed seismograph stations in the Klerksdorp–Orkney–Stilfontein–Hartbeesfontein (KOSH) region. These stations were constructed in order to expand the South African National Seismo-

graph Network into this region for monitoring the seismicity and conducting research focused on minimising risk to the lives of miners. In addition to the stations, a data centre was established to accommodate the large amounts of data which will be transmitted to the Council for Geoscience offices in real time from the stations and to automatically locate any earthquakes which may occur. These real-time locations, as well as the analyst-reviewed locations will be available to the Department of Mineral Resources for perusal on their own dedicated data centre.

The Council for Geoscience acts as the Secretariat of the Local Organising Committee for IGC35. This major International Congress will be held at the Cape Town International Convention Centre from 27 August to 4 September 2016. During the period under review, a Section 21 not-for-profit company was registered to act as a legal entity for the conference. A professional congress organiser was appointed to assist with the coordination of the event.

The Council for Geoscience focuses on skills development to ensure that the organisation's objectives of productivity, global recognition, competitive skills, motivated staff, scientific innovation and leadership excellence are achieved by enhancing the skills of the staff in the organisation. The Council for Geoscience recognises the need for mapping geologists and, on joining the organisation, young geoscientists embark on a one-year mapping programme before they are permanently placed in the operational units. During the past year, a field school was held at the Legalameetse Nature Reserve in Limpopo. Six young geologists, who included two MQA interns and two geologists from the Geological Survey of Namibia, participated in this event.

The Council for Geoscience continues to curate the South African Minerals Database, a depository of data on mineral occurrences, mineral deposits, mines and borehole data in South Africa. The objective of the South African Minerals Database project is to capture, store and continually update mineral data on mines, mineral deposits, mineral occurrences and borehole data within the borders of South Africa in a form that will enable efficient dissemination to interested data users in South Africa and abroad.

Highlights of Financial Results

	2012 R'000	2011 R'000
Government grant allocated	154 405	136 505
Conditional grant deferred	(9 667)	-
Government grant recognised	2 665	2 666
Contracting revenue	78 692	61 212
Publication revenue	673	654
Interest and other income	14 673	9 989
Total revenue	241 441	211 026
Total expenses	214 889	195 707
Surplus for the year	26 552	15 319

The database currently houses approximately 20 000 mineral records, 6 500 records of derelict and ownerless mines and more than 113 000 boreholes with 2 843 000 lithologies and 1 597 000 analyses.

A third of the surface area in Gauteng is susceptible to sinkhole formation and subsidence. In excess of 2 400 events have been recorded in the past 60 years, resulting in costly damage to buildings and infrastructure. The Council for Geoscience is in the process of compiling records of sinkholes and subsidence into a database. It will be crucial for future assessments of sinkhole hazards and decision making with respect to development types and foundation designs. As part of the role of the Council for Geoscience to assist government authorities, the organisation has been involved in the field of sinkhole risk evaluation since the early 1970s to ensure safe development on dolomite. Local authorities, including those of Tshwane, Ekurhuleni, Merafong and Kuruman, have been recipients of this assistance.

The National Homebuilders Registration Council requires that all residential developments are endorsed by this office for safe development. Existing guidelines produced by the Council for Geoscience for safe development on dolomite have become a basis for the creation of official standards by the South African Bureau of Standards, under the Department of Trade and Industry. These standards will improve the safety of all new developments on dolomite and are expected to be published shortly.

Large-scale closure of mining operations since the 1970s within the Witwatersrand mining regions and the subsequent termination of the extraction of underground water from mines have become important national concerns and have resulted in serious environmental consequences, the most notable being acid mine drainage in the case of the gold mines of the Witwatersrand. Following the guidelines of the Team of Experts Report in February 2011, significant progress has been made towards the implementation of the short-term solutions recommended. The Council for Geoscience has played an active role in the development of a plan of action in this regard and is also involved in the development of long-term solutions to the issues

in the Witwatersrand. A key recommendation of the Team of Experts, adopted by Cabinet, was the minimisation of water ingress into the underground mine workings of the Witwatersrand. This is being addressed as part of the Strategic Water Management Programme, undertaken by the Council for Geoscience on behalf of the Department of Mineral Resources.

Acid mine drainage is not the only serious environmental legacy of mining, nor is it limited to the mining areas of the Witwatersrand. Between 2005 and 2008, the Council for Geoscience had developed a National Strategy for the Management of Derelict and Ownerless Mines, which was presented to and accepted by the Department of Mineral Resources. From April 2011, the Council for Geoscience has been involved in the implementation of this strategy through the development of a comprehensive spatial database of derelict and ownerless mines, site investigations in view of identifying high-priority sites and in developing rehabilitation plans for these sites.

The Council for Geoscience, along with European and Asian partners, is participating in a project considering the application of earth observation for monitoring and observing environmental and societal impacts of mineral resources exploration and exploitation. This project aims to develop, implement and apply earth observation technologies through the development and monitoring of a set of environmental and societal indicators in mining areas. Three test sites, including coal mining areas in Mpumalanga and the Czech Republic and a gold mining area in Kyrgyzstan, are under investigation.

The Council for Geoscience is an active participant in a European-funded project known as the African-European Georesources Observation System (AEGOS), together with 22 other African and European partners. The aim of the project is to build a Pan-African spatial data infrastructure for georesources in Africa, including minerals, raw material, water and energy. This is a three-phase programme, including the design, development and implementation, and sustainable operation. The first phase of this work programme was completed in November 2011 after three years of successful collaboration.

The business-case development report, which is funded by the Department of Science and Technology and investigates the feasibility of a systematic resource mapping programme of the offshore marine environment around the South African mainland was completed and handed over to the Department of Science and Technology. This report developed the arguments, based on stakeholder requirements, of the importance for South Africa to implement a national systematic offshore mapping programme and to create a national archive of available data. Knowledge on the national seabed is currently inadequate, although it is recognised that significant mineral, renewable energy, food and environmental resources are available.

Strategic Objectives

The global economic downturn and worldwide recession forced the Council for Geoscience to identify improved strategic objectives to address immediate challenges such as declining commercial revenue, staff retention and the continuation with transformation. In this regard, the Council for Geoscience decided to implement its strategy in two phases, i.e. a short-term strategy that will address the immediate turnaround of the financial situation and a medium- to long-term strategy that will ensure that the repositioning of the organisation creates sustainability and delivery on the government objectives and outcomes.

The strategic objectives are grouped according to the four perspectives of the Corporate Balanced Scorecard, as discussed under the section on Performance Objectives.

The selection of projects for the statutory programme is based on addressing the developmental needs of South Africa, as captured in the Medium Term Strategic Framework of Government for 2009 to 2014, the 'Stakeholders' declaration on Strategy for the Sustainable Growth and Meaningful Transformation of South Africa's Mining Industry' of the Department of Mineral Resources, the Grand Challenges of the Department of Science and Technology and the Government's National System of Innovation. For the purpose of the Council for Geoscience strategy, the developmental needs are grouped according to the following focus areas:

- Economic Growth
- Rural Development and Poverty Eradication
- Increasing Innovation
- Skills Development
- Expediting Transformation
- Development of Africa
- Addressing Stakeholder Needs and Regulatory Requirements.

The objectives of the Council for Geoscience are achieved by continuously improving and enhancing the quality of its geoscience research, products and services. The strategic research priorities of the organisation are based on the following seven scientific and business thrusts:

- **Geoscience mapping:** The systematic gathering and documenting of geoscience information. This represents the cornerstone of all the other business thrusts.
- **Minerals development:** To do research and systematically gather information on mineral occurrences in the country to stimulate investment in the mining sector.
- **Environmental geoscience and chemical geohazards:** To systematically gather geoscience information and do research in order to advise on the identification, prevention and mitigation of the effects of geohazards on people and the environment.
- **Engineering geoscience and physical geohazards:** To gather and analyse geoscience information to provide advice, in order to reduce the risk to lives and property from the effects of geohazards.
- **Water resources assessment and protection:** To do research and render services for optimising the quality and quantity of groundwater resources to assist in the delivery of water to communities, industry and agriculture.
- **Education and information:** To facilitate the release of geoscience knowledge and information to the public.

- **Energy geoscience:** To contribute towards the energy security of South Africa.

The successful achievement of the above is highly dependent on critical success factors, which are essential for the organisation to achieve long-term sustainable success.

The critical success factors are:

- Adequate and competent scientists
- A happy workforce (high staff morale)
- The transfer of knowledge, skills and expertise to young scientists
- An integrated approach to service delivery
- The retention of experienced scientists
- Appropriate financial backing
- A workable balance between statutory and commercial work
- A structure that supports the strategy of the organisation
- A strategic place/brand within the national priorities framework.

Board of the Council for Geoscience

The Management Board of the Council for Geoscience approves the mission, strategies, goals, operating policies and priorities of the organisation and monitors compliance with the policies and achievements with respect to the scientific, administrative and financial objectives.

The Management Board is appointed by the Minister in accordance with the provisions of Section 4 of the Geoscience Act (Act No. 100 of 1993). Other than the CEO, all the Board Members are non-executive members. The Board Members are continuously and actively involved in, and bring independent counsel and judgement to bear on all Board discussions and decisions. Board Members are fully conversant with their fiduciary duties as are outlined in Section 50 of the PFMA, which, amongst others, require them to declare their interests when a potential conflict of interest may arise. The Board meets on a quarterly basis, or as required during the course of a financial year.

The Board has the following active Committees:

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

The composition of the Board during the 2011/12 financial year was as follows:

Prof P E Ngoepe (Chairperson)
University of Limpopo
Re-appointed on 1 October 2009

Dr T Ramontja
(Chief Executive Officer)
Resigned on 31 October 2011

Dr G Graham
(Acting Chief Executive Officer)
Appointed on 1 November 2011

Mr I Abader
Department of Environmental Affairs
Appointed on 1 August 2011

Prof J M Barton Jr
Geological Society of South Africa
Re-appointed on 1 October 2009

Dr D G Clarke
Department of Rural Development and Land Reform
Re-appointed on 1 October 2009

Mr K Hodges
Industrial Development Corporation
Re-appointed on 1 October 2009

Ms L McCourt
Department of Environmental Affairs
Appointed on 1 August 2009
Resigned on 31 July 2011

Ms S Mohale
Department of Mineral Resources
Appointed on 1 October 2011

Ms K R Mthimunye
Bluewaves Consulting Services
Appointed on 1 October 2009

Dr S Ndabezitha
Department of Mineral Resources
Appointed on 1 July 2011
Resigned on 31 August 2011

Mr M P Nephumbada
Department of Water Affairs
Appointed on 1 October 2009

Mr M Smith
Xstrata Coal
Re-appointed on 1 October 2009

Alternate Members

Mr W Kleynhans
Industrial Development Corporation
Alternate to Mr K Hodges
Appointed on 1 October 2009

Ms D Mochotlhi
Department of Water Affairs
Alternate to Mr M P Nephumbada
Appointed on 1 October 2009

Mr D Mthembu
Department of Environmental Affairs
Alternate to Mr Abader
Appointed on 1 August 2011

Ms F N Nzimande
Department of Mineral Resources
Alternate to Mr M Mabuza
Appointed on 1 June 2009
Resigned on 31 July 2011

Mr M Riba
Department of Rural Development and Land Reform
Alternate to Dr D G Clarke
Re-appointed on 1 October 2009

Dr C B Smith
Geological Society of South Africa
Alternate to Prof J M Barton Jr
Appointed on 1 October 2009

Board Meetings 1 APRIL 2011–31 MARCH 2012

MEMBERS	2011							2012	
	29 April	26 May	28 July	25 August	18 October	17 November	29 February	Meetings attended	Meetings not attended
Prof P E Ngoepe	Present	7	0						
Dr T Ramontja <i>Resigned on 31 October 2011</i>	Present	Present	Present	Present	Present	Not a member	Not a member	5	0
Dr G Graham <i>Appointed on 1 November 2011</i>	Not a member	Present	Present	2	0				
Mr I Abader <i>Appointed on 1 August 2011</i>	Not a member	Not a member	Present	Present	Present	Apology	Present	4	1
Prof J M Barton Jr	Present	7	0						
Dr D G Clarke	Present	Present	Present	Present	Apology	Apology	Present	5	2
Mr K Hodges	Apology	Present	Present	Present	Apology	Apology	Present	4	3
Ms L McCourt <i>Resigned on 31 July 2011</i>	Apology	Apology	Apology	Not a member	Not a member	Not a member	Not a member	0	3
Ms S Mohale <i>Appointed on 1 October 2011</i>	Not a member	Not a member	Not a member	Not a member	Apology	Apology	Apology	0	3
Ms K R Mthimunye	Present	Apology	Present	Present	Present	Present	Present	6	1
Dr S Ndabezitha <i>Appointed on 1 July 2011</i> <i>Resigned on 31 August 2011</i>	Not a member	Not a member	Present	Present	Not a member	Not a member	Not a member	2	0
Mr M P Nepfumbada	Present	Apology	Present	Apology	Present	Apology	Present	4	3
Mr M Smith	Apology	Present	Present	Present	Apology	Present	Present	5	2
Mr W Kleynhans <i>(Alternate to Mr Hodges)</i>	Apology	Main member present	Main member present	Main member present	Apology	Apology	Main member present	0	3
Ms D Mochothli <i>(Alternate to Mr Nefjumbada)</i>	Main member present	Apology	Main member present	Apology	Main member present	Apology	Main member present	0	3
Mr D Mthembu <i>(Alternate to Mr Abader)</i> <i>(Appointed on 1 August 2011)</i>	Not a member	Not a member	Not a member	Main member present	Main member present	Present	Main member present	1	0
Ms F N Nziman de <i>(Alternate to Mr Mabuzza)</i> <i>(Resigned on 31 July 2011)</i>	Apology	Apology	Main member present	Not a member	Not a member	Not a member	Not a member	0	2
Mr M Riba <i>(Alternate to Dr Clarke)</i>	Main member present	Main member present	Main member present	Main member present	Apology	Apology	Main member present	0	2
Dr C B Smith <i>(Alternate to Prof Barton)</i>	Main member present	0	0						

Audit and Risk Committee

The Audit and Risk Committee of the Council for Geoscience evaluates the annual internal and external audit plans, the internal and external audit reports and the financial statements. The Audit and Risk Committee also assesses the effectiveness of the internal audit function and the risk mitigation procedures, which are in place.

In addition, the Audit and Risk Committee, from time to time, assesses its mandate and charter in order to deal with emerging risks.

The composition of the Audit and Risk Committee as at 31 March 2012 was:

Ms N G Jiyane (Chairperson)
Ms S J Mbongo
Ms K R Mthimunye
Mr B Nemagovhani
Mr M P Nefumbada

Audit and Risk Committee Meetings 1 APRIL 2011–31 MARCH 2012

MEMBERS	2011				2012	Meetings attended	Meetings not attended
	20 May	22 July	10 August	3 November	16 February		
Ms N G Jiyane	Present	Present	Present	Present	Present	5	0
Ms S J Mbongo	Present	Apology	Present	Apology	Apology	2	3
Ms K R Mthimunye	Present	Present	Present	Present	Present	5	0
Mr B Nemagovhani <i>(Appointed on 1 May 2011)</i>	Present	Present	Apology	Present	Present	4	1
Mr M P Nefumbada	Apology	Apology	Present	Apology	Apology	1	4
Ms D Mochotlhi <i>(Alternate to Mr Nefumbada)</i>	Apology	Apology	Main member present	Apology	Apology	0	4

Finance Committee

The Finance Committee of the Council for Geoscience deals with a range of corporate financial issues of the organisation, such as the recommendation for the approval of the Budget, the recommendation for major capital expenditure, the writing off of bad debts and assets and any other financial matters as are referred to it by the Board for recommendations.

The composition of the Finance Committee as at 31 March 2012 was:

Ms K R Mthimunye (Chairperson)
 Dr D G Clarke
 Dr G Graham
 Ms D Mochotlhi
 Ms I Tshifura

Finance Committee Meetings 1 APRIL 2011–31 MARCH 2012

MEMBERS	2011			2012	Meetings attended	Meetings not attended
	20 May	12 August	3 November	16 February		
Ms K R Mthimunye	Present	Apology	Present	Present	3	1
Dr D G Clarke	Present	Present	Present	Present	4	0
Ms D Mochotlhi	Present	Apology	Apology	Apology	1	3
Dr T Ramontja <i>(Resigned on 31 October 2011)</i>	Present	Present	Not a member	Not a member	2	0
Dr G Graham <i>(Appointed on 1 November 2011)</i>	Not a member	Not a member	Present	Present	2	0
Ms I Tshifura <i>(Appointed on 1 May 2011)</i>	Present	Present	Present	Apology	3	1
Mr M Riba <i>(Alternate to Dr Clarke)</i>	Main member present	Main member present	Main member present	Main member present	0	0

Technical Committee

The Technical Committee of the Council for Geoscience deals with the annual scientific and technical programme of the organisation, evaluates the scientific and technical output, oversees the annual technical audit and recommends on such scientific and technical matters as are referred to it by the Board.

The composition of the Technical Committee as at 31 March 2012 was:

Prof J M Barton Jr (Chairperson)
 Dr G Graham
 Mr W Kleynhans
 Ms P Maruping
 Ms S Mohale
 Mr M Smith
 Dr S Ndabezitha

Technical Committee Meetings 1 APRIL 2011–31 MARCH 2012

MEMBERS	2011			2012	Meetings attended	Meetings not attended
	4 May	10 August	2 November	2 February		
Prof J M Barton Jr	Present	Present	Present	Present	4	0
Mr W Kleynhans	Present	Present	Present	Present	4	0
Ms P Maruping	Apology	Apology	Present	Apology	1	3
Ms S Mohale <i>(Appointed on 1 October 2011)</i>	Not a member	Not a member	Apology	Present	1	1
Dr T Ramontja <i>(Resigned on 31 October 2011)</i>	Present	Present	Not a member	Not a member	2	0
Dr G Graham <i>(Appointed on 1 November 2011)</i>	Not a member	Not a member	Present	Present	2	0
Mr M Smith	Apology	Present	Present	Present	3	1
Dr S Ndabezitha <i>(Appointed on 1 July 2011 Resigned on 31 August 2011)</i>	Not a member	Apology	Not a member	Not a member	0	1
Dr C B Smith <i>(Alternate to Prof Barton)</i>	Main member present	Main member present	Main member present	Main member present	0	0

Personnel, Remuneration and Transformation Committee

The Personnel, Remuneration and Transformation Committee determines the human resources strategies and policies of the Council for Geoscience. The Committee approves the remuneration structure and salary changes in the organisation and evaluates and makes recommendations on the payment of production bonuses. The Committee also decides upon the remuneration of the Executive Management.

The composition of the Personnel, Remuneration and Transformation Committee as at 31 March 2012 was:

Mr I Abader (Chairperson from 1 August 2011)
 Ms L McCourt (Chairperson until 31 July 2011)
 Prof J M Barton Jr
 Dr G Graham
 Mr M P Nepfumbada
 Mr M Riba

Personnel, Remuneration and Transformation Committee Meetings 1 APRIL 2011–31 MARCH 2012

MEMBERS	2011			Meetings attended	Meetings not attended
	4 May (inquorate meeting)	10 August	2 November		
Mr I Abader (Appointed on 1 August 2011)	-	Apology	Present	1	1
Ms L McCourt (Resigned on 31 July 2011)	-	Not a member	Not a member	0	0
Prof J M Barton Jr	-	Present	Present	2	0
Mr M P Nepfumbada (Resigned on 31 August 2011)	-	Present	Not a member	1	0
Dr T Ramontja (Resigned on 31 October 2011)	-	Present	Not a member	1	0
Dr G Graham (Appointed on 1 November 2011)	-	Not a member	Present	1	0
Mr M Riba (Appointed on 1 September 2011)	-	Not a member	Present	1	0
Ms D Mochotlhi (Alternate to Mr Nepfumbada)	-	Main member present	Not a member	0	0
Dr C B Smith (Alternate to Prof Barton)	-	Main member present	Main member present	0	0

Financial and Operational Factors

Post-balance-sheet events

No material facts or circumstances have arisen, between the date of the balance sheet and the production of this report, which will affect the financial position of the Council for Geoscience as is reflected in the financial statements.

Losses Incurred or Recovered

Material losses incurred

The Management Board of the Council for Geoscience has developed a Materiality and Significance Framework for the organisation. The Board has approved that any expenditure in excess of approximately one per cent of the annual operating expenditure budget, which is an amount of R850,000 for 2010/11, and/or the writing off and disposal of any asset in excess of approximately two per cent of the value of property and equipment as indicated in the annual financial statements of the year 2009/10, which is an amount of R4,100,000 individually or in aggregate, would be deemed material and significant. The Council for Geoscience has thus accepted the above-mentioned threshold figures of materiality for its financial framework.

Performance Objectives

Performance Management Criteria and Performance Targets of the Council for Geoscience

In line with the strategy developed by Management, the organisation has adopted a Balanced Scorecard (BSC) approach to its performance measurement. A balanced scorecard system, which measures the performance of the organisation at corporate, business unit and individual level was approved and accepted by the Management Board of the Council for Geoscience. The corporate balanced scorecard incorporates the current performance measures into the following evaluation perspectives:

- Stakeholder and customer satisfaction; to drive stakeholder and customer satisfaction by the development of world-class products and services
- Economic growth; to achieve sustainable revenue and profit growth
- Organisational systems; to develop and maintain effective and streamlined processes, using appropriate tools and methodologies
- Scientific excellence and human capital development; to develop a world-class geoscience organisation where people can grow and perform.

Twelve strategic objectives have been identified in line with the balanced scorecard framework, and, as such, cover the customer, financial, internal business process, and learning and growth perspectives. The objectives are aligned with the targeted strategic outcomes of the organisation and include:

- a) **Market (Stakeholder/Customer) Perspective Objectives**
 - To contribute towards South Africa's economic growth and serve stakeholders
- b) **Economic and Financial Growth Perspective Objectives**
 - To generate revenue
 - To manage overhead efficiency
- c) **Effective Systems Perspective Objectives**
 - To develop and implement effective policies and procedures
 - To integrate the Mine Seismic Network into the National Network
 - To implement the Geoscience Amendment Act (Act No. 16 of 2010)
 - To drive preferential procurement
 - To implement a corporate planning and reporting procedure
- d) **World-Class People Perspective Objectives**
 - To attract and retain a skilled workforce
 - To improve on Research & Development and Innovation
 - To build a positive organisational culture
 - To reflect and embrace RSA diversity.

Corporate Performance Targets of the Council for Geoscience

In order to evaluate the corporate performance of the Council for Geoscience, the organisation has developed a range of performance indicators, which cover the entire spectrum of activities within the organisation. The range of performance indicators, together with the performance targets for the period 2011/12, are summarised in the accompanying table.

Corporate Scorecard for 2011/12

Market (Stakeholder/Customer) Perspective		To drive stakeholder and customer satisfaction by the development of world-class products and services	
Objectives	Measures	Target 2011/12	Performance 2011/12
To serve our Stakeholders and Customers	- Annual Technical Programme Performance Index	85%	95,4%
	- Customer Satisfaction Level	80%	88,87%
	- Number of Maps and Publications published focusing on attracting Exploration Investment ¹	5	2
	- Number of Maps and Publications published focusing on Other Resources and Thrusts ²	20	14
	- Number of Rural Development Projects in progress	25	27
	- Number of Regional and African Development Projects in progress	22	23
	- Number of Environment-related Projects in progress	5	6

Economic/Financial Growth		To achieve sustainable revenue and profit growth	
Objectives	Measures	Target 2011/12	Performance 2011/12
Generate Revenue	- Total Revenue	R206,1m	R241,4
	- Government Grant	R137,5m	R144,7
	- Contract Revenue	R66m	R79,3
	- Sundry Income	R2,6m	R17,3
	- Commercial Surplus	R0m	R26,6
	- Ratio of Contract Revenue to Total Revenue	32%	32,8%
	- Ratio of External Revenue to Total Revenue ³	33,3%	40%
Overhead Efficiency	- Number of Large Tenders and Proposals submitted (>R1m) ⁴	44	21
	- Ratio of Overheads to Total Cost	55%	67,2%
	- Ratio of Personnel Cost to Total Cost	65%	59,7%

Effective Systems (Organisational)		To develop and maintain effective and streamlined processes, using appropriate tools and methodologies	
Objectives	Measures	Target 2011/12	Performance 2011/12
To Develop and Implement Effective Policies and Procedures	- Percentage ISO Implementation in accordance with Reference Report	90%	90%
To Integrate the Mine Seismic Network into the National Network	- Percentage Completion as per Agreement (Pilot project — Klerksdorp area)	100%	94%
To Implement the Geoscience Amendment Act	- Implement Detailed Business Plan ⁵	100%	n.a.
To Drive Preferential Procurement	- Preferential Procurement as a percentage of Total Procurement ⁶	45%	31,54%
To Implement Corporate Planning and Reporting	- Number of Audit Qualifications	0	0

World-Class People Perspective		To develop a world-class geoscience organisation where our people can grow and perform	
Objectives	Measures	Target 2011/12	Performance 2011/12
To Attract and Retain a Skilled Workforce	- Staff Turnover	-7%	-2%
	- Number of Staff and Students enrolled for MSc and PhD Degrees ⁷	28	41
	- Number of Engineering Geologists undergoing Training	4	6
	- Proportion of Scientists to Total Staff	43%	38,87%
	- Percentage Scientific Staff with MSc and PhD Degrees	55%	53,85%
	- Percentage Satisfied Protégées	60%	91,3%
To Improve on Research & Development and Innovation	- Number of Papers and Articles published ⁸	35	81
	- Number of Projects with Intellectual Property Value ⁹	1	0
	- Number of Projects with External Collaborators	55	45
	- Number of Strategic Science Partnerships ¹⁰	14	27
To Build a Positive Organisational Culture	- Percentage Satisfied Staff Members	65%	71%

To Reflect and Embrace RSA Diversity	- Percentage Overall Employment Equity Targets in the Organisation (White-Black)	38:62	36:64
	- Percentage Overall Employment Equity Targets in the Organisation (Male-Female)	54:46	60:40

Notes to the Corporate Scorecard

The following notes clarify instances where the variance between the expected target and observed performance, pertaining to operational measures, exceed 10 per cent:

1. *Publications published focusing on Attracting Exploration Investment*

This measure focuses on the publication of mineral maps, explanations, bulletins and handbooks that will release new information regarding mineral deposits and may attract new exploration initiatives. During 2009, the Council for Geoscience terminated the printing of maps and publications as part of a cost-cutting exercise. This cost-cutting measure was only lifted during the second half of the 2011/12 financial year and hence it did not leave the organisation with enough time to print the required number of publications in the remainder of the year.

2. *Number of Maps and Publications published focusing on Other Resources and Thrusts*

This measure deals with all geoscience maps, explanations, bulletins and handbooks that are not part of the publications mentioned in note one above. Printing of these publications was also affected by cost-cutting measures.

3. *Ratio of External Revenue to Total Revenue*

External revenue is all revenue other than government grant.

4. *Number of Large Tenders and Proposals submitted (>R1 million)*

The global economic recession has affected the availability of commercially funded geoscience projects negatively. Less funding was made available by the World Bank and other funding institutions for new commercial projects.

5. *Implement Detailed Business Plan*

The implementation of the Geoscience Amendment Act did not proceed as anticipated. The required funding needed for implementation was not forthcoming in the 2011/12 financial year.

6. *Preferential Procurement as a percentage of Total Procurement*

The nature of the services of the Council for Geoscience is such that it needs to source a large component of its equipment from international companies with no BEE shareholding. The monetary value of these acquisitions is much bigger than that of the local purchases. This caused the Council for Geoscience not to achieve the target of 45% set for the period under review.

7. Number of Staff and Students enrolled for MSc and PhD Degrees

The Council for Geoscience has increased the funding available for bursaries to its permanent staff. It has also lifted cost-cutting measures with regard to its technical programme. This has created opportunities for young scientists to gain further qualifications and contributed to the increased number of staff enrolling for MSc and PhD degrees.

8. Number of Papers and Articles published

The increase in the number of papers and articles published is directly linked to the sharp increase in the number of projects with external collaborators, strategic science partnerships and international commercial projects that focus on joint research and skills development. The results from this research were published as papers or as articles of oral presentations given at conferences, workshops, etc.

9. Number of Projects with Intellectual Property Value

The Council for Geoscience did not manage to register any patents during the period under review.

10. Number of Strategic Science Partnerships

This measure is focused at strengthening geoscience research in the organisation by engaging in joint research with universities and other research organisations. It appears that there is generous funding available in the world to encourage joint research and this is leading to more science partnerships.

Report of the Audit and Risk Committee

Responsibilities

The Management Board of the Council for Geoscience has the overall responsibility to ensure that the organisation has and maintains effective, efficient and transparent systems of risk management and internal controls. The responsibility to ensure the adequacy and effectiveness of these systems is delegated to the Audit and Risk Committee. The Audit and Risk Committee is an advisory committee of the Board, with an oversight role that is independent and objective.

The Audit and Risk Committee has adopted formal terms of reference, which have been confirmed by the Board through its charter, and is satisfied that it has discharged its duties and responsibilities as set out in the charter. In performing its responsibilities, the Audit and Risk Committee has reviewed the following:

- The functioning of the internal control systems
- The functioning of the internal audit programme
- The risk areas of the entity's operations to be covered in the scope of the internal and external audits
- The reliability and accuracy of the financial information provided to Management and other users
- The accounting or auditing concerns identified as a result of the internal or external audits
- The entity's compliance with legal and regulatory provisions.

Governance

The Board appointed the following members to the Audit and Risk Committee:

Ms N G Jiyane (Chairperson)
Ms S J Mbongo
Ms K R Mthimunye
Mr B Nemagovhani
Mr M P Nephumbada.

The Audit and Risk Committee met five times during the period under review.

Internal Control Systems

The members of the Audit and Risk Committee believe that the system of internal controls is adequately designed to cover organisational, financial and operational risks. The control system provides reasonable, but not absolute, assurance that the organisation's assets are safeguarded, transactions are authorised and recorded properly, and that material errors and irregularities are either prevented or detected timeously. These controls are monitored throughout the organisation by Management and employees with the necessary segregation of authority and duties.

The Operational Risk Management Committee, which reports to the Audit and Risk Committee on a quarterly basis, continuously evaluates and monitors the effectiveness of all internal control systems in respect of all areas of risk that have been identified.

Having reviewed the effectiveness of the organisation's system of internal controls, and based on detailed reports provided by the internal auditors,

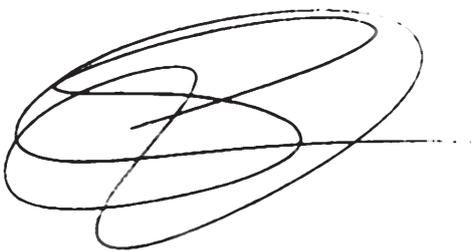
the members of the Audit and Risk Committee are not aware of any significant weakness or deficiency in the organisation's system of internal controls.

Internal Auditing

Internal auditing was outsourced during the period under review and provides a supportive role to Management and the Audit and Risk Committee to achieve their objectives by identifying and evaluating significant exposures to risk and contributing to the empowerment of risk management and control systems.

The internal audit function is responsible for independently and objectively evaluating the organisation's system of internal controls at a detailed level and to bring any significant business risks and exposures to the attention of Management and the Audit and Risk Committee through the provision of comprehensive internal audit reports.

Approved



Ms N G Jiyane

Chairperson: Audit and Risk Committee

Financial Statements

The Audit and Risk Committee has reviewed and discussed the financial statements of the Council for Geoscience for the year ended 31 March 2012 with the Auditor-General and the Accounting Officer. The Audit and Risk Committee has also reviewed the management letter of the Auditor-General and the responses of Management thereto. The members of the Audit and Risk Committee believe that the financial statements comply, in all material respects, to the requirements of the Public Finance Management Act (Act No. 1 of 1999, as amended) and the South African Statements of Generally Recognised Accounting Practices (GRAP). The Audit and Risk Committee agrees that the adoption of the going-concern premise is appropriate in preparing the annual financial statements.

The Audit and Risk Committee, at its meeting held on 23 July 2012, recommended the adoption of the annual financial statements by the Management Board of the Council for Geoscience.

Financial Statements

OF THE COUNCIL FOR GEOSCIENCE FOR THE PERIOD ENDED MARCH 2012

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Council for Geoscience

Statement of Financial Position as at 31 March 2012

	Notes	2012 R'000	2011 R'000
Assets			
Non-current assets			
Property and equipment	2	185,439	191,613
Intangible assets	3	2,966	5,677
Current assets			
		207,317	166,546
Inventories	4	5	-
Trade and other receivables	6	33,919	27,628
Cash and cash equivalents	7	173,393	138,918
Total assets		395,722	363,836
Net assets and liabilities			
Net assets			
Accumulated surplus		227,800	201,243
Non-current liabilities			
Post-employment benefit liabilities	5	10,065	9,326
Government grant	8	83,009	85,674
Current liabilities			
		74,848	67,593
Trade and other payables	9	9,124	6,815
Deferred income	10	58,274	53,851
Accruals	11	7,450	6,927
Total net assets and liabilities		395,722	363,836

Council for Geoscience

Statement of Financial Performance for the period ended 31 March 2012

	Notes	2012 R'000	2011 R'000
Revenue	12	226,768	201,037
Cost of contracts	12	(47,822)	(35,191)
Gross surplus		178,946	165,846
Other operating income	12	9,476	8,113
Administrative expenses		(161,187)	(149,329)
Other operating expenses	12	(5,870)	(11,181)
Interest received	13	5,197	1,876
Surplus from operations		26,562	15,325
Finance cost	14	(10)	(6)
Net surplus for the year		26,552	15,319

Council for Geoscience

Statement of Changes in Net Assets for the period ended 31 March 2012

	Notes	Accumulated surplus R'000	Total R'000
Balance at 31 March 2010		185,924	185,924
Net surplus for the period		15,319	15,319
Balance at 31 March 2011		201,243	201,243
Effect of correction of error	26	5	5
Balance at 31 March 2011 as restated		201,248	201,248
Net surplus for the period		26,552	26,552
Balance at 31 March 2012		227,800	227,800

Council for Geoscience

Cash Flow Statement for the period ended 31 March 2012

	Notes	2012 R'000	2011 R'000
Cash inflow from operating activities		43,700	47,891
Cash receipts from customers		217,812	226,795
Cash paid to suppliers and employees		(179,299)	(180,774)
Cash generated from operations	15	38,513	46,021
Interest received	13	5,197	1,876
Finance cost	14	(10)	(6)
Cash outflow from investing activities		(9,225)	(1,983)
Acquisition of:			
Property and equipment	16.1	(7,949)	(1,907)
Intangible assets	16.2	(1,827)	(87)
Proceeds on disposal of property and equipment		551	11
Net increase in cash and cash equivalents		34,475	45,908
Cash and cash equivalents at beginning of period	7	138,918	93,010
Cash and cash equivalents at end of period	7	173,393	138,918

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

1 Accounting policies

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 a historic cost basis and accounting policies are consistent with prior years.
2. The cash flow statement was prepared in accordance with the direct method.
3. Specific information has been 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.

Paragraphs 11–15 of GRAP 1 have not been implemented due to the fact that the budget reporting standard has not been developed by the local standard setters and the international standard is not effective for the current financial year. Although the inclusion of budget information would enhance the usefulness of the financial statements, non-disclosure will not affect the objective of the financial statements.

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.

1.2.1 Recognition of income

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.

1.2.2 Revenue from non-exchange transactions

The Council for Geoscience received grants in the form of assets and baseline allocation from government departments.

Revenue from non-exchange transactions is recorded as deferred income when it is received. It is then recognised as income on a systematic basis over the period intended to match this revenue with the related costs. The conditions for the use of each revenue from non-exchange transactions are stated in each contractual agreement.

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

1 Accounting policies continued

1.2.3 Revenue from exchange transactions

Revenue from exchange transactions comprises sales and contracts. This represents the invoiced value of goods supplied by the Council for Geoscience. Income from contracts is recognised by means of progress payments over the duration of the contracts. Income from contracts in progress is recognised when the revenue criteria is met. When the outcome of a contract can be estimated reliably, revenue is recognised by reference to the stage of completion of the contract activity.

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.

1.4 Property and equipment

The cost of an item of fixed assets 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.

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

Fixed assets 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 and deficit for the period.

Major maintenance that meets the recognition criteria is capitalised.

Depreciation is provided on all fixed assets other than freehold land, to write down the cost, less residual value, by equal installments over their useful lives, as follows:

Land	Not depreciable
Buildings	30 years
Motor vehicles	5–8 years
Equipment	5–7 years
Aircraft and helicopter - Body	15 years
Aircraft and helicopter - Components	Useful hours per Civil Aviation Authority
Boat	10 years
Office furniture	20 years
Computer equipment	6 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 change in accounting estimates on a prospective basis.

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

1 *Accounting policies continued*

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, on a straight-line basis, being two and five years.

1.6 Translation of foreign currencies

Foreign currency transactions

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

1.7 Research and development

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

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;
- It is technically feasible to complete the intangible asset so that it will be available for use or sale;
- The ability to use or sell the intangible asset; and
- It is the intention to complete the intangible asset so that it will be available for use or sale.

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.

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

1 Accounting policies continued

1.8 Deferred income

Deferred income is recognised using the accrual basis and accounted for in the statement of financial position in the period in which it satisfies the revenue recognition criteria.

1.9 Retirement benefit costs

Short-term employee benefits

The cost of short-term employee benefits (those payable within 12 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.

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.

1.10 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.

1.11 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.

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

1 *Accounting policies continued*

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 recognised initially 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.

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.

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 classified as other financial liabilities.

1.12 **Inventories**

Inventories are recorded at lower of cost or net realisable value.

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

1 *Accounting policies continued*

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 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 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.

1.15 Critical accounting estimates and judgements

Provision for bad debts

Past experience indicates a reduced prospect of collecting debts over the age of two years. Debtors balances older than two years 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.

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

1 Accounting policies continued

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 rewards 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 EVN Africa's 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.

2 Property and equipment

2012	Land	Buildings	Equipment	Office furniture	Aircraft and boat	Motor vehicles	Computer equipment	Total
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Gross carrying amount	18,231	135,348	105,487	2,045	19,255	12,383	19,003	311,752
Accumulated depreciation at the beginning of the period	-	(21,719)	(68,653)	(416)	(7,310)	(6,506)	(14,906)	(119,510)
Accumulated impairment at the beginning of the period	-	(629)	-	-	-	-	-	(629)
Opening net carrying amount at 31 March 2011	18,231	113,000	36,834	1,629	11,945	5,877	4,097	191,613
Movements during the period:								
Acquisitions	-	-	2,887	3	3,407	-	1,652	7,949
Disposals	-	-	-	-	-	(96)	(77)	(173)
Impairment	-	-	(160)	-	-	-	-	(160)
Depreciation	-	(4,673)	(6,073)	(96)	(371)	(1,238)	(1,339)	(13,790)
Closing net carrying amount at 31 March 2012	18,231	108,327	33,488	1,536	14,981	4,543	4,333	185,439
Gross carrying amount	18,231	135,348	108,374	2,048	22,662	12,140	20,008	318,811
Accumulated depreciation	-	(26,392)	(74,726)	(512)	(7,681)	(7,597)	(15,675)	(132,583)
Accumulated impairment	-	(629)	(160)	-	-	-	-	(789)

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

2 *Property and equipment continued*

2011	Land	Buildings	Equipment	Office furniture	Aircraft and boat	Motor vehicles	Computer equipment	Total
	R'000	R'000	R'000	R'000	R'000	R'000	R'000	R'000
Gross carrying amount	18,231	135,685	105,356	2,054	19,255	13,766	19,089	313,436
Accumulated depreciation at the beginning of the period	-	(17,046)	(62,968)	(335)	(6,941)	(6,579)	(13,926)	(107,795)
Accumulated impairment at the beginning of the period	-	(629)	-	-	-	-	-	(629)
Opening net carrying amount at 31 March 2010	18,231	118,010	42,388	1,719	12,314	7,187	5,163	205,012
Movements during the period:								
Acquisitions	-	1,078	578	6	-	-	266	1,928
Disposals	-	(1,415)	(28)	-	-	(154)	(17)	(1,614)
Depreciation	-	(4,673)	(6,104)	(96)	(369)	(1,156)	(1,315)	(13,713)
Closing net carrying amount at 31 March 2011	18,231	113,000	36,834	1,629	11,945	5,877	4,097	191,613
Gross carrying amount	18,231	135,348	105,487	2,045	19,255	12,383	19,003	311,752
Accumulated depreciation	-	(21,719)	(68,653)	(416)	(7,310)	(6,506)	(14,906)	(119,510)
Accumulated impairment	-	(629)	-	-	-	-	-	(629)

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
280 Pretoria Street, Silverton, Pretoria	R 94,000,000

The fair value (deemed cost at initial recognition) of this property has been included in the carrying amount of land and buildings as at 31 March 2012.

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

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

3 Intangible assets

	2012 R'000	2011 R'000
Computer software		
Gross carrying amount	14,187	14,200
Accumulated amortisation	(8,510)	(7,021)
Opening net carrying amount at 31 March	5,677	7,179
Movements during the period:		
Acquisitions	1,827	87
Disposals	-	(100)
Disposals - amortisation	-	96
Impairment	(2,965)	-
Amortisation	(1,573)	(1,585)
Closing net carrying amount at 31 March	2,966	5,677
Gross carrying amount	16,014	14,187
Accumulated amortisation	(13,048)	(8,510)

4 Inventories

The Council for Geoscience is a custodian of scientific information and 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.

Over the years with changes in technology, these publications were being improved and, as such, older versions became outdated. As a result remaining quantities have accumulated. To date 1,243 publication titles have been printed.

Publication inventories	5	-
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5 Retirement benefit

5.1 Post-retirement medical-aid fund

The Council for Geoscience has made provision for the medical-aid fund covering substantially all its 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.

The amount recognised in the statement of financial performance is determined as follows:

Current service costs	284	224
Interest charge	1,678	1,552
Expected return on planned assets	(942)	(86)
Actuarial (gain)/loss recognised	(281)	39
	739	1,729

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

5 Retirement benefit continued

2012
R'0002011
R'000

The amount included in the statement of financial position arising from Council for Geoscience obligation in respect of PRMC is as follows:

Present value of fund obligations	21,155	19,775
Fair value of planned assets	(11,090)	(10,449)
Liability recognised in statement of financial position	10,065	9,326

Movement in net liability during the period is as follows:	2012				2011			
	Liability	Planned asset	Unrecognised actuarial gain	Net	Liability	Planned asset	Unrecognised actuarial (loss)/gain	Net
Liability at beginning of period	19,775	-	-	19,775	16,673	-	-	16,673
Value of planned assets at beginning of period	-	(10,449)	-	(10,449)	-	(11,303)	-	(11,303)
Value of unrecognised actuarial gain/(loss) at beginning of period	-	-	-	-	-	-	3,276	3,276
Interest charge/expected return of planned asset	1,678	(942)	-	736	1,552	(86)	-	1,466
Contributions received	-	(55)	-	(55)	-	-	-	-
Current service costs	284	-	-	284	224	-	-	224
Benefits paid	(1,573)	1,573	-	-	(875)	517	-	(358)
Actuarial loss/(gain)	991	(1,217)	-	(226)	2,201	423	(3,276)	(652)
Closing balance	21,155	(11,090)	-	10,065	19,775	(10,449)	-	9,326

5.2 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 R6,319,727 (2011: R6,375,877) represents equal contributions of 7.5% by the employer and employee.

6 Trade and other receivables

Trade receivables	35,229	30,096
Trade receivables - Retention	-	83
Contract customers	(1,439)	(1,740)
Other receivables	1,656	260
Prepaid expenses	169	56
Personnel debt	39	61
	35,654	28,816
Less - Provision for bad debts	(1,735)	(1,188)
	33,919	27,628

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

6 Trade and other receivables continued

	2012 R'000	2011 R'000
Provision for bad debts		
Opening balance	1,188	57
Movement	547	1,131
Closing balance	1,735	1,188

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.

7 Cash and cash equivalents

Cash and cash equivalents at the end of the period are represented by the following balances:

Cash at bank	24,628	51,580
Call accounts	148,765	87,338
Cash and cash equivalents at the end of the period are represented by the following balances:	173,393	138,918

There is no difference between the fair value of cash and cash equivalents and their book value.

8 Revenue from non-exchange transactions

Carrying amount at the beginning of period	85,674	88,340
Recognised as income	(2,665)	(2,666)
Carrying amount at the end of period	83,009	85,674

9 Trade and other payables

Trade payables	4,502	2,672
Other payables	4,622	4,143
	9,124	6,815

Fair value of financial instruments

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.

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

10 Deferred income

	2012 R'000	2011 R'000
10.1	Deferred income arising as a result of an agreement entered into with the Department of Mineral Resources to develop and implement various measures to mitigate the effect of mining-induced contamination of the groundwater in the Witwatersrand area.	
	Carrying amount at the beginning of period	973
	Interest earned	36
	Carrying amount at the end of period	973
10.2	Deferred income arising as a result of an agreement entered into with the Department of Mineral Resources to develop and implement various measures to mitigate the effect of mining-induced contamination of the groundwater in the Witwatersrand area.	
	Carrying amount at the beginning of period	13,634
	Amounts used during the period	-
	Interest earned	515
	Carrying amount at the end of period	14,149
10.3	Deferred income arising as a result of an agreement entered into with the Department of Mineral Resources to develop and implement various measures to mitigate the effect of mining-induced contamination of the groundwater in the Witwatersrand area.	
	Carrying amount at the beginning of period	32,744
	Amounts received	-
	Amounts used during the period	(4,614)
	Interest earned	1,112
	Carrying amount at the end of period	29,242
10.4	Deferred income arising as a result of an agreement entered into with the Department of Mineral Resources to develop and implement the closing of mine holes.	
	Carrying amount at the beginning of period	1,682
	Amounts used during the period	(1,672)
	Interest earned	56
	Carrying amount at the end of period	66
10.5	Deferred income arising as a result of an agreement with the Department of Mineral Resources in terms of the Sustainable Development Through Mining project.	
	Carrying amount at the beginning of period	826
	Interest earned	32
	Carrying amount at the end of period	858

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

10	<i>Deferred income continued</i>	2012 R'000	2011 R'000
10.6	Deferred income arising as a result of a contract entered into with the European Commission for Earth Observation and Observing Environmental and Societal Impacts of Mineral Resources Exploration and Exploitation.		
	Carrying amount at the beginning of period	660	-
	Amounts received	-	808
	Amounts used during the period	-	(148)
	Carrying amount at the end of period	660	660
10.7	Deferred income arising as a result of an agreement with the Department of Science and Technology in terms of a Scoping Study for a National Mineral Resources Assessment.		
	Carrying amount at the beginning of period	498	1,038
	Amounts used during the period	(523)	(577)
	Interest earned	25	37
	Carrying amount at the end of period	-	498
10.8	Deferred income arising as a result of an agreement with the Department of Cooperative Governance and Traditional Affairs for establishing a South Africa Tsunami Early Warning System.		
	Carrying amount at the beginning of period	171	192
	Amounts used during the period	-	(21)
	Carrying amount at the end of period	171	171
10.9	Deferred income arising as a result of an agreement with the Department of Science and Technology in terms of the Earth Observation and Geohazards Assessment.		
	Carrying amount at the beginning of period	982	-
	Amounts received	-	3,477
	Amounts used during the period	-	(2,495)
	Carrying amount at the end of period	982	982
10.10	Deferred income arising as a result of an agreement with the Bureau of Research Geology and Mines and the 7th European Framework Programme for the sustainable use of resources of geological origin.		
	Carrying amount at the beginning of period	-	587
	Carrying amount at the end of period	-	(587)
		-	-

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

10	<i>Deferred income continued</i>	2012 R'000	2011 R'000
10.11	Deferred income arising as a result of an agreement with the Department of Science and Technology to study the Witwatersrand Central Basin Mine Water Apportionment.		
	Carrying amount at the beginning of period	1,386	1,386
	Carrying amount at the end of period	1,386	1,386
10.12	Deferred income arising as a result of an agreement with the Department of Science and Technology to establish an international collaboration research project on the Karoo sequences in South Africa, Botswana and Namibia.		
	Carrying amount at the beginning of period	-	10
	Amounts used during the period	-	(10)
	Carrying amount at the end of period	-	-
10.13	Deferred income arising as a result of an agreement entered into with the National Research Foundation.		
	Carrying amount at the beginning of period	55	55
	Amounts received	5	-
	Carrying amount at the end of period	60	55
10.14	Deferred income arising as a result of pre-funding for the Uganda Project.		
	Carrying amount at the beginning of period	240	1,049
	Amounts used during the period	(216)	(809)
	Carrying amount at the end of period	24	240
10.15	Deferred income arising as a result of an agreement entered into with the Department of Mineral Resources to develop and implement various measures to mitigate the effect of mining-induced contamination.		
	Carrying amount at the beginning of period	16,893	-
	Amounts used during the period	(7,226)	-
	Carrying amount at the end of period	9,667	-
		<u>58,274</u>	<u>53,851</u>

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

11 Accruals

	2012 R'000	2011 R'000
Accruals for leave pay		
Carrying amount at the beginning of period	6,927	6,328
Provision current period	1,289	1,308
Amounts used during the current period	(766)	(709)
Carrying amount at the end of period	<u>7,450</u>	<u>6,927</u>

The leave pay provision relates to the estimated liabilities as a result of leave days due to employees.

12 Deficit/surplus from operations

Operating deficit/surplus is arrived at after taking the following items into account:

Revenue

Government grant	154,405	136,505
Conditional grant deferred	(9,667)	-
Government grant recognised	2,665	2,666
Contracting revenue	78,692	61,212
Publication revenue	673	654
	<u>226,768</u>	<u>201,037</u>

Cost of contracts

Direct cost	32,640	21,817
Personnel expenditure	15,182	13,374
	<u>47,822</u>	<u>35,191</u>

Other operating income

Foreign currency gains	5,649	5,767
Profit on disposal of fixed assets	551	11
Sundry income	3,276	2,335
	<u>9,476</u>	<u>8,113</u>

Administrative expenses include -

Audit fees	2,173	1,514
- Current period	666	538
- Prior period	784	698
- Internal audit	723	278

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

12 Deficit/surplus from operations continued

	2012 R'000	2011 R'000
Bad debts written off	1,690	-
Provision for bad debts	547	1,131
Depreciation - on owned assets	13,790	13,713
- Buildings	4,673	4,673
- Equipment	6,073	6,104
- Office furniture	96	96
- Motor vehicles	1,238	1,156
- Aircraft	371	369
- Computer equipment	1,339	1,315
Amortisation - intangible assets		
- Computer software	1,573	1,585
Rentals in respect of operating leases		
- Land and buildings	380	416
- Photocopying machines	1,693	2,422
Other operating expenses		
Net loss on disposal of equipment	177	1,598
Impairment of assets	3,125	-
Foreign currency losses	2,568	9,583
	5,870	11,181
Staff costs	128,352	122,813
Included in staff costs are:		
Defined benefit plan expense for the post-retirement medical-aid fund	739	1,729
Current service cost	284	224
Interest cost	1,678	1,552
Expected return on plan assets	(942)	(86)
Recognised actuarial loss	(281)	39
- Defined contribution plan expenses for the pension and provident fund	6,416	6,376

Emoluments

	2011/2012			Total R
	Pensionable salary R	Provident fund contributions R	Other con- tributions R	
Senior management				
Ramontja T	1,154,487	68,857	253,630	1,476,974
Matsepe L D	1,060,705	64,093	110,509	1,235,307
Ramagwede L F	1,240,931	80,462	133,115	1,454,508
Graham G	1,246,788	75,337	273,446	1,595,571
Zawada P K	646,865	44,360	117,378	808,603

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

12 Deficit/surplus from operations continued

	2010/2011			2012	2011
	Pensionable salary	Provident fund contributions	Other contributions	R'000	R'000
	R	R	R		
Senior management					
Ramontja T	1,581,942	102,498	164,047		1,848,487
Matsepe L D	885,102	57,348	92,128		1,034,578
Ramagwede L F	1,090,603	70,902	104,556		1,266,061
Graham G	1,040,379	67,409	109,217		1,217,005
Zawada P K	1,022,831	76,139	118,915		1,217,885
Management Board emoluments					
Non-executive Board Members					
Ngoepe P E			153,696		81,178
Barton J M (Jr)			83,234		77,683
Smith M			30,748		47,826
Mthimunye K R			64,416		81,547
			<u>332,093</u>		<u>288,234</u>

Details regarding Management Board Members service contracts:

Management Board Members representing government departments are not included above as they received no emoluments.

The current term of office of the non-executive Management Board Members expires on 30 September 2012.

13 Interest received

Interest received

- Interest income on call accounts	4,488	1,304
- Interest income on current accounts	709	572
	<u>5,197</u>	<u>1,876</u>

14 Finance cost

Interest

	<u>10</u>	<u>6</u>
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Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

15 Reconciliation of net surplus for the period to cash generated from operations

	2012 R'000	2011 R'000
Net surplus for the period	26,552	15,319
Adjustments for -		
Interest	10	6
Depreciation on property and equipment	13,790	13,713
Amortisation - intangible assets	1,573	1,585
Impairment of assets	3,125	-
Government grant recognised	(2,665)	(2,666)
(Net proceeds) on disposal of fixed assets	(551)	(11)
Net loss on disposal of fixed assets	173	1,598
Increase in provision for bad debts	547	1,131
Interest earned	(5,197)	(1,876)
Provision for post-retirement medical-aid benefits	739	(10,624)
Operating cash flows before working capital changes	38,096	18,175
Working capital changes -		
Increase in provision for accumulated leave pay	523	599
Decrease in trade and other receivables	(6,838)	27,293
Decrease/(increase) in trade and other payables	2,309	(8,736)
Increase in deferred income	4,423	8,690
Cash generated from operations	38,513	46,021

16 Acquisition of:

16.1 Property and equipment

Land and buildings	-	1,078
Equipment	2,887	557
Office furniture	3	6
Aircraft and boat	3,407	-
Computer equipment	1,652	266
	7,949	1,907

16.2 Intangible assets

Computer software	1,827	87
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17 Contingent liability

17.1 Bank guarantees

Performance bonds and bid bonds issued for contract work to various financial institutions	591	508
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Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

17 *Contingent liability continued*

2012	2011
R'000	R'000

17.2 Litigation

Citation of parties	Description	Status of the matter	2012	2011
CGS/Employee	Labour Court claim in which the claimant seeks promotion.	The matter has been enrolled for the hearing at the High Court and was postponed <i>sine die</i> .	-	1,000
			591	1,508

18 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.

19 Operating lease commitments

19.1 EVN Africa

At reporting date, the outstanding commitments under non-cancellable operating leases, which fall due are as follows:

Up to 1 year	399	380
Total lease commitments	399	380

The Council for Geoscience is leasing office premises from EVN Africa for a period of 1 year with an extension option, effective from 1 April 2011 for average lease payments of R31,692 (VAT inclusive) per month.

19.2 Xerox/Bytes Technology

The operating lease between Xerox and the Council for Geoscience entered on 1 July 2012 to 30 June 2015.

At the reporting date, the outstanding commitments under non-cancellable operating leases, which fall due are as follows:

Up to 1 year	1,495	1,535
2 to 5 years	2,990	1,407
Total lease commitments	4,485	2,942

Contingent rentals are determined as follows:

Black and white prints/images made in excess of 100,000 per month are charged at R0,10 and colour prints/images made in excess of 30,000 per month are charged at R0,75 (VAT inclusive) per copy.

All prints/images below 100,000 and 30,000 for black and white and colour respectively are included in the fixed monthly rental of R124,605 (2011/12) and R117,250 (2010/11).

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012**20 Financial instruments**

	2012	2011
	R'000	R'000

Financial instruments consist of cash and cash equivalents, investments with financial institutions, trade and other receivables and trade and other payables.

20.1 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.

20.2 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 2012

	Weighted average effective interest rate %	Weighted average effective interest rate %
Assets		
Cash	3.70%	4.20%
Call accounts	5.46%	6.06%

Investments

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, as was approved by the Management Board.
- Investments are only reinvested or invested with Executive Management approval.

20.3 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 2012 is disclosed in note 22.

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

20 *Financial instruments continued*

2012	2011
R'000	R'000

20.4 Airborne operations risk

Risk in respect of the airborne operations of the Council for Geoscience has been identified and transferred to third parties, namely insurance and an external operator.

21 Capital commitments

Commitments for the alterations of property and equipment

- Approved and contracted for
ERP System

	-	9,000
	-	9,000

The commitments will be funded from internal resources.

22 Foreign currency exposure**22.1 Trade receivables**

	2012			2011		
	Exchange rate	Foreign amount	R-value	Exchange rate	Foreign amount	R-value
Foreign currency						
Euro	R 10.00480	€ 215	R 2,149	R 9.40950	€ 246	R 2,319
US\$	R 7.49290	\$ 198	R 1,487	R 6.62720	\$ 458	R 3,033

22.2 Banks

Foreign funds						
Ghanian Cedi	-	¢ 0	R 0	R 3.78644	¢ 125	R 472
Madagascan Ariary	-	-	R 0	R 0.00340	Ar 491	R 2
Moroccan Dirham	R 0.90967	DH 7,009	R 6,383	R 0.84602	DH 7,098	R 6,005
Euro	R 10.00480	€ 161	R 1,610	R 9.40950	€ 3,287	R 30,927

23 Related-party transactions

During the period, the following related-party transactions took place between the Council for Geoscience and the Department of Mineral Resources:

Sales of goods and services	9,691	17,131
Deferred income	45,324	49,859

During the period, the following related-party transactions took place between the Council for Geoscience and the Department of Science and Technology:

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

23 *Related-party transactions continued*

	2012 R'000	2011 R'000
Sales of goods and services	-	4,159
Deferred income	-	2,866

Refer to note 10 for further details regarding deferred income transactions.

The Council for Geoscience offers geoscience services to government departments.

Government grants Revenue	154,405	136,505
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Emoluments are also related-party transactions, refer to note 12.

24 **Reconciliation between budget and statement of financial performance**

Net surplus per the statement of financial performance	26,552	15,319
Adjusted for:		
Grant deferred	9,667	-
Revenue	(16,961)	26,417
Operating income	(5,848)	1,618
Interest paid	3	2
Surplus on the sale of assets	(551)	660
Decreases in provisions	547	1,130
Bad debts	1,690	-
Foreign exchange	(3,082)	3,815
Depreciation	(237)	1,010
Personnel expenditure	3,999	(19,196)
Direct projects costs - Commercial Local	10,412	(20,054)
Direct projects costs - Commercial Foreign	2,325	944
Direct projects costs - Statutory	(27,751)	(1,089)
Overheads	(383)	(9,432)
Net surplus/deficit per approved budget	-	1,144

25 **Irregular expenditure**

Opening balance	281	-
Add: Irregular Expenditure - current year	544	281
Irregular expenditure awaiting condonation	825	281

Analysis of expenditure awaiting condonation per age classification

Current year	544	-
Prior year	281	-
Total	825	-

Council for Geoscience

Notes to the Financial Statements for the period ended 31 March 2012

25 Irregular expenditure continued

2012	2011
R'000	R'000

Details of irregular expenditure - Current year

Incident

Tender awarded without a valid tax clearance certificate

Disciplinary steps taken

An investigation was conducted and the senior procurement officer responsible was found negligent and was given a warning. There was no financial loss incurred.

26 Correction of fundamental error

Nature

Over the years the Council for Geoscience printed and collected publication titles in the form of maps, map explanations and books. These publications are kept in stores and were never recognised as inventory in terms of GRAP 12 until the current period. A resolution was taken by the board to dispose of excessive publications.

Effect

Effect of error on current year assets and prior year accumulated surplus is as follows:

Correction of error	5	-
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27 Heritage assets disclosure

Nature

The Council for Geoscience has the following different classes of heritage assets not yet disclosed in the financials:

- Diamonds and gold sample collections
- Library books, maps and publications
- Museum collections.

Effect

These heritage assets are not disclosed in the current financial statements because management does not have reasonable estimate values for them.

Management is currently busy determining fair values of these assets to be disclosed in the 2012/13 financial year, when the standard becomes effective.

Highlights of Activities

OF THE COUNCIL FOR GEOSCIENCE FOR THE PERIOD ENDED MARCH 2012

African Collaboration

New Insights of Mozambique

The Mozambique Mapping Project, during which staff of the Council for Geoscience mapped a significant part of northern Mozambique, yielded new geological, geochronological, geochemical and structural information. This information has improved the understanding of the processes involved in the amalgamation, between ~600 and 540 Ma ago, and the breaking up of Gondwana, between ~200 and 180 Ma ago.

The data have, in particular, facilitated the improved correlation of tectonic blocks between Mozambique and Antarctica, which was adjacent to Mozambique prior to the fragmentation of the Gondwana Supercontinent, and this information has been supplemented by data collected by Council for Geoscience staff in Dronning Maud Land, Antarctica.

The new insights suggest that collision between north and south Gondwana, along the length of the Damara Belt in Namibia, the Zambesi Belt in Zimbabwe and Zambia and the Lurio Belt, which transects northern Mozambique and Malawi, formed a mountain range, probably equivalent to the modern-day Himalayas, along the collision zone. The collision involved a mega subcontinental thrust fault, resulting in rocks from the Namuno Terrane of northern Mozambique being correlates of rocks now exposed in the Monapo Complex (Mozambique) and the Sør Rondane area of eastern Dronning Maud Land, Antarctica.

Field Mapping in Mozambique

From September to mid-December 2011, the Council for Geoscience assisted with a mapping project

in the Tete region of Mozambique. The project was conducted in collaboration with Rio Tinto to continue with exploration for coal reserves. Two geologists from the Council for Geoscience conducted field mapping and on-site remote sensing for an area north of the Zambezi River to verify existing data, collect new data, correlate borehole sections and to create the first detailed geological map of the study area.

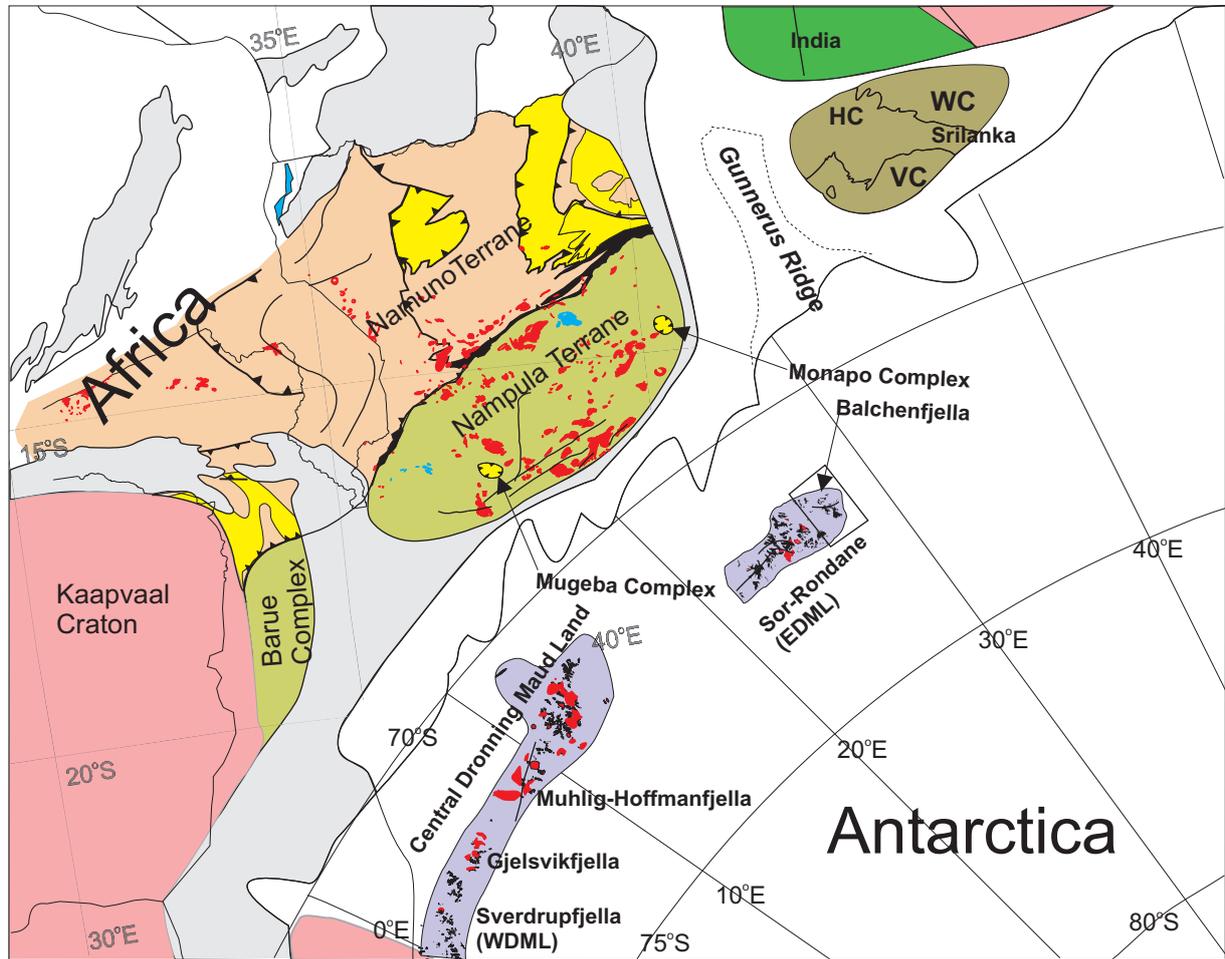
This collaboration initiated the possibility for future projects in the region, with the Council for Geoscience offering expertise in sedimentary mapping and coal exploration in Mozambique and possibly other African countries.

International Collaboration

South African–European Cooperation on Carbon Capture and Storage

The South African–European Cooperation on Carbon Capture and Storage (SAfECCS) is a EuropeAid-funded project consisting of a consortium of international and local organisations which include the British Geological Survey (project leader), the Netherlands Organisation for Applied Scientific Research, EcoMetric Africa, Imbewu Sustainability and Legal Specialists, the Council for Geoscience and the South African Centre for Carbon Capture and Storage.

The project is investigating the financial and geological feasibility, legal requirements and a geographical information management system to use for carbon capture and storage in South Africa. The Council for Geoscience, specifically, is in charge of assessing the effective CO₂ storage capacity of the Algoa Basin using existing information, as well as by collecting information on the sources of CO₂ emissions and CO₂ storage



- | | | | |
|---|--|---|---|
|  | Archaean and Paleoproterozoic Basement (Kaapvaal, Grunehogna and India Cratons) |  | Neoproterozoic to Cambrian Granites |
|  | Nampula Terrane and Barue Complex of Mozambique (Mesoproterozoic with Cambrian Intrusions) |  | Neoproterozoic to Cambrian Molasse Basins of Mozambique (Mecuburi & Alto Benfica) |
|  | Mesoproterozoic of Namuno Terrane (East African Orogen) |  | Undifferentiated Neoproterozoic to Mesoproterozoic of Antarctica |
|  | Allochthonous Neoproterozoic blocks (Monapo, Mugeba and Mavhuradonha Complexes and Guro and Masoso Suites) |  | Neoproterozoic to Mesoproterozoic of India (undifferentiated) |
|  | Neoproterozoic Ocu Complex (Lurio Belt Mozambique) |  | Neoproterozoic to Paleoproterozoic of Srilanka (undifferentiated) |
| | |  | Phanerozoic cover (Africa) |

Simplified geological map showing Dronning Maud Land in Antarctica in relation to southeastern Africa prior to the fragmentation of Gondwana.

sinks in South Africa for input into the geographical information management system. The contribution by the Council for Geoscience will largely be finalised towards the end of the review period.

Assessment of the Effective CO₂ Storage Capacity of the Zululand Basin

A contract has been signed between the South African Committee for Carbon Capture and Storage and the Council for Geoscience to develop an operational plan to execute the exploration for specific data in the Zululand Basin. The need for this data exploration programme arose from a desk study of the Zululand Basin which highlighted knowledge gaps that restrict the completion of an effective CO₂ storage capacity assessment of the Zululand Basin. The investigation forms a critical requirement of the South African Roadmap for Carbon Capture and Storage which undertakes to carry out CO₂ test injection in South Africa by 2016. The main methods used in the investigation will be new seismic surveying and deep stratigraphic drilling.

EO-MINERS — Earth Observation for Monitoring and Observing Environmental and Societal Impacts of Mineral Resources Exploration and Exploitation

The EO-MINERS Project, funded by the European Union, is currently in its second year. Interviews conducted during a field visit to Mpumalanga were transcribed and distributed to the relevant partner institutions. These will now be used in the development of indicators which can be assessed using earth observation methods.

The main focus of this project, sponsored by the European Commission under the Seventh Framework Programme, is to address the sustainable development of the extractive industry and the reduction of its environmental footprint. The aim of the project is to use current knowledge and data, along with existing and new technological and scientific earth-observation-based methods and tools, to monitor mineral resources exploration and mining from concept to closure, and to observe, monitor and provide information to manage the impacts on the environ-

ment and society. Importantly, the project will initiate a sound dialogue of industry, government and civil society. Outputs and findings will provide this dialogue with the ability to make reliable, objective and informative decisions when balancing the social and economic benefits of minerals supply with the impacts on society and the environment.

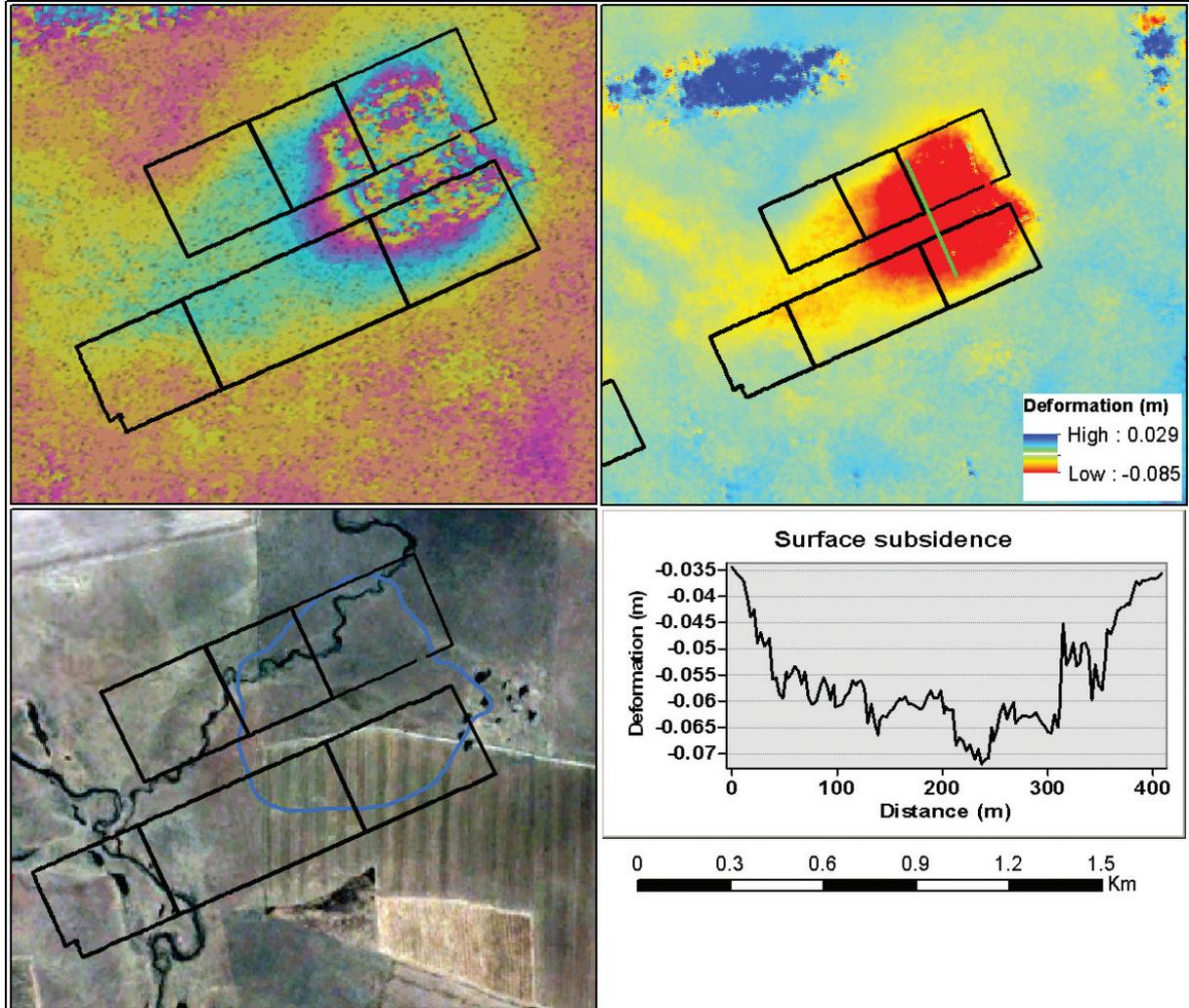
An ALERT system (a 4D electrical resistivity tomography system) was installed near Middelburg. The finalisation of this installation is still ongoing as certain technical aspects such as high contact resistances and communication issues need to be finalised.

Preliminary thermal data were collected over the study area during November 2011 and optimal flight parameters were selected. It is hoped that this survey will be finalised in the near future; however, cloudy weather has interfered with data collection.

Specifications have been drawn up for an airborne hyperspectral survey over the Mpumalanga study area. Bad weather has prevented flying, which has been put on hold to avoid paying excessive standing charges for the aircraft and instrumentation.

South African Geological Hazards Observation System

The Department of Science and Technology has awarded a project, entitled 'For the Earth Observation Research and Development, and Human Capital Development of Earth Observation Products and Service' to a project team of the Council for Geoscience. The project is directed towards the creation of a South African Geological Hazards Observation System (SAGHOS), which will create a geological hazards atlas of South Africa and a framework for assessing geological hazards using remote sensing techniques. The project involves a consortium of scientists in the organisation, as well as external and international collaborators. A preliminary geological hazards atlas and framework for the assessment of geological hazards have been compiled. The project focuses on capacity building and four MSc projects and two PhD projects are in the process of being completed on the subject of geological hazards and remote sensing. One of the geological hazards that



Differential radar interferometry detects surface deformation resulting from coal mining activities in the Witbank Coalfields.

will be addressed is surface deformation as a result of mining activities. In this regard, differential radar interferometry techniques have been employed successfully to detect surface subsidence associated with coal mining in the Witbank area. The SAGHOS project is expected to be concluded in November 2013.

Geohazards along the Coastline of South Africa

The Council for Geoscience is involved in an international collaboration project with the University of Vermont in the United States of America to study

possible mega tsunami/storm waves. This forms part of a programme to assess the threat to coastal populations and infrastructure, including planned coastal nuclear installations.

Large tsunamis from offshore earthquakes are generally not considered a major threat to the coastline of South Africa. Large offshore slumps, however, can give rise to mega tsunamis and past events can be detected by examining evidence of tsunamigenic deposits along the coast. Near Port Elizabeth, very large boulders were found that had been thrown up

a]

Ten metre long boulder above high-tide mark.

b]

Five metre long boulder which has been tossed
7 m above high-tide mark and flipped over.

c]

Series of large boulders showing imbrications, the long
axes slanting parallel, a hallmark of strong current flows.

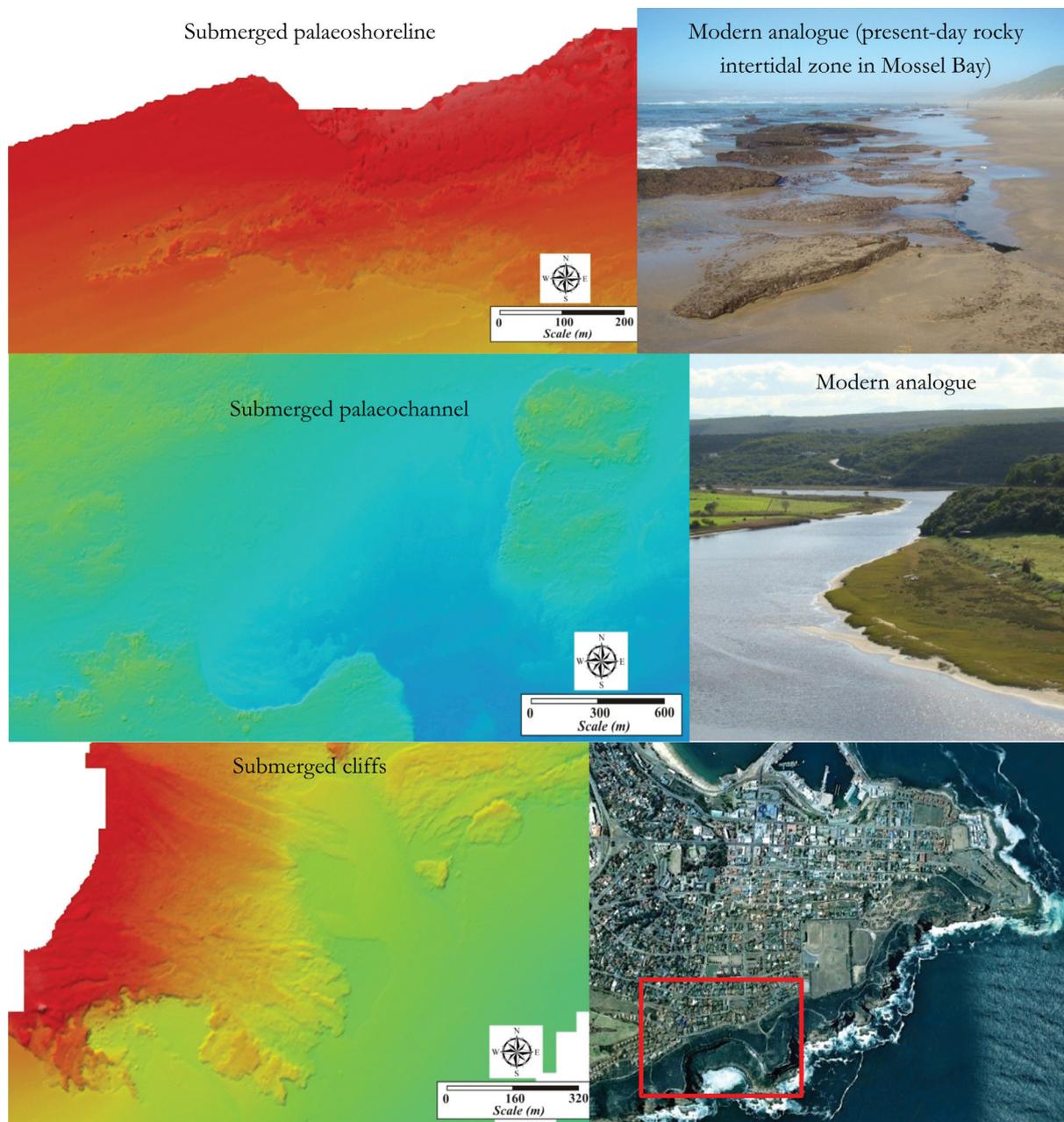


by large waves, either mega tsunami or storm waves. Radiocarbon dating indicates that the upthrow occurred within the last ~100 years. Research into the nature of the huge and powerful waves required to transport such massive boulders is ongoing.

Late Quaternary Palaeoenvironments and Early Modern Human Dispersal in the Southern Cape

Archaeological studies of the southern Cape area of South Africa suggest that early modern humans focused their occupation on the coastline and on the now submerged continental shelf which resulted from retreating Quaternary sea levels.

In order to understand the nature of this environment and how it may have influenced early modern human occupation, a 255 km² block of seafloor was surveyed off Mossel Bay using high-resolution marine geophysics (multibeam bathymetry, side-scan sonar and boomer and pinger sub-bottom profiling). Preserved palaeoshorelines representing at least two composite regressive–transgressive sea-level cycles were found to be present in the area. Palaeodrainage and the evolution of the incised river channels have been traced from periods of sea-level lowstands. This modelling shows that during most of the time reviewed (i.e. 440 to 40 thousand years ago) the shoreline was positioned between approximately 2 and 95 km from the present coastal caves.



Data examples of multibeam bathymetry from the seafloor off Mossel Bay, where submerged features of ancient shorelines are being mapped and studied to help in understanding the evolution of early modern humans in the area. The multibeam bathymetry (left) is supplemented with modern analogues from the adjacent onshore area (right).

These remnant coastal features were used in the construction of palaeoenvironments at key time periods in the archaeological record and the semicontinuous rock outcrops extending offshore provide a unique opportunity to increase the understanding of transitional glacial–interglacial depositional processes.

Cooperation between Italy and South Africa

A new research project of the Council for Geoscience, in collaboration with Italian coworkers and funded by the National Research Foundation, commenced in 2011 and will be completed towards the end of 2013. The objective of the project is to develop an analytical correlation between the electrical and hydraulic properties of aquifers.

An experiment was planned during a visit by a geophysicist of the Council for Geoscience to Ferrara in northern Italy in September 2011. Sandstone aquifers are abundant in the northern Apennine chain, where many freshwater springs are present. A careful inspection of some sites was carried out, where not only surface, but also cross-borehole measurements were feasible bearing in mind that in this way, it is more likely that focused electrical currents of sufficient density into the aquifer body will be attained. Field work will be conducted during the warmer months of 2012.

The Italian collaborators visited the Council for Geoscience in March 2012.

Cooperation between Germany and South Africa

The aim of this project, funded by the National Research Foundation, is to provide fast, largely automated and objective data integration and assessment in support of geological mapping and the identification of mineral exploration targets from a combination of large airborne geophysical and other earth-science-related data sets.

The approach is based on multivariate statistical analysis methods that will quickly and objectively classify large sets of multiparameter data into a number of groups, i.e. geological units. The software interface has been completed, as well as all major translations of statistical routines.

One of the main focus areas of the project is the development of staff. The results of the project were presented at a conference in Hamburg, Germany, in 2012.

International Palaeontological Cooperation

The Council for Geoscience is involved in an international collaborative research project investigating

ecosystem instability during the Permian Period, based on rocks in the Karoo Basin of South Africa. The participants in this project include staff of the Council for Geoscience and coworkers and students from the Albany Museum, Grahamstown, the Colby College in Waterville, United States of America, the Jack Satterly Geochronology Laboratory in Toronto, Canada and the University of California, Berkeley in the United States of America. During the past year, the results of this work were presented as an oral paper at the annual meeting of the Geological Society of America. A reply paper was also published in the journal *Geology*.

Continued work on a collaborative project with researchers of the Bernard Price Institute for Palaeontological Research, Johannesburg and the Western Illinois University in Macomb, United States of America, on the environment and primitive dinosaur fauna of the Elliot Formation that crop out in the Free State Province resulted in a paper being published in the *Journal of Vertebrate Paleontology*.

South Africa hosts International Geological Congress in 2016

The most important activity of the International Union of Geological Sciences (IUGS) is the International Geological Congress which is held every four years. The IUGS appoints a host country eight years in advance to give the country ample time to prepare for this world-class event. South Africa was awarded the 2016 International Geological Congress after a successful bid presentation at the 2008 IGC, held in Oslo, Norway. The South African event, which will be known as IGC35, will be hosted at the Cape Town International Convention Centre from 27 August to 4 September 2016.

The Council for Geoscience, together with the Geological Society of South Africa and other collaborators from academia and industry currently lead the preparations for IGC35 in South Africa. A Section 21 not-for-profit company was formed to take the legal responsibility for the congress.

The objectives of this congress are to contribute, in collaboration with and under sponsorship of the IUGS, towards the advancement of fundamental and applied research in the geological sciences, to provide



The Council for Geoscience leads the preparations for ICG35, which will take place in Cape Town, in the Western Cape Province.

a general assembly of geoscientists spanning a wide range of geoscientific disciplines where ideas and information can be freely exchanged, to emphasise the geological specialities or challenges of the host country or region and to provide the opportunity, by means of geological excursions, to examine geological features in the field.

ICG35 will be marketed and organised as an African, rather than a purely South African event and the organisers will strive to involve other African countries as much as possible, mainly through sponsoring underprivileged students from Africa and through field excursions to other parts of Africa.

National Projects

Geological and Associated Mapping and Research

Thorium Resources of South Africa

The ever-increasing global energy demand, due to an increasing population, can be addressed through energy alternatives, including nuclear energy. Nuclear energy has the potential to eliminate the impending energy shortages, should a breakthrough be achieved in the ongoing research to utilise thorium as a fuel for the operation of nuclear reactors. Currently, uranium-

fuelled nuclear reactors produce about 5,7 per cent of the total primary energy used worldwide.

Thorium occurs in several geological settings in South Africa, such as in vein and placer deposits, as well as in alkaline and carbonatite complexes. The most significant vein-hosted thorium deposit in South Africa is the Steenkampskraal monazite deposit, in the Northern Cape Province, which is considered to be one of the largest vein-hosted monazite deposits in the world. The main placer-hosted thorium deposits include the heavy-mineral sands at Richards Bay and Namakwa Sands and in the Dominion Reef, as well as Karoo-hosted (Bothaville–Wolmaransstad, Carolina) deposits. The Pilanesberg Complex is an important alkaline complex in South Africa and hosts substantial amounts of thorium. Carbonatite complexes which have considerable thorium resources include the Phalaborwa, Zandkopsdrift, Salpeterkop, Glenover, Tweerivier and Bulhoek Carbonatite Complexes.

The total estimated thorium resources in South Africa amount to approximately 204 513 tonnes of contained thorium oxide.

The Steenkampskraal, Richards Bay, Namakwa Sands and Zandkopsdrift deposits are either currently being mined or will soon be mined for thorium and other commodities such as rare earths and heavy-mineral sands, i.e. titanium, rutile and zircon. The total thorium resources in these deposits are estimated to be 41 413 tonnes contained thorium oxide and can be classified in the reasonably assured resource category.

Other deposits, such as those in the Dominion Reef, and the Bothaville–Wolmaransstad and Carolina areas, as well as the Pilanesberg, Phalaborwa, Salpeterkop and Glenover deposits host about 163 100 tonnes of thorium resources, which are classified as estimated additional resources.

There are several challenges that need to be addressed before being able to use thorium as a fuel for nuclear reactors. These include the significant radiation dosage of uranium-232 due to the re-use of spent thorium fuel and the fact that the database and experience of thorium fuel cycles are currently very limited. Furthermore, South Africa needs to establish

a national radioactive stockpile to safeguard thorium produced in the operational mines for future use in the event of the thorium-fuelled reactors becoming commercialised.

Coal Resources and Reserves of South Africa

A new study, which is the first comprehensive assessment of South Africa's coal resources and reserves since 1987, is currently being undertaken by the Council for Geoscience. Significant technological advances in the beneficiation and mining of coal, as well as other extraction technologies, e.g. underground coal gasification, advances in operational practices and fundamental shifts in the coal market have necessitated an updated assessment of the coal resources. This is a vital input to the long-term national infrastructure and coal industry planning processes.

Various other factors that have contributed to a need for an updated accurate assessment of South Africa's coal reserves and resources include the fact that the higher quality coalfields in Mpumalanga are nearing depletion. Shifts in the world seaborne market for coal have resulted in the development of a lower quality export coal demand from South Africa. On the domestic front, Eskom reviewed its long-term coal demand forecasts in line with the Department of Energy's Integrated Resource Plan in 2011, indicating increased requirements in both the quality and quantity of coal for its older generation stations.

Coal remains the primary energy source in South Africa. It provides 92 per cent of the country's power generation and serves as the backbone of the metallurgical industry of the country where it is used as a reducing agent. It also constitutes a major feedstock for the coal-to-liquids and chemical industries. Overall, coal plays a vital role in South Africa's domestic economy with 61 per cent of its local coal sales being used for power generation. This figure is expected to rise sharply with the anticipated increase in the demand for energy.

Small-Scale Mining in the Western Cape Province

The Council for Geoscience is currently investigating mineral commodities in the Western Cape Province

with the aim of compiling and updating the database of mineral commodities and to highlight mineral sites that are amenable to prospecting and mining. This information is important in order to help stimulate small-scale mining and to provide a database for the targeting of new mines and prospects that will assist with rural development and poverty alleviation. During the period under review, a project was completed for the Atlantis community on the economic and potentially economic mineral commodities and resource fields in the region of Atlantis with the aim of stimulating small-scale mining and sustainable employment. A total of ten mineral commodities occur in the region of Atlantis. These include granite and hornfels (both of which are suitable for use as aggregate), brick clay, plastic clay, limestone, building sand, gravel, foundry sand, phosphate and silica sand, of which the first five are sufficiently extensive to form resource fields.

The mineral commodities in the areas that have potential to be economically exploited are granite for stone aggregate, brick clay, plastic clay, building sand, silica sand and gravel (ferricrete). Granite is already being exploited at one site, namely the Rheeboek Quarry, 7 km north of Malmesbury. The granite, which is fine grained and equigranular, forms two resource fields north and south of Malmesbury and there is potential for further exploitation, should demand improve. Similarly, good quality granite for stone aggregate occurs in seven resource fields between Mamre and Darling. Brick clay in the form of residual Malmesbury Group clay is clustered into six resource fields between Abbotsdale, Mamre and Melkbosstrand. There is currently one working pit on a farm 6 km south of Atlantis. There is potential for further brick clay exploitation for both the local market and in the Greater Saldanha area where there are currently no producers of clay bricks. Plastic clay occurs in resource fields east of Camphill and 10 km northeast of Philadelphia, the latter deposit having been largely depleted. The most important use of plastic clay is as a plasticiser in brick making and there is a good potential for further exploitation in the deposits east of Camphill where there are significant resources. Building sand is currently being exploited from areas south of Malmesbury, north of Mamre and in the vicinity of Darling and Melkbosstrand. It

has been extensively exploited in the past and there is only a limited potential for further large-scale exploitation. Silica sand is present north and south of Atlantis and it is exploited for foundry sand from a site 5 km south of Atlantis. The foundry sand market is probably saturated, but there is potential for the exploitation of silica sand for use in the glass sand industry. Ferricrete is the most valuable type of gravel available in the area and it is utilised as a subgrade for asphalt and concrete pavements or roads and as a gravel wearing course on unsealed roads. It occurs in numerous small deposits southeast of Atlantis and west of Malmesbury and there is a potential for further exploitation.

Mineral Potential of the Vioolsdrif Area in the Northern Cape Province

The Richtersveld is an area richly endowed with minerals, but the economic exploitation of deposits is impaired by factors such as the vast distances to markets and the variability of the ore reserves and grades. More detailed exploration, along with innovative beneficiation techniques and good financial planning, may facilitate successful and sustainable mining operations in the area.

Relatively low value feldspar and mica are the main economic minerals contained in the numerous pegmatite bodies in the area and these are consumed in the glass, ceramics and refractory industries. High transport costs have historically been detrimental to the large-scale exploitation of these deposits. A variety of accessory minerals are present in the area, including tantalite, beryl, spodumene, rare earths and uranium. The exploitation of these accessory minerals is complicated by their random distribution in the pegmatite bodies leading to unpredictable yields and, as such, high risks in exploitation. Financial analyses indicate that a bulk mining method during which the whole pegmatite body is mined and individual minerals subsequently beneficiated could be economically viable in some cases.

A vast number of tungsten ore deposits occur in the area and these were mined prior to and during the Second World War when there was a shortage of tin. Available data suggest that these deposits have

been largely mined out at surface, however, potential remains for underground operations.

The granite bodies in the area host a large number of copper deposits, as is evidenced by copper staining at surface. Exploration projects have been limited, though, and the true potential of these granite bodies is unknown.

The area presents opportunities for the possible recovery of lithium and uranium from surficial deposits. The granite bodies may offer potential sources of renewable energy in their heat flow capacity.

Architecture and Mineralisation of the Pofadder Shear Zone in the Northern Cape Province

The Council for Geoscience is currently conducting research on the Pofadder Shear Zone, a transcurrent strike-slip crustal shear zone in the Northern Cape Province. The Pofadder Shear Zone is arguably the largest and best exposed shear zone in southern Africa and it can be followed for some 900 km from southeast of Pofadder in the Northern Cape, to Lüderitz on the Atlantic seaboard of Namibia.

Research on the Pofadder Shear Zone is aimed at staff development and will allow two staff members of the organisation to study towards their MSc degrees, as well as to develop the less understood concepts surrounding large-scale crustal shear zones. These include the dynamics, architecture, timing, duration and kinematics and the associated mineralisation of this shear zone, as well as its significance to other shear zones in the world. This research couples the techniques of ASTER image-based remote sensing with detailed field mapping in order to help understand this structurally complex terrain and to produce a high-quality transborder geological map.

Regional Geochemical Mapping

With the Bushveld Complex being the largest repository of platinum, palladium, chromium, vanadium and possibly titanium in the world, an atlas is being compiled that will show the distribution of these elements and many other minerals in soils that overlie mineralised and unmineralised zones of the complex.



Copper staining in a prospecting pit near Vioolsdrif, Northern Cape Province.

The atlas will be a unique compendium covering the geochemical baseline values, natural abundance ranges and the statistics of anomalous concentrations of nearly 30 elements over a large area and will be used to guide future mineral exploration.

Seismic Hazard Analyses for Nuclear Sites

Work being undertaken by the Council for Geoscience in support of a Probabilistic Seismic Hazard Analysis (PSHA) for a proposed nuclear power station site comprises two parts, i.e. geological field investigations and a PSHA following the Level 3 methodology published by the Senior Seismic Hazard Assessment Committee (SSHAC) in the United States of America. Information collected in the vicinity of the Thyspunt nuclear site and possible surrounding seismotectonic sources includes data on the regional geology and tectonic setting, the neotectonic setting, geophysical and catalogue data, and recurrence calculations. Good progress has been made with the collection of field data. Drilling at the Thyspunt site has been completed and remaining field activities are approaching conclusion.

The SSHAC Level 3 study focuses on the compilation and evaluation of geological and geophysical data

bases, catalogue data and recurrence calculations. Thus far, good progress has been made with the collection and evaluation of data. Several telecom discussions have taken place on setting up the evaluation by using the data and summary tables. Two Ground Motion Working Group meetings were held in October 2011. In addition, preparations for the second formal project workshop have been concluded.

The CGS Nuclear Geohazards Group involved in this work received official ISO certification for the quality management systems in November 2011.

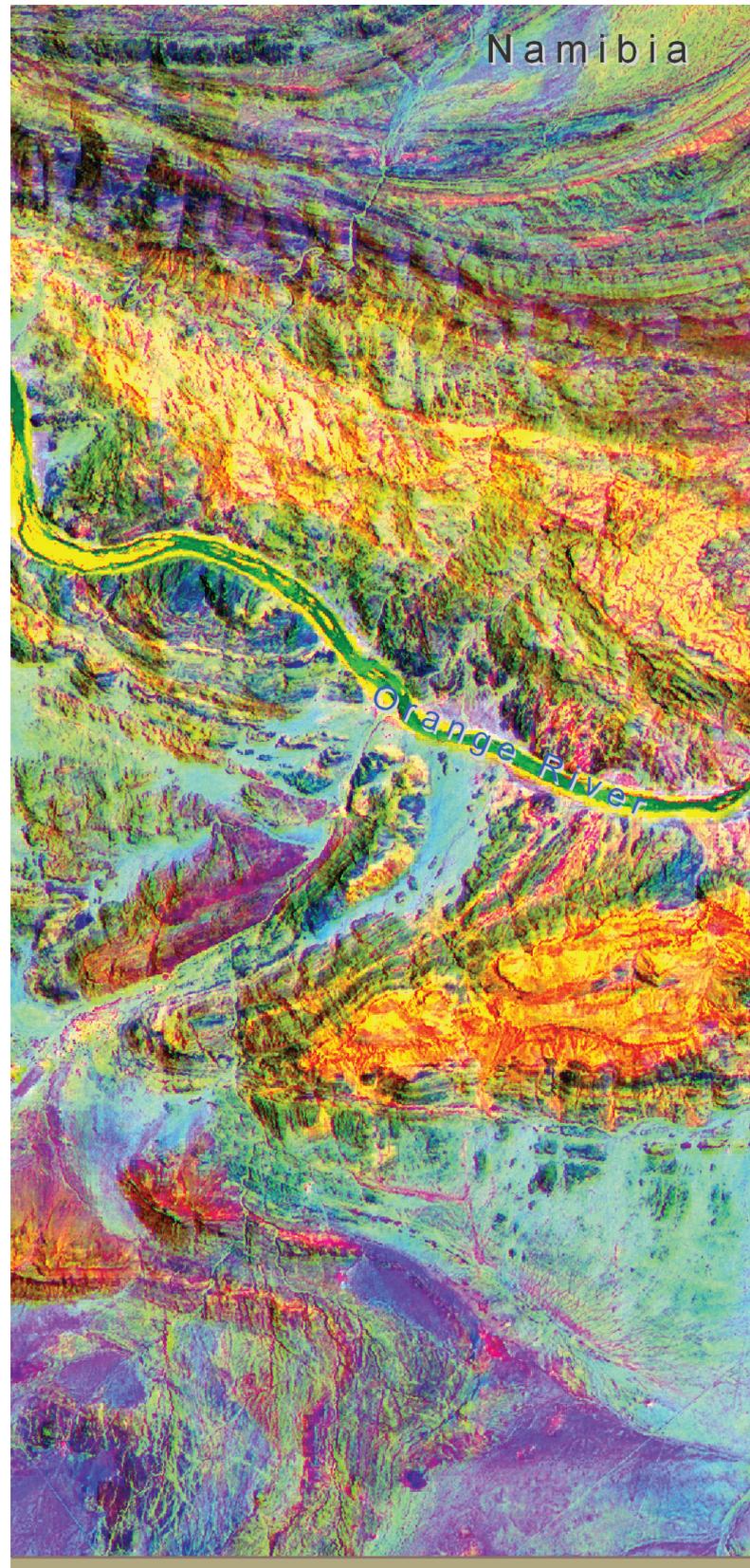
Expanding the South African National Seismograph Network into the Mining Regions

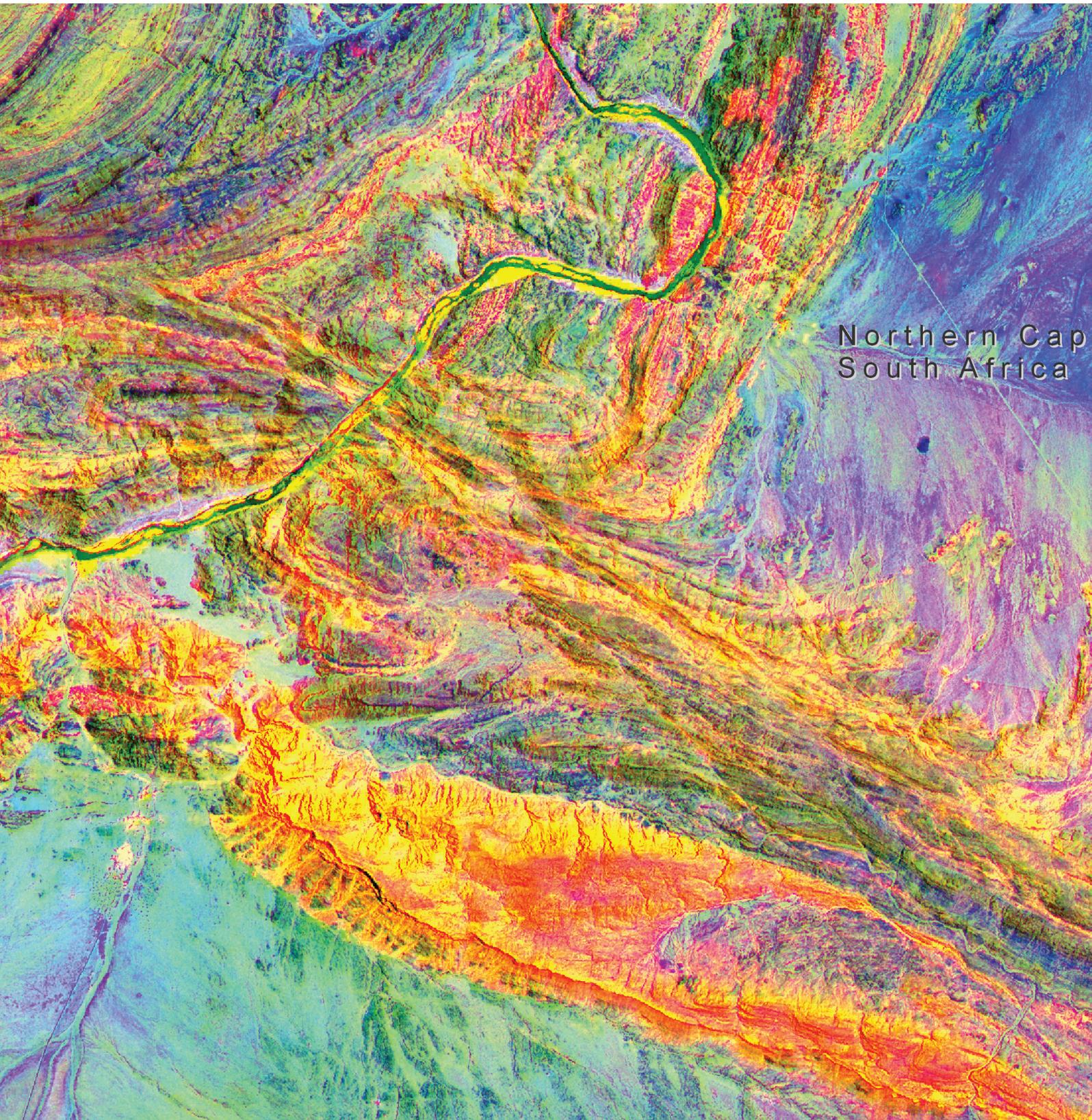
During the period under review, the Council for Geoscience constructed seismograph stations in two mining regions, Carletonville and Klerksdorp–Orkney–Stilfontein–Hartbeesfontein (KOSH). These stations were constructed as part of two large projects, one with the Japanese International Cooperation Agency and the other with the Mine Health and Safety Council. Thirty-five stations were constructed in total and the Council for Geoscience aims to expand the South African National Seismograph Network into these regions in order to monitor the seismicity and to conduct research focused on minimising the risk of death or injury to miners as a result of seismic events.

Centurion Geohazard Risk Map

In South Africa and elsewhere in the world, dolomitic rock has a notorious reputation for forming sinkholes. The density of buildings in Centurion has rapidly increased over the last 40 years, as it has changed from a peri-urban, largely agricultural area to a residential one, situated between Johannesburg and Pretoria. The Gautrain route traverses the Centurion CBD and the Centurion station, situated in the main business district, has attracted high-rise developments to this area. These developments have led to an increase in the population density, which has

Aster satellite image of the Pofadder Shear Zone across the Orange River.

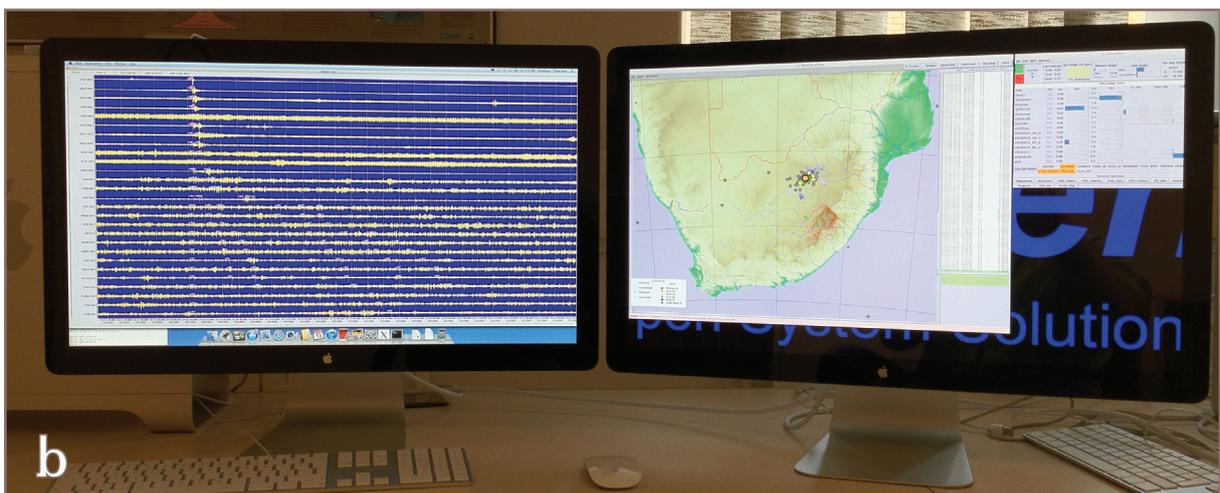




Northern Cape
South Africa

a]
Broadband seismometer installed in a seismograph vault.

b]
Data streaming from the stations to the data centre (left-hand screen) and an automatic location map (right).



resulted in an increase in road traffic and paving in this area. This, in turn, has resulted in more rain-water run-off and an increase in the risk of sinkhole formation. As a result, the City of Tshwane Metropolitan Municipality has had to re-evaluate the risk of sinkhole formation in the Centurion CBD and the information is best shown in the form of a geohazard map. This map will assist the local authority in guiding the safe development of the area. The map will also assist in making recommendations regarding the suitability of specific land use applications based on the propensity for sinkhole formation.

The study area is bounded by Trichardt Road in the north, Botha Avenue in the east, the N1 highway in the south and the N14 highway in the west of Centurion. Most of the area has been developed, with commercial properties dominating in the area around the Centurion Lake and residential development present towards the periphery.

A total of 555 dolomite stability investigations have been conducted in the area and a total of 3 587 percussion boreholes drilled. Each borehole within the area has been assigned an inherent hazard class. Eight inherent hazard classes are used to classify the area into low, medium or high hazard areas, indicating the risk level of sinkhole formation.

A total of 119 sinkholes have been recorded in the Centurion CBD area since the early 1970s. The average sinkhole depth for the area is 3 m, whereas the average sinkhole size is 5 m in diameter. Three lives

have been lost as a result of sinkhole formation in the area and a total of seven residential structures have had to be demolished due to the degree of sinkhole damage. Significant financial costs were incurred in repairing structures, infrastructure and services in the past. A recent sinkhole in Jean Avenue resulted in a total remediation cost of almost R5 million.

The geohazard map of the area generally indicates a medium to high susceptibility to sinkhole formation with pockets of lower hazard areas. No sinkholes have been recorded in the area demarcated as low risk.

Recommendations regarding the various types of land uses most appropriate to each of the areas indicate that commercial type developments are more suited to the CBD, adjacent to Centurion Lake, while residential type developments are more suitable towards the periphery.

Should the outcome of this study show reliable results, it may be used as a new tool to classify dolomite land in developed areas. The results of this study need to be tested against actual data which were obtained during sinkhole remediation.

Strategic Mine Water Management

The Council for Geoscience has been tasked by the Department of Mineral Resources with conducting research in order to identify sustainable management options to help prevent the ingress of surface and groundwater into the underground workings of the Witwatersrand goldfield, to manage decanting of polluted mine water, to predict and prevent harm to the environment, to apportion pollution sources and liabilities and to develop a mine water management strategy.

The geographical scope of the project encompasses the following goldfields in the Witwatersrand: Evander, East Rand Basin, Central Rand Basin, West Rand Basin, Far West Rand Basin and the Klerksdorp–Orkney–Stilfontein–Hartbeesfontein (KOSH) and Free State Basins.

In addition, the Council for Geoscience participates in the activities coordinated by the Inter-Governmental

A sinkhole occurred in Jean Avenue, Centurion, during 2011.



Task Team on Acid Mine Drainage. This task team helps to align the various initiatives and to prevent the duplication of efforts by various government and parastatal agencies.

Prevention of ingress

A key component of the work being undertaken by the Council for Geoscience is to reduce the infiltration of groundwater into the mine voids. One way of doing this is to canalise water courses. To this end, in December 2009, the Council for Geoscience entered into an engineering services agreement to provide professional services specifically for the canalisation of the natural watercourse between Florida Lake and the Fleurhof Dam. The construction of the southern portion of the Florida canal was completed in August 2010. The construction of a pedestrian bridge over this section of the canal and the re-fencing of the section must still be completed. This portion of the canal is in the process of being handed over to the Johannesburg Roads Agency who will manage it on behalf of the City of Johannesburg. They are also involved in the negotiation of a servitude agreement with the landowner of the northern section of the canal. As soon as this is finalised, construction of this section will commence.

Feasibility studies for the implementation of ingress control measures in the Central Basin, including canals, are currently underway. These activities include the geophysical identification of existing or potential leakage pathways from the surface to the shallow mine voids and geotechnical studies to identify optimal solutions.

Ingress areas have been identified in the West Rand Basin and these have been communicated to the relevant authorities. A number of large open pits, in particular the West Wits and Millsite pits, have been identified as significant ingress points. Support has been given to the licensing of the disposal of tailings into these pits, along with the recommendation that the closure plans for these operations need to include final shaping and capping of the tailings deposits such that they will shed water and prevent ingress of water into the mine voids.

In the past in the East Rand Basin, the Grootvlei Mine constructed a canal between their East and West pits.

This was reported to have reduced ingress locally. The current source apportionment study in this basin aims to identify water sources which will allow the optimisation of ingress prevention in this basin.

The other mining areas are also currently under investigation. In particular, the generation of conceptual groundwater flow models should assist in the identification of ingress points which may be addressed via engineering projects.

In all areas, mine residue deposits act as ingress points, adding both volumes of water and significant amounts of pollution to the mine voids. The characterisation of these residues is taking place to quantify and, in the longer term, propose solutions to the problem.

Managing the decanting of polluted mine water

The only current large-scale decanting of mine-polluted water is occurring in the West Rand Basin. The Council for Geoscience has been actively involved in the monitoring and quantification of decant since 2002. In those basins where decant has not yet occurred, it is strongly recommended that preventive measures be put in place. The current research provides some of the detail necessary to assist with the management of water in these basins.

Prediction and prevention of harm to the environment

Prediction of harm to the environment is closely linked to the monitoring of the water levels, as well as the water quality and flows within the different basins. This is currently being done in cooperation with the Hydrological Monitoring Committee.

On a more proactive level, the potential application of passive treatment technologies in the different areas of the Witwatersrand is being investigated. This includes areas where water seeps from the mine voids to the surface and subsurface environments and areas of seepage from mine residues which present a significant diffuse source of pollution to surface and groundwater in the mining areas. A component of the project also investigates the characterisation of the different mine residue materials and deposits.

Previous work done on behalf of the Cradle of Humankind World Heritage Site Management Authority has

suggested that, while the dolomitic aquifers impacted on by mine water have a significant capacity to neutralise acidic water, this has not presented a sustainable solution to the ongoing recharge of these aquifers with acidic mine water. This research is continuing to provide more specific and detailed results.

The potential for infrastructure damage by rising acid mine drainage is currently under investigation.

Apportioning pollution sources and liabilities

In the past, a first-order liability apportionment was undertaken for the West Rand Basin. This relied on a simple conceptual model of water ingress and significantly identified owners or rights holders for all the mine properties in the area. Subsequent legal proceedings showed that the enforcement of these liabilities would not be a simple matter.

A study is currently underway in the East Rand Basin to apportion ingress volumes and pollution to differ-

ing water sources and to, where possible, apportion legal responsibility for ingress volumes and pollution.

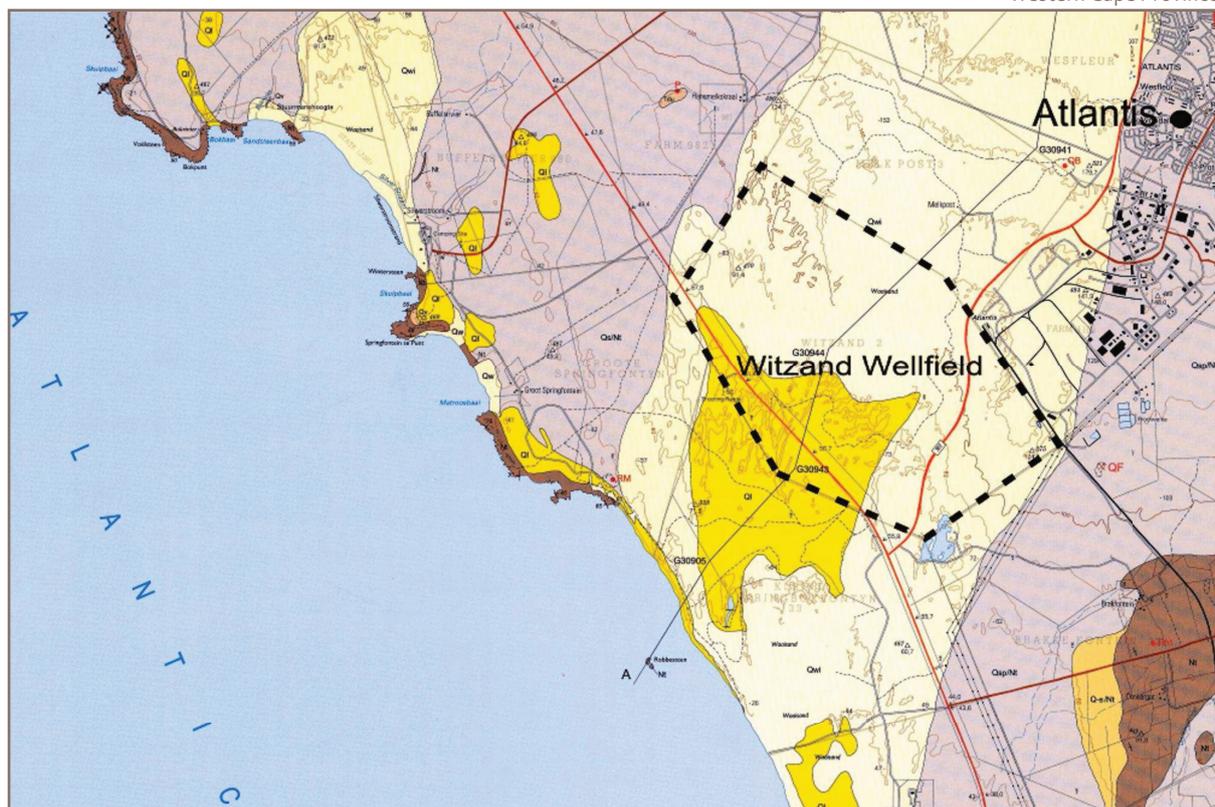
Developing a mine water management strategy

Since the formation of the Inter-Ministerial Committee (IMC) in 2010 and the resulting actions, a water management strategy has been unfolding, at least in respect of emergency and short-term actions. The recommendation that ingress should be prevented, wherever possible, is in line with the recommendations of the IMC, as well as the Best Practice Guidelines for Mine Water Management of the Department of Water Affairs.

Groundwater Quality Technology for Rural Development in Atlantis, Western Cape

Iron-related borehole clogging is a worldwide groundwater supply problem which threatens the sustainability of well fields in supplying drinking water to consumers. It also manifests itself in South Africa in arid areas

Iron-related clogging of groundwater is studied in the Atlantis area, Western Cape Province.

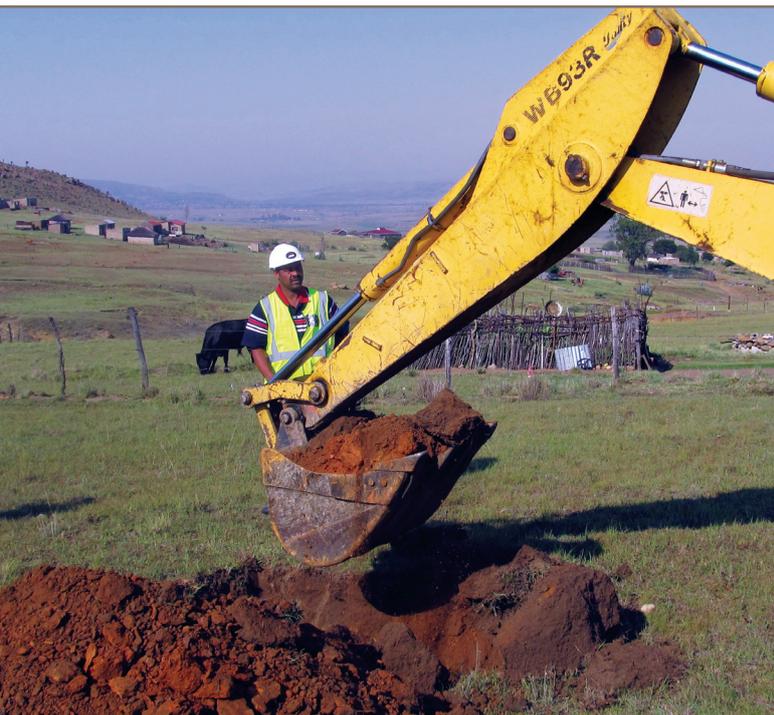


such as Atlantis (north of Cape Town) and the Klein Karoo and considerable research has been conducted and numerous attempts made to rehabilitate boreholes. However, only partial success has been achieved in the restoration of the original borehole yields and clogging recurs in time. The clogging of the boreholes affects the efficiency of extraction and discolours the water, both factors of which have significant economic consequences. This project aims to eliminate the iron-related clogging problems experienced in South African boreholes by removing the underlying source, namely the ferrous iron ions in the groundwater. This would initially involve a field investigation into the feasibility of the in-situ iron removal method, which remains to be tested in South African aquifers.

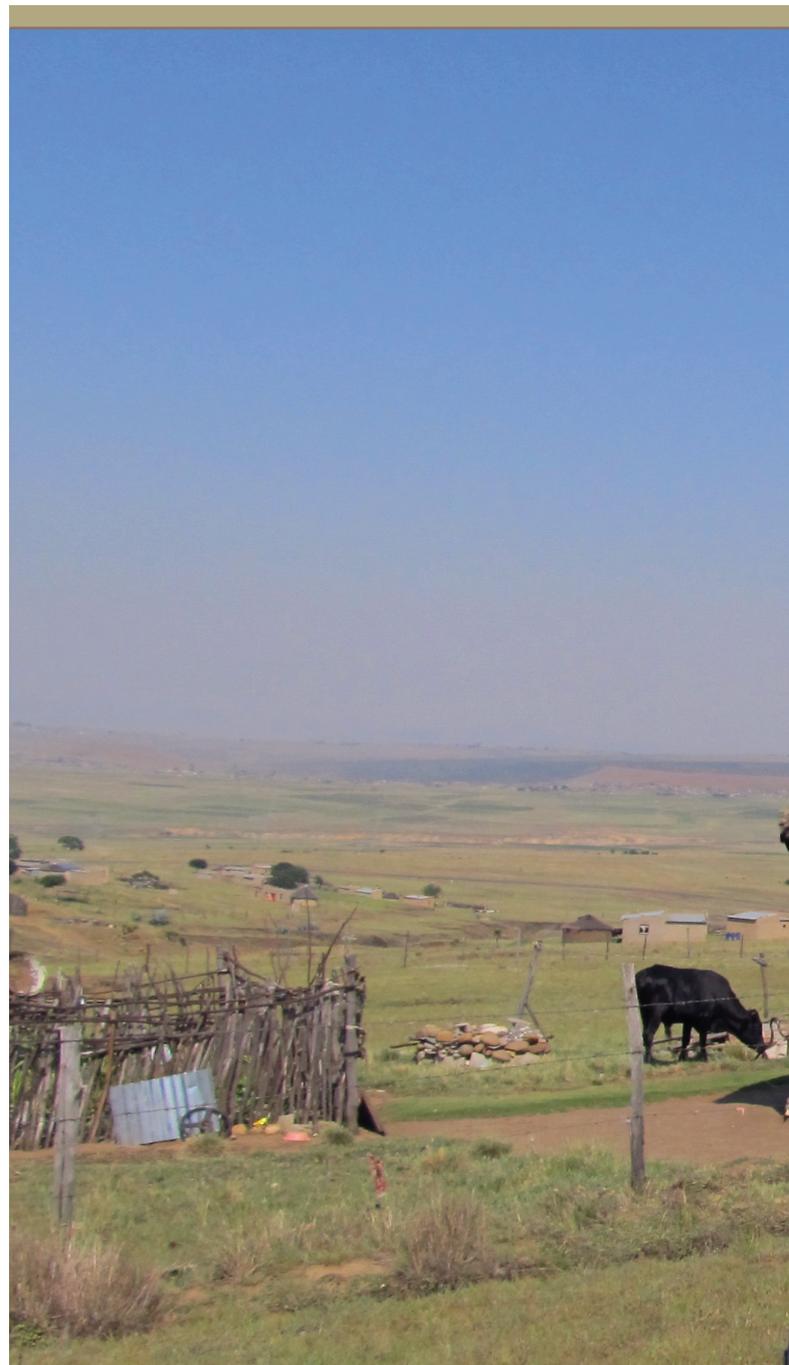
Geotechnical Investigation for the Nquthu Local Municipality

As part of its function to assist the public and other stakeholders through innovative research and the provision of geoscientific services, the Council for Geoscience conducted a GFSH-2 phase 1 geotechni-

Test pits were excavated in KwaZulu-Natal to identify and differentiate soil horizons with respect to their geotechnical properties.



cal investigation for the Nquthu Local Municipality, located in the northeastern part of KwaZulu-Natal which falls under the uMzinyathi District Municipality. The project was identified as a significant contribution towards facilitating rural development and poverty alleviation in terms of supporting housing plans for rural communities in the area.



innovative research
and the
provision of geoscientific services



The purpose of the investigation was to identify and classify the soils and rocks of the area according to their geotechnical properties, to identify areas with possible hazards to infrastructure development, to recommend the possible types of foundation solutions for different geotechnical zones within the study area and to identify potential land use areas, including suitable waste disposal and cemetery sites.

A critical outcome of this investigation, which was to designate the area planned for formal residential development into broad National Homebuilders Registration Council site classes, has been completed. These site classes are based on the engineering-geological character of founding materials for single-storey masonry houses.

This study has provided the Nquthu Local Municipality with an important component required for the formalisation of Erf 100, the investigated area, in terms of the National Urban Development Framework (1997) guideline, for the provision of infrastructure.

Geotechnical Investigation of Wind Farms

Wind farms are one of the renewable energy sources being promoted by the Department of Energy in order to reduce South Africa's carbon emissions. These farms are being developed by private companies and the output will be fed into the national electricity grid. The turbine-tower combination required to capture wind energy is a heavy high-rise structure which needs to be stable to function safely and efficiently.

In order to ensure proper functioning, environmentally sound architecture and reasonable construction costs, founding conditions need to be determined as part of the design process. This normally involves an investigation into the general geological and topographic conditions at an intended wind farm site. Once a site has been chosen and a decision has been made on the optimal placement of structures with regard to wind energy, visibility and other environmental, accessibility and ownership criteria, a geotechnical investigation into soil and rock conditions is required. This involves investigations into sound footing depths and options, as well as the availability of construction materials and can be undertaken

through the use of a digger loader, rock drilling equipment, laboratory testing of sampled materials and the classification of various properties. These results are used to make recommendations to the design engineer and developer.

The Council for Geoscience has been involved in both stages of geotechnical investigation of a number of prospective wind farm sites in the Western, Northern and Eastern Cape Provinces.

Assessing the Impact of Contamination caused by Mining in Social Ecological Systems through Biomonitoring

The objective of the project is to use naturally occurring and abundant organisms, such as birds, insects and aquatic micro-organisms, which are part of an ecosystem, to evaluate and monitor the health and integrity of the post-mining environment in the Witwatersrand Basin.

The process of data collection has commenced with the collection of terrestrial bird feathers during bird ringing exercises by the Witwatersrand Bird Club in and around the Johannesburg Metropolitan Municipality. Parallel to this, laboratory analyses will be conducted. GPS coordinates of where the ringing took place and any additional sightings will be analysed using a geographical information system.

ISO Accreditation of the Council for Geoscience

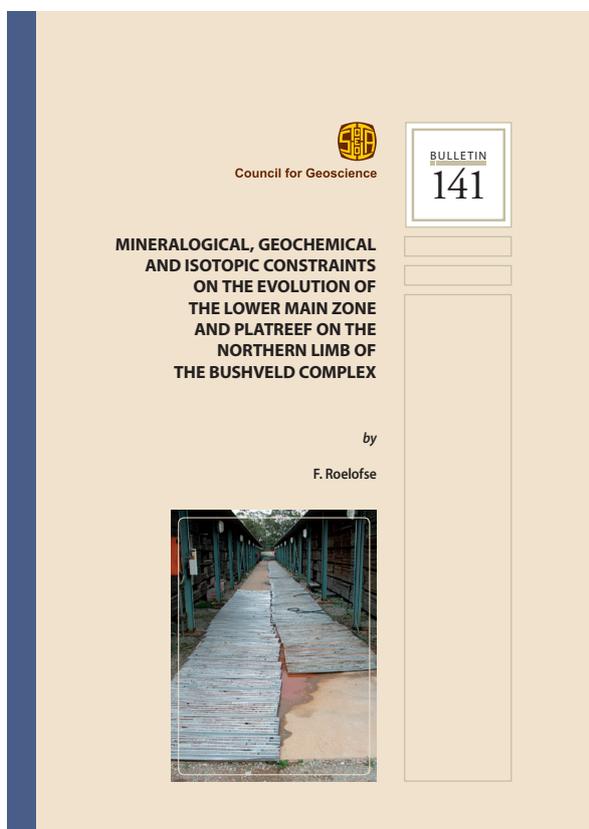
Implementation of ISO 17025 in the Laboratory Unit of the Council for Geoscience continued during the period under review, with the focus on developing the Laboratory Information Management System (LIMS), which is aligned to both ISO 17025 and existing administrative practices of the Laboratory. The next step for LIMS is the installation of sample-tracking software that has already partly been developed. The installation of the environmental monitoring systems, e.g. for the temperature and humidity of laboratories, temperature of cooling water, quality of the clean water and airflow into the laboratories, has been completed and a record base of normal working conditions for future audit comparisons is currently being developed.

A Quality Specialist was appointed in December 2011 and will be responsible for implementing and maintaining the quality system of the Laboratory Unit. The new fresh-air system for the sample preparation area was an important improvement because sample preparation aligned to ISO 17025 is, for the first time, taking place in a contamination-free environment.

Mica in pegmatite mine workings in the Limpopo Province.



Publications



Publications released during the year

Bulletin 141: Mineralogical, geochemical and isotopic constraints on the evolution of the Lower Main Zone and Platreef on the Northern Limb of the Bushveld Complex by F. Roelofse.

Annual Report of the Council for Geoscience 2011.

Maps released during the year

1:50 000 Geological Maps

3327AD Hamburg
3327AC & CA Fish River Mouth
2528CD Rietvleidam

1:50 000 Geotechnical Maps

2528CB Silverton

1:250 000 Metallogenic Maps

3118 Calvinia

1:250 000 Gravity Maps

2228 Alldays
2426 Thabazimbi
2430 Pilgrim's Rest
2530 Nelspruit
2632 Mkuze
2830 Richards Bay
2930 Durban
3017 Garies
3030 Port Shepstone

Publications in Academic Journals and Books

Abiye, T.A., Mengistu, H. and Demlie, M.B., 2011. Groundwater resource in the crystalline rocks of the Johannesburg area,

- South Africa. *Journal of Water Resource and Protection*, 3, pp. 199–212.
- Arango, M.C., Strasser, F.O., Bommer, J.J., Hernandez, D.A. and Cepeda, J.M., 2011. A strong-motion database from the Central American subduction zone. *Journal of Seismology*, 15(2), pp. 261–294.
- Arango, M.C., Strasser, F.O., Bommer, J.J., Cepeda, J.M., Boro-schek, R., Hernandez, D.A. and Tavera, H., 2012. An evaluation of the applicability of current ground-motion models to the South and Central American subduction zones. *Bulletin, Seismological Society of America*, 102(1), pp. 143–168.
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Social Responsibility

Career Expositions, Conferences, Exhibitions and Tours

The Council for Geoscience head office participated in the annual National Science Week and exposed learners to careers in the geosciences, in particular geochemistry. The assistance of a social media was enlisted that visited the following schools in Gauteng:

Orlando West High School, Matseke High School, Lufentse High School, Mncube Secondary School, Morris Isaacson High School, Daliwonga Secondary School, Thulare Secondary School, Molapo Secondary School, Pace College, Musi High School, Sekano Ntoane High School, Dr BW Vilakazi High School, Naledi High School, Kliptown Secondary School, Lancea Vale Secondary School, Missouri Avenue Secondary School, Eldomain Secondary School, Willow Crescent Secondary School, Silver Oak Secondary

Secondary school learners attended the National Science Week.



School, Eldorado Secondary School, Klipspruit West Secondary School, Vulcanindlela Secondary School and Johannesburg Girls High School.

On 14 August 2011, the Council for Geoscience participated in a career exhibition at Thanduxolo Special School in eMalahleni (Witbank). The event was attended by approximately 150 learners from various schools around eMalahleni and Middelburg.

The Council for Geoscience held an extended National Science Week programme hosting learners from a rehabilitation school, as well as the following schools: HB Nyathi Secondary School, Davey Secondary School, Caiphus Nyoka Secondary School and Daveyton Intermediate School.

The Council for Geoscience exhibited at the following events:

Conferences

Lab Africa Conference 2011 — 7–9 June 2011

International Conference on Groundwater 2011 — 19–21 September 2011

Mining Indaba — 6–9 February 2012.

Career expositions, exhibitions and other events

DMR Learners Focus Week 2011 — 10–13 July 2011

Ditsong Career Expo — 26–29 July 2011

Third Bi-annual Earth Science Student Career Day, Stellenbosch, Western Cape — 9 August 2011

1st Tanzania Mining Exhibition 2011 — 19–20 October 2011

Angola Feira International Mining 2011 — 27–30 October 2011

China Mining 2011 — 6–8 November 2011.



Educational tours

University of Limpopo.

Delegations

Sudanese Delegation

Chinese Delegation

Ecuadorian Delegation

Zimbabwean Delegation.

Educational Activities

The Laboratory Unit of the Council for Geoscience was approached by the Freedom Park Museum to assist with the collection of large specimens to be exhibited in a hall covering the origins of life. The theme of the hall will illustrate the various scientific and cultural perceptions on the origin of life. Volcanic rock samples containing the earliest life forms known to man are to be collected from the Barberton greenstone belt and other rocks showing the influence of water on sediment from billions of years ago will be located and handed over to the museum.

In August, Council for Geoscience staff participated in the National Science Week at the University of Limpopo. The theme for this year was 'The role of science in economic development' and, as usual, there was interaction with hundreds of learners keen to learn more about geology, how geoscience-related fields contribute to the economic development of Limpopo, in particular, and what opportunities the geosciences present.

In November, a Field School was held in Legalameetse, Limpopo, for MQA interns with the Council for Geoscience and two geologists from the Geological Survey of Namibia. The trainees, who represented various geoscientific backgrounds, were exposed

a]

A rock pavement of ~2 billion year old Magaliesberg quartzite illustrating a fine display of ripple marks. Some of the rocks will be selected for an exhibition in the Freedom Park Museum.

b]

National Science Week, Limpopo.

c]

Participants of the 2011 Field School, Limpopo.

to field mapping in a practical hands-on approach. Topics covered included logistics/planning, collecting relevant data sampling, plotting and interpreting data, and report writing. As usual, the emphasis on both scientific and interpersonal skills is a prerequisite for the completion of a successful field project.

Community Involvement

Lesedi la Batho, in conjunction with the University of Pretoria and the Council for Geoscience, supplied an irrigation borehole to a school in the Mabopane area in the City of Tshwane Metropolitan Municipality. This forms part of a long-term community development project by the non-profit organisation Lesedi la Batho, relating to sustainable crops production and socio-economic development. The drilling of a water supply borehole was conducted in August 2011 and was cofunded by the Council for Geoscience.

Staff of the Council for Geoscience supported the 'Winter bucket of love' initiative by a Non-Governmental Organisation operating in the Western Cape area. The project formed part of the 'Mandela Day'

social responsibility projects and involved generous donations by the staff of the Council for Geoscience in the form of clothes, toiletries and food which were placed in a bucket for a predetermined family in need, in this case a child-headed family of three living in an informal settlement in Kraaifontein.

Staff of the Council for Geoscience participated in a social responsibility initiative that aims to provide a bear, knitted by volunteers in the community, to each child patient at a hospital in Bellville, Western Cape Province. Council for Geoscience staff knitted 185 bears, more than double the 80 of the previous year.

In addition to the Bear Project, staff of the Council for Geoscience supported the 'Adopt a child for Christmas' campaign, which involved the donation of 15 gifts in the form of a present to a disadvantaged child.

The Council for Geoscience supported the following homes:

- Phehella Children's Home
- Peas in a Pod Safehouse for Girls.

Donations and gifts by staff in support of the local community.





The Council for Geoscience received an award at the 25th International Cartographic Exhibition in France.

International Cartographic Exhibition Award

The 1:2.5 million Geological Map of the Southern African Development Community, produced by the Council for Geoscience, won a second place in the category of Thematic Maps at the International Cartographic Exhibition held during the 25th International Cartographic Conference in Paris, France.

Bursars of the Council for Geoscience

The Council for Geoscience has a group of fifteen bursars, studying at various institutions across the country in the geosciences.

Bursary students of the Council for Geoscience

Surname	Initial	Gender	Year of Study	Institution
Buthelezi	M C	Female	B.Sc. Honours	UKZN
Dube	M G	Female	B.Sc. Honours	NWU
Mashale	H	Female	B.Sc. Honours	UP
Ntikang	T J	Male	B.Sc. Honours	UWC
Selepe	M	Male	B.Sc. Honours	UP
Govender	N	Male	B.Sc. 3rd year	UKZN
Lutsenge	T B	Female	B.Sc. 3rd year	UP
Matlokotsi	M B	Male	B.Sc. 3rd year	UFS
Mhlongo	P M	Male	B.Sc. 3rd year	UKZN
Mpane	T M	Female	B.Sc. 3rd year	WITS
Mphahlele	C	Female	B.Sc. 3rd year	WITS
Sithole	S T	Male	B.Sc. 3rd year	US
Hlongoane	G J	Male	B.Sc. 2nd year	WITS
Fisha	L G	Male	B.Tech. 4th year	VUT
Mokoena	T N	Female	B.Tech. 4th year	TUT

WITS – University of the Witwatersrand
 NWU – North-West University
 UWC – University of the Western Cape
 UP – University of Pretoria
 UFS – University of the Free State

UKZN – University of KwaZulu-Natal
 US – University of Stellenbosch
 TUT – Tshwane University of Technology
 VUT – Vaal University of Technology

Future Outlook

OF THE COUNCIL FOR GEOSCIENCE

During the period under review, the Council for Geoscience continued to operate within a financial model that requires the organisation to generate additional revenue through commercial activities in order to fulfil its mandated statutory activities and functions of good service to the public. The organisation was in the position to carry out some statutory project work utilising the surplus made from the commercial revenue stream from the previous year. The need to raise funds for the mandatory operations of the Council for Geoscience through commercial work continuously placed pressure on the organisation. This necessity led to a situation where the good services to the public and mandate of the Council for Geoscience in support of national imperatives can now only be carried out when the organisation achieves a commercial surplus — which is difficult to achieve when there is a downturn in the economy. Dependency on commercial projects outside the country contributes to disadvantages such as fewer opportunities for research and development and a lack of opportunities for the skills development of young scientific staff.

As the global economic downturn is gradually improving for emerging nations, the future outlook of the Council for Geoscience can be set against these new economic conditions both nationally and internationally. The national imperatives of Government to address the economic challenges facing the country can be met with more confidence as the Council for Geoscience strives to raise its commercial income through local and international projects.

Owing to the financial constraints faced by the organisation, it will not be possible to allocate much of its resources to a fully fledged statutory research programme. However, planning for the forthcoming year

includes some resources for the statutory research programme addressing the national imperatives.

The expected MTEF grant allocation from Government will be utilised for infrastructure improvements within the organisation (replacement of critical parts of a damaged building and improvement of laboratory facilities), and for identifying potential and profitable mineral targets and energy resources in the country. This will contribute to addressing the national imperatives of rural development, poverty alleviation and the exploitation of mineral resources, thus enhancing business opportunities and skills development.

The Council for Geoscience continued to play a vital role in advising Government on acid mine drainage and water ingress issues in the Witwatersrand Basin through the project 'A Strategic Water Management Plan for the Prevention of Water Ingress into Underground Workings of the Witwatersrand Mining Areas'. The Council for Geoscience is currently undertaking a project, 'The Assessment and Management/Remediation of the Impacts of Acid Mine Drainage (AMD) from Abandoned Mines on the Water Resources of South Africa'. These projects will continue to play an important role in environmental and water resource protection through the implementation of an action plan identified to mitigate the effects of acid mine drainage and to develop the capacity of Council for Geoscience employees.

The allocation of funds for the implementation of the amended Geoscience Act in the near future will increase the responsibilities and functions of the Council for Geoscience as it has to serve as a custodian of geotechnical information, prospecting information and all other geoscientific information.

The Council for Geoscience is developing plans to increase its geoscience map coverage of the country and the provision of innovative geoscience services to various stakeholders. This will help to initiate a variety of programmes in the near future on integrated geoscience mapping, targeting mineral resources, groundwater resource assessments, skills development, marine resource mapping, geochemical mapping, geophysical mapping, the exploration for geothermal energy potential, geo-environmental modelling and geohazard mapping.

The Council for Geoscience will continue to play a leading role in the country's need to identify geologically suitable areas for the storage of carbon dioxide, as part of its commitment to reduce the effect of greenhouse gases. Further work in this regard will continue in the Zululand and Algoa Basins.

The retention and promotion of staff are viewed as a critical component in the continued operations of the Council for Geoscience. Accordingly, the organisation will formulate the necessary policies to ensure that employees are given opportunities to grow in their careers.

The Council for Geoscience is celebrating one hundred years of existence on 8 and 9 November 2012. This celebration will showcase the achievements and past activities of the Council for Geoscience over 100 years on the African continent, as well as its transformation and current role and functions within the South African community.

Sustainability Report

OF THE COUNCIL FOR GEOSCIENCE

Executive Remuneration

Chief Executive

In terms of Section 18(5) of the Geoscience Act (Act No. 100 of 1993), the 'Executive Officer shall be appointed on such conditions, including conditions relating to payment of remuneration, allowances, subsidies and other benefits as the Management Board may determine in accordance with a system approved from time to time by the Minister with the concurrence of the Minister of State Expenditure'.

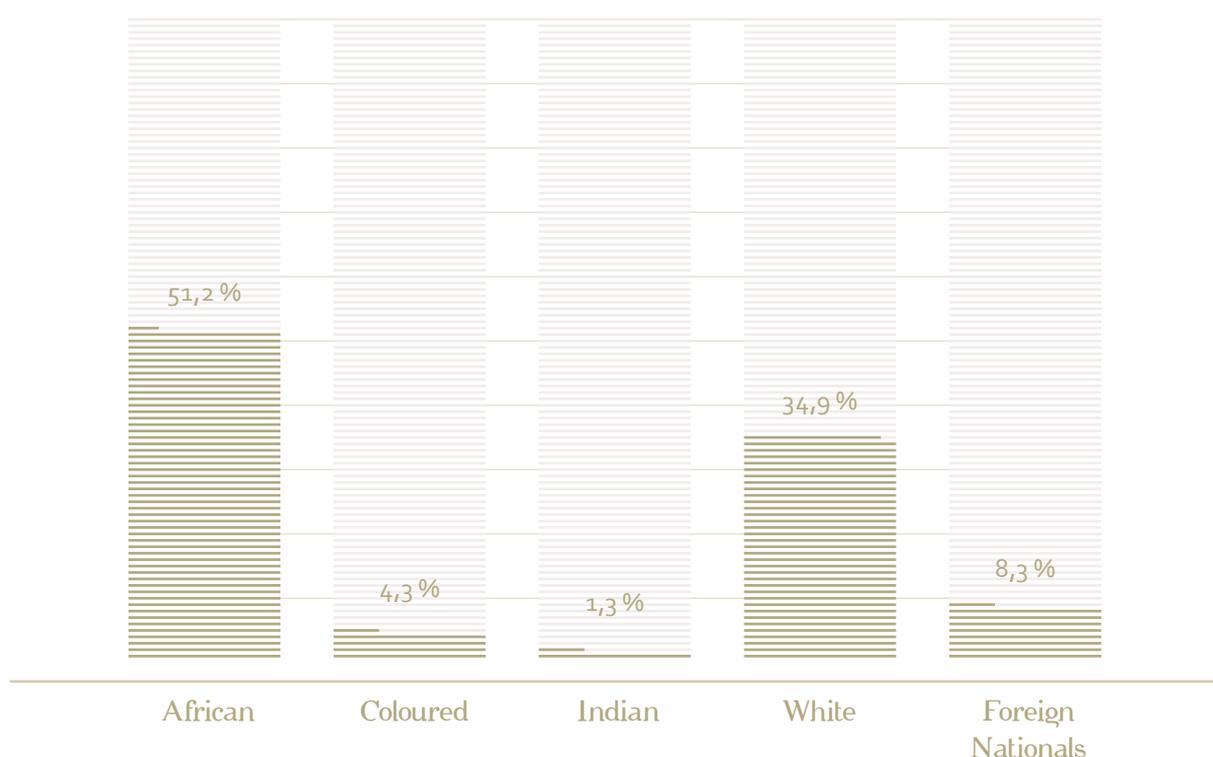
Executive Management Team

The remuneration of the Executive Management team is determined by the Management Board of the Council for Geoscience and is reviewed from time to time.

Transformation

The Council for Geoscience adheres to equal opportunity and affirmative action principles, as promulgated in the Employment Equity Act (Act No. 55 of 1998).

Overall Staff Profile as at 31 March 2012



The Personnel, Remuneration and Transformation Committee of the Management Board of the Council for Geoscience is responsible for monitoring and evaluating progress on transformation and skills development.

The Council for Geoscience operates in a labour market characterised by a scarcity of geoscientific skills and one that is highly competitive. Positive measures are in place to address the attraction of potential scientific skills from designated groups. A bursary scheme was put in place, and the programme is used as a feeder pipeline to attract potential and developing scientists from designated groups into the field of geoscience.

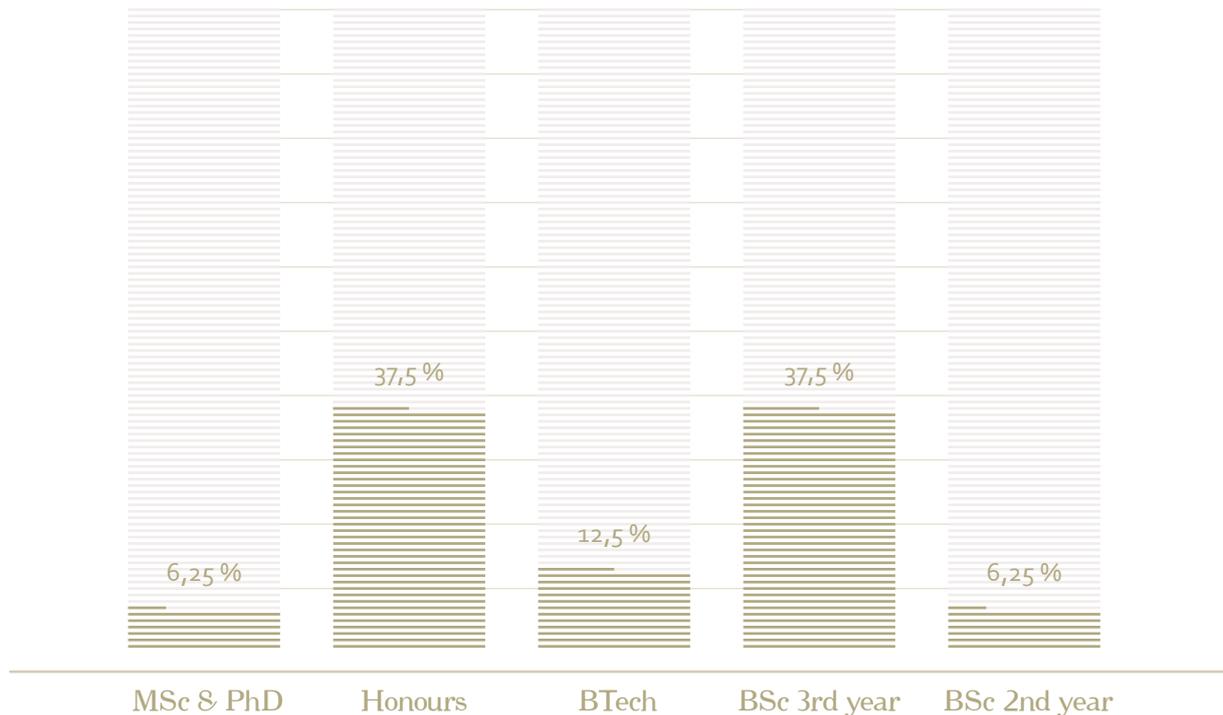
The accompanying tables illustrate the demographic composition of the staff and the qualifications of the Council for Geoscience bursars.

Ethical Management

Adherence to the Code of Ethics

The Council for Geoscience has developed and adopted a Code of Ethics for the Board, Executive Management and the staff. The code of ethics links to the values of the organisation and requires all employees to maintain the highest ethical standards.

Overall Qualifications of Bursary Students as at 31 March 2012



Safety, Health and Environmental Management

The Operational Risk Management Committee (ORMC), which functions at executive level, takes responsibility for occupational health and safety issues in the organisation. The role of the ORMC is to identify and monitor significant risk elements that could have an effect on the operations of the Council for Geoscience.

The ORMC is supported through a Business Continuity Committee (BCC). The mandate of the BCC is to ensure that all risks which may disrupt the operations of the organisation are highlighted and addressed on time. The Business Continuity Committee is mandated to:

- Ensure that the Council for Geoscience complies with the Occupational Health and Safety Act (Act No. 85 of 1993)
- Anticipate clearly and comprehensively all forms of crisis situations
- Develop strategies and procedures to cater for the risks
- Monitor the implementation and effectiveness of the countermeasures instituted.



Chief Executive Officer

Gerhard Graham (Acting)



Board Administrator

Nomkhosi Cele (Acting)

Strategic Services

(in the office of the CEO)

Nico Keyser and Maleka Monyepao

- Annual Technical Programme Management
- Commercial Project Tender Management
- Strategy Planning Cycle

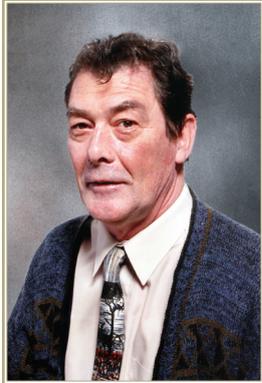


Applied Geoscience

Executive Manager

Fhatuwani Ramagwede

- Engineering Geoscience – *Stewart Foya (Acting)*
- Environmental Geoscience – *Mosidi Makgae*
- Minerals Development – *Stewart Foya*
- Water Geoscience – *Fortress Netili*



Regional Geoscience and Mapping

Executive Manager

Luc Chevallier (Acting)

- Central Regions – *Abraham Thomas*
 - Eastern Cape – *Greg Botha*
 - KwaZulu-Natal – *Greg Botha*
 - Limpopo – *Nick Baglow*
 - Marine Geoscience – *Luc Chevallier (Acting)*
 - Northern Cape – *Luc Chevallier*
 - Western Cape – *Luc Chevallier*
-



Scientific Services

Executive Manager

Ken Wilkinson (Acting)

- Geophysics – *Patrick Cole*
 - Information and Collections Management – *Danie Barnardo*
 - Laboratory – *Thinus Cloete*
 - Regional Geochemical Mapping – *Thinus Cloete*
 - Seismology – *Michelle Grobbelaar*
 - Spatial Data Management – *Ken Wilkinson*
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Financial Services

Chief Financial Officer

Leonard Matsepe

- Information and Communication Technology – *Peter Motaung*
 - Procurement and Logistics – *Michael Nkuna*
 - Finances and Legal Services – *Leonard Matsepe*
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Corporate Services

Executive Manager

Monica Mabuza

