

BOTSWANA GEOSCIENCE INSTITUTE

ANNUAL REPORT
2017



1976

Aeromagnetic survey was completed in western part of Botswana and national Gravity survey.



1984

The second edition of the 1: 1 000 000 national geological map was published.

1986

Aeromagnetic survey completed in the eastern part of Botswana



1998

Significant strides made in geological mapping of the eastern part of Botswana and coloured 1:125,000 geological sheets with internal brief explanations and accompanying bulletins or memoirs were achieved.

2004

Molopo farms Complex, an economic geology project with the aim to reassess the base and precious metals potential begins.



2009

Ministry of Minerals, Energy and Water Resources begins its restructuring process to improve efficiencies.

2014

Botswana Parliament enact Botswana Geoscience Institute Act



2015

Commencement of Botswana Geoscience Institute Act of 2014.

2017

Recruitment and staffing commence at Botswana Geoscience Institute.



We are proud of our Practice of Geological Survey and our contribution to Botswana's economic development.



CORPORATE **PROFILE**

The creation of BGI is the renaissance of geological survey practice in Botswana which began in 1943 as primarily the search for groundwater.

Our History

Botswana Geoscience Institute (BGI) is a public corporation constituted under the Botswana Geoscience Act, 2014 and wholly owned by the Government of Botswana.

The creation of BGI is the renaissance of geological survey practice in Botswana which began in 1943 which was primarily to the search of groundwater led by Mr. E. J. Wayland, a Geologist.

Though the practice of geological survey started with the aim to address water needs, it later focused on exploration for coal and other minerals in Botswana.

In 1944 Mr. E. J. Wayland proposed the formation of a Geological Survey in Bechuanaland to serve the three British High Commission Territories of Bechuanaland, Basutoland and Swaziland.

This was supported on the condition that a central Geological Survey be in London to serve all the countries of the British Empire.

In 1946 a motion that a separate Geological Survey Department be established in the Bechuanaland Protectorate was passed. Funding for the Survey commenced on April 1948.

Investigations for groundwater commenced during the Bechuanaland Protectorate era. This was the first work considered geological in nature.



The roles of the department were specified as mineral survey and mapping of the Bechuanaland Protectorate. In the period before Botswana Independence the Geological Survey was basically covering the ground in order to map the geology as well as find groundwater resources.

The lack of initial geological knowledge was compounded by the unavailability of good air-photographs. However improved air-photography in the late 1950s led to the first proper topographic surveys which in turn enabled systematic geological mapping.

The first phase of the coal exploration by the Geological Survey ran from 1950 to 1963.

The Morupule, Kgaswe and Mmamabula deposits are all a result of the Geological Survey

work. The target was steam coal for the railways.

The post-Independence era ushered in discoveries of base metals and diamonds which put Botswana high on the list of priorities for several mining companies. Though the eastern part of the country was well mapped due to its exposure the larger part of the country covered by Kalahari sands remained unmapped.

Botswana Geological Survey saw the establishment of a Mines Inspectorate Division within the Survey in 1969 due to the increasing contribution of the mineral industry to the economy of Botswana due to the discovery of copper-nickel in Selebi Phikwe and diamonds in Orapa.

In 1970 the Department of Geological Survey and Mines

were formally established under the Ministry of Commerce, Industry and Water Affairs but a re-organisation of Government in 1973 constituted a new Ministry of Mineral Resources and Water Affairs and Department of Mines was formed and moved to Gaborone.

The practice of Geological Survey progressed and evolved with notable achievements such as new divisions including;

- Geological mapping
- Geophysics
- Economic Geology
- Hydrogeology
- Environmental Geology and
- Laboratory and drilling facilities.
- National Geoscience Information Centre (NGIC).

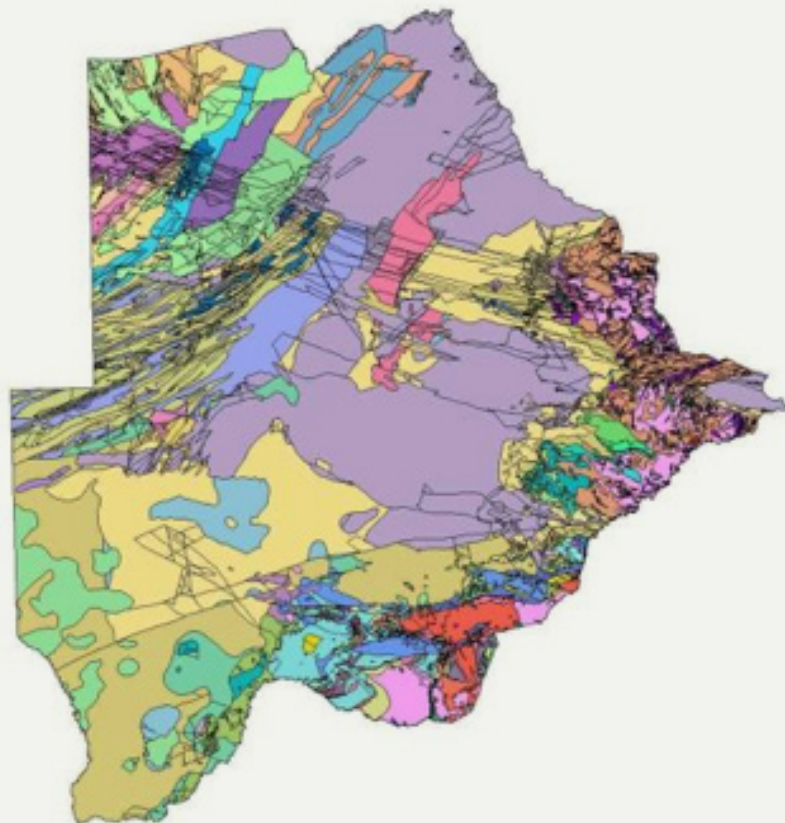


Fig 1 - National Geological Map of Botswana.





The Future

In 2014, The Government of Botswana in its wisdom, made a decision to create Botswana National Geoscience Institute (BGI) restructured from the Department of Geological Survey (DGS).

This decision is a bold and insightful move instigated by the realization of the need to improve efficiencies in carrying geoscience research, in line with the best practices expected of a geological survey organization (GSO).

The decision to restructure the Department of Geological Survey (DGS) was also based on the high desire of achieving Botswana Government's primary imperative of successfully implementing programmes and projects within

time and costs that transform the lives of Botswana's citizens for the better, as required in the National Development Plan 10.

The new institution (BGI) would position itself as a significant creator of wealth and improving the quality of life of Botswana's citizens. Through this restructuring, there would be a clear, modern, and scientific strategy designed to meet the national economic and developmental needs.

The roles of national geoscience institutions have, throughout the World played a key role in the development of nation states. This was premised on the need to assess the geological setting to aid mineral exploitation.

This is still an important objective of many resource-rich countries

such as Botswana and certainly with the global demand for mineral resources this is no better seen than on the African continent.

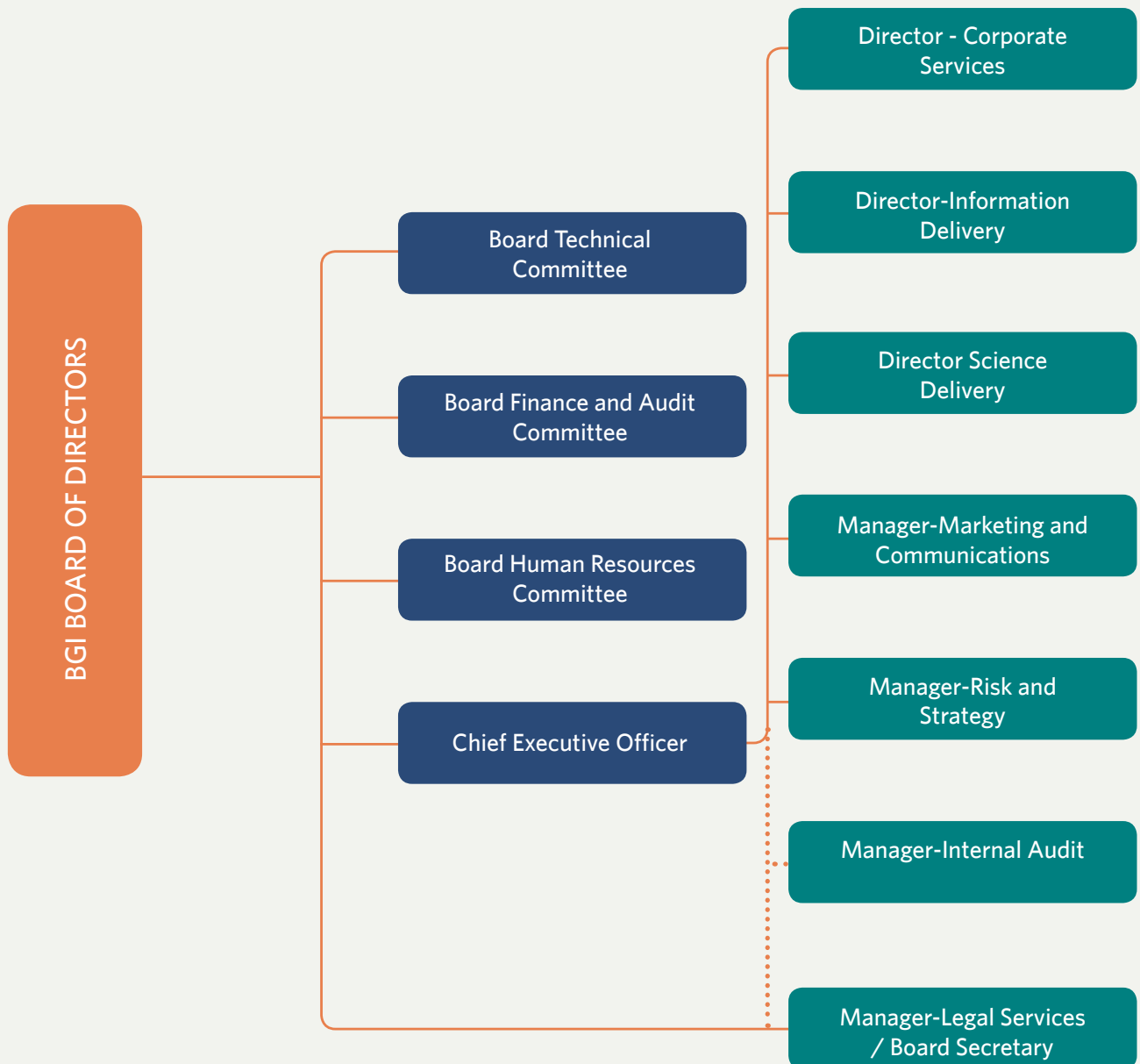
BGI will provide geoscience information to stimulate mineral exploration in an increasingly competitive environment, and will also address quality of life issues.


In carrying this out, the organisation will be highly responsive to stakeholder demands and adaptable to meet emerging economic status needs. A key outcome of this restructuring will be to formulate an organisation that is demand driven and underpinned by an ability to adapt and change so that it can maintain its relevancy to Botswana.

To realize this ambition, the Government of Botswana enacted Botswana Geoscience Act in 2014 to correctly mark the creation of the anticipated geoscience organization.

The legislation was followed by a rigorous programme of the formative imperatives of the organization, such as setting up of key systems, processes, and resources, capacity building essential for delivery of the Institute's mandate. The Institute is now in a functional state and aims to serve the nation as required.

This is a bold and insightful move premised on the need for the new institution to position itself as a significant creator of wealth for the nation and improving the quality of life of Botswana.

BGI Corporate Structure



38/m

OUR **BUSINESS**

Botswana Geoscience Institute is a body corporate constituted under the Botswana Geoscience Act, 2014. It was established to undertake research in the field of geosciences, provide specialised geoscientific services and advice in all matters of geohazards.

OUR BUSINESS

Botswana Geoscience Institute is a body corporate constituted under the Botswana Geoscience Act, 2014. It was established to undertake research in the field of geosciences, provide specialised geoscientific services and advice in all matters of geohazards.

Botswana Geoscience Institute is a body corporate constituted under the Botswana Geoscience Act, 2014. It was established to undertake research in the field of geosciences, provide specialised geoscientific services and advice in all matters of geohazards.

The Institute is also responsible for promoting the search for, and exploration of any mineral in Botswana. The Institute is a custodian of all geoscience data/information which include non-confidential prospecting reports.

We are active in;

- Advancing the geoscientific knowledge of Botswana.
- Promoting public understanding of geoscience.
- Undertaking geoscientific research, related technological development and disseminating geoscientific research findings;
- Long term monitoring, effective data management and high quality applied research including and not limited to the following;
 - Geoscience information updates including digitization and web delivery enabling of data,
 - Rapid map revisions to geological mapping
 - Seismicity risk reduction assessment and geohazards related to extra-terrestrial events risk reduction assessment;
- Systematic geochemical survey for mineral exploration and environmental baseline purposes.
- National resource assessment and estimate of mineral resource, petroleum and gas potential.
- Strategic aquifer mapping and underground modelling
- Thematic mapping.
- National geotechnical indicators in response to expanding towns and villages,
- Regional impacts of mining, including water extraction or kimberlitic dewatering,
- Compiling and developing a comprehensive and integrated collection of knowledge and information of geology, geochemistry, geophysics, engineering geology, economic geology, geochronology, geotechnical investigations, seismology, geohazards, environmental geology and other related disciplines.
- Act as an advisory body in respect of geohazards related to infrastructure and development
- Conduct geotechnical surveys
- Demonstrate the importance of geoscience to resource and environmental issues.





BOARD OF **DIRECTORS**

The Governing body of Botswana Geoscience institute is the Board of Directors appointed by the Minister of Mineral Resources, Green Technology & Energy Security in accordance with section 6 of Botswana Geoscience Act of 2014.

1

2

3



John Leonard Farr
Board Chairman

Mr Farr is the Board Chairman of Botswana Geoscience Institute and is the Managing Director of the Wellfield Geosciences Group, a regional groundwater, environmental and engineering consulting group based in Gaborone. He also worked at the British Geological Survey (BGS), UK as a Senior Scientific Officer, Hydrogeologist in Uganda, Ethiopia and Indonesia.

He has over 45 years of experience in the geoscience field, particularly in groundwater exploration and resource evaluation, predominantly in Africa.

Mr Farr has an MSc. in Hydrogeology obtained from University of Birmingham, United Kingdom.

He is a Chartered Geologist, a Fellow of the Geological Society of London (FGS), a Past President of the Groundwater Association of Botswana, and a Member of Botswana Geoscientists Association, the International Association of Hydrogeologists, and the National Groundwater Association (USA).



Professor Elisha M. Shemang
Vice Chairman & Chairman of Technical Committee

Professor Shemang is the Vice Chairman of the Board. He holds PhD in Applied Geophysics obtained from Ahmadu Bello University, Nigeria.

In 2012, he joined Botswana International University of Science and Technology - BIUST, as Professor and Founding Head, Department of Earth and Environmental Sciences. He previously worked at the University of Botswana as Professor, in the Department of Geology.

Professor Shemang has over 30 years of experience in teaching and research, consultancy and human resources development in geology, geophysics, groundwater and environmental science.

He is a member of several professional bodies amongst which are, Society of Exploration Geophysics (SEG), American Geophysical Union, European Association of Geoscientist and Engineers, International Association of Hydrogeologists, and Botswana Geoscientist Association.



Mr. Ogone Oscar Mokoko Gaboutloeloe, Esq. Sr. Pch
Board Member & Chairman of Human Resources Committee

Mr Gaboutloele, has a Bachelor of Laws (LLB) obtained from University of Botswana, and Master of Science in Strategic Management and a Masters of Commerce in Management Practice specialising in Trade Law and Policy obtained from the University of Cape Town.

He has been working for Botswana Post for over half a decade in various roles including Government relations, Regulatory Affairs and International postal affairs. He has over 12 years' experience as an Attorney, Notary and Conveyancer.

His professional experience has been across diverse sectors including medical insurance providers, a private hospital, the Botswana Unified Revenue Services, and the Public Procurement and Asset Disposal Board.

Mr. Gaboutloeloe has contributed a chapter to 'The Future is in the Post', a Postal Industry journal. He is a member of the Law Society of Botswana of good standing.

4

5

6



Ms. Ontlametse Mokopakgosi
Board Member

Ms. Mokopakgosi has MA in Health Policy, Planning and Management from University of Leeds, UK.

In June 2016 she joined Human Resource Council as Manager, Human Resource Development Planning.

She previously worked as Deputy Permanent Secretary at the Ministry of Minerals Resources Green Technology and Energy Security and the Ministry of Health responsible for Corporate Services.

She previously served as a member of National Vision Council, Public Service Training Advisory Committee, and SADC Human Resource Planning Sub-Committee.



Tebogo Mmoshe
Board Member & Chairperson of
Finance & Audit Committee

Mrs. Tebogo Mmoshe has MBA obtained from University of Derby, UK, BSc (Hons) in Applied Accounting from Oxford Brookes University, UK, and ACCA from Botswana Accountancy College.

In 2009 she joined Botswana Communications Regulatory Authority – BOCRA, as Manager Finance and later progressed to Head of Finance. She is currently the Director Internal Audit at BOCRA.

She previously worked at Botswana Unified Revenue Service as Acting General Manager, Expenditure. Before that she worked for Botswana Meat Commission and went through the audit firms KPMG Botswana and Grant Thornton.

She is Fellow member of Botswana Institute of Chartered Accountants (BICA), and Member of Internal Auditors Association.



Dr. Budzani Tacheba
Board Member

Dr Tacheba currently works for Botswana Innovation Hub as Director – Cluster Development. He previously worked as a Research Fellow at the University of Botswana where he worked in different research projects; Regional Coordinator for the Global Monitoring for Food Security Consortium, developing and administering geospatial products for SADC region; and interim Coordinator in the Botswana Innovation Hub Project Office, Ministry of Infrastructure Science and Technology, where he facilitated establishment of BIH as a Private Company.

He has more than 16 cumulative years' experience in academia (R&D), industry and government. He has served in the Medical Education Partnership Initiative Advisory Board.

Holds a PhD in Environmental Science from University of Botswana, MSc in Remote Sensing from University of London (UCL) and an Executive Education Certificate in Science, Technology and Innovation Policy from Harvard University.

7

8

9



Dr. Sebusi Odisitse
Board Member

Dr. Odisitse has a PhD in Chemistry obtained from University of Cape Town, South Africa. In 2016 he joined Botswana International University of Science and Technology as Lecturer in the Department of Chemical and Forensic Sciences.

He previously worked at Botswana Institute for Technology Research and Innovation as Researcher, Nanomaterials, under Natural Resources and Materials division. He has more than 21 years of experience in teaching, tutoring, lecturing and as a researcher specializing in chemistry.

He is the author and co-author of more than 8 published international scholarly/ scientific journal articles and 5 technical papers in the subject of chemistry, drugs, and chemical biology.

He is a member of Royal Society of Chemistry (UK) and South African Chemical Institute (SA). He serves as a member of Chemical Weapons (Prohibition) Board and also in several national committees.



Dr. Vincent S Mothupi
Board Member
(Resigned In March 2017.).

Dr. Mothupi has a PhD in Development and Management from Potchefstroom - South Africa.

In 2015, he joined National Foods Technology Research Centre (NFTRC) as a Human Resources Manager, and currently holds the position of Director of Corporate Services.

He previously worked for several Mines in Botswana including Mupane Gold Mine (a subsidiary of Galane Gold Mine) as Human Resource Manager.

He has more than 24 years of experience as a general human resource practitioner in different employment sectors.

He has been an Industrial Court Assessor since 2007, and He is also a Chartered member of South African Board of Personnel Practitioners (SABPP).



Mr. Tiyapo Hudson Ngwisanyi
Chief Executive Officer & Ex-Officio
Member of the Board

Mr. Ngwisanyi is an Ex-Officio Member of the Board. He has MSc. in Exploration Geophysics obtained from International Institute for Aerospace Survey and Earth Sciences (ITC), Delft, Netherlands.

He has over 28 years of experience in geophysical surveys related to the search for minerals and groundwater, 19 years of which was from senior management level.

He previously worked at Department of Geological Survey as the Director. He has published 8 technical reports and has co-authored in 5 published scientific journals.

He serves on Water Apportionment Board and has served on National Disaster Management Technical Committee. He is a Member of Botswana Geoscientists Association.



BOARD CHAIRMAN'S *STATEMENT*

It would be fair to say that this has been an eventful year, and I must acknowledge the support of the Ministry of Mineral Resources, Green Technology and Energy Security, for its guidance in setting up this Institution

BOARD CHAIRMAN'S STATEMENT

It is my privilege and honour to address the Shareholders and our wider stakeholder community on behalf of the BGI Board of Directors. I am pleased to present the first Botswana Geoscience Institute Annual Report, as its Founding Chairman.

It would be fair to say that this has been an eventful year, and I must acknowledge the support of the Ministry of Mineral Resources, Green Technology and Energy Security, for its guidance in setting up this Institution and facilitating a smooth transition from the Department of Geological Survey (DGS) to the new BGI.

As can be appreciated, this has been an extremely intense year for BGI strategically and administratively, and the Board has been very busy through its various Sub-committees and through several Expert Groups in this transition process.

The majority of this engagement was to effectively wind up the long-established Department of Geological Survey, and to embark on setting up new management and financial systems and undertake a comprehensive recruitment drive for the new BGI.

Formation of Botswana Geoscience Institute.

We remain fully cognisant that, the success of BGI as a new Botswana Government parastatal, is intricately linked to the country's national development goals and strategic imperatives.

We understand that the creation of the BGI presents Botswana as a

nation with a unique opportunity to set up respected and renowned geoscience organisation that can meet the needs of its stakeholders and customers.

This is an opportunity to build a nation's trusted adviser on all matters of geoscience. As the Board, we aim to fulfil this opportunity by applying our diverse professional expertise, historical and tested knowledge, nationwide earth observation infrastructure and strong partnerships globally built over the years, to deliver the Mandate of this new Institute as espoused in the Botswana Geoscience Institute Act.

In addition, in line with Botswana Government policy to attract investors to Botswana and thereby increase foreign direct investment, the formation of BGI opens new avenues for collaboration in research and mineral discovery, as well as the overall sustainable development of Botswana's mineral sector and related activities such as the monitoring of geohazards.

This is a prospect to innovatively apply science and technology to understand the earth for the greater benefit of Botswana and its citizens, and broaden the nation's economic base within the mineral sector.

Board Commitment

It is a known fact that operational maturity of organisations, as seen elsewhere in similar institutions, can only be achieved through the commitment and dedication of the Board of Directors. In this context,

the BGI Board of Directors has, I believe, made excellent initial progress in providing strategic advice and direction in setting up BGI as an aspiring and reputable geoscience centre in Botswana.

It would be therefore negligent of me not to acknowledge the individual efforts of each of the Board Members and as a collective.

During this transitional and establishment process for BGI, individual Board Members have proved to be real initiators, have been very actively involved and have stayed the course without any sign of lethargy.

I am very appreciative of the commitment of my Board team and they themselves remain infinitely proud of the achievements so far realised and look ahead with enthusiasm. As a collective, the Board aims to increase our efforts to maintain the high standards we have set ourselves.

It is important to state that the establishment and organisational targets that we have achieved would have been a pipe dream if we did not have a strong and much desirable backing from our wider stakeholder network.

We are extremely grateful for the reciprocal relationship we have built and fostered with our stakeholders as their input did not only guide the formation of BGI but also cemented our understanding of their needs and aspirations.

Noting the successes achieved so far, I am in no doubt that before the

end of the Financial Year 2017-18, BGI will launch a well conceived Corporate Strategy and a well-informed and agile Corporate Brand.

Economic diversification

As the BGI Board, we note that in the today's modern economies, there is increasing demand for diversification away from the mining sector. However, we believe that there should also be an encouragement to diversify within our mining sector, as our country has minerals and energy resources in abundance.

At BGI, we look to heighten the demand for minerals by promoting and encouraging their exploration and development. Our ability to explore, characterise and exploit minerals, and to ensure environmental protection around mining sites, gives us the firm grounding we need to diversify within this sector.

As well as the abundance of mineral resources, our country has also built sufficient human capital to face any challenge in the minerals sector.

As is documented in the historical development of Geological Survey of Botswana, dating as far back as 1943, I believe we are up to the tasks and challenges before us.

BGI is excellently placed to build upon the technical and human capital that we have inherited from DGS, and to develop this into a truly science-based centre of geoscience excellence.

I see the establishment and further development of BGI as an important component in the drive towards an economic revolution in Botswana.

Looking ahead

With all of the above in mind, the Board will make all efforts to develop the Botswana Geoscience Institute into a commercially-based enterprise for the purpose of self-sustenance, to create and improve our reputation in geoscience research, and to make improved service to our customers and stakeholders our overarching goal.

Going forward, the Board would like to see these ideals becoming part of our everyday focus throughout all components of BGI.

The appointment of a highly competent Chief Executive Officer and an experienced and enthusiastic Executive Management team will provide the strong framework this will be required to focus on these ideals and to deliver our mandate with vibrancy, vigour and commitment.

In conclusion, I urge all stakeholders and potential stakeholders with direct and indirect links with BGI, not to hesitate to make contributions to influence and improve the positive path of building a robust geoscience enterprise on which we have embarked. Our challenge is to ensure that we maximise all opportunities and take in all contributions to ensure our dream is realised.

In the year to come, I look forward to a well nurtured and fully operational BGI, in which the Board and the staff are fully focussed on the achievement of the goals that we have set ourselves.



John L. Farr
Chairman of the Board

As the BGI Board, we note that in the today's modern economies, there is increasing demand for diversification away from the mining sector. However, we believe that there should also be an encouragement to diversify within our mining sector, as our country has minerals and energy resources in abundance.



**CHIEF EXECUTIVE
OFFICER'S REPORT**

I consider that, when you are understood, a wealth of opportunities will present themselves and necessary goodwill will be achieved.

CHIEF EXECUTIVE OFFICER'S REPORT

The BGI Financial Year that ended on March 31, 2017, was the organisation's first year of operation since the enactment of the Botswana Geoscience Act in 2014. The year under review marked a significant milestone in the form of completion and closure of Department of Geological Survey. In achieving this, we focused more on formative imperatives of the organization, with special emphasis on the setting up of key systems, processes, and resources, capacity building essential for delivery of the Institute's mandate and staff rationalisation due to redundancies

Despite the rigorous engagements, especially on organisational design, property and assets consolidation, business realignment with expectations at its infancy stage, we have achieved significant and notable results that include the following:

Development of Organisational Structure

This was carried out through the assistance of a consulting

firm, Deloitte Consulting and it is presently being implemented. It involved the development of Organizational Structure, Pay Structure, Job Profiles, Terms and Conditions (Human Resources Policy) and Change Management Programme.

The project was initiated through the Ministry of Mineral Resources, Green Technology and Energy Security. It was transferred and administered by BGI in March 2016 after the submission of the Inception Report. Final products were delivered in November 2016.

Development of Policies and White Papers

The main documents that have been produced are the Finance and Procedure Manual and the Human Resource Manual. The Finance and Procedure Manual, Policies and Procedures in accounting and finance procedures of the Institute while the HR Manual provides guidelines on employer-employee relationships, work conditions and general code of conduct. The Institute also developed

and implemented strategies for all Human Resources and Administration services, policies and programmes.

Financial Controls and Regulatory Compliance

As per Section 30 (1) of BGI Act, Mazars, a BAOA recognised audit firm was engaged to establish financial controls and ensure compliance.

The firm also conducted an audit of BGI 2016 -2017 Books of Accounts and presented the audited BGI Financial Statements.

Transfer of Assets

A number of assets such as thirty (30) light vehicles, eight (8) heavy duty vehicles (or movable plant) were transferred from Department of Geological Survey to BGI.

The Institute was awaiting the vesting order to transfer land and other immovables to BGI.

The Table below indicates property yet to be transferred to BGI;

Table 1 - Transfer of assets to BGI

| Location | Lot No. |
|----------------|------------------------|
| Gumare | |
| Mawana | |
| Lobatse (HQ) | Plot 1734, Khama Ave 1 |
| Motopi | |
| Qangwa | |
| Kang | Tribal Lot 332 |
| Toteng | Tribal Lot 15 |
| Magotlhwane | |
| Molapowabojang | Tribal Lot 34 |

Table 2 - BGI collaborations/partnerships.

| NO. | PARTNER ADDRESS | PROJECT TITLE | FIELD | STATUS |
|-----|--|--|---|--|
| 1 | Air Force Technical Application Centre (AFTAC) USA | Global Seismic Network Station (the purpose of which is to monitor seismic activity, both natural and human-induced, for scientific applications as well as for enforcing the United Nations nuclear weapons disarmament regime under the Comprehensive Nuclear-Test Ban Treaty (CTBT)). | Earthquake seismology | AFTAC pays a stipend of U\$15,000 per annum to use for maintenance of Magotlhwane seismic station. No end date. |
| 2 | Japan Oil Gas and Corporation (JOGMEC) | The use of Remote Sensing for Geo-Exploration with emphasis on Base Metal Exploration | The use of Remote Sensing for Geo-Exploration with emphasis on Base Metal Exploration | Several BGI & SADC Counterparts have now been trained in Remote Sensing, the undertaking of joint projects, satellite data has been provided by JOGMEC for use by its partners. JOGMEC has since opened office in Gaborone and all its operations are now carried out from that office. The partnership will end in March 2018 subject to a further period of extension. |
| 3 | MeetingPoints Mining - Geological Survey of Sweden (SGU) Sweden | Identification and assessment of construction aggregates | Industrial minerals exploration | MoU ran until December 2016. SGU was helping BGI with technical skills in the project. Collaboration now on informal basis |
| 4 | Geological Survey of Finland (GTK) Finland | BGI and GTK signed an MOU to cooperate in the maintenance of registers of mineral rights, the production, supply and dissemination of geological information, mineral promotion, small-scale mining, the characterisation of mineral deposits, environmental applications, mine closure and abandoned mine waste management. | | Activities halted pending recruitment of staff within BGI |
| 5 | ITC (Faculty of Geo-Information Science and Earth Observation), Netherlands (Represented by University of Twente and Utrecht University) | NARS (Network of Autonomously Recording Seismographs) Botswana | Earthquake seismology | 4-year project scheduled for 2013-2016, currently with 3 out of 21 target stations remaining to be installed. |
| 6 | University of Oxford (School of Geography and the Environment) United Kingdom. | Megalake records of Kalahari climate change: testing the asynchrony of African humid periods | Sedimentary analyses using geochemistry, leaf wax isotopes and radiocarbon dating | Project activities have been scheduled originally for August 2015 - August 2016, and delays in the purchasing and subsequent delivery of spare parts have inadvertently slowed down the data collection phase of the project. Currently, equipment is being tested in preparation for field operations. |
| 7 | Geosoft | Extra Large Voxi Inversion of the Magnetic Data over the Okavango Delta Region. This is a collaborative project between the BGI and Geosoft Africa Limited. The project involves running unconstrained VOXI inversions on the aeromagnetics (and gravity) datasets within the Okavango Delta region. | | New knowledge of the 3-D magnetic model of the upper crust below the Okavango Delta and the Okavango Rift Zone. Geosoft hosted the data for free for the duration of project. BGI is evaluating a proposal from Geosoft to continue hosting the data and expand to cover other parts of Botswana |

| | | | |
|---|---|---|--|
| 8 | <p>Department of Water Affairs (BW), Dept. of Water and Sanitation (RSA), UB, North-West University (RSA), Department of Science and Technology (RSA), South African National Space Agency (SANSA), Water Research Commission (WRC), Council for Scientific and Industrial Research (CSIR), Council for Geoscience (CGS SADC)</p> | <p>Ramotswa Trans boundary Aquifer</p> <p>IMWI led initiative sponsored in part by the USAID being part of the RESILM Project. Ramotswa aquifer is a shared groundwater resource between Botswana & South Africa.</p> | <p>Implementation of the RESILIM project aimed at building resilience in the Limpopo Basin. Ramotswa Aquifer, requires to be managed in such a manner that it can support equitable access to water that balances urban and rural needs with ecosystem requirements under a changing climate regime. Expected to contribute towards building capacity of many of the river basin organisations, national authorities including us and our South African counterparts, local communities to sustainably manage natural resources, high priority ecosystems and human communities to be resilient to climate induced pressure.</p> |
|---|---|---|--|

Table 3 - BGI affiliations

| ORGANIZATION | BENEFITS |
|---|---|
| Association of African Geological Surveys European Geological Surveys | <p>The mandate of OAGS is to foster and sustain government-supported geosciences endeavours and excellence on the African continent, in the quest for socio-economic development and poverty alleviation, with special reference to mineral resource assessment, sustainable land use and development, hazard mitigation and environmental protection. The specific aims of the organisation include, but are not limited to, creating regional- and continent-wide promotional maps and documents that inform decision-makers in government and industry on matters relating to the applied geosciences.</p> <p>DGS participates in projects that are run by the organisation and there are annual meetings where information is shared. The organisation is considering introducing annual subscriptions but amount has been indicated.</p> |
| International Union of Geological Sciences | <p>IUGS fosters dialogue and communication among the various specialists in earth sciences around the world. It achieves this by organizing international projects and meetings, sponsoring symposia and scientific field trips, and producing publications. Topics addressed span from fundamental research to its economic and industrial applications, from scientific, environmental and social issues to educational and developmental problems.</p> <p>Member states receive quarterly Bulletins and DGS participate in projects sponsored by IUGS. There are preferential registration fees at Geocongress. BGI is the adhering partner on behalf of all the geoscience organisations in Botswana</p> |
| Comprehensive Test Ban Treaty Organisation (CTBTO) | <p>DGS is the Authority (or principal point of contact) while the Treaty was signed through the Ministry of Foreign Affairs and International Cooperation.</p> <p>Training of Botswana staff dealing with seismology. Availability of worldwide earthquake data contributing towards mitigation of seismic-related disasters and vulnerabilities to create global safety and resilience against earthquakes.</p> |

Administrative Matters

A sound and efficient administration system is a pre-requisite for any organization to operate efficiently particularly at the initial stages of formation. In view of this, we have been able to begin a process to resuscitate habitability of all buildings. All efforts made towards repairs were unsuccessful due to the complexity of the centralised system. Efforts will be intensified as the system is critical not only for the comfort of staff but to improve efficiency at the Laboratories which is one avenue for revenue generation.

With regards to fleet management, 28 of different makes required for BGI operations were transferred from the Ministry of Mineral Resources, Green Technology and Energy Security, to BGI and these include old vehicles which are left with a short life span.

While BGI relied on Government Procedures, as directed by PPADB, a parallel process was initiated to develop the BGI Procurement Procedures and Regulations. The first draft has been discussed with PPADB and is yet to be finalised.

This is an important structure in the Governance of BGI. The BGI board, subject to predefined limits, would delegate its executive authority to the Executive Management Committee, (EXCO), headed by the Chief Executive Officer (CEO). This structure was yet to be operationalised due to delayed process of recruitment.

Executive Management

BGI was yet to consolidate this structure due to ongoing recruitment exercise.

When established the executive management team (EXCO), will be responsible for proposing strategic alternatives to the Board and will be accountable for the implementation strategies, policies, and other decisions approved by the Board. It manages the business and affairs of the Institute, implements strategic decisions, prioritises the allocation of capital, technical and human resources and establishes best management practices.

Once fully constituted, the EXCO will meet at least fortnightly to consider and review matters of strategic, operational and tactical importance.

Looking Ahead

I believe the positive strides and developments we have made this financial year, we have paved the way for long term sustainable growth. The key is to remain focused on building a superior team that will deliver the Corporate Strategy which will be completed in the second quarter of financial year 2017-18.

We will continue to review our processes to ensure that they address the needs of the local market and that they are aligned to the global standards. We will enhance our suite of products and services to ensure a long term relationship with our customers.

There has been an observable increase in trends of earthquakes and tremors in Botswana. These pose a heightened potential of damage to occur especially in relation to changing patterns of population distribution. Highest probabilities of earthquake occurrence are in the Okavango delta region in the North-western

Botswana and there is an urgent need to be more aware of earthquakes to cope with possible disasters.

Unavailability of near-real time data transmission facilities, accessibility to some seismic stations are very difficult due to terrain, and lack of full-time seismic analysts have hampered our ability to provide timely information after earthquake occurrence.

It is against these observations that, we plan in the future, to expand and improve Botswana Seismological Network (BSN) to cover the entire country. We will also produce of Seismological bulletins on quarterly basis.

Data will also be transmitted near real time to the Service Center in BGI in Lobatse. Seismic hazards assessments will be conducted for urban areas (eg. Gaborone, Francistown) and areas prone to earthquakes such as Maun. We recognize that data and information are central to all modern geological survey organizations.

While we made tremendous progress in this area in our past life as DGS, we aim to improve on how this data is managed and delivered. We will endeavor to deliver this through the internet and thereby increase our coverage and efficiency. The process of digitizing this information has already commenced.

Another area of attention is to ensure improved or cultivated public education in the field of Geoscience. We need to build awareness and reinforce stakeholder engagement and align their beliefs and understanding with the Mandate of BGI.



I consider that, when you are understood, a wealth of opportunities will present themselves and necessary goodwill will be achieved.

In conclusion, I am proud of the support from the Board and our Ministry. I am delighted by the relentless pursuit to success shown by all involved in this initial and critical chapter of setting up BGI.

I would like to thank them for their hard work even into the future. Our Mandate is very strong and will be matched by a clear, robust and confident Vision.

We will streamline, strengthen and capitalise on the opportunities. Indeed the ever increasing global population, increasing urbanisation and demand for mineral products, BGI will remain relevant for many decades to come.

.....
Tiyapo H. Ngwisanyi
Chief Executive Officer



CORPORATE **GOVERNANCE**

BGI is committed to the highest standards of Corporate Governance and business integrity, ethical values and professionalism in all of its activities.

CORPORATE GOVERNANCE

BGI is governed by a Board of Directors consisting of eight (8) Non-Executive Directors. The Chief Executive Officer is an Ex-Officio Member of the Board.

BGI is committed to the highest standards of corporate governance and business integrity, ethical values and professionalism in all of its activities. As an essential part of this commitment, the Board of Directors support high standard of corporate governance and the Board is accountable to the shareholder in this regard.

The Board is responsible for the general control of the performance & management of the undertakings and affairs of the institute.

According to Botswana Geoscience Act, 2014, the selection and appointment of members of BGI Board of Directors, lies with the Minister of Mineral Resources, Green Technology and Energy Security.

As per best practice, Board appointments are based on prescribed skills and experience, as such the appointed members of the Board have diverse skills and experience in various disciplines which accordingly assists in ensuring BGI discharges its mandate within the stipulated provisions of the Botswana Geoscience Institute.

Such disciplines include, Geological Engineering, Sciences, Law, Market Regulation, Finance and Accounting, Management and Business administration/ or any other relevant discipline as may be determined by the Minister.



Table 4 - BGI Board Of Directors

| NAME | PROFESSION/QUALIFICATION | OCCUPATION AND COMPANY | POSITION BOARD, (e.g. Board Chairperson, Audit\ HR Committee Chairperson or Ordinary Member) | DATE OF FIRST APPOINTMENT | EXPIRY DATE |
|-----------------------------|---|---|--|---------------------------|---------------------|
| Mr John Farr | MSc in Hydrogeology | Managing Director - Wellfield Geosciences Group | Board Chairperson | 16 JULY 2015 | 5 YEARS |
| Prof. Elisha M. Shemang | Professor, PhD in Applied Geophysics | Professor & Funding Head, Department of Earth and Environmental Science - Botswana International University of Science and Technology | Board Vice Chairperson Chair - Board Technical Committee Member of Board HR Committee | 16 JULY 2015 | 5 YEARS |
| Ms Tebogo Mmoshe | MBA, BSc (Hons) in Applied Accounting and ACCA | Director Internal Audit - Botswana Communications Regulatory Authority | Board Member Board Technical Committee Chair- Board Finance & Audit Committee | 16 JULY 2015 | 5 YEARS |
| Dr Budzanani Tacheba | PhD in Environmental Science, MSc in Remote Sensing | Director Cluster Development - Botswana Innovation Hub | Board Member Technical Board Committee | 16 JULY 2015 | 5 YEARS |
| Ms Ontlametse Mokopakgosi | Human Resource, MA in Health Policy, Planning and Management | Manager, Human Resource Development Planning - Human Resource Council | Board Member HR Board Committee | 16 JULY 2015 | 4 YEARS |
| Dr Sebusi Oditse | Lecturer, PhD in Chemistry | Lecturer - Botswana International University of Science and Technology | Board Member Technical Board Committee Finance & Audit Board Committee | 16 JULY 2015 | 4 YEARS |
| Mr Ogone O. M. Gaboutloeloe | Law, Bachelor of Laws (LLB), Masters of Science in Strategic Management and Masters of Commerce in Management Practice specializing in Trade Law and Policy | Government Relations, Regulatory Affairs and Internationals Postal Affairs - Botswana Post | Board Member Chair-HR Board Committee Finance & Audit Board Committee | 16 JULY 2015 | 4 YEARS |
| Dr. Vincent Mothupi | PhD in Development and Management obtained from Potchefstroom University, South Africa. | National foods Technology Research Center | HR Board Committee & Finance & Audit Committee Member | 16 JULY 2015 | Resigned March 2017 |

Board Committees

The Board had three (3) standing specialist Committees, namely; the Board Technical Committee, Board Finance and Audit Committee, Board Human Resource Committee.

Finance and Audit Committee

The Finance and Audit Committee consists of Six (6) Non-Executive members. The Committee was set up to ensure that it creates and maintains an effective control environment for BGI. The Committee reviews Financial Controls, Accounting Systems and reporting to external stakeholders as well as the work of both internal and external auditors.

The members of the Finance and Audit Committee are: -

| | | |
|-----------------------------|---|-------------|
| Ms. Tebogo Mmoshe | - | Chairperson |
| Dr Sebusi Odisitse. | - | Member |
| Mr Ogone O. M. Gaboutloeloe | - | Member |
| Ms Ontlametse Mokopakgosi | - | Member |
| Dr. Vincent Mothupi | - | Member |
| Dr Budzanani Tacheba | - | Member |

Human Resource Committee

The Human Resource Committee consists of four (4) Non-Executive members. The Committee was set up to regulate both substantive and procedural administration of staff and staff welfare issues, which include amongst others recruitment processes, industrial relations matters, remuneration and compensation.

Members of the Human Resource Committee:

| | | |
|-----------------------------|---|-------------|
| Mr Ogone O. M. Gaboutloeloe | - | Chairperson |
| Ms Ontlametse Mokopakgosi | - | Member |
| Prof. Elisha M. Shemang | - | Member |
| Dr. Vincent Mothupi | - | Member |

Technical Committee

The Board Technical Committee is a subcommittee of the Board whose main aim is to provide the Board oversight on technical management, project management and systems and technology acquisition. This subcommittee led in the asset valuation which guided on the integrity of the technology and systems at BGI.

The members of the Board Technical Committee are: -

| | | |
|-------------------------|---|-------------|
| Prof. Elisha M. Shemang | - | Chairperson |
| Dr Sebusi Odisitse | - | Member |
| Ms. Tebogo Mmoshe. | - | Member |
| Dr Budzanani Tacheba | - | Member |

Remuneration of Members of the Board

The Board met on eight (8) occasions during the financial year 2016/17 to consider various strategic and policy issues and other issues having material effect on the Institute's affairs. During these meetings, the Board Members have declared their interests and are free from any business or other relationships which could reasonably be said to interfere with the exercise of their judgement. During the year under review, Members of the Board and as part of the respective committees attended the following meetings.

Table 5 - BGI Board Remuneration.

| NAME | POSITION | AMOUNT (BWP) |
|-----------------------------|---------------|----------------|
| Mr John L. Farr | Chairman | 18 900.00 |
| Prof. Elisha M. Shemang | Vice Chairman | 17 760.00 |
| Ms Tebogo Mmoshe | Member | 10 080.00 |
| Dr Budzanani Tacheba | Member | 10 920.00 |
| Ms Ontlametse Mokopakgosi | Member | 11 760.00 |
| Dr Sebusi Odisitse | Member | 12 600.00 |
| Mr Ogone O. M. Gaboutloeloe | Member | 12 600.00 |
| Mr Tiyafo H. Ngwisanyi | CEO | Not applicable |

Note: Except for the Chief Executive Officer, members of the Board are not entitled to monthly or annual salaries. Instead, they are paid sitting allowance at Board and Committee meetings. Below is the detail of Board sitting allowance payments for the year under review.

Table 6 - BGI Board Meetings Attendance.

| NAME | POSITION | BOARD | FINANCE & AUDIT COMMITTEE | HUMAN RESOURCES COMMITTEE | TECHNICAL COMMITTEE |
|-----------------------------|---------------|-------|---------------------------|---------------------------|---------------------|
| Mr John Farr | Chairman | 7/8 | N/A | N/A | N/A |
| Prof. Elisha M. Shemang | Vice Chairman | 6/8 | N/A | 2/2 | 1/1 |
| Dr. Vincent Mothupi | Member | 6/8 | 1/2 | 1/2 | N/A |
| Ms Tebogo Mmoshe | Member | 5/8 | 2/2 | 2/2 | |
| Dr Budzanani Tacheba | Member | 7/8 | 1/2 | N/A | 0/1 |
| Ms Ontlametse Mokopakgosi | Member | 5/8 | 1/2 | 2/2 | N/A |
| Dr Sebusi Odisitse | Member | 8/8 | 2/2 | N/A | 1/1 |
| Mr Ogone O. M. Gaboutloeloe | Member | 7/8 | 2/2 | 1/2 | N/A |
| Mr Tiyafo H. Ngwisanyi | CEO | 8/8 | 2/2 | 2/2 | 1/1 |

Risk Philosophy

At BGI, we are fully aware that the greatest consequence of all risks is loss of reputation for it can threaten our relationship with our customers and partnerships by creating negative opinions. A risk to our reputation, affects our ability to execute our strategies.

As a transitioning organisation, we aim to ensure high level risk assessment through a defined framework which will be an integral part of the Institute's annual strategic planning phase. We aim to proactively manage both the community-oriented risk and enterprise-wide risk.



BUSINESS *REVIEW*

We know that everything we do is about customer needs and how we satisfy them. We do this fully aware that our customers' needs are fast changing especially with the advent and fast evolving technology.

BUSINESS REVIEW

The establishment of Botswana Geoscience Institute, reaffirms the commitment to deliver exceptional value and quality geoscience products and services to the nation and improved shareholder value.

We know that everything we do is about fulfilling customer needs and how we satisfy them. We do this fully aware that our customers' needs are fast changing especially with the advent and fast evolving technology.

To thrive under such circumstances and position the business, we continued to deliver historical projects, products and services, and at the same time striving to venture in to new platforms.

Some key projects are discussed below'.

a) Identification and assessment of industrial minerals

This project is a deliberate effort by the Ministry of Mineral Resources, Green Technology and Energy Security, using National Development Plan (NDP 10) funds. The project promotes economic diversification and environmental

protection by private sector participation (especially citizens) in the economy.

The main objective of this project is to identify suitable source rocks that can be used in the production of manufactured/machine sand mainly for infrastructure development projects in Botswana which has increased dramatically over the past decade. These development projects require high tonnages of river sand, most of which have been mined out legally and illegally from the rivers all over the country.

River sand mining, whether legally or otherwise, has some negative environmental impact on the river eco-systems. The rate of extraction far exceeds the recharge rate especially that over the past few years, there has been little rain in Botswana which resulted in no river flows and no river sand recharge.

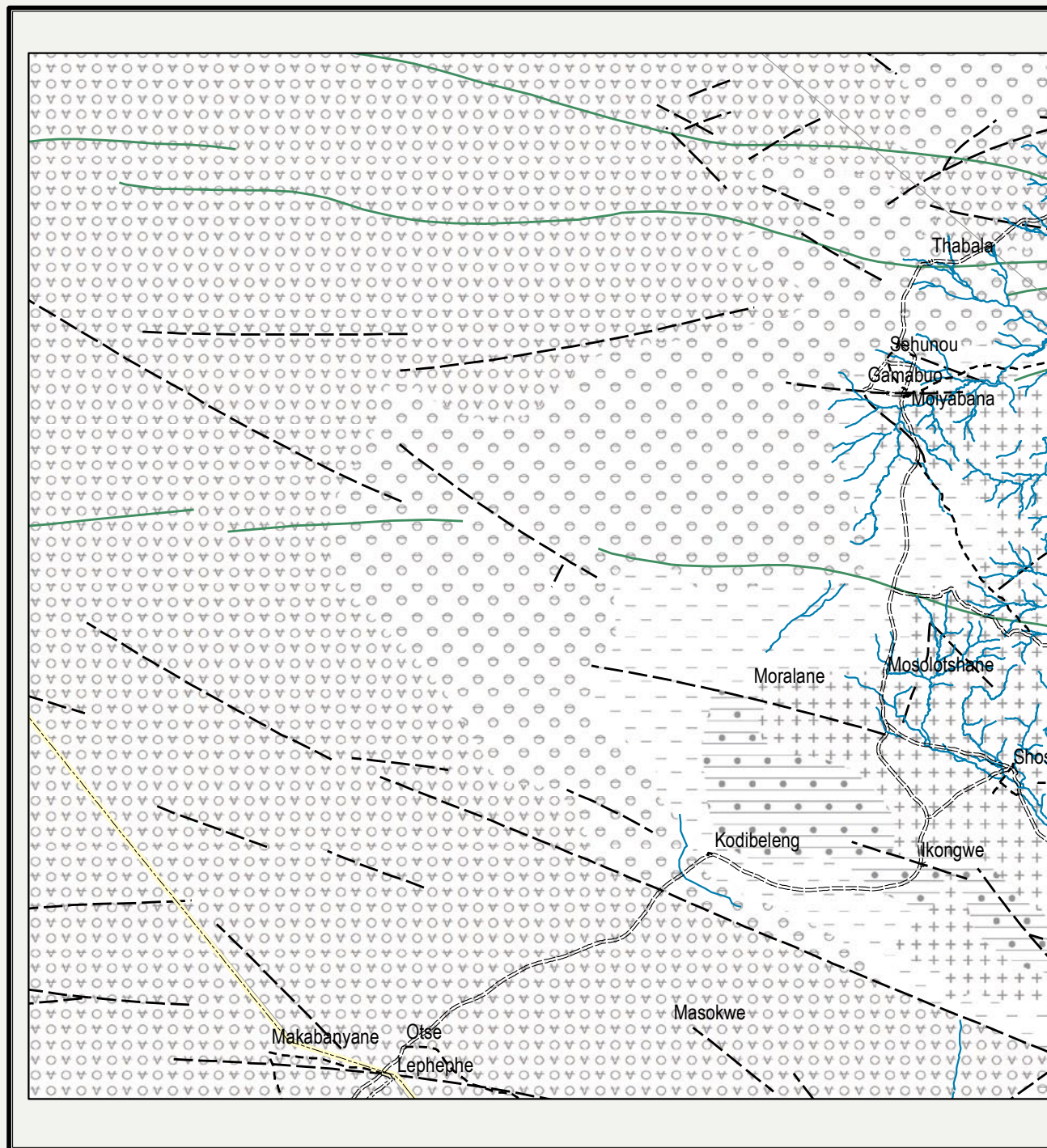
This project has some notable results and progress. The identification of source rocks for manufactured sand was been completed in greater Gaborone in 2015, whereas the identification of sourcerocks in the Serowe-Palapye, Mahalapye and Francistown was completed in 2016. Four (4) quarries have been identified in the Serowe, Palapye and Mahalapye areas. Their development will reduce dependence on natural river sand leading to environmental protection and river eco-system will have an opportunity to recover.

As shown in table 7 a total of 431.84 Mt of source rocks have been identified in both the Serowe-Palapye and Mahalapye areas.

Table 7 - Total Source Rock in Serowe / Palapye and Mahalapye Area

| Quarry | Quantity (mT) |
|------------|---------------|
| Palapye | 94.800 |
| Mokgware | 105.600 |
| Bonwapitse | 105.200 |
| Tobela | 126.240 |
| | 431.84 Mt |

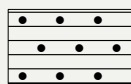
Fig 2 RECOMMENDED QUARRY SITES IN THE SE



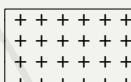
LITHOLOGY



Arkose, sandstone, mudstone,
carbonaceous shale, coal



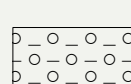
Quartzite, quartzitic sandstone,
shale, conglomerate



Igneous and metamorphic rocks



Sand, sandstone, marl, calcrete, silcrete;
basalt; sandstone

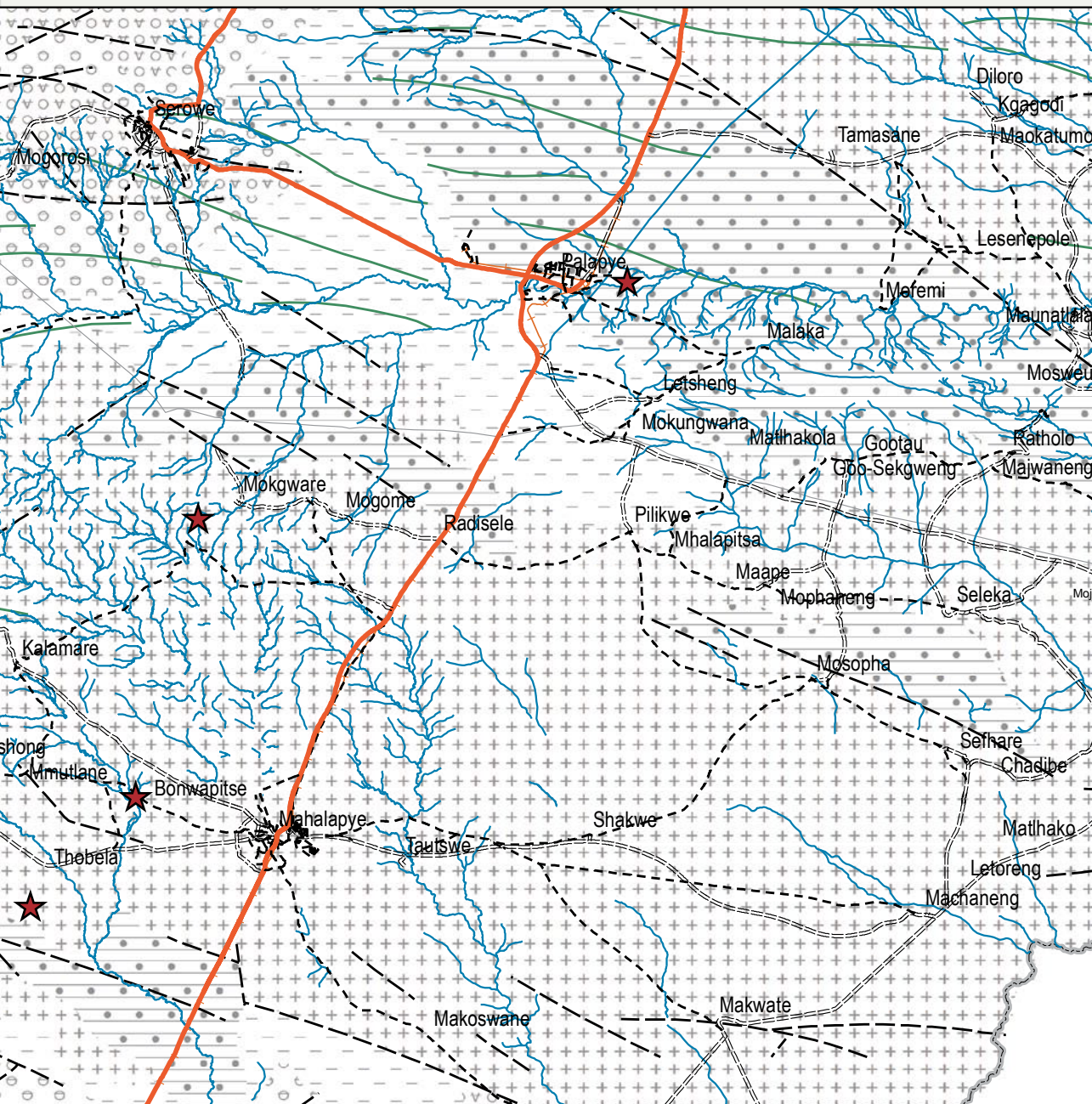


Sandstone; arkose, sandstone, mudstone,
carbonaceous shale, coal

ST



ROWE- PALAPYE AND MAHALAPYE AREA



STRUCTURE

TOPOGRAPHICAL LEGEND

- Fault
- Dyke
- Recommended quarry site
- Village
- Main road
- Secondary road
- River
- Botswana district

Geographic Coordinate System: GCS_WGS_1984



0 5 10 20 30 40 Kilometers

Scale 1:639,000

Fig 3 - The map below shows recommended quarry sites in the greater Gaborone area.

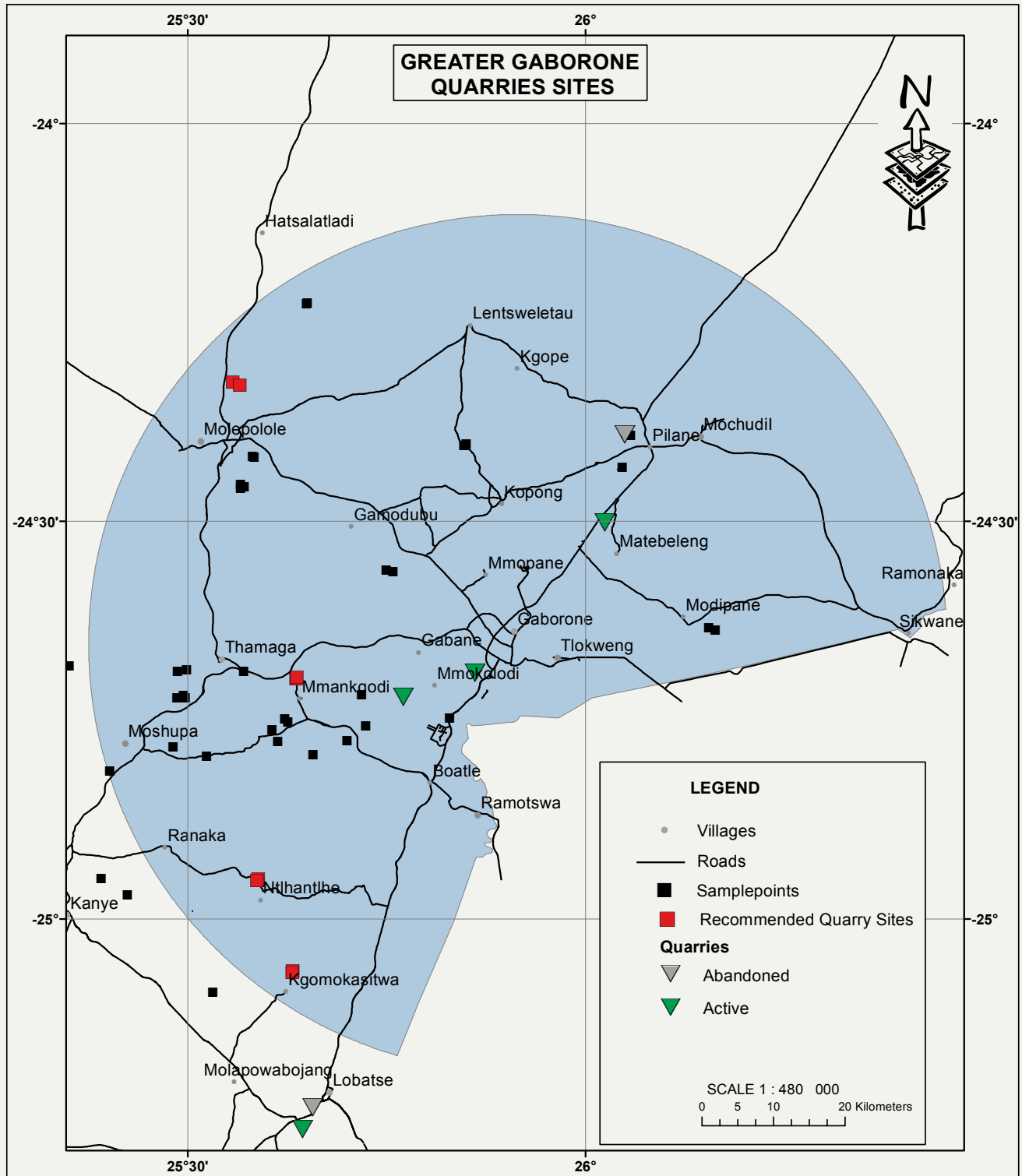


Table 8 - The resource quantification of the quarries in the greater Gaborone area

| Quarry | tonnage | Density (g/cm ³) |
|-------------------|-----------------------|------------------------------|
| Kgomokasitwa site | 4061 Million tonnes | 2.63 |
| Ntlhantle site | 4150 Million tonnes | 2.63 |
| Molepolole1 | 636 Million tonnes | 2.65 |
| Molepolole2 | 12 138 Million tonnes | 2.89 |
| Mmankgodi | 500 million tonnes | 2.69 |

Parallel to the above BGI engaged in a research to determine if manufactured sand or crusher dust produced by the three operating quarries around is suitable for plastering as way to reduce dependency of natural sand since there was resistance to use the product for plastering.

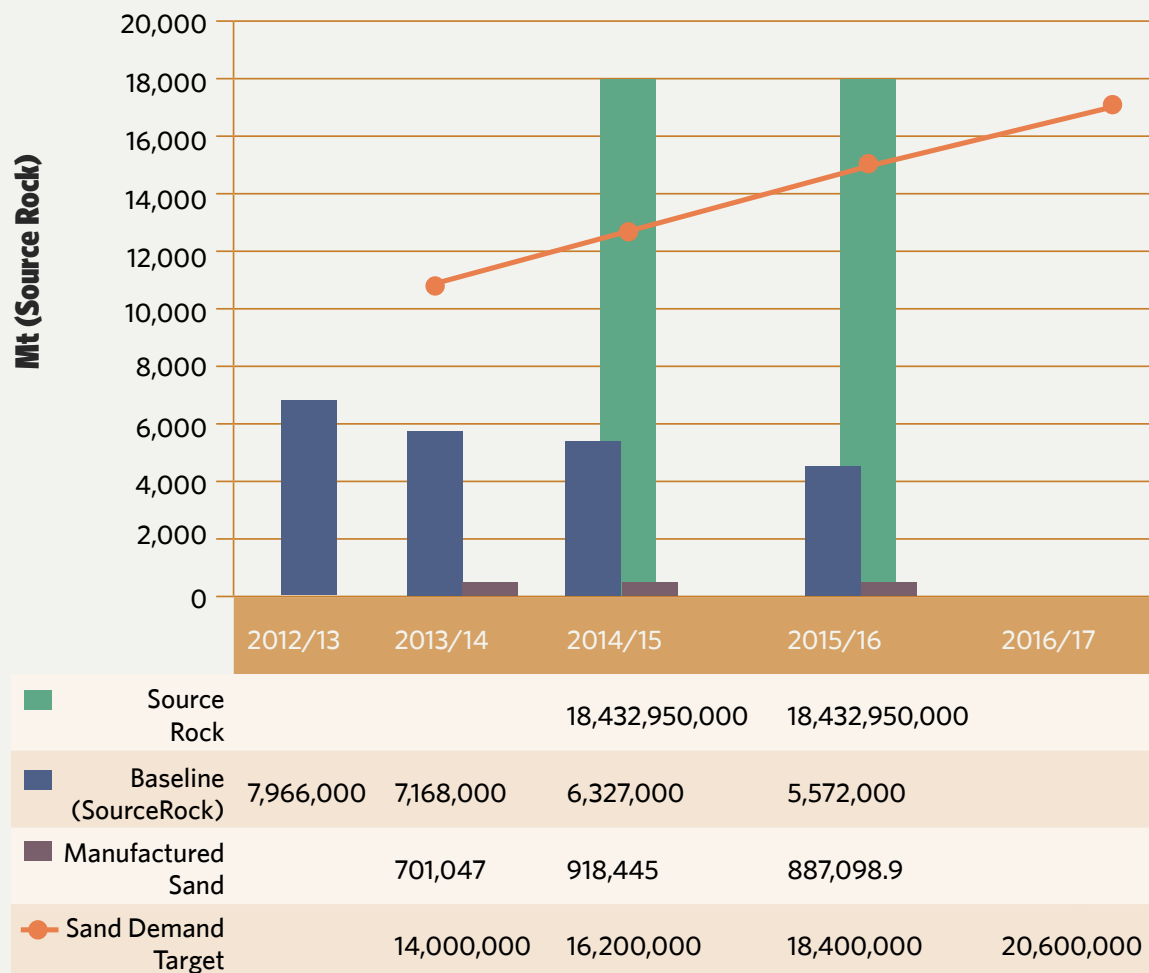
An experimental wall which was done in collaboration with both the private sector (Belabela quarries and Mokolodi) and other

department was constructed in the BGI premises. The wall was observed for more than a year and it showed defects.

As the development of quarries will take some time before production is realised, the BGI embarked in a campaign to educate the public of the anticipated coming product and also encouraged them to start using manufactured sand. At the same time operating quarries were

encouraged to introduce cone crushed to improve the quality of the manufactured sand so that it can immediately be used as a substitute of manufactured in the Greater Gaborone area where natural sand was depleted.

The graph below shows the production & uptake of manufactured sand as a response to the public usage of manufactured sand.

Fig 4 - Production and Uptake of manufactured sand

b) National Mineral Resource Accounts

During the reporting period, BGI continued to undertake the National Mineral Account under the Wealth Accounting and Valuation of Ecosystem Services (WAVES, www.wavespartnership.org) global partnership, being carried out by the Government of Botswana (GoB) and the World Bank.

Mineral Account provides information on five commodities being diamonds, coal, copper-nickel, soda ash and gold. The information of mineral accounts is of critical importance to Botswana's economy and the national balance sheet.

Mining in Botswana, continues to be the largest contributor to gross domestic product (GDP), generating the majority of export earnings, and makes a major contribution to government fiscal revenues.

Mineral accounts are intended to ensure that appropriate decisions are taken regarding investment of mineral revenues to provide for future economic growth. The objectives of mineral accounting are:

- Quantifying major physical trends in resource stocks for major minerals;
- Quantifying major monetary trends in resource stocks for major minerals;
- Estimating rent generated by

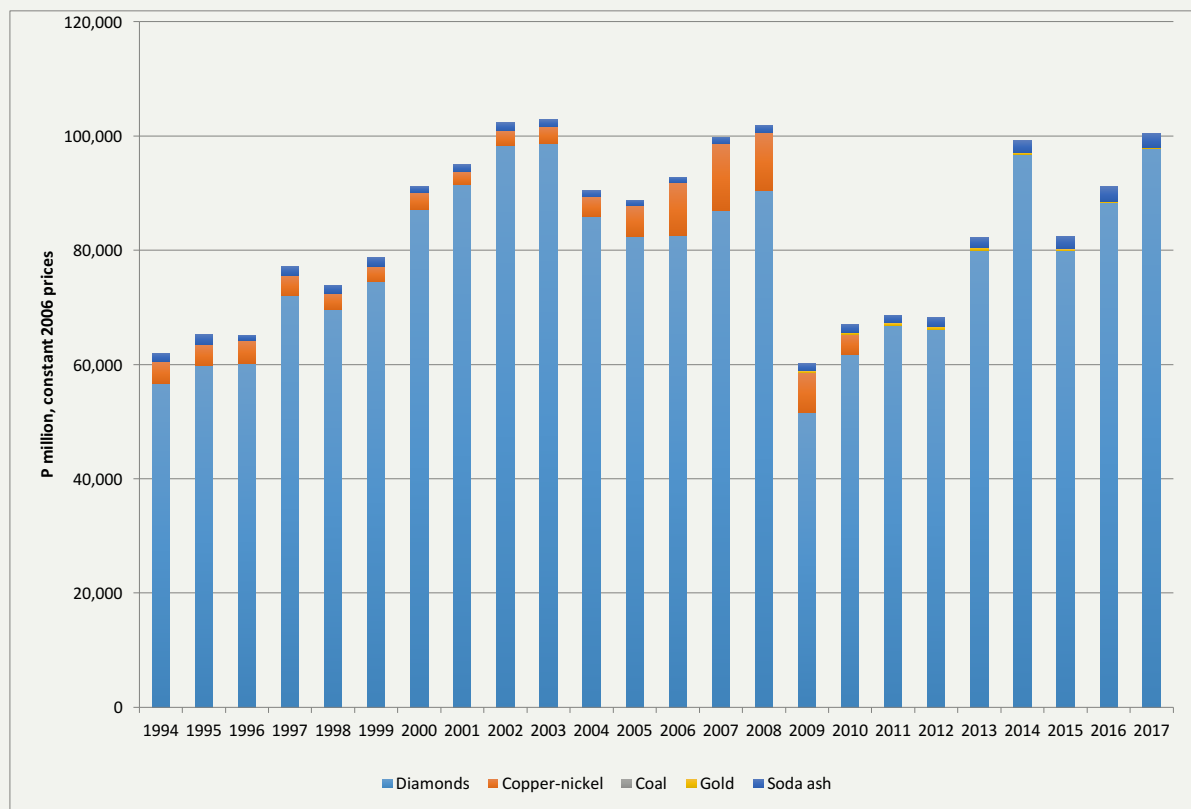
each of the major minerals;

- Producing estimates of national mineral wealth;
- Producing estimates of mineral depletion.

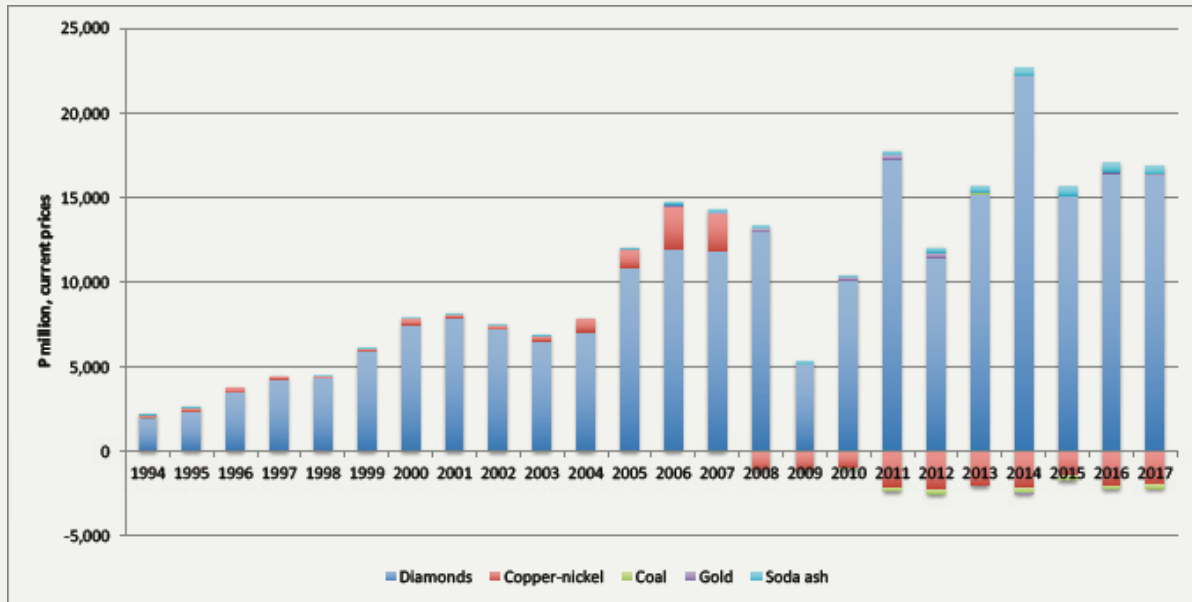
2015's statistics analysed during this reporting period indicate national mineral value of P 205 Billion for all commodities. This was a decline of P 20 Billion when compared to the 2014 value. The only expression was soda ash that showed an increase of P 3 Billion in 2015.

Diamonds remain the main contributor, with its value going for 95% (P135, 568m) of the minerals value followed by soda ash (P6,616m) and gold with P392m while other minerals did not have any contribution.

Fig 5 - Mineral value per commodity



Generally, the mineral rents have decreased mostly due to commodity prices, which is affected by price volatility as shown in the figure below.

Fig 6 - Resource Rent by mineral

Diamonds play an important role in the contribution of resource rents in mineral accounts. Other minerals did not have any positive monetary contribution except soda ash. The following conclusions can be made from the results:

- Annual resource rents have been quite volatile due to mineral prices and production volumes. A 5-year moving average of rents gives a more representative long-term trend
- The impact of the global financial crisis of 2008–9 was very large, causing a sharp fall in resource rents; and
- Diamond rents dominate—taking of 97% of the total rent in 2015. Rents from copper-nickel have been much smaller and negative since 2008 until 2015. Rents from coal have been consistently negative since 2011 until 2015.
- Besides being by far the largest contributor to rents, diamond rents were also much more stable over the period as a whole than those from other minerals, despite the disruption caused by the global financial crisis.
- Since 2004 rents from soda ash have been small but positive, in the latest years they have been increasing mostly supported by the reserves which are replenishing and the fact that they revised their selling price in 2015.



c) Study of subsidence and cracking in the Kanye area

In pursuit of its mandate to act as an advisory body in respect of geosciences and geohazards towards protecting the environment to ensure and commodity safety, BGI has carried out studies of subsidence and ground cracking.

The approach was to assess and establish the causes and triggering

mechanisms of land cracking and subsidence in Kanye wellfields and Makapane lands, possible precautionary measures and mitigations, long term monitoring and provide a guide to remedial measures as well as relevant reconstruction and rehabilitation plans and promote public safety and awareness.

With regards to Kgwakgwe, identification and mapping of cracks was successfully completed.

A geophysical survey delineated underground cavities (karstic environment) using Electrical Resistivity Tomography (ERT) technique. The results suggest either possible borehole over abstraction or karstification and these possible causes will be confirmed in the next phase of the study.

As for Makapane, identification and mapping of cracks was done. The Geophysical survey using





Ground magnetics and GPR was also conducted.

In our efforts to educate the public about these events, we undertook a public awareness campaign through participation in the Science and Technology Week Exhibitions (June and August 2016); and participation in the National Disaster Management Office - NDMO regular stakeholder meetings. We successfully issued geohazards brochures to the public during the Botswana consumer fair 2016, Botswana 50th Independence Celebrations crusades as well as other BGI customer touch points.

d) Pollution Monitoring

Pollution monitoring projects were undertaken at Kuke, Mmasedikwe, BCL Mine and Matsiloje. These are multidisciplinary efforts aimed at protection of the environment. Botswana Geoscience Institute is a key stakeholder in working towards achieving a safe and protected environment.

The phases of the projects include the survey and establishment of borehole systems for continuous monitoring of potential pollution.

The current areas of focus are Kuke where there could be possible groundwater pollution due to leachate from buried cattle carcasses during the Foot and Mouth Disease (FMD) outbreak in the early 2000s; the mining of sulphuric base metals at BCL mines which has potential for Acid Mine Drainage (AMD), and monitoring of potential pollution on acquirers and tributaries that feed into the Gaborone dam due to human activities (poultry business) in the

Mmasedikwe farms in the Notwane river drainage basin.

Changes in groundwater or dam water quality can have serious ramifications on the municipal water supply and the ecological environment. It is therefore important to detect any changes for early warnings to all stakeholders.

Monitoring provides data which serves as a key input in decision making processes.

It also provides water information such as determination of groundwater and surface water contaminant levels as well as identification of the sources of contamination.

Such information can help decision makers to better understand the potential effects of human activities on public health and ecosystem.

With regards to BCL Mine, Mmasedikwe and Kuke, monitoring systems were established through siting of boreholes and continuous periodic sampling taking place although activity only slowed down during the period of DGS transformation.

Mmasedikwe project was only sampling (trace, major + micro biological analyses) during the 2016/17 dry season while BCL and Kuke projects were sampled / monitored during both the wet and dry season 2016/17

e) Earthquake monitoring and Seismological Data Interpretation

While the level of seismic activity in Botswana is generally classified as low compared to other parts of the world such as Japan, California and the circum-Mediterranean Sea region, the country is nevertheless

at risk from earthquakes associated with the on-going continental rifting due to the southward extension of the East African Rift System across the Okavango delta region and Mozambique channel.

Moderate to strong earthquakes have occurred in the country,

including the recent magnitude 6.5 earthquake of 3rd April 2017 in the Central Kalahari Game Reserve as well as the magnitudes 6.1 and 6.7 events of 11th September 1952 and 11th October 1952 respectively in the heart of the Okavango delta.





Recognising seismicity as an emerging risk, the Government of Botswana through the Botswana Geoscience Institute has embarked on the implementation of a national project involving the establishment of a network of seismic stations for monitoring earthquakes in Botswana on a long-term basis.

Seismic monitoring commenced with the installation of a seven-station seismic network in the more seismogenic Okavango Delta Region during the period 2000–2001.

Currently, there are 23 seismic stations operating in Botswana, comprising 21 stations, 1 station of the Global Telemetered Seismograph Network (GTSN) BGI-USGS collaboration and 1 station of AfricaArray (AA). BGI collaboration.

The prime objective of this project is to establish long-term monitoring of seismicity in Botswana and its

environs to establish a complete database of local and regional earthquakes.

Seismological networks from global, regional and local deployments facilitate the efficient monitoring of earthquakes in Botswana.

Seismological data analysis is paramount in understanding the causes of earthquakes and their source mechanisms.

Seismological data will also be used in developing seismic risk assessment and geohazard mitigation strategies to support safe infrastructure design and sustainable development for minimization of loss of human life, property damage, and social and economic disruption due to the occurrence of earthquakes in the country.

There has been notable progress achieved to date. This includes the successful installation of 21

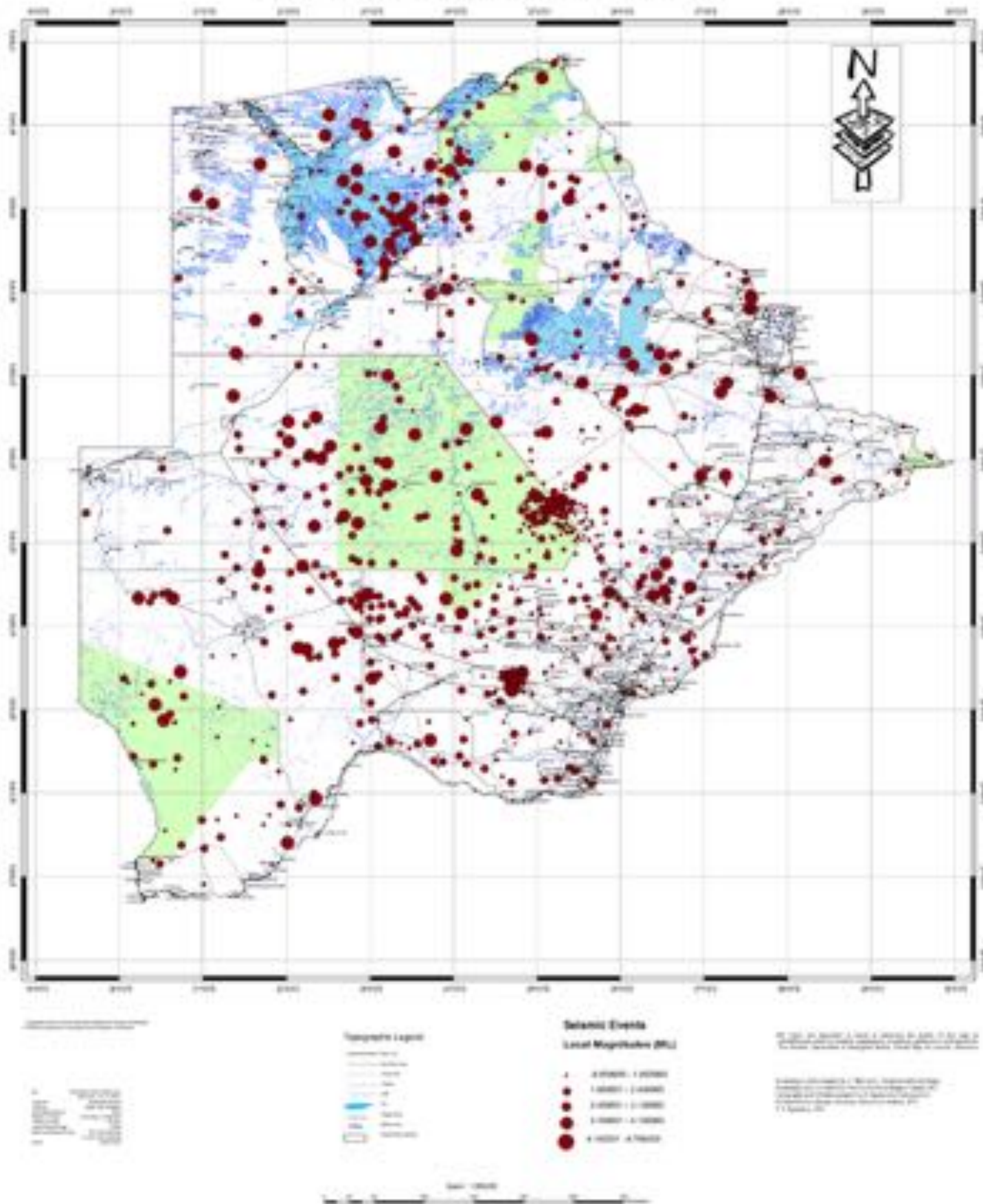
seismic stations across Botswana. Production of a national seismicity map of Botswana for the period 1952 to current has been completed.

BGI participates in CTBTO capacity building training including Integrated Monitoring System (IMS) station operation and waveform analysis.

Preparation of earthquake catalogues and reports for earthquakes in Botswana and Seismic data processing using NDC-in-a-Box for earthquake location, occurrence confirmation and information dissemination was effectively undertaken.

However, there is need to set up the infrastructure for seismic data to be telemetered real-time (downloaded remotely whenever required) from seismic stations across the country to the processing centre in Lobatse.

Fig 8 1950 - 2017 SEISMIC EVENTS IN BOTSWANA



We plan to undertake seismic hazard assessment and microzonation studies of urban centres including Gaborone, Francistown and Maun.

f) Implementation of ISO/IEC 17025 & Laboratory Information Management System (LIMS)

BGI undertook a project at the BGI laboratory to implement ISO/IEC 17025 standard which is a special purpose standard for laboratories to specify the general requirements for their technical competence of testing and calibration laboratories in order to earn international recognition, improve image and integrity.

While the Standard is generic it also recognises that for accreditation purposes (i.e. for independent recognition of a laboratory's competence to perform specific

tests, or calibrations) the Standard may require development of guidelines to explain its use in specific areas of testing or measurement.

The laboratories have implemented LIMS to monitor their technical and management processes. The system is the key driver in enforcing the laboratory's Quality Control (QC) and Quality Assurance (QA) procedures, the functionality needed to satisfy accreditation requirements as per ISO/IEC 17025.

BGI Laboratory consist of the Physical and Chemical testing laboratories which conduct tests on geological raw materials such as soil, rocks, ores and water.

The laboratory has a wide range of modern instrumentation that enables it to produce quality and

timely analytical results.

The Physical Testing Laboratory prepares geochemical samples through drying, crushing, milling and sieving. Primary treatment is also possible for removal of organic matter, calcium carbonate and chlorides. Separation of heavy minerals from the light ones through density liquids is also applicable.

Loss on ignition by heat treatment, determination of limits on clays for soil engineering properties and full brick-earth and pottery are also available. Mineralogical determination is another service done through the X-ray Powder Diffraction, petrography, hardness, thermal conductivity, ALPHA spectrometer.

Laboratories receives pulverised geochemical samples from the physical testing laboratory and



This laboratory conducts borehole water analysis to determine its quality. The laboratory gives technical advice on water quality test reports basing on BOS 32:2009 for human drinking water specification and BOS 365:2010 drinking water for livestock and poultry specification.

carry out chemical analysis as per customer request. The laboratory does a wide range of analysis in geochemical samples such as trace elements, ultra-trace, oxides and many others.

This laboratory conducts borehole water analysis to determine its quality. The laboratory gives technical advice on water quality test reports basing on BOS 32:2009 for human drinking water specification and BOS 365:2010 drinking water for livestock and poultry specification.

To meet its customer expectations, some of the old equipment experiencing frequent breakdown and those classified as unserviceable were replaced.

The analytical equipment software was also upgraded for compatibility with Laboratory Information Management System and services.

h). National Integrated Geoscience Information System – NIGIS

The National Integrated Geoscience Information System (NIGIS) was initiated in 2004 and commissioned in 2006 in pursuit of addressing the data management challenges experienced by the Ministry of Mineral Resources, Green Technology and Energy Security.

The main objective was to acquire an integrated geoscience data management system which would leverage the business of the

Ministry by facilitating easy sharing of data and quick access of current data sets in order to maximize data utilization and work efficiency.

The system also would allow public instant access to non-confidential minerals, energy and water information; online application for both the prospecting and mining licenses which would bring efficiency in processing these applications; since it is web based system i.e. people can access the system over the internet.

The system met challenges which prevented its full functioning and accessibility. In collaboration with the Ministry, the system will be revamped with thorough enhancements to allow increased system usage and better change management processes, upgraded hardware/software leading to more efficient and effective core business system, improved management and monitoring of water and mineral resources and improved data sharing and reliability of geoscience data, information and knowledge sharing.

BGI depended on the Botswana Government Data Network as it was yet to develop its own Information Technology Infrastructure.

However, efforts were intensified to ensure cessation of this dependency by the second quarter of financial year 2017-2018.

While we embarked on a process of geoscience information updates

including digitisation of and web-delivery enabling of data, through our National Geological Information Centre – NGIC, we continued to avail comprehensive, objective, impartial and up-to-date geoscience information, advice and services to our customers.

Examples of these include, information on water rights, boreholes, examination of drill cores most notably kimberlite samples and non-confidential prospecting license reports.

The information is in the form of geological maps at various scales, including non-confidential prospecting license reports, chip and core samples and GIS and Remote sensing.

There is a comprehensive collection of earth sciences literature in print and electronic formats, including books, journals, maps and reports used in the search for resources across the country.

Proper spatial data integration and analysis of datasets is done in order to update geological maps. BGI is also mandated with provision of regional geology advice to various stakeholders.

The institute is also responsible for collecting geological data, assessing and interpreting, archiving, advising on and disseminating pertinent geoscientific data related to the rocks through publications and presentations on selected topics of interest.



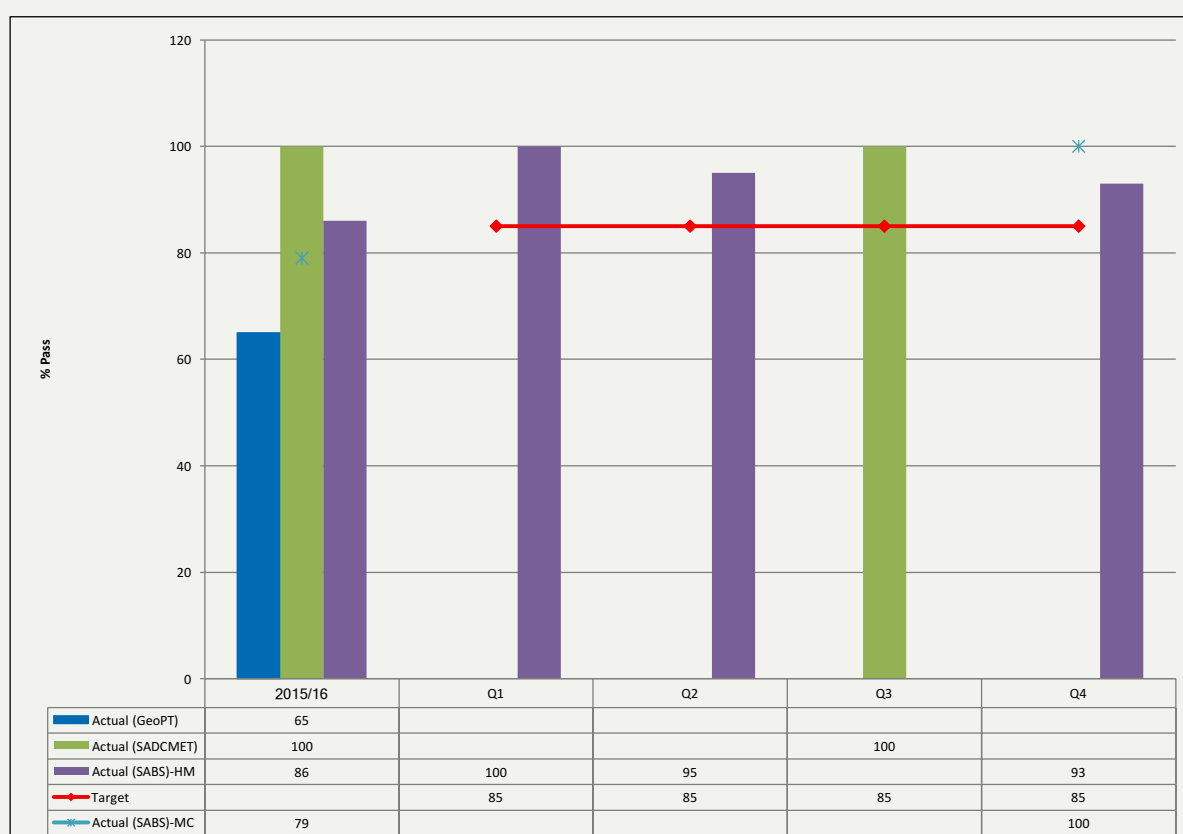
Core samples from various mineral exploration/ Drilling sites

i) Laboratory Proficiency Testing

Botswana Geoscience Institute (BGI) participated in a number of Proficiency Testing schemes offered at different levels. These included Proficiency testing schemes included, South African Bureau of Standards Water Proficiency Testing Scheme (Regional), SADC MET Water Proficiency Testing Scheme (Regional) and International Geochemistry Proficiency Testing Scheme -U.K (international)

Proficiency Testing determines the performance of individual laboratories for specific tests or measurements and it is also used to monitor and assure quality and reliability tests results as well as to establish the competence of laboratory personnel. The graph below shows percentage passing in proficiency testing.

Fig 7 - Percentage of Parameters Passing in Proficiency Testing (PT)





HUMAN RESOURCE REPORT

The transitioning from DGS, to the new BGI, did not only concentrate on the implementation of the new Corporate structure, but also necessitate a fresh look at the human resources profile required for the new enterprise.

HUMAN RESOURCE REPORT

The transitioning from DGS, to the BGI, did not only concentrate on the implementation of the new Corporate structure, but also necessitate a fresh look at the human resources profile required for the new enterprise. With this in mind and the global realignment of the Geological Survey environment, we embarked on an aggressive recruitment drive, at the same time ensuring that the staff rationalisation of DGS is completed effectively and all issues especially labour related, are addressed amicably.

Staff Rationalisation process

The year under review saw the conclusion of the staff rationalisation process which was largely necessitated by the renaissance of geological survey practice in Botswana. It involved deployment of some resources to other government ministries/ departments and retaining some needed in the new BGI.

This process also involved addressing soft issues relating to the changing times. Counselling and life skills sessions across the business were carried out to ensure that all employees are assisted accordingly and appreciate why the transformation was necessary.

In this process, major focus was on motivation and productivity through the changing times. Employees were sensitised on the need for change effects the anticipated change might have on their lives and some life skills programmes were shared to help

employees manage the transition, stress, finances and work life challenges. Key to this process, was the implementation of the new organisational structure which was aimed at giving the customer service focus and the agility to respond more effectively to service demands.

However, it commenced in earnest and will be continued in the 2017 -2018 financial year with the expected total work force of approximately 256.

Human Resources Development

Though the business was undergoing a transition, it continued to invest in its people with a view of sustaining its competitive edge. An amount of P 412 053, was spent on Staff development and training.

Staff Welfare

BGI strives to maintain good relations with its employees. This was facilitated through an ad-hoc Staff welfare committee.

This committee works for the benefit and welfare of the general staff and provides a channel for staff interaction through organising events such as sports activities, among others.

Pension

BGI intends to operate a non-contributory pension scheme for all permanent staff to be known as BGI Staff Pension Fund. It will be a contribution defined and benefit scheme where the pensions would

be based on the performance of the fund. The aim is to establish it by second quarter of the financial year 2017-18.





CORPORATE SOCIAL RESPONSIBILITY

For BGI corporate citizenship starts with running a successful geoscience business, producing the right solutions the customers need, creating jobs for the citizens, fulfilling its Mandate as espoused in the Act and continuing to undertake and invest in new projects to create a sustainable geoscience institute.

CORPORATE SOCIAL RESPONSIBILITY

BGI corporate social responsibility starts with running a successful geoscience business, producing the right solutions the customers need, creating jobs for the citizens, fulfilling its Mandate as espoused in the BGI Act

Botswana Geoscience Institute has a strong commitment to its customers, shareholders, employees and the nation, in wider context, society at large.

For BGI corporate citizenship starts with running a successful geoscience business, producing the right solutions the customers need, creating jobs for the citizens, fulfilling its Mandate as espoused in the Act and continuing to undertake and invest in new projects to create a sustainable geoscience institute.

Our commitment to being a good corporate citizen goes beyond the economic realms of our operation. We want our stakeholders to look at us for leadership to make a tangible difference in the communities in which we operate.

Though under transition, we are proud to have fulfilled some of the basic requirements under the principle of good corporate citizenship. It was not easy under such circumstances to focus on business imperatives and ensure that our social commitment plan to communities we do business in were also met.

However, we are proud of our efforts and we aim to grow this from strength to strength in the years to come. It is important for our customers and our wider stakeholder community to view BGI as a caring organisation.

We perceive community relationship as a core competency that adds value to our business. This includes building critical relationships contributing to the wellbeing of communities, corporate image and enhancing corporate reputation.

Examples of our community involvement activities include :

- participating in various school boot camps
- national exhibitions
- community litter picking campaigns in and around Lobatse and in particular, under our themed programme called Taking BGI Services and Products to Communities
- Career Development and Social Activities,
- Prize Giving Ceremonies.
- Excellence awards of various Government departments Lobatse.



FINANCIAL STATEMENTS

Financial Index

| | |
|---|----|
| Directors Responsibilities and Approval | 50 |
| Independent Auditors Report | 51 |
| Statement of Financial Position | 53 |
| Statement of Profit/Loss and Other Comprehensive Income | 54 |
| Statement of Changes in Equity | 54 |
| Statement of Cash Flows | 55 |
| Accounting Policies | 55 |
| Notes of the Financial Statements | 61 |
| Detailed income Statements | 70 |

Botswana Geoscience Institute
Financial Statements for the year ended March 31, 2017

DIRECTORS' RESPONSIBILITY AND APPROVAL

The directors are required in terms of the Botswana Geoscience Act, 2014 to maintain adequate accounting records and are responsible for the content and integrity of the financial statements and related financial information included in this report. It is their responsibility to ensure that the financial statements fairly present the state of affairs of the institute as at the end of the financial year and the results of its operations and cash flows for the period then ended, in conformity with International Financial Reporting Standards.

The external auditors are engaged to express an independent opinion on the financial statements. The financial statements are prepared in accordance with International Financial Reporting Standards and are based upon appropriate accounting policies consistently applied and supported by reasonable and prudent judgements and estimates. The directors acknowledge that they are ultimately responsible for the system of internal financial control established by the institute and place considerable importance on maintaining a strong control environment. To enable the directors to meet these responsibilities, the board of directors sets standards for internal control aimed at reducing the risk of error or loss in a cost effective manner. The standards include the proper delegation of responsibilities within a clearly defined framework, effective accounting procedures and adequate segregation of duties to ensure an acceptable level of risk.

These controls are monitored throughout the institute and all employees are required to maintain the highest ethical standards in ensuring the institute's business is conducted in a manner that in all reasonable circumstances is above reproach. The focus of risk management in the institute is on identifying, assessing, managing and monitoring all known forms of risk across the institute. While operating risk cannot be fully eliminated, the institute endeavours to minimise it by ensuring that appropriate infrastructure, controls, systems and ethical behaviour are applied and managed within predetermined procedures and constraints.

The directors are of the opinion, based on the information and explanations given by management, that the system of internal control provides reasonable assurance that the financial records may be relied on for the preparation of the financial statements. However, any system of internal financial control can provide only reasonable, and not absolute, assurance against material misstatement or loss.

The directors have reviewed the institute's cash flow forecast for the year to March 31, 2018 and, in light of this review and the current financial position, they are satisfied that the institute has or had access to adequate resources to continue in operational existence for the foreseeable future. The external auditors are responsible for independently auditing and reporting on the institute's financial statements. The financial statements have been examined by the institute's external auditors and their report is presented on pages 4 to 5. The financial statements set out on page 6, which have been prepared on the going concern basis, were approved by the board of directors on **31 July, 2017** and were signed on their behalf by:



Board Chairperson



Chief Executive Officer

INDEPENDENT AUDITOR'S REPORT

To the board of directors of Botswana Geoscience Institute

Opinion

We have audited the annual financial statements of Botswana Geoscience Institute set out on pages 6 to 24, which comprise the statement of financial position as at March 31, 2017, and the statement of comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, and notes to the annual financial statements, including a summary of significant accounting policies. In our opinion, the annual financial statements present fairly, in all material respects, the financial position of Botswana Geoscience Institute as at March 31, 2017, and its financial performance and cash flows for the year then ended in accordance with International Financial Reporting Standards and the Botswana Geoscience Institute Act 2014

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Annual Financial Statements section of our report. We are independent of the institute in accordance with the International Ethics Standards Board for Accountants Code of Ethics for Professional Accountants (Parts A and B) (IESBA Code) and other independence requirements applicable to performing audits of financial statements in Botswana. We have fulfilled our other ethical responsibilities in accordance with the IESBA Code and in accordance with other ethical requirements applicable to performing audits in Botswana. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Other information

Our opinion on the annual financial statements does not cover the supplementary information on pages 25-26 and we do not express an audit opinion or any form of assurance conclusion thereon.

In connection with our audit of the annual financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the annual financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of the directors for the Annual Financial Statements

The directors are responsible for the preparation and fair presentation of the annual financial statements in accordance with International Financial Reporting Standards the Botswana Geoscience Institute Act, 2014 and for such internal control as the directors determine is necessary to enable the preparation of annual financial statements that are free from material misstatement, whether due to fraud or error. In preparing the annual financial statements, the directors are responsible for assessing the institute's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the institute or to cease operations, or have no realistic alternative but to do so.

INDEPENDENT

AUDITOR'S REPORT *cont'd*

Auditor's responsibilities for the audit of the Annual Financial Statements

Our objectives are to obtain reasonable assurance about whether the annual financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with International Standards on Auditing will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these annual financial statements.

As part of an audit in accordance with International Standards on Auditing, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the annual financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on them.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.
- Conclude on the appropriateness of the directors' use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the institute's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the annual financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the institute to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the annual financial statements, including the disclosures, and whether the annual financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with the directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Mazars Certified Auditors

Practicing Member: Shashikumar Velambath
Practicing number: 19980076

Date: 28 / 08 / 2017

Botswana Geoscience Institute
Financial Statements for the year ended March 31, 2017

Statement of Financial Position as at March 31, 2017

| | Note(s) | 2017 P |
|-------------------------------------|---------|--------------------|
| Assets | | |
| Non-current assets | | |
| Property and equipment | 3 | 253,650,095 |
| Current assets | | |
| Accounts receivable | 4 | 275,247 |
| Bank Balances | 5 | 21,873,696 |
| | | 22,148,943 |
| Total assets | | 275,799,038 |
| Equity and liabilities | | |
| Equity | | |
| Capital grant | 6 | 253,650,094 |
| Accumulated surplus | | 115,884 |
| | | 253,765,978 |
| Liabilities | | |
| Current liabilities | | |
| Trade and other payables | 7 | 1,759,966 |
| Deferred income | 8 | 20,273,094 |
| | | 22,033,060 |
| Total equity and liabilities | | 275,799,038 |

Botswana Geoscience Institute
Financial Statements for the year ended March 31, 2017

Statement of Profit or Loss and Other Comprehensive Income

| | Note(s) | 2017 P |
|--|---------|--------------------|
| Grant income | 9 | 10,895,300 |
| Other income | 10 | 6,373,926 |
| Other operating expenses | | (17,269,226) |
| Operating surplus | | - |
| Interest income | 11 | 115,884 |
| Surplus for the year | | 115,884 |
| Other comprehensive income: | | |
| Items that may be reclassified to profit or loss: | | |
| Amortisation of capital grant | | (6,326,771) |
| Other comprehensive income for the year net of taxation | | (6,326,771) |

Statement of Changes in Equity

| | Capital grant P | Accumulated surplus P | Total reserves P |
|----------------------------------|--------------------|-----------------------------|------------------------|
| Surplus for the year | - | 115,884 | 115,884 |
| Capital grant | 259,976,866 | - | 259,976,866 |
| Total for the year | 259,976,866 | 115,884 | 260,092,750 |
| Amortisation of capital grant | (6,326,772) | - | (6,326,772) |
| Total | (6,326,772) | - | (6,326,772) |
| Balance at March 31, 2017 | 253,650,094 | 115,884 | 253,765,978 |

Botswana Geoscience Institute Financial Statements for the year ended March 31, 2017

Statement of Cash Flows

| | Note(s) | 2017 P |
|---|---------|-------------------|
| Cash flows from operating activities | | |
| Cash generated from operations | 13 | 21,757,812 |
| Interest income | | 115,884 |
| Net cash inflows from operating activities | | 21,873,696 |
| Net cash and cash equivalents for the year | | 21,873,696 |
| Total cash and cash equivalents at end of the year | 5 | 21,873,696 |

Accounting Policies

1. Significant accounting policies

The principal accounting policies applied in the preparation of these financial statements are set out below.

1.1 Basis of preparation

The financial statements have been prepared on the going concern basis in accordance with, and in compliance with, International Financial Reporting Standards ("IFRS") and the Botswana Geoscience Act, 2014. The financial statements have been prepared on the historical cost basis, except for the measurement of certain financial instruments at fair value, and incorporate the principal accounting policies set out below. They are presented in Botswana Pulas.

1.2 Significant judgements and sources of estimation uncertainty

The preparation of financial statements in conformity with IFRS requires management, from time to time, to make judgements, estimates and assumptions that affect the application of policies and reported amounts of assets, liabilities, income and expenses. These estimates and associated assumptions are based on experience and various other factors that are believed to be reasonable under the circumstances. Actual results may differ from these estimates. The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimates are revised and in any future periods affected.

Key sources of estimation uncertainty

Useful lives of property and equipment

The Institute follows the guidance of IAS 16 (revised) and determines the residual values and useful lives of assets at each statement of financial position date. This determination requires significant judgement. In making this judgement the management evaluates amongst other factors, the purpose for which the respective asset is acquired, market conditions at the statement of financial position date and the practice adopted by similar organisations.

Botswana Geoscience Institute Financial Statements for the year ended March 31, 2017

1.3 Property and equipment

Property and equipment are tangible assets which the institute holds for its own use or for rental to others and which are expected to be used for more than one year. An item of property and equipment is recognised as an asset when it is probable that future economic benefits associated with the item will flow to the institute, and the cost of the item can be measured reliably. Property and equipment is initially measured at cost. Cost includes all of the expenditure which is directly attributable to the acquisition or construction of the asset.

Expenditure incurred subsequently for major services, additions to or replacements of parts of property and equipment are capitalised if it is probable that future economic benefits associated with the expenditure will flow to the institute and the cost can be measured reliably. Day to day servicing costs are included in profit or loss in the year in which they are incurred.

Property and equipment is subsequently stated at cost less accumulated depreciation and any accumulated impairment losses. Depreciation of an asset commences when the asset is available for use as intended by management. Depreciation is charged to write off the asset's carrying amount over its estimated useful life to its estimated residual value, using a method that best reflects the pattern in which the asset's economic benefits are consumed by the Institute. Depreciation is not charged to an asset if its estimated residual value exceeds or is equal to its carrying amount. Depreciation of an asset ceases at the earlier of the date that the asset is classified as held for sale or derecognised.

The useful lives of items of property and equipment have been assessed as follows:

| Item | Depreciation method | Average useful life |
|------------------------|---------------------|---------------------|
| Buildings | Straight line | 50 years |
| Furniture and fixtures | Straight line | 10 years |
| Motor vehicles | Straight line | 5 years |
| Office equipment | Straight line | 4 to 20 years |
| Laboratory equipment | Straight line | 15 years |

The residual value, useful life and depreciation method of each asset are reviewed at the end of each reporting year. If the expectations differ from previous estimates, the change is accounted for prospectively as a change in accounting estimate.

Each part of an item of property and equipment with a cost that is significant in relation to the total cost of the item is depreciated separately. The depreciation charge for each year is recognised in profit or loss unless it is included in the carrying amount of another asset. Impairment tests are performed on property and equipment when there is an indicator that they may be impaired.

When the carrying amount of an item of property and equipment is assessed to be higher than the estimated recoverable amount, an impairment loss is recognised immediately in profit or loss to bring the carrying amount in line with the recoverable amount. An item of property and equipment is derecognised upon disposal or when no future economic benefits are expected from its continued use or disposal. Any gain or loss arising from the derecognition of an item of property and equipment, determined as the difference between the net disposal proceeds, if any, and the carrying amount of the item, is included in profit or loss when the item is derecognised.

Botswana Geoscience Institute Financial Statements for the year ended March 31, 2017

1.4 Financial instruments

Classification

The institute classifies financial assets and financial liabilities into the following categories:

- Loans and receivables
- Financial liabilities measured at amortised cost

Classification depends on the purpose for which the financial instruments were obtained / incurred and takes place at initial recognition. Classification is re-assessed on an annual basis.

Initial recognition and measurement

Financial instruments are recognised initially when the Institute becomes a party to the contractual provisions of the instruments.

The Institute classifies financial instruments, or their component parts, on initial recognition as a financial asset, a financial liability or an equity instrument in accordance with the substance of the contractual arrangement. Financial instruments are measured initially at fair value.

Subsequent measurement

Loans and receivables are subsequently measured at amortised cost, using the effective interest method, less accumulated impairment losses. Financial liabilities at amortised cost are subsequently measured at amortised cost, using the effective interest method.

Impairment of financial assets

At each reporting date the Institute assesses all financial assets to determine whether there is objective evidence that a financial asset or group of financial assets has been impaired. For amounts due to the Institute, significant financial difficulties of the debtor, probability that the debtor will enter bankruptcy and default of payments are all considered indicators of impairment. Impairment losses are recognised in profit or loss.

Impairment losses are reversed when an increase in the financial asset's recoverable amount can be related objectively to an event occurring after the impairment was recognised, subject to the restriction that the carrying amount of the financial asset at the date that the impairment is reversed shall not exceed what the carrying amount would have been had the impairment not been recognised. Where financial assets are impaired through use of an allowance account, the amount of the loss is recognised in profit or loss within operating expenses.

When such assets are written off, the write off is made against the relevant allowance account. Subsequent recoveries of amounts previously written off are credited against operating expenses.

Trade and other receivables

Trade receivables are measured at initial recognition at fair value, and are subsequently measured at amortised cost using the effective interest rate method. Significant financial difficulties of the debtor, probability that the debtor will enter bankruptcy or financial reorganisation, and default or delinquency in payments are considered indicators that the trade receivable is impaired.

Botswana Geoscience Institute Financial Statements for the year ended March 31, 2017

The allowance recognised is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the effective interest rate computed at initial recognition.

The carrying amount of the asset is reduced through the use of an allowance account, and the amount of the loss is recognised in profit or loss within operating expenses. When a trade receivable is uncollectable, it is written off against the allowance account for trade receivables. Subsequent recoveries of amounts previously written off are credited against operating expenses in profit or loss.

Trade and other receivables are classified as loans and receivables.

Trade and other payables

Trade payables are initially measured at fair value, and are subsequently measured at amortised cost, using the effective interest rate method.

Cash and cash equivalents

Cash and cash equivalents comprise cash on hand and demand deposits, and other short-term highly liquid investments that are readily convertible to a known amount of cash and are subject to an insignificant risk of changes in value. These are initially and subsequently recorded at fair value.

1.5 Impairment of assets

The Institute assesses at each end of the reporting period whether there is any indication that an asset may be impaired. If any such indication exists, the Institute estimates the recoverable amount of the asset.

If there is any indication that an asset may be impaired, the recoverable amount is estimated for the individual asset. If it is not possible to estimate the recoverable amount of the individual asset, the recoverable amount of the cash-generating unit to which the asset belongs is determined. The recoverable amount of an asset or a cash-generating unit is the higher of its 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. An impairment loss of assets carried at cost less any accumulated depreciation or amortisation is recognised immediately in profit or loss.

A reversal of an impairment loss of assets carried at cost less accumulated depreciation or amortisation is recognised immediately in profit or loss.

1.6 Employee benefits

Short-term employee benefits

The cost of short-term employee benefits, (those payable within 12 months after the service is rendered, such as paid vacation leave and sick leave, bonuses, and non-monetary benefits such as medical care), are recognised in the period in which the service is rendered and are 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.

Botswana Geoscience Institute Financial Statements for the year ended March 31, 2017

Post employment benefits

Contract staff members of the Institute are entitled to gratuities at the end of their contracts in accordance with the terms specified in their contracts of employment. Gratuity benefits are recognised at the end of each financial year as they are accrued and a provision is made equal to the liability estimated as the employee renders services to the Institute up to the year end date.

1.7 Government grants

Government grants are recognised when there is reasonable assurance that:

- the Institute will comply with the conditions attaching to them; and
- the grants will be received.

Government grants are recognised as income over the periods necessary to match them with the related costs that they are intended to compensate. A government grant that becomes receivable as compensation for expenses or losses already incurred or for the purpose of giving immediate financial support to the entity with no future related costs is recognised as income of the period in which it becomes receivable.

Government grants related to assets, including non-monetary grants at fair value, are presented in the statement of financial position by setting up the grant as deferred income or by deducting the grant in arriving at the carrying amount of the asset. Grants related to income are presented as a credit in the statement of comprehensive income.

1.8 Income

Interest is recognised, in the statement of comprehensive income, using the effective interest rate method.

1.9 Comparatives

This is the first year of operations and there are no comparatives.

2. New Standards and Interpretations

2.1 Standards and interpretations effective and adopted in the current year

In the current year, the institute has adopted the following standards and interpretations that are effective for the current financial year and that are relevant to its operations:

Amendment to IFRS 7: Financial Instruments: Disclosures: Annual Improvements project

The amendment provides additional guidance regarding transfers with continuing involvement. Specifically, it provides that cash flows excludes cash collected which must be remitted to a transferee. It also provides that when an entity transfers a financial asset but retains the right to service the asset for a fee, that the entity should apply the existing guidance to consider whether it has continuing involvement in the asset. The effective date of the institute is for years beginning on or after January 1, 2016. The institute has adopted the amendment for the first time in the 2017 financial statements.

The impact of the amendment is not material.

Botswana Geoscience Institute Financial Statements for the year ended March 31, 2017

Amendment to IAS 19: Employee Benefits: Annual Improvements project

The amendment clarifies that when a discount rate is determined for currencies where there is no deep market in high quality corporate bonds, then market yields on government bonds in that currency should be used.

The effective date of the institute is for years beginning on or after January 1, 2016. The institute has adopted the amendment for the first time in the 2017 financial statements. The impact of the amendment is not material.

Disclosure Initiative: Amendment to IAS 1: Presentation of Financial Statements

The amendment provides new requirements when an entity presents subtotals in addition to those required by IAS 1 in its financial statements. It also provides amended guidance concerning the order of presentation of the notes in the financial statements, as well as guidance for identifying which accounting policies should be included. It further clarifies that an entity's share of comprehensive income of an associate or joint venture under the equity method shall be presented separately into its share of items that a) will not be reclassified subsequently to profit or loss and b) that will be reclassified subsequently to profit or loss.

The effective date of the institute is for years beginning on or after January 1, 2016.

The institute has adopted the amendment for the first time in the 2017 financial statements.

The adoption of this amendment has not had a material impact on the results of the institute, but has resulted in more disclosure than would have previously been provided in the financial statements.

Amendments to IAS 16 and IAS 38: Clarification of Acceptable Methods of Depreciation and Amortisation

The amendment clarifies that a depreciation or amortisation method that is based on revenue that is generated by an activity that includes the use of the asset is not an appropriate method. This requirement can be rebutted for intangible assets in very specific circumstances as set out in the amendments to IAS 38.

The effective date of the amendment is for years beginning on or after January 1, 2016.

The institute has adopted the amendment for the first time in the 2017 financial statements. The impact of the amendment is not material.

2.2 Standards and interpretations not yet effective

The institute has chosen not to early adopt the following standards and interpretations, which have been published and are mandatory for the institute's accounting periods beginning on or after April 1, 2017 or later periods:

Amendments to IFRS 15: Clarifications to IFRS 15 Revenue from Contracts with Customers

The amendment provides clarification and further guidance regarding certain issues in IFRS 15. These items include guidance in assessing whether promises to transfer goods or services are separately identifiable; guidance regarding agent versus principal considerations; and guidance regarding licenses and royalties. The effective date of the amendment is for years beginning on or after January 1, 2018. The institute expects to adopt the amendment for the first time in the 2019 financial statements. The adoption of this amendment is not expected to impact on the results of the institute, but may result in more disclosure than is currently provided in the financial statements.

Botswana Geoscience Institute Financial Statements for the year ended March 31, 2017

IFRS 9 Financial Instruments

IFRS 9 issued in November 2009 introduced new requirements for the classification and measurements of financial assets. IFRS 9 was subsequently amended in October 2010 to include requirements for the classification and measurement of financial liabilities and for derecognition, and in November 2013 to include the new requirements for general hedge accounting. Another revised version of IFRS 9 was issued in July 2014 mainly to include a) impairment requirements for financial assets and b) limited amendments to the classification and measurement requirements by introducing a "fair value through other comprehensive income" (FVTOCI) measurement category for certain simple debt instruments.

Key requirements of IFRS 9:

- All recognised financial assets that are within the scope of IAS 39 Financial Instruments: Recognition and Measurement are required to be subsequently measured at amortised cost or fair value. Specifically, debt investments that are held within a business model whose objective is to collect the contractual cash flows, and that have contractual cash flows that are solely payments of principal and interest on the outstanding principal are generally measured at amortised cost at the end of subsequent reporting periods. Debt instruments that are held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets, and that have contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on outstanding principal, are measured at FVTOCI. All other debt and equity investments are measured at fair value at the end of subsequent reporting periods. In addition, under IFRS 9, entities may make an irrevocable election to present subsequent changes in the fair value of an equity investment (that is not held for trading) in other comprehensive income with only dividend income generally recognised in surplus or loss.
- With regard to the measurement of financial liabilities designated as at fair value through surplus or loss, IFRS 9 requires that the amount of change in the fair value of the financial liability that is attributable to changes in the credit risk of the liability is presented in other comprehensive income, unless the recognition of the effect of the changes of the liability's credit risk in other comprehensive income would create or enlarge an accounting mismatch in surplus or loss. Under IAS 39, the entire amount of the change in fair value of a financial liability designated as at fair value through surplus or loss is presented in surplus or loss.
- In relation to the impairment of financial assets, IFRS 9 requires an expected credit loss model, as opposed to an incurred credit loss model under IAS 39. The expected credit loss model requires an entity to account for expected credit losses and changes in those expected credit losses at each reporting date to reflect changes in credit risk since initial recognition. It is therefore no longer necessary for a credit event to have occurred before credit losses are recognised.
- The new general hedge accounting requirements retain the three types of hedge accounting mechanisms currently available in IAS 39. Under IFRS 9, greater flexibility has been introduced to the types of transactions eligible for hedge accounting, specifically broadening the types of instruments that qualify for hedging instruments and the types of risk components of non-financial items that are eligible for hedge accounting. In addition, the effectiveness test has been replaced with the principal of an "economic relationship". Retrospective assessment of hedge effectiveness is also no longer required. Enhanced disclosure requirements about an entity's risk management activities have also been introduced.

The effective date of the standard is for years beginning on or after January 1, 2018.

The institute expects to adopt the standard for the first time in the 2019 financial statements.

The adoption of this standard is not expected to impact on the results of the institute, but may result in more disclosure than is currently provided in the financial statements.

Botswana Geoscience Institute Financial Statements for the year ended March 31, 2017

IFRS 15 Revenue from Contracts with Customers

IFRS 15 supersedes IAS 11 Construction contracts; IAS 18 Revenue; IFRIC 13 Customer Loyalty Programmes; IFRIC 15 Agreements for the construction of Real Estate; IFRIC 18 Transfers of Assets from Customers and SIC 31 Revenue - Barter Transactions Involving Advertising Services.

The core principle of IFRS 15 is that an entity recognises revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. An entity recognises revenue in accordance with that core principle by applying the following steps:

- Identify the contract(s) with a customer
- Identify the performance obligations in the contract
- Determine the transaction price
- Allocate the transaction price to the performance obligations in the contract
- Recognise revenue when (or as) the entity satisfies a performance obligation.

IFRS 15 also includes extensive new disclosure requirements.

The effective date of the standard is for years beginning on or after January 1, 2018.

The institute expects to adopt the standard for the first time in the 2019 financial statements.

The adoption of this standard is not expected to impact on the results of the institute, but may result in more disclosure than is currently provided in the financial statements.

Amendments to IAS 7: Disclosure initiative

The amendment requires entities to provide additional disclosures for changes in liabilities arising from financing activities. Specifically, entities are now required to provide disclosure of the following changes in liabilities arising from financing activities:

- changes from financing cash flows;
- changes arising from obtaining or losing control of subsidiaries or other businesses;
- the effect of changes in foreign exchanges;
- changes in fair values; and
- other changes

The effective date of the amendment is for years beginning on or after January 1, 2017.

The institute expects to adopt the amendment for the first time in the 2018 financial statements.

The adoption of this amendment is not expected to impact on the results of the institute, but may result in more disclosure than is currently provided in the financial statements.

Botswana Geoscience Institute
Financial Statements for the year ended March 31, 2017

3. Property and equipment

| 2017 | | | |
|--------------------------------------|--------------------|--------------------------|--------------------|
| | Cost | Accumulated depreciation | Carrying value |
| Buildings | 230,290,000 | (4,605,800) | 225,684,200 |
| Plant and machinery | 7,309,000 | (100,933) | 7,208,067 |
| Motor vehicles | 6,187,900 | (754,865) | 5,433,035 |
| Office equipment | 2,841,630 | (316,794) | 2,524,836 |
| Laboratory equipment and instruments | 13,348,336 | (548,379) | 12,799,957 |
| Balance at March 31, 2017 | 259,976,866 | (6,326,771) | 253,650,095 |

Reconciliation of property and equipment - 2017

| | Opening balance | Additions | Depreciation | Total |
|--------------------------------------|-----------------|--------------------|--------------------|--------------------|
| Buildings | - | 230,290,000 | (4,605,800) | 225,684,200 |
| Plant and machinery | - | 7,309,000 | (100,933) | 7,208,067 |
| Motor vehicles | - | 6,187,900 | (754,865) | 5,433,035 |
| Office equipment | - | 2,841,630 | (316,794) | 2,524,836 |
| Laboratory equipment and instruments | - | 13,348,336 | (548,379) | 12,799,957 |
| Balance at March 31, 2017 | - | 259,976,866 | (6,326,771) | 253,650,095 |

The title deeds for the buildings are in the process of being transferred to the institute from the Ministry of Minerals, Green Technology and Energy Security.

All the property, plant and equipment was purchased using the capital grant.

Botswana Geoscience Institute
Financial Statements for the year ended March 31, 2017

4. Accounts receivable

| | |
|--|----------------|
| Accounts receivable | 39,476 |
| Staff loans | 8,425 |
| Withholding tax interest receivable | 227,346 |
| | 275,247 |
| Fair value of accounts receivable | |
| Trade and other receivables | 275,247 |

The directors consider that the carrying amount of trade and other receivables approximates their fair value due to their short-term nature.

5. Bank balances

Cash and cash equivalents consist of:

| | |
|----------------------|-------------------|
| Bank balances | 21,873,696 |
|----------------------|-------------------|

6. Capital grant

Capital grant relates to grant received for purposes of capital expenditure. The grant is amortised on an annual basis. The annual amortisation is equivalent to the depreciation on the assets that were financed from the grants.

| | |
|--------------------------------|--------------------|
| Grant received during the year | 259,976,866 |
| Amortisation | (6,326,772) |
| | 253,650,094 |

7. Trade and other payables

| | |
|---|------------------|
| Trade payables | 199,652 |
| Other payables (Note 14) | 1,335,808 |
| Gratuity accrued | 224,506 |
| | 1,759,966 |
| Fair value of trade and other payables | |
| Trade payables | 199,652 |
| Other payables | 1,560,314 |

Botswana Geoscience Institute Financial Statements for the year ended March 31, 2017

The directors consider that the carrying amount of trade and other payables approximates their fair value due to their short-term nature.

8. Deferred income

Deferred income represents grants received from the government that have not been utilised yet. These amounts will be recognised as revenue when they are applied for the purposes as defined under the grant convention.

| | |
|---------------------|-------------------|
| Grant income | 42,157,065 |
| Revenue expenditure | (10,895,300) |
| Capital expenditure | (10,988,671) |
| | 20,273,094 |

9. Grant income

| | |
|-------------------|-------------------|
| Government grants | 10,895,300 |
|-------------------|-------------------|

10. Other income

| | |
|-------------------------------|------------------|
| Other income | 47,154 |
| Amortisation of capital grant | 6,326,772 |
| | 6,373,926 |

11. Investment income

| | |
|---------------------|----------------|
| Interest received | |
| Bank and other cash | 115,884 |

12. Taxation

No provision has been made for 2017 tax as the institute is exempt from tax.

Botswana Geoscience Institute
Financial Statements for the year ended March 31, 2017

13. Cash generated from operations

| | |
|------------------------------------|-------------------|
| Surplus before taxation | 115,884 |
| Adjustments for: | |
| Depreciation | 6,326,772 |
| Interest income | (115,884) |
| Amortisation of capital grant | (6,326,772) |
| Changes in working capital: | |
| Accounts receivable | (275,247) |
| Trade and other payables | 1,759,965 |
| | 20,273,094 |
| Deferred income | 21,757,812 |

14. First-time adoption of International Financial Reporting Standards

The institute has applied IFRS 1, First-time adoption of International Financial Reporting Standards, to provide a starting point for the reporting under International Reporting and Accounting Standards. This is the Institute's first year of operation.

15. Key management costs

| | |
|-----------------------------------|------------------------------|
| Relationships | |
| Members of the board of directors | Refer to General Information |
| Members of key management | Tiyapo Ngwisanyi |

Compensation to key management

| | |
|------------------------------|------------------|
| Short-term employee benefits | 1,335,808 |
| Gratuity benefits | 224,506 |
| | 1,560,314 |

Botswana Geoscience Institute
Financial Statements for the year ended March 31, 2017

16. Directors' fees

Non-executive -2017

| | Sitting allowances | Total |
|--|--------------------|---------------|
| CMr. John L.Farr - Chairperson of the board | 18,900 | 18,900 |
| Prof. Elisha M. Shemang - Vice chairperson of the board and Chairperson of the Technical Committee | 11,760 | 11,760 |
| Mr. Ogone O.M. Gaboutloeloe - Member and Chairperson of the Human Resource Committee | 12,600 | 12,600 |
| Ms. Tebogo Mmoshe - Member and Chairperson of the Finance and Audit Committee | 10,080 | 10,080 |
| Ms. Ontlametse Mokopakgosi - Member | 11,760 | 11,760 |
| Dr. Sebusi Odisitse - Member | 12,600 | 12,600 |
| Dr. Budzanani Tacheba - Member | 10,920 | 10,920 |
| Dr. Vincent Mothupi (Resigned) | 9,240 | 9,240 |
| | 97,860 | 97,860 |

17. Categories of financial instruments

| | Note(s) | Financial instruments at amortised cost | Financial liabilities at amortised cost | Equity and non financial assets and liabilities | Total |
|---|---------|---|---|---|--------------------|
| Categories of financial instruments - 2017 | | | | | |
| Assets | | | | | |
| Non-current assets | | | | | |
| Property and equipment | 3 | - | - | 253,650,095 | 253,650,095 |
| Current assets | | | | | |
| Accounts receivable | 4 | 266,822 | - | 8,425 | 275,247 |
| Cash and cash equivalents | 5 | 21,873,696 | - | - | 21,873,696 |
| Total assets | | 22,140,518 | - | 8,425 | 22,148,943 |
| | | 22,140,518 | - | 253,658,520 | 275,799,038 |

Botswana Geoscience Institute
Financial Statements for the year ended March 31, 2017

17. Categories of financial instruments

| | Note(s) | Financial instruments at amortised cost | Financial liabilities at amortised cost | Equity and non financial assets and liabilities | Total |
|--|---------|---|---|---|--------------------|
| Equity and liabilities | | | | | |
| Equity | | | | | |
| Equity Attributable to Equity Holders of Parent: | | | | | |
| Capital grant | | - | - | 253,650,094 | 253,650,094 |
| Retained income | | - | - | 115,884 | 115,884 |
| | | - | - | 253,765,978 | 253,765,978 |
| Total Equity | | - | - | 253,765,978 | 253,765,978 |
| Liabilities | | | | | |
| Current liabilities | | - | | | |
| Trade and other payables | 7 | - | 1,759,965 | - | 1,759,965 |
| Deferred income | 8 | - | - | 20,273,094 | 20,273,094 |
| | | | 1,759,965 | 20,273,094 | 22,033,059 |
| Total Liabilities | | - | 1,759,965 | 20,273,094 | 22,033,059 |
| Total equity and liabilities | | - | 1,759,965 | 274,039,072 | 275,799,037 |

18. Risk management

Capital risk management

The Institute's objectives when managing capital are to safeguard the Institute's ability to continue as a going concern and benefits for other stakeholders. The Institute is funded by the Government. Consistent with this objective the Institute does not monitor capital on the basis of the gearing ratio.

Financial risk management

The Institute's activities expose it to a variety of financial risks: market risk (including interest rate risk), and liquidity risk. The Institute's overall risk management program focuses on the unpredictability of financial markets and seeks to minimise potential adverse effects on the Institute's financial performance. Risk management is carried out under policies approved by the board members.

Botswana Geoscience Institute Financial Statements for the year ended March 31, 2017

Liquidity risk

Prudent liquidity risk management implies maintaining sufficient cash, the availability of funding through an adequate amount of committed credit facilities and the ability to close out market positions. Due to the dynamic nature of the underlying businesses, management of the Institute aims to maintain flexibility in funding by keeping committed credit lines available.

Interest rate risk

As the Institute has no significant interest-bearing assets, the Institute's income and operating cash flows are substantially independent of changes in market interest rates.

17. Detailed Income Statement

| | Note(s) | 2017 P |
|-------------------------------|---------|---------------------|
| Income | | |
| Grants received | | 10,895,300 |
| Other operating income | | |
| Other income | | 47,154 |
| Amortisation of capital grant | | 6,326,772 |
| | 10 | 6,373,926 |
| Expenses | | (17,269,226) |
| Operating surplus | | - |
| Interest received | 11 | 115,884 |
| Surplus for the year | | 115,884 |

Botswana Geoscience Institute
Financial Statements for the year ended March 31, 2017

17. Detailed Income Statement

| | Note(s) | 2017 P |
|---|---------|-------------------|
| Other operating expenses | | |
| Accommodation | | 78,027 |
| Administration expenses | | 279,080 |
| Advertising | | 101,795 |
| Bank charges | | 15,558 |
| Board expenses | | 1,176,095 |
| Board sitting allowances | | 97,860 |
| Cleaning | | 313,183 |
| Consulting fees | | 1,142,415 |
| Consumables | | 308,375 |
| Depreciation | | 6,326,772 |
| Drilling services | | 3,858 |
| Employee costs | | 1,560,314 |
| General expenses | | 25,563 |
| IT expenses | | 399,262 |
| Insurance | | 33,179 |
| Laboratory services | | 121,009 |
| Motor vehicle expenses | | 24,495 |
| Office stationery | | 27,287 |
| Postage and telephone | | 97,535 |
| Promotions | | 303,696 |
| Recruitment expenses | | 37,156 |
| Repairs and maintenance | | 912,214 |
| Security | | 433,488 |
| Staff development and training expenses | | 412,053 |
| Staff welfare | | 214,281 |
| Subscriptions | | 486,540 |
| Travelling expenses (foreign) | | 487,117 |
| Travelling expenses (local) | | 971,015 |
| Water and electricity expenses | | 880,004 |
| | | 17,269,226 |

General Information

Country of incorporation and domicile Botswana

Nature of business and principal activities Responsible for research in the field of geosciences, providing specialised geoscientific services and promoting the search for, and exploration of any minerals in Botswana.

Directors

Mr. John L.Farr - Chairperson of the board

Prof. Elisha M. Shemang - Vice chairperson of the board and Chairperson of the Technical Committee

Mr. Ogone O.M. Gaboutloeloe - Member and Chairperson of the Human Resource Committee

Ms. Tebogo Mmoshe - Member and Chairperson of the Finance and Audit Committee

Ms. Ontlametse Mokopakgosi - Member

Dr. Sebusi Odisitse - Member

Dr. Budzanani Tacheba - Member

Mr. Tiyapo H. Ngwisanyi -Chief Executive Officer (exofficio)

Dr. Vincent Mothupi (Resigned)

Registered office

Plot 1734
Khama 1 Avenue
Lobatse
Postal address Private Bag 14
Lobatse

Bankers

First National Bank Botswana Limited

Auditors

Auditors Mazars
Certified Auditors

LIST OF TABLES & FIGURES

Tables

| | | |
|---------|--|---------|
| Table 1 | Transfer of assets | page 20 |
| Table 2 | BGI Collaborations/partnership | page 21 |
| Table 3 | BGI Affiliations | page 22 |
| Table 4 | BGI Board of Directors | page 27 |
| Table 5 | Board Remuneration | page 29 |
| Table 6 | Board Meeting Attendance | page 29 |
| Table 7 | Total Source Rock in Serowe/Palapye and Mahalapye area | page 31 |
| Table 8 | Resource Quantification in the greater Gaborone Area | Page 35 |

Figures

| | | |
|-------|---|------------|
| Fig 1 | National Geological Map | page 6 |
| Fig 2 | Recommended Quarry Sites – Serowe/Palapye –Mahalapye area | page 32-33 |
| Fig 3 | Recommended Quarry Sites- Greater Gaborone area. | Page 34 |
| Fig 4 | production and uptake of manufactured sand | page 35 |
| Fig 5 | Mineral value per commodity | page 36 |
| Fig 6 | Resource Rent by mineral | page 37 |
| Fig 5 | Distribution of Seismic Stations I n Botswana | page 41 |
| Fig 6 | Seismic events in Botswana | page 43 |
| Fig 7 | Percentage of Parameters Passing in Proficiency Testing | page 47 |

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

[illegible]

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

