



MINTEK

ANNUAL REPORT 2013
Financial Statements and Notes

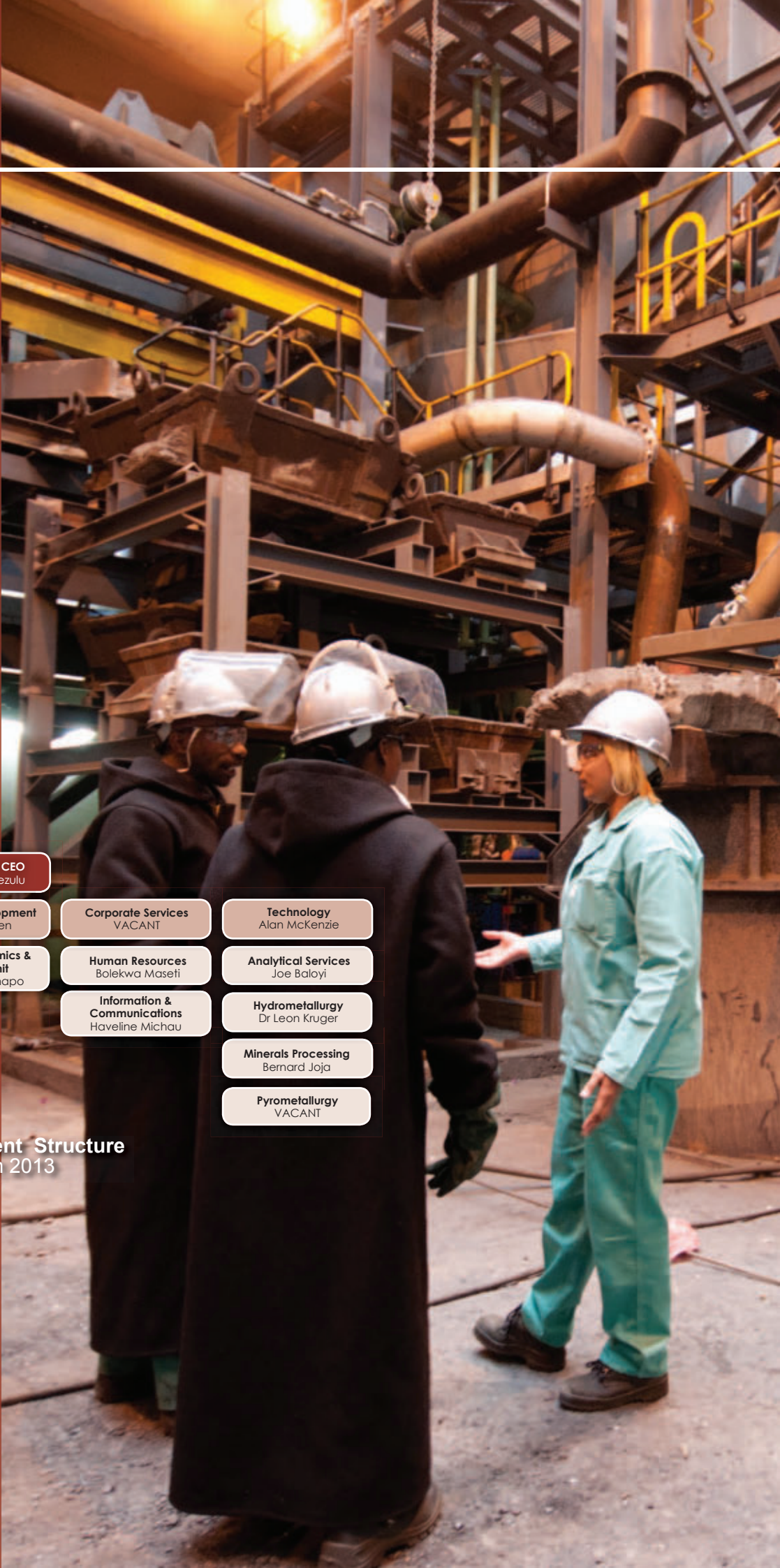
Your partner in unlocking mineral wealth

About Mintek



MINTEK'S RESEARCH CAMPUS IN RANDBURG, which was founded in 1934 to assist the mining industry to operate more effectively and profitably, has achieved international recognition for its contributions. Our mining and minerals industry has been extremely innovative, and many notable advances in extraction, refining, and manufacturing technology that originated in South Africa have impacted on the minerals industry worldwide.

Mintek employs a highly qualified and motivated workforce with a wide range of skills, including metallurgical, chemical, and electronics engineers, chemists, physicists, and mineralogists. Many of our engineers and scientists are recognised as leaders in their fields of specialisation.



President and CEO
Abiel Mngomezulu

Research & Development
Dr Makhapa Makhafola

Finance
Sakhi Simelane

Business Development
Peter Craven

Corporate Services
VACANT

Technology
Alan McKenzie

Advanced Materials
Dr Jones Papo

Finance
Hester Pretorius

Mineral Economics & Strategy Unit
Godfrey Mthapo

Human Resources
Bolekwa Maseti

Analytical Services
Joe Baloyi

Biotechnology
Petrus van Staden

Engineering & Estate Management Services
Boni Hewu

Information & Communications
Haveline Michau

Hydrometallurgy
Dr Leon Kruger

Measurement & Control
Paul Brereton-Stiles

Minerals Processing
Bernard Joja

Mineralogy
Nosiphiwo Mzamo

Pyrometallurgy
VACANT

Small-Scale Mining & Beneficiation
Nirदेश Singh

Mintek Management Structure as at March 2013

Mintek provides world-class R&D expertise, testwork, and process optimisation for the precious and base metals, ferroalloys, and industrial minerals sectors on an international basis. The activities range from initial investigations to process development, and the design, construction, and commissioning of industrial plants. Working closely with clients, and in conjunction with engineering partners, Mintek supplies a flexible package of technology for process development and optimisation.

Mintek's research complex is situated in Randburg, Johannesburg, within easy reach of the O.R. Tambo and Lanseria airports.

Table of Contents

ifc[#] About Mintek and Mintek Structure

1 Mandate, Vision, Mission, Values & How We Operate

2 Technologies and Services developed at Mintek

3 Our Global Activities

4 Chairperson's Overview

6 CEO's Statement

9 Corporate Governance

10 Board of Directors

10 Audit and Risk Committee

10 Internal Control

11 Internal Audit

11 Risk Management

11 Human Resources Committee

11 Technical Committee

11 Fraud Prevention Committee

11 Management

11 Operational Performance

12 Going Concern

12 Safety, Health, Environment and Quality (SHEQ)

12 Radiation Protection Programme

13 Performance against Objectives

17 Mintek in Brief

19 Research, Development & Technology

21 Gold Industry

22 Platinum Group Metals Industry

23 Uranium and Base Metals Industry

23 Ferrous Metals Industry

24 Rare Earths Industry

25 Operations & Developments

27 Business Development, Mineral Policy & Sustainable Development

29 Human Capital Development & Management

30 Employee Relations

30 Job Evaluations, Time Keeping and Attendance

30 Occupational Health

30 Academic Support and Training

31 Executive Development and Other Programmes

33 Awards and Recognition

35 Publications, Conferences & Staff Papers

39 Annual Financial Statements & Notes

68 Acronyms and Abbreviations

68 Corporate and Contact details

Mandate

Mintek's mandate is to serve the national interest through research, development, technology transfer, to promote mineral technology, as well as foster the establishment and expansion of industries in the field of minerals and products derived therefrom.

Our Vision

To be a global leader in mineral and metallurgical innovation.

Our Mission

To serve our stakeholders by adding value to the mineral sector through research, development and technology transfer, in support of national priorities and sustainable growth.

Our Values

- Creativity;
- Teamwork;
- Results orientation;
- Respect and dignity; and,
- Integrity.

How we operate

In order to attain its strategic intent, Mintek shall strive to:

- Enhance Mintek's visibility and credibility to all stakeholders;
- Research and develop efficient mineral processing technologies and value added products and services;
- Promote the mineral-based economies of rural and marginalised communities;
- Uphold good governance practices; and,
- Build world class R&D excellence.

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Technologies and Services developed by Mintek

Exploration	Mining	Concentration	Hydrometallurgy & Biotechnology
<ul style="list-style-type: none"> ▲ Geochemical sample analysis; ▲ Mineral/ore characterisation; and, ▲ Certified Reference Materials. 	<ul style="list-style-type: none"> ▲ ASSM technology; ▲ ASSM training assistance; and, ▲ Mining inputs economic studies. 	<p>a. Comminution/Flotation</p> <ul style="list-style-type: none"> ▲ Flowsheet design and optimisation, and piloting; ▲ Plant audits; ▲ Laboratory and pilot plant scale test programmes, ▲ Control and optimisation strategies; and, ▲ Industry standard comminution testwork. <p>b. Physical separation</p> <ul style="list-style-type: none"> ▲ Bulk sample preparation; ▲ Gravity, magnetic, electrostatic and dense-media separation; ▲ Testwork at laboratory and pilot plant scales. 	<ul style="list-style-type: none"> ▲ Atmospheric and pressure leaching; ▲ Bioleaching (refractory gold, uranium and base metals); ▲ Solvent extraction and ion exchange; ▲ Electrowinning; ▲ Process simulation; ▲ Reagent development and evaluation; ▲ Gold recovery by CIP/RIP; ▲ Uranium processing; ▲ Cyanide measurement, monitoring and auditing; and, ▲ Leach circuit control.
Pyrometallurgy	Refining	Value Addition	General
<ul style="list-style-type: none"> ▲ Pelletisation and briquetting; ▲ Pre-heating and pre-reduction; ▲ DC arc process development and piloting; ▲ Modelling and simulation; ▲ Submerged-arc furnace (SAF) control strategy; ▲ Fluidised bed and condenser technologies; ▲ Refractories performance investigations; ▲ High-temperature solid state and phase equilibrium investigations; and, ▲ Ore, slag, matte and alloy characterisation. 	<ul style="list-style-type: none"> ▲ Gold refining and value-added products/chemicals; ▲ Pyrometallurgical refining of zinc (PWG to SHG), and off-grade ferro-alloy fines; ▲ Titanium chlorination technology; and, ▲ PGM and Rare Earths Separation. 	<ul style="list-style-type: none"> ▲ New industrial applications for gold: Catalysis; Biomedical; and Nanotechnology; ▲ “Smart” materials and sensors; ▲ Low-nickel stainless alloys; ▲ Jewellery fabrication; ▲ Gold and platinum jewellery alloys; and, ▲ Identification of downstream, metals-based, economic development opportunities. 	<ul style="list-style-type: none"> ▲ Ore characterisation, analytical and process mineralogy; ▲ Certified Reference Materials; ▲ Materials characterisation, testing and development; ▲ Project management services; and, ▲ Regional minerals-based studies.

Our Global Activities

Gold

- ▲ Evaluation and design of recovery circuits, for refractory and non-refractory mineralisation.
- ▲ Diagnostic leaching and comparative testwork on various comminution, concentration and recovery options.
- ▲ Cyanide speciation monitoring, online cyanide measurement and control, cyanide destruction. Assistance with ICMI gap or full certification audits.
- ▲ Minfurn™ technology for granular activated carbon regeneration.
- ▲ Minataur™ all-hydrometallurgical gold refining process.
- ▲ New industrial uses for gold - catalysis, biomedicine, and nanotechnology.

PGMs

- ▲ Design and optimisation of integrated comminution, flotation and smelting circuits.
- ▲ Design and optimisation of base metal recovery and PGM refining circuits.
- ▲ ConRoast smelting technology for high-chromium low-sulphur PGM materials.
- ▲ Catalyst development for automotive, fuel cell, and industrial applications.
- ▲ Novel PGM-containing alloys, and powder metallurgical processes.

Ferrous Metals

- ▲ Iron ore beneficiation.
- ▲ DC arc smelting processes for chromite, ilmenite, nickel laterites, magnetite, magnesium metal production, and metal recovery from slags and dusts.
- ▲ Materials characterisation (physical, mechanical and corrosion properties), and failure investigations.

Base Metals

- ▲ Bioleaching of copper, nickel, cobalt, zinc and polymetallic concentrates.
- ▲ Heap bioleaching of low-grade chalcopyrite-bearing materials.

- ▲ Integrated circuit design for metal recovery and purification by leaching/heap leaching, precipitation, ion exchange, and SX/EW.

Industrial Minerals & Diamonds

- ▲ Physical beneficiation - comminution, flotation, gravity, dense media, electrostatic and magnetic separation, and optical sorting.
- ▲ Kimberlite indicator mineral investigations. Alluvial diamond provenance studies.



Uranium

- ▲ Ambient, pressure and heap leaching, solvent extraction, fixed bed and countercurrent (NIMCIX) ion exchange, resin-in-pulp, and ADU precipitation.
- ▲ Mintek is registered as a uranium testwork facility with South Africa's National Nuclear Regulator (NNR) and the Department of Mineral Resources.

Rare Earth Elements

- ▲ Physical beneficiation – comminution, flotation, gravity, and magnetic separation, sensor based sorting.

- ▲ Concentrate cracking and refining flowsheet development and optimisation.
- ▲ Development of a Rare Earth refining pilot plant.
- ▲ Development of the SACREF centralised toll refinery proposal.

Process Control Strategies

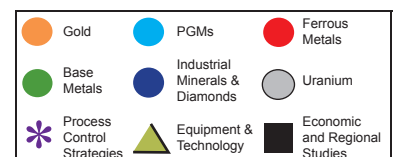
- ▲ Advanced process control and optimisation strategies for milling, flotation, and leaching circuits, and submerged-arc furnaces.
- ▲ Online cyanide measurement and control.
- ▲ Heap leach operator guidance software and in-heap instrumentation.

Equipment & Technology

- ▲ Minfurn™ regeneration furnace for activated carbon in the gold processing, water treatment, and food industries.
- ▲ MINATAUR™ gold refining process.
- ▲ DC arc furnaces.
- ▲ Atomijet™ atomiser for base and precious metals.
- ▲ SAVMIN™ process for acid mine drainage purification.

Economic & Regional Studies

- ▲ Regional commodity-based mineral economic studies.
- ▲ Resource-based technology strategies.
- ▲ Sustainable mineral development studies.



Chairperson's Overview



Adv Linda Makatini
CHAIRPERSON OF THE BOARD, MINTEK,
as at 01/04/2013.

THROUGHOUT THE YEARS OF ITS EXISTENCE, Mintek has had to adapt to changes and associated challenges brought about by the evolving political and economic landscape in South Africa. Irrespective of these changes, Mintek continued to contribute towards the enhancement of productivity and viability of the mineral resources sector and ultimately economic growth and improvement of the socio-economic conditions of the country. Going forward, Mintek is set to play an even more critical role in this sector. It is at this juncture again, in the post-democratic era in South Africa that the government, the mineral resources industry and other stakeholders call on Mintek to step forward and continue to assist in shaping the country's economic landscape with an eventual aim to reduce poverty, unemployment and inequality. This appeal is indirectly made in the National Development Plan (NDP), which was adopted by Cabinet during the year. The plan recognises that the South African mining sector has matured and recently its development has not been on par with the development of the sector in other global economies. However, the country still holds significant reserves in platinum group metals, gold, diamonds, manganese, coal, iron ore and uranium, which should be utilised towards the attainment of the goals set by the NDP. Therefore implementation of the plan, together with the beneficiation strategy adopted by the government last year, puts Mintek at the core business of providing value addition to South Africa's mineral resources.

It is therefore imperative that as we enter into this defining period in the country's post-democratic period, Mintek is poised to deliver on its mandate. It is therefore encouraging that the organisation's research and development expertise, skills and innovation potential are

world class. Even more encouraging is the fact the organisation is on a sound financial footing, having achieved a surplus again in its finances this year. This is in spite of the challenges experienced in the sector during the year. Even though the surplus achieved is lower than the previous year, this proves that the remarkable turnaround achieved in the previous year, which also signified the recovery from the global commodity slump, was no stroke of luck. It was due to hard work and commitment to productivity, cost savings, revenue collection and prudent financial management from Mintek's management team, scientists, engineers and other staff – all these with an aim to ensure the company remains a global leader in minerals and metallurgical innovation.

However, while trying to achieve the goals set, we must continue to be vigilant as the business environment in which Mintek operates can be greatly influenced by a number of factors, both locally and on the global front. The South African mining industry faced one of its most challenging years to date, with poor economic conditions and labour unrest resulting in frequent shutdowns of industrial processing plants in the mining sector. This had the potential to impact negatively on Mintek's operations, including the testing of several instrument and technology prototypes. In spite of this, the commissioning of the demonstration plant for the water atomisation of alloys was commissioned as planned and the plant was signed over to Mintek. It is expected that the project, which is implemented in partnership with Anglo American Platinum, will run for 24 months.

The continuing debt crisis in the Eurozone has the potential to throw global markets into turmoil.

Mintek Board Members 2012/2013



From left: Mr Mohau Mphomela
- CHAIRMAN OF THE BOARD,
MINTEK, as at 30/03/2013.



Ms Salminah Maja - DEPUTY
CHAIRPERSON OF THE BOARD,
Director/Partner: Jacques Van Der
Merwe Maja Inc.;



Ms Matshediso Ndlovu - Sales
Manager: NPC Cimpor (Pty) Ltd.;



Ms Simangele Sekgobela -
Head: Department of Agriculture
& Rural Development, Gauteng;



Adv Derick Block - Independent
Management Consultant.

As the 2009 global economic meltdown has attested, South African operations and Mintek are not insulated against effects of such crises. As such, this crisis also has a potential to impact on our expansive involvement in international collaborations as countries impacted on might have to cut back on their research and development in mineral resources.

Energy and water utilisation remains a critical challenge in the development of the mineral resources sector in South Africa, both in terms of availability as well as the impact on the environment. Therefore, Mintek's research continues to develop technologies that will reduce the consumption of these commodities while on the other hand dealing with the legacy of mining on the environment. The development and testing of the SAVMIN process for treatment of acid mine drainage is one of the important interventions in this regard. Mining and processing companies remain focused on economical exploitation of deeper, lower grade and more complex ores and therefore a reduction in energy and water consumption and compliance to environmental obligations is crucial. The sensor-based ore sorting programme, which will be one of the focus areas funded by the Medium Term Expenditure Framework, is one of the technologies that will assist in dealing with these challenges. Mintek is also testing this technology on a new area of coal upgrading, in addition to work on the ore sorting of PGMs, which has grown significantly during the year. The idea behind this technology is to reduce energy and water consumption within various plants by upfront dry waste rejection. It is also against this background that Mintek intends to establish a mine-water centre, and is also involved in the establishment of a forum that will coordinate water research efforts between the Department of Science and Technology and other science councils and institutions.

The three-year programme to rehabilitate derelict and ownerless mines was concluded successfully at the end of this financial year and Mintek will use the expertise gained in the execution of these projects to pursue similar projects in the future.

Various interventions to promote the mineral economies of rural and marginalised communities continued throughout the year with technical assistance and skills development in order to stimulate economic development and job creation in those areas.

The growing demand for commodities in Asia, especially China, bodes well for South Africa's mineral resources sector. In particular, the demand for Rare Earth Elements (REE) has escalated significantly. As a result, Mintek is committed to the development of a centralised South African Rare Earth Refinery, for which there has been significant interest from a number of the Rare Earth projects that are being developed.

As a government entity, it is important that Mintek continues to maintain a pipeline of qualified professionals to address the skills shortage that the country is grappling with, while also keeping to the transformation agenda of the country. This has to be achieved while the organisation continues to produce quality research that is relevant to the minerals industry and employs best researchers, scientists and engineers. Mintek's workforce transformation has improved steadily with the percentage of historically disadvantaged individuals in all structural levels exceeding the 50% mark.

As new Board of Directors, we are grateful to the previous Board, under the chairmanship of Mr Mohau Mphomela, for having steered the organisation in these difficult times and therefore

passed over to us a solid operational entity. It was under their leadership that the company managed to weather the proverbial storm and keep a motivated workforce. They have left for us financial, audit, procurement and risk management processes that are sound.

Our gratitude goes to the Minister of Mineral Resources, Honourable Susan Shabangu, and her deputy, Honourable Godfrey Oliphant, for having the confidence in our ability to execute the fiduciary duties they have placed on our shoulders. In accordance with the relevant legislation and strategic plans, we will utilise our collective capability, energy and skill in an oversight to ensure that management pursues the objectives and targets it has set out to achieve. This Board will make it its duty to ensure that this organisation remains on this sound footing while producing world class novel technologies, research and development, and attracting world class scientists and engineers.

We wish to thank the President and CEO, his management team and all Mintek personnel, for their continued stewardship of the organisation to ensure that it delivers on its mandate. We are hopeful that our participation in the company over the next three-years will be as fruitful.



Adv Linda Makatini
Chairperson of the Board, Mintek

Mintek Board Members 2012/2013 (continued...)



From left: Mr Paul Streng
- Independent Management Consultant;



Mr Imraan Patel - Deputy Director-General: Department of Science and Technology;



Ms Setepane Mohale - Chief Director: Department of Mineral Resources;



Mr Tseko Nell - Chief Economist: Department of Mineral Resources, Alternative Board Member;



Mr Abiel Mngomezulu - President and CEO: Mintek.

CEO's Statement



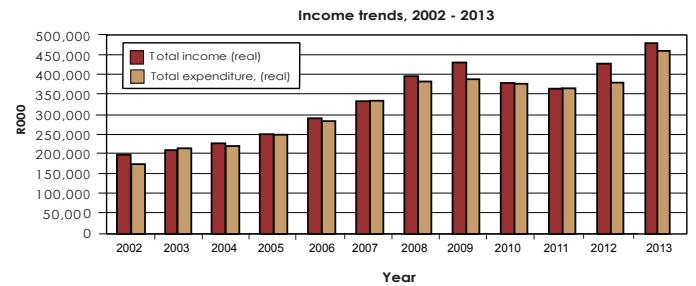
Mr Abiel Mngomezulu -
MINTEK PRESIDENT AND CEO.

IT GIVES ME GREAT PLEASURE

to announce our performance results for the year 2013, the fifth such exercise I have done since joining Mintek just over half a decade ago. Operationally we have made great strides to keep the organisation solid in the long term while consolidating our position globally as a world leader in mineral and metallurgical innovation. Mintek is not immune to challenges facing the South African mineral resources sector – when our customers and partners sneeze, we also catch the flu. However, despite the challenges that continue to dog the South African mineral resources sector, Mintek is continuing on its upwards trajectory in terms of growth. This is evidenced by an achievement of a surplus while most major companies in the sector are under pressure, in the main due to labour issues, which have necessitated restructuring in one form or another across the sector. For example, the slump in the platinum group metals (PGM) market and the subsequent labour challenges experienced during the year have caused a few mines to either stop production or cut back. In spite of this, and due to the established pipeline of work orders, strong workforce and sound work ethos, we remain confident that Mintek will continue to achieve positive results going into the future.

Financial Summary

At the end of this financial year, a surplus of R16 million was achieved. This is 35% lower than the budgeted amount for the year and much lower than the R43 million record surplus made the previous year. However, this is a remarkable turnaround if one considers that at the end of



the third quarter, Mintek was R8.95 million in the red. This turnaround was achieved due to increased research work but the overall results were impacted on by a reduction of commercial activities during the second half of the year, which have since stagnated at those levels. Increased research work, together with the now entrenched culture of cost savings and a continual improvement on our collection strategies – major contributors to last year's phenomenal financial success – enable Mintek's financial future to be predictable, yet positive.

Technical Highlights

Mintek's objective is to innovate, research and develop novel technologies. The ultimate measure of success for this organisation could be interpreted as the extent to which these activities continue to contribute towards enhancing productivity, economic growth and socio-economic development for South Africa using minerals. Probably the biggest achievement during the year is the successful commissioning and implementation of the demonstration plant for the water atomisation of alloys at Bay 2. At the end of this financial year, this R44-million project approached the end of its first year of operation with promising results. This development not only provides Mintek with future revenue streams but also continues to highlight our ability to handle

Mintek Executive Team 2012/13



Dr Makhapa Makhafola -
RESEARCH & DEVELOPMENT;



Mr Peter Craven -
BUSINESS DEVELOPMENT;



Adv Mamokete Ramoshaba -
CORPORATE SERVICES;



Mr Alan McKenzie -
TECHNOLOGY;



Mr Sakhi Simelane -
FINANCE.

complex large scale projects. It also allows us to demonstrate innovation, which in the ultimate, aims to further improve South Africa's beneficiation potential. As at the end of the financial year, at least 78 atomising trials were carried out, with the success rate increasing each month. About 200 tons of atomised alloy powder was produced and handed over to Anglo American Platinum, our partner in this project. Although so far, this still translates into a production rate of 50%, a low percentage compared to our design capacity, for now we can gladly say that it can be done. It is important for us now to build on what we have achieved going forward.

Another area of commercial growth is in our advanced process control expertise where Mintek continues to increase its market penetration of process control products for flotation, milling, furnace control and cyanide measurement and control worldwide. The highly successful Cynoprobe cyanide analysers, for instance, have been shipped to mining operations as far afield as Finland and Saudi Arabia, thereby opening up the products to new markets. In terms of these products, Mintek achieved phenomenal growth in several other African countries – in addition to South Africa where such products have been installed extensively. Mintek will continue to aggressively pursue commercialisation of the six new product prototypes developed, while also exploring opportunities in new growing areas such as uranium and mineral sands processing.

The installation and commissioning of a continuous autoclave plant, has enabled Mintek to open up a new line of service that we can offer. This also coincides with renewed interest in the evaluation of a pressure oxidation process as an alternative to biological treatment of gold ores. This facility has already received an order for pilot test work to the value of R11-million and it is highly probable that this amount can increase with a further R22-million worth of test work in the near future.

Commercialisation of the heap leaching process of uranium and/or copper bearing ores continued to be one of the main areas of focus for Mintek this year. To this end, Mintek is involved in a pilot plant campaign at the Madaouela uranium project in Niger, where the heap leaching process has been selected as the preferred method for the project. The Global Atomic Fuels uranium heap leach

project's scope has been increased to include, inter alia, acid-in-agglomeration/curing time optimisation and scrubbing testwork. A continuous pilot plant campaign is also underway at the Mondo Minerals project, which entails tank bioleaching of a nickel sulphide concentrate.

The Metals Technology Centre (MTC) in the Advanced Materials Division (AMD) has made great strides in terms of business growth and has now added several blue chip companies to its client base. The centre continues to undertake development work on alloys and provides critical assistance with the selection and testing of materials. It is as a direct consequence of this growth that two new electric discharge machines (EDMs), and one impact drop tester were purchased to increase throughput and efficient delivery to these clients.

As an indication of a successful outcome of a bilateral governmental initiative by the Department of Mineral Resources (DMR), Mintek has reached an agreement with the Institute of Physical and Organic Chemistry (IPOC) in Belarus to commercialise fibre technology in the minerals processing industry, with Mintek having an exclusive right to apply the technology in this industry.

The effort to research and increase the industrial usage of gold through application of gold-based catalysts received a boost following the successful shipping of a total of 50kg gold catalyst to Beth El Industries, an industrial application developer based in Israel. Thanks to the foresight of our predecessors who initiated Project Autek in 2000, we are beginning to see the fruits of this initiative.

Our work on the demonstration of Mintek's processing technology for rare earth elements (REE) continues according to a two-year plan that focuses on the construction of the pilot facility as well as on the preparation of the plant's feed stock. It is hoped that once complete, this facility will aid the development of a number of REE mines in Southern Africa as well as downstream high-technology REE manufacturing enterprises.

Water and energy constraints in South Africa have necessitated Mintek to look into ways of improving processing efficiencies as these continue to be important industry drivers. Mintek therefore regards dry sorting as a technology that can help reduce

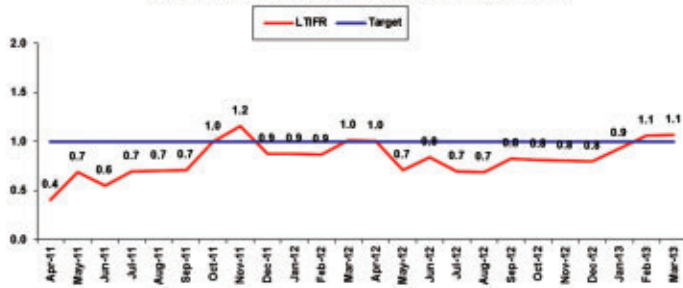
energy and water consumption at processing plants for various commodities including, gold, PGMs, iron ore, rare earth elements and kimberlites. Going forward Mintek intends including coal sorting as one of the strategic areas in which this technology can be applied. We are therefore embarking on a strategy to develop Mintek as a 'centre of excellence' in this area.

At the end of this financial year, Mintek concluded the programme to rehabilitate derelict and ownerless mines, which had been going on as part of a three year contract, worth R90-million, with the Department of Mineral Resources. All 14 projects have been successfully completed over a period of three years in the Northern Cape and Limpopo. Throughout this period, at least 300 job opportunities were created – 10 being permanent. Although most of these were not permanent, they have brought some relief to communities in some of the poorest regions of the country. Going forward, Mintek hopes that it will be afforded the opportunity to demonstrate the rehabilitation of other mines through the expertise, structures and procedures it has established during this contract.

The Mining Qualifications Authority (MQA) has awarded Mintek a contract worth R1.3 million to train 125 people in the Western Cape, Mpumalanga, Limpopo, Free State and KwaZulu-Natal on the legal aspects, extraction methods and technologies for small scale mining. While some of the participants are already mining, most will be assisted to set up their own businesses and obtain mining permits. Three pottery manufacturing projects units established in partnership with the National Lottery Board (NLB) are continuing in the Northern Cape and Limpopo as part of a three-year contract with the NLB for the set-up of these units across the country. This is in addition to a new contract concluded with Pretoria Portland Cement (PPC) Associations Trust for the set-up of a pottery manufacturing unit in the local community of Mandini, KwaZulu-Natal. This unit has created some much needed jobs and up-skilled 12 people, four of whom are people living with disabilities.

I am proud to announce that Mintek was named as a winner of the Sunday Times Technology Top 100 Awards for Excellence in the Management of Research and Development. The awards are an effort to draw attention to the importance of developing a local culture of technological

Mintek's Lost Time Injury Frequency Rate (March 2013)



innovation and excellence. This accolade shows that our excellent research and development work did not go unnoticed, even by our peers outside our sector.

The DST/Mintek Nanotechnology Innovation Centre (NIC) has been chosen to host the 7th Macro- and Supra-molecular Architectures and Materials Symposium in 2014 (MAM-14), which is expected to draw world-class scientists and engineers from across the globe to showcase their research activities in nanotechnology. This symposium, will be centred on the commercialisation of nanotechnology innovation and will also provide a space for venture capitalist to discuss collaborative research and business developments. For Mintek, the symposium will allow us to showcase to these scientists our world class technologies, innovations, facilities and expertise. At the previous conference in India (MAM-12), members of NIC made a remarkable impact while they delivered keynote addresses, and chaired important sessions, including the plenaries.

Safety, Health, Environment and Quality (SHEQ)

Mintek successfully passed a recertification audit against ISO 9001:2008 (Quality), ISO 14001:2004 (Environmental Management) and OHSAS 18001:2007 (Safety and Health) standards with no major findings. Unfortunately though, Mintek suffered eight Lost Time Incidents during this year, although most of them were not directly work related. Two of these incidents were reportable to the Department of Labour because they involved amputation of some fingertips of two staff members. Due to the seriousness of the incidents, operations were halted at the various plants while they were investigated and problems rectified. Notwithstanding these incidents, the Lost Time Injury Frequency Rate (LTIFR), at 1.1, is only slightly above the target of 1.

Efforts to reduce the External Client Dissatisfaction Frequency Rate (CDFR) have eventually paid off,

with the rate dropping to below the target of 10. This is as a result of a significant effort being expended in improving service to clients and more intense oversight of remedial activities. The Health Incident Frequency Rate (HIFR) remained at 0.

People

The dearth of technical skills continues to be an area of concern not only at Mintek but also throughout the industry. Our strategies to develop, nurture and retain a skilled workforce continued to be implemented during the year. Our bursary programme remains strengthened to motivate, develop and prepare our students for the world of work while the graduate development programme, which was piloted in January 2012, has been successful to expose the graduates to the work that Mintek performs. Mintek is implementing the Department of Science and Technology (DST) internship programme for the foundry industry and 30 interns were placed at various foundries including the Limpopo Tooling Initiative (LTI) and the Fabrication Laboratory (FabLab). On the other hand Mintek continued to stimulate interest in technical and science related occupation among high school learners through initiatives including job-shadowing and Minquiz, our trademark science competition for matric learners.

In light of our pursuit of sustainable growth and in order to build a strong engineering and maintenance team, we have taken a strategic decision to merge the Engineering Support Division (ESD) and Estate Management Services (EMS) to form the Engineering and Maintenance Services division. The new unit will comprise four functions, namely maintenance services, project engineering, planning and scheduling, and campus support services.

It is very unfortunate that the National Union of Mineworkers has, during the course of the year, lost its membership among staff members to below the threshold to be recognised as a majority union.

Growth and development in the South African context are no longer just a dream, they are a national imperative if the population's standard of living is to be improved, poverty eradicated and employment created. It is imperative upon us as a government institution to heed the call of the

National Development Plan, which the Cabinet adopted during this year. As a Science Council in a sector which has been the cornerstone of South African development for over a century, we are geared up for the challenge. It is therefore in this context that we look upon the Minister of Mineral Resources, Honourable Susan Shabangu and her deputy, Honourable Godfrey Oliphant, for guidance and leadership in order to ultimately achieve the goals of the plan. Indeed we wish to thank them for their immeasurable contribution as again this year they did not disappoint in ensuring that our results are achieved. We will leverage on our ability, expertise and 80-year-old experience in respect of innovation, research and development of novel technologies in our sector to realise the goals the plan has set.

To all staff, partners, clients and all other members of the Mintek community; your hard work, dedication, sacrifice and allegiance to Mintek's organisational values have not gone unnoticed – without your efforts the organisation would not be where it is today. We made a call last year that you join us in the pursuit of growth and the delivery of our mandate and you responded positively. More is still expected from all of us in the coming years.

In conclusion, I wish to thank Mintek's Board of Directors, under the chairmanship of Mr Mohau Mphomela, who have concluded their three-year term at the end of this financial year. In the same vein I wish to welcome the new Board – led by Advocate Linda Makatini, the first woman to occupy this position in the 80-year history of the organisation – to Mintek as they assume the reins of this organisation for a three-year term. We are optimistic that Mintek and all its employees will be able to tap into the resource that is in their vast collective experience, ability, talent and enthusiasm to continue on the organisation's growth path while maintaining its status as a global leader in mineral and metallurgical innovation. Welcome on board!

Abiel Mngomezulu
President and CEO, Mintek.



Corporate Governance

Corporate Governance

MINTEK IS COMMITTED TO THE PRINCIPLES OF OPENNESS, INTEGRITY AND ACCOUNTABILITY in its dealings with all stakeholders. It endorses the Code of Corporate Practice and Conduct as set out in the King Reports and the Public Finance Management Act (PFMA), and believes that the primary objective of the corporate governance system is to ensure that both the Board and Management carry out their responsibilities ethically and effectively.

Board of Directors

Mintek's Board of Directors consisted of one executive member and nine non-executive members who were independently appointed by the Minister of Mineral Resources in terms of the Mineral Technology Act No. 30, 1989 (the Mintek Act). Board members, excluding the Chief Executive Officer, hold office for a maximum of three years, but are eligible for re-appointment. The Board has been in office since March 2010 and completed its term in March 2013. A new Mintek Board started its three year term on 01 April 2013 and extends until 31 March 2016. Board members were appointed based on their business acumen, experience and knowledge as well as other skills. Mintek has a Board Secretariat that is responsible for ensuring that Board procedures are followed in line with the various corporate governance frameworks.

The Board performs amongst others, the following functions:

- Provides strategic direction
- Identify key risk areas and performance indicators in order for Mintek to generate economic profit and so enhance shareholder value in the long term
- Ensures compliance of Mintek with the Mintek Act and other relevant requirements of the King Report on Corporate Governance for South Africa
- Ensures that it exercises its governance responsibility in terms of the PFMA

The Board considers Mintek's annual financial statements to be a fair representation of its financial position at year-end in terms of the South African Statements of Generally Accepted Accounting Practice (GAAP).

Audit and Risk Committee

The Audit and Risk Committee (ARC) ensures the integrity of reporting internal financial control within the prescribed legislation and regulations issued in

Attendance of Board Members at Board Meetings				
Name	25 May 2012	27 Jul 2012	23 Nov 2012	28 Jan 2013
Mr. Mohau Mphomela (Chairperson)	Y	Y	Y	Y
Mr. Abiel Mngomezulu (Ex-officio & CEO)	Y	Y	Y	Y
Ms. Salminah Maja (Deputy Chairperson)	Y	Y	N	N
Ms. Joy Ndlovu	Y	Y	Y	Y
Adv. Derick Block	Y	Y	Y	Y
Ms. Simangele Sekgobela*	N	N/A	N/A	N/A
Mr. Paul Streng	Y	N	Y	Y
Mr. Imraan Patel	Y	N	N	Y
Ms. Setepane Mohale	Y	Y	Y	Y
Mr. Tseko Nell (alternate to Ms. Mohale)	N/A	N/A	N/A	N/A

Y = In attendance

N = Absent with apology

N/A = Not Applicable

*Member resigned from the Board and Committees on 10 July 2012.

terms of the PFMA (Act No. 1 of 1999 as amended by Act No. 29 of 1999). The ARC is nominated and constituted in accordance with the Mintek Act, the PFMA as well as Treasury Regulations issued in terms of the PFMA (Act No. 1 of 1999 as amended by Act No. 29 of 1999) and sound corporate governance.

The ARC comprises of four Board members, an interim member, two independent members and the CEO in his capacity as an ex-officio member. The Auditor-General South Africa attends as an invitee. The ARC operates in terms of a formal charter and assists the Board in fulfilling its responsibilities in respect of financial and risk matters. It also ensures that the appropriate accounting policies, internal controls and compliance with laws and regulations are in place. Both the internal and external auditors have unrestricted access to the ARC.

During the past year, the ARC considered various reports from the internal auditor, while the audit report on the financial statements from the external auditor was considered first by the ARC and then by the Board. The Auditor-General once again expressed an unqualified audit opinion on Mintek's annual financial statements for the year ended 31 March 2013.

Internal Control

Mintek maintains internal controls and systems, designed to provide reasonable assurance as to the integrity and reliability of its financial statements and to safeguard, verify and maintain the accountability of assets. The effectiveness of these controls is monitored by the internal auditors, who report to the Audit and Risk Committee. The Audit and Risk Committee requested management to review and evaluate Mintek's existing internal controls to further identify areas that can continually be improved upon.

Attendance of Audit Committee Members at Audit and Risk Committee Meetings				
Name	18 May 2012	20 Jul 2012	19 Oct 2012	17 Jan 2013
Mr. Paul Streng (Chairperson)	Y	N	Y	Y
Mr. Abiel Mngomezulu (Ex-officio)	Y	Y	Y	Y
Ms. Salminah Maja	Y	N	Y	Y
Ms. Simangele Sekgobela	N	N/A	N/A	N/A
Ms. Setepane Mohale	Y	Y	Y	N
Dr. Jan Bredell (Independent member)*	Y	Y	N/A	N/A
Ms. Doris Dondur (Independent member)**	Y	Y	Y	N/A
Adv Derick Block (Interim member)	N/A	N/A	N/A	Y

Y = In attendance

N = Absent with apology

N/A = Not Applicable

*Member resigned from the ARC on 21 July 2012

**Member resigned from the ARC on 21 November 2012

Internal Audit

Mintek's independent Internal Audit (IA) function assists the organisation to accomplish its objectives by adopting a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance. The IA function has direct access to the Audit and Risk Committee and regular meetings are held with the Chairperson of the Audit and Risk Committee.

Risk Management

The Risk Steering Committee (RSC) continually reviews the risk management process, internal controls, and significant risks facing the organisation. The RSC provides the Audit and Risk Committee with a risk assessment report at appropriately scheduled intervals. Meetings are held on a quarterly basis or as required, and Mintek's Risk Management Strategy, Risk Management Policy, Fraud Risk and Whistle Blowing Policy, and Risk Implementation Plan are updated as required. Mintek utilises the services of insurance brokers on an annual basis to analyse and assess the risks associated with its assets, which are insured, together with public liability and professional indemnity, for the risk assessed.

Human Resources Committee

The Human Resources Committee (HRC) consists of three Board members and the CEO. The HRC

Attendance of Human Resources Committee Members at Human Resources Committee Meetings				
Name	03 May 2012	12 Jul 2012	01 Nov 2012	16 Jan 2013
Ms. Salminah Maja (Chairperson)	Y	Y	Y	Y
Mr. Abiel Mngomezulu (Ex-officio & CEO)	Y	Y	N	Y
Adv. Derick Block	Y	Y	Y	Y
Ms. Joy Ndlovu	N	Y	N	Y

Y = In attendance
N = Absent with apology
N/A = Not Applicable

reviews and determines the remuneration and terms of employment for Mintek, and as part of this process, gives consideration to the annual review of remuneration packages based on independent surveys. The HRC also looks into HR policies, internal controls, circumstances, conditions and activities that affect material changes to policies and procedures and conditions of service for all employees in compliance with demands and vested interests of Mintek's stakeholders.

Technical Committee

The Technical Committee (TC) consists of three Board members, the CEO, an alternate TC member and alternate member for Ms Mohale. The main purpose of the TC is to assist the Board in discharging its duties relating to the legal mandate of Mintek in as far as its core business is concerned. It provides a forum for discussing technical issues for developing

relevant recommendations for consideration by the Board in informing strategy development and implementation within Mintek. Furthermore, they are set up to advise on utilisation of expertise, project proposals and financing thereof, looking into various co-operatives and related strategies and the possible expansion of Mintek business within the said mandate. In addition to the above, the TC must ensure that there is compliance with any other function or responsibility as may be prescribed by relevant legislation and in line with national priorities.

Fraud Prevention Committee

Mintek has adopted a fraud prevention plan that incorporates principles contained in the Public Sector Anti-Corruption Strategy, and which focuses particularly on creating awareness and promoting ethical business conduct. The Fraud Prevention Committee, which consists of standing members with roles in Finance and Security as well as a neutral Chairperson, is tasked with an ongoing review of the effectiveness of internal controls.

Management

Mintek is managed by a Chief Executive Officer assisted by five General Managers. This team makes up Mintek's Executive Management Committee and meets on a weekly basis to review strategic and operational issues.

Executive Management is supported by fourteen formally appointed Divisional Managers who are in charge of Mintek's operating divisions and centralised support functions.

Operational Performance

Mintek reports to the Department of Mineral Resources (DMR) and is also accountable to the Department of Science and Technology (DST) for its technology-related Research and Development (R&D) activities. Various Key

Attendance of Committee Members at Corporate Risk Steering Committee Meetings			
Name	21 Jun 2012	06 Sep 2012	06 Dec 2012
Mr. Peter Craven – Chairperson and GM: Business Development	Y	Y	Y
Mr. Abiel Mngomezulu - CEO	Y	Y	Y
Mr. Sakhi Simelane – GM: Finance	Y	Y	Y
Adv. Mamokete Ramoshaba – GM: Corporate Services	Y	Y	Y
Mr. Alan McKenzie – GM: Technology	Y	Y	N
Dr. Makhapa Makhafola – GM: R&D	Y	N	Y
Ms. Hester Pretorius – Manager: Finance	Y	Y	N
Ms. Bolekwa Maseti – Manager: HRD	Y	Y	Y
Mr. Mpho Mathose – Head: Internal Audit	Y	Y	Y
Mr. Hennie Venter – Head: ITS	Y	Y	Y
Mr. Leon Swanepoel – Head: SHEQ	N	Y	Y
Mr. Boni Hewu – Manager: EMS	Y	Y	Y
Mr. Elias Lesunyane – Head: Security*	Y	N/A	N/A
Mr. Donald Mphelo – Security Superintendent**	N/A	N/A	Y

Y = In attendance
N = Absent with apology
N/A = Not Applicable
*Member resigned on 31 July 2012
**Member appointed 01 November 2012

Attendance of Technical Committee Members at Technical Committee Meetings

Name	19 Apr 2012	18 Oct 2012
Mr. Imraan Patel (Chairperson)	N	Y
Mr. Abiel Mngomezulu (Ex-officio & CEO)	Y	Y
Ms. Simangele Sekgobela	Y	N/A
Ms. Setepane Mohale	N/A	Y
Mr. Tseko Nell (alternate to Ms. Mohale)	Y	N/A
Adv. Derick Block (Alternate member)	Y	Y

Y = In attendance
 N = Absent with apology
 N/A = Not Applicable

Performance Indicators (KPIs), encompassing financial, organisational, innovation and learning, human resources and transformation perspectives, provide Mintek with a basis for evaluating its activities in the identified key performance areas.

Each KPI is supported by a set of identified measures, that provide a more specific and consistent base from which to assess progress. There is also a framework for peer review should the need arise.

While Mintek's Executive Committee meets on a weekly basis, the Management Committee convenes on a monthly basis where both the business plans and financial results are presented. The budget for the current year is reviewed in September by executive management in order to keep track of and ensure overall sound financial management.

Going Concern

The Mintek Board reviewed the Entity's financial budgets for the period from 01 April 2013 to 31 March 2014 and is satisfied that adequate resources exist to continue business for the foreseeable future.

Safety, Health, Environment and Quality (SHEQ)

During August 2013, Mintek's SHEQ management systems underwent a combined surveillance audit against the requirements of ISO 9001:2008 (Quality), ISO 14001:2004 (Environmental Management) and OHSAS 18001:2007 (Safety and Health). Mintek has been certified by accredited independent external auditors to meet the requirements of quality (ISO 9001), environmental management (ISO 14001), and safety and health (OHSAS 18001).

The next re-assessment audit, for ISO 9001:2008,

ISO 14001:2004 and OHSAS 18001:2007 will take place in July/August 2013. Re-assessment audits are performed on a three-yearly basis for certification renewals.

The Lost Time Injury Frequency Rate (LTIFR) remained below the target of 1 for the first nine months of the year. However, it increased to 1.1 at the end of the year due to three incidents during the fourth quarter.

The Environmental Incident Frequency Rate (EIFR), Health Incident Frequency Rate (HIFR) and The Public Dissatisfaction Frequency Rate (PDFR) was 1 from October 2012.

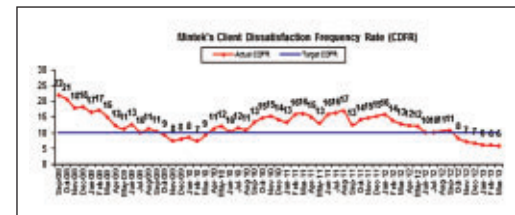
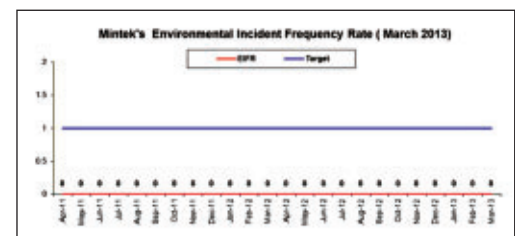
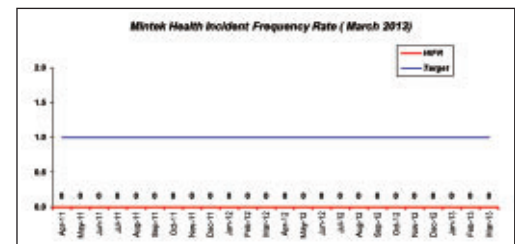
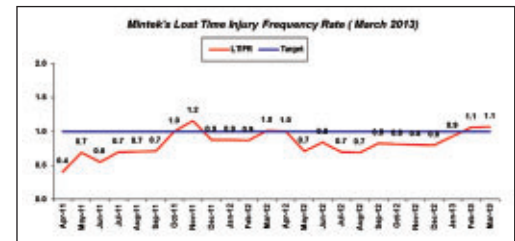
A groundwater quality assessment indicated that the overall groundwater quality underlying the site is good with no significant impact from any potential contamination sources.

The External Client Dissatisfaction Frequency Rate (CDFR) decreased continuously during the year from 10.3 at the beginning of the year to 6 at the end of the year, which is below the target of 10. The drop is a result of significant effort being expended in improving our service to clients and more intense oversight of remedial activities. Every client survey that indicated a measure of client dissatisfaction was analysed by the Business Unit involved and the necessary corrective action taken.

Radiation Protection Programme

Mintek is registered as a Uranium and Thorium test work facility with the National Nuclear Regulator (NNR) and the Department of Energy (DoE). Mintek has been issued with the following authorisations from the Department of Energy:

- exportation of Uranium and Thorium.
- importation of Uranium and Thorium.
- possession of Uranium and Thorium.



- acquisition, processing, use and transportation of Uranium and Thorium.

The Radiation Protection Programme (RPP) has been incorporated as part of the overall Safety, Health, and Environment programme, and an internal audit schedule has been implemented to ensure that the RPP remains relevant and is updated as approved by the NNR.

Performance Against Objectives

1. STAKEHOLDER PERSPECTIVE

Key Performance Area/Objective: Enhance Mintek's visibility and credibility to all stakeholders					
Programmes	Measures/Outcome	Performance Indicator	Target	Actual	Comments
Integrated marketing and communication functions	Annually updated marketing and communications plan approved and implemented	Annually updated marketing and communications plan approved and implemented?	Implemented	Implemented	Plan updated and implemented.
Enhancing the visibility and credibility of Mintek	Evidence of enhanced Mintek visibility and credibility as a research institution	# of technical articles in credible publications	41	49	Target achieved
		# of conference presentations and posters	68	79	
		# of SA Patents registered	3	8	
		# of technology transfers	2	1	Target not achieved due to lack of funding for the Biomin implementation.
		# of discoveries (IPRA)	7	7	Target achieved
	Attained annual customer satisfaction target	Annual Customer Satisfaction Rating Index	90	94	Target achieved
	Enhanced media exposure	# of media references for Mintek	600	605	
Enhanced relations with oversight bodies	Technical assistance to the DMR (upon request)	Annual presentation to Parliament on impact of Mintek's work and role	1	2	Both the strategic plan and annual report presentations were done to the PPC.
			-	3	Three requests were received, viz on fuel cells, chrome and beneficiation strategy Task Teams.

Key Performance Area/Objective: Research and develop efficient mineral processing technologies and value added products and services					
Programmes	Measures/Outcome	Performance Indicator	Target	Actual	Comments
Competitive technologies, products and services for optimal mineral resource utilisation	Develop analytical and mineralogical methods and services, evidenced by reports	# of methods	11	9	Target not achieved due to very low external commercial work and reduced work from Mintek divisions.
		# of samples	65,000	48,316	
		Rand value (Rm)	35.50	32.16	
	Develop new technologies under Science Vote funding	# of internal reports	40	53	Target exceeded due to additional work not originally planned for, availability of additional researcher resources, higher work-integrated-learning student intake and reduction in commercial activities during the last quarter of the year.
		# of new technologies	3	5	
		# of prototypes evidenced by reports	4	5	
	Sales of products, plant and equipment	# of units of plant and equipment	2	0	Target not achieved due to no interest in the market.
		# of reports	17	21	The depreciation of the Rand over the latter half of the year, resulting in higher Rand earnings from foreign sales, and a large "windfall" order for 5 Cynoprobes are the main reasons for exceeding the control system sales target.
		Rand value of control system sales (Rm)	21.00	29.30	
		Rand value of Certified Reference Materials (CRM) sales (Rm)	3.50	4.34	
Commercial investigations and feasibility studies	# of external reports	153	184	Client needs for the year were much more than anticipated.	
Beneficiation to value added products and services	Develop applications for precious-, ferrous- and base metals in the areas of:- Biomedicine (HIV, cancer, malaria) - Catalysis (chemical processing, fuel cells, environmental) - Nanotechnology (water, health) - Physical metallurgy R&D and metallurgical industry support	# of internal reports	8	14	There were a lot more requests for investigations from the Metals Technology Centre than what was anticipated for the year.
		# of external reports	145	185	
	Develop metallurgical processes and products for base-, light- (titanium, magnesium) and ferrous metals	# of internal reports	5	7	Target achieved

1. STAKEHOLDER PERSPECTIVE (continued...)

Key Performance Area/Objective: Research and develop green technologies and process to mitigate the impact of mineral development on the environment					
Programmes	Measures/Outcome	Performance Indicator	Target	Actual	Comments
Water efficient processes	Develop water efficient flow sheets to optimise water consumption and enable processing of ore bodies in water stricken areas	# of internal reports	8	10	More reviews were written based on the large number of commercial projects conducted over the last two years. The additional reports were not planned for as no extra test or laboratory work was required.
		# of external reports	3	3	
Energy efficient processes	Develop energy efficient processes, flow sheets and control technologies that minimise energy consumption and carbon emissions	# of internal reports	10	17	Target exceeded due to the writing of additional reviews on work which did not require any additional pilot work, and therefore not planned.
		# of external reports	1	1	
Waste management and recycling	Develop technologies for treating and recycling waste in order to extend mineral resources	# of internal reports	4	8	Target achieved
		# of external reports	1	1	
	Rehabilitate derelict & ownerless mine sites	# of sites	8	10	

Key Performance Area/Objective: Promote the mineral-based economies of rural and marginalised communities through technical assistance and skills development					
Programmes	Measures/Outcome	Performance Indicator	Target	Actual	Comments
Development of technologies and strategies relevant to rural and marginalised communities	Establish technologies and strategies relevant to small scale operators, for transfer to rural and marginalised communities	# of technologies adapted or developed	2	2	Improvements to Biomin and iGoli processes.
		# of feasibility reports	8	15	The Gemstone project received additional MTEF funding which was not planned, resulting in more reports being generated.
Economically sustainable businesses created in rural and marginalised communities	Develop and support economically sustainable SMME enterprises	# of new businesses created	6	6	Amongst the businesses created were Mamokgadi Pottery and Amachule Akwantu Pottery.
		# of jobs created from new businesses	60	65	Jobs created from Mamokgadi Pottery, Amachule Akwantu Pottery and Mapuve Clay projects.
		% of businesses still in existence after 1 year	80	100	Target exceeded due to the division's concerted effort to extend additional technical assistance and marketing support to the SMMEs beyond the relevant support period.
		% of businesses still in existence after 2 years	70	71	
Training and skills development interventions in rural and marginalised communities	Provide accredited training in glass bead, jewellery, potter and brick making, introduction to small scale mining.	# of people trained	100	184	Target exceeded due to additional funding received from the MQA for the training of learners in SSMB. People were trained at Mamokgadi Pottery, Amachule Akwantu Pottery & Mapuve Clay projects.
		Maintain accreditation	Maintained	Maintained	Accreditation maintained after an audit conducted early in the year.

Key Performance Area/Objective: Ensure the short-term viability and long-term sustainability of Mintek					
Programmes	Measures/Outcome	Performance Indicator	Target	Actual	Comments
Improved modern facilities that reflect the image of a world class R&D organisation	Implement infrastructure modernisation according to modernisation plan.	% of modernisation plan targets implemented.	* Phase 5 Wall Coating of Mintek Premises & surrounding courtyard. Lift & water pipe upgrade. Refurbish of Laboratories & Offices	100%	Target achieved
Sustainable funding model secured	A sustainable funding model agreed and implemented	Progress towards an agreed funding model and approach	Develop Model	1	Rolling model in place

* Error in compact as phase 3 was completed in 2011/12

2. FINANCIAL AND INTERNAL BUSINESS PERSPECTIVE






Key Performance Area/Objective: Uphold good governance practices					
Programmes	Measures/Outcome	Performance Indicator	Target	Actual	Comments
Enhanced fiscal discipline and the effective management of resources	BEE procurement as a % of total discretionary spend	% BEE Spend of total discretionary spend	48	62	Target achieved
	Strengthened Internal Financial Controls	Unqualified audit	Unqualified	Unqualified	
		Zero Tolerance on Fraud	R0 fraud	R0	
	Sound Debtor Management	% Debtors write off of total revenue	<0.5	0	
		Average Debtors Days	<70 days	69	
	Total Income	Rand Value (R'000)	515,333	470,610	The revenue for products and services is below budget due to forecasted commercial projects not commencing in terms of forecasted dates due to the economic instability and strike actions within mining industry. These facts have also impacted operating expenditure which is also below budget.
	Net Result (surplus)	Rand Value (R'000)	24,827	16,074	
	Optimal Yield on Investment	Rand Value (R'000)	15,000	15,564	Target achieved.
Total Capital Expenditure	Rand Value (Including Funding) (R'000)	68,005	60,623	There were delays in completing capital projects.	
Enhanced organisational efficiencies and energy efficiency	Maintained balance between R&D and Commercial Revenue streams	Ratio of Research / Total Revenue expressed as a %	55	67	Additional funds allocated for the rehabilitation of derelict and ownerless mines increased the research percentage.
	Maintained balance between TCTC Salary Bill/Total Expenditure	Ratio of TCTC Salary Bill / Total Expenditure expressed as a %	55	54	Below target due to funding received from Treasury and applied against salaries effectively reducing the salary bill.
	Enhanced Liquidity Ratio	Liquidity Ratio	≥2.0	2.1	Target achieved
	Revenue per head	Total revenue / total # of employees expressed in R/employee	550,000	658,000	
	Improved cash flows from operations	Cash generated from operations after working capital (excluding movements in deferred income) (R'000)	>2,000	-3,600	Target not achieved. There were significant outflows for payments of creditors as well as an increase in accounts receivable.
	Effective and sustainable energy and water management within Mintek	Energy and water efficient/saving programme implemented	Develop Energy and water saving strategy	1 Report	Target for year achieved
Enhanced Quality, Environment and Safety	QES standards maintained and enhanced	Maintain Mintek accreditation status	Maintained	Maintained	Accreditation maintained
		Achieved Target for fatalities	0	0	Target achieved
		Achieved Target for LTIFR	<1.0	1.1	Further interventions are being implemented in order to reduce accidents in the workplace.
		Achieved Target for CDFR	<10	5.9	Target achieved
Compliance with all national and international regulatory frameworks, and applicable standards	Compliance with appropriate standards, regulations and legislation	% achievement of compliance checklist	100	100	Full compliance with both the Mintek Act and the PFMA and corresponding Treasury Regulations was achieved.
Enhanced business integration and organisational effectiveness programme.	Development and implementation of ICT Master plan	Successful implementation of a master systems plan	Approved master systems plan	1 plan	The Master Systems Plan was submitted for approval.
		Implementation of RIMS targets	Grants and contracts modules maintained	maintained	Module maintained
	Virtualisation of Mintek server infrastructure	Successful migration from physical environment to virtual environment	Migration of Microsoft production servers	60% virtualised	30 servers were successfully virtualised.
	Implement Business intelligence	Successful implementation of a proper reporting tool	SAP project systems reports generated	Project suspended	Project suspended due to high cost involved.
	Implementation of an electronic document and record management system	Electronic document and record management system	Develop	Developed	Electronic documents and records management system being integrated into the Mintek-wide SharePoint system.
	Development of a knowledge management system	Developed Knowledge Management System	Develop	1 strategy	Knowledge management strategy completed and survey submitted for approval and further implementation.
	IP Act Compliance	% Compliance to IP Act Prescripts	100	100	The Act was complied with.

3. LEARNING AND GROWTH PERSPECTIVE

Key Performance Area/Objective Build world class R&D excellence					
Programmes	Measures/Outcome	Performance Indicator	Target	Actual	Comments
Human Capital Development, Attraction & Retention	Enhanced Skills Development	WSP Compliance Report	1	1	Report submitted
		Total spent on training expressed as a % of total revenue	2	1	Target not achieved
Identify and support potential skills in the scientific and technological fields. Enhanced pipeline of skills available to support the Mintek Mandate	Enhanced relationships with Institutions of Higher Education and other similar organisations.	Number of partnerships in place	5	5	Target achieved
		# of Graduate Recruitment Programs and other Science Events	8	8	
	Science, Technology, Engineering and Maths (STEM) Promotion	Annual Minquiz competition	1	1	
	Effective Full-time Bursary Programme	# of under-graduate bursars	45	29	A number of bursars joined Mintek as permanent employees and pursued their studies part time
		% Under-graduates Absorption Rate	90	100	
		# of post graduate bursars	10	13	
		% Masters Graduates Absorption Rate	100	100	
	Effective Part-time Bursary Programme	# of under-graduate bursars	20	56	Target exceeded as more employees enrol for part time instead of full time studies.
		# of post-graduate bursars	15	64	
	Work-Integrated Learning, Studentships and Internship Programmes	# of Candidates employed	45	113	Additional funding received.
		% Trainee Absorption Rate	5	10	Target achieved
	Artisan Learnership Programme	# of Employees Enrolled	7	6	One employee was dismissed.
		% Retention	100	86	One employee terminated due to misconduct.
	Development Programmes for recent graduate scientists & engineers, and for training future career researchers	Graduate Development Programme	pilot	24	Piloted with 24 employees.
		Researcher Development Programme	pilot	0	Implementation postponed to 2013/14 due to renewed focus on the Graduate Development Programme.
Transformation of the Mintek Organisation	Employment Equity Report and Plan	Report on compliance with DoL regulations	1	1	Target achieved
		Employment Equity targets achieved	80%	87%	
Enhanced Performance Management	Compliance with Performance Management Policy	% Performance Contracts done and signed (for each employee)	100	100	
		% Performance Assessment done and signed (for each employee)	100	100	Done for all employees at the time.
Effective skills and knowledge transfer	Enhanced Experience Profile of "SCIENTISTS"	Average years of experience in industry of Mintek "scientists"	3	4	Target achieved
		Average Age of "Scientists" at Mintek	35	33	Within target range
	Proportion of Researchers to Total Staff	Proportion expressed as a %	35	41	Target achieved
	No. of Staff enrolled for postgraduate (Masters and above) studies	# of Staff enrolled	24	25	
	% of staff with MSc & MEng	% of staff with MSc & MEng	8	11	
	% of staff with PhD	% of staff with PhD	7	6	Within target range
	Enhanced staff Retention & Succession	% Staff Turnover	10	11	A high turnover was experienced more than in previous years.
		% Staff Turnover of Professionals	4	11	
		Status in the implementation of the Retention Strategy	Implemented	Implemented	A total of 53 promotions and salary progressions were recorded for the year.
	Enhanced Coaching and Mentoring	Status in the implementation of the Coaching and Mentoring strategy and plan	Implemented	In progress	Behind schedule
	Effective Leadership Development Programme	# of employees benefiting from Leadership Development Programme	15	20	Target achieved
	Upholding of Mintek values	Performance assessment report	Monitor adherence	Complied	Mintek values have been built into the performance contracts of all Mintek staff.
	Enhanced induction programme	Number of feedback sessions	4	2	Some feed-back sessions were postponed and were held in the new financial year.
	Conduct skills audit	Skills gap analysis report	1	1	
	Enhanced Employee Health and Wellness Programme	# of Employee Wellness Programme interventions	4	14	Target achieved

Mintek in Brief

Profiles of the operating divisions

	Advanced Materials Division (AMD)	<p>DEVELOPS COST-EFFECTIVE METAL-BASED MATERIALS through value-addition to South Africa's most strategic metals and minerals (precious, ferrous and base) for use in the fields of biomedical, catalysis, nanotechnology and metallurgy. AMD is a research orientated division with more than seventy per cent of the permanent staff holding post-graduate degrees. The division has strong interactions with local and international higher educational institutes (HEIs), and a healthy bursary pipeline. The division's funding primarily derives from large governmental programmes as well as projects in collaboration with industrial partners.</p>
	Analytical Services Division (ASD)	<p>PROVIDES ANALYTICAL SUPPORT to the other technical divisions at Mintek, as well as high calibre analytical services to external clients in the mining and minerals processing sectors. The division comprises three main service groups, based on different analytical techniques. These are the PGM Group (milling, fire assay and trace-ICP, geared around the determination of the precious group metals), the Sample Preparation Group (including ICP-OES, ICP-MS and AAS), and the Chemistry and X-Ray Fluorescence Group.</p>
	Biotechnology Division (BIO)	<p>SEEKS TO APPLY MICROBIAL PROCESSES to address minerals related industrial challenges. A prominent and internationally recognised position has been established in the field of bioleaching of sulphide minerals in agitated media, and in heaps. The division has historically had a strong international focus dictated by the location of sulphide ores, but has more recently involved itself to a greater extent with South African and southern African applications of minerals biotechnology. To this end the research base is being expanded to include topics of more generic interest such as the bioremediation of effluents from mines and processing plants, and the biosynthesis of new value-added minerals products and environmentally friendly minerals processing chemicals. This involves greater interaction with other local institutions and broadens the research funding base.</p>
	Engineering and Maintenance Services (EMS)	<p>COMPRISES FOUR FUNCTIONS with the primary purpose to offer the following services:</p> <ul style="list-style-type: none">• Maintenance Services is responsible for performing planned and breakdown maintenance on Mintek campus, and implement maintenance strategies developed by the Project Engineering section.• Project Engineering is responsible for rendering professional project management services, developing and maintaining sound engineering processes, procedures, specifications and standards.• Planning and Scheduling is responsible for executing the planning function for maintenance work and projects.• Campus Support Services is responsible for management of transport, security, cleaning, landscaping and the canteen services.
	Hydrometallurgy Division (HMD)	<p>DEVELOPS AND TESTS APPROPRIATE SOLUTION-BASED FLOW SHEETS for the recovery and refining of metals from ores and concentrates. General market developments normally provide the trigger for the development work done. Currently the biggest industry demand for hydrometallurgical test work is around uranium, base metals, rare earths and gold, which provides a strong stimulus for further development of novel technologies in these areas. Strategic development focuses on areas considered to be important for the future of sustainable development of South Africa's mineral wealth, for example novel rare earth recovery techniques, the recovery of uranium from low grade ores and acid mine water treatment.</p>



Measurement and Control Division (MaC)

STRIVES TO ASSIST THE MINERAL INDUSTRY in addressing the challenges of increasingly low grade and complex ores, cost effectiveness, energy efficiency, and minimising impact on the environment through the development of specialised instruments, intelligent process monitoring tools, and dynamic process optimisation control products. MaC develops, demonstrates, and implements advanced process control technology to enhance the competitiveness and sustainability of flotation, milling, leaching and smelting mineral processes where it is regarded as the world leader. Apart from South Africa, the division has a particularly strong presence in South America (Brazil, Chile), Mexico, India, and Australia.



Mineral Economics and Strategy Unit (MESU)

PROVIDES A SELECTION OF SERVICES to local industry and state departments, as well as to the other Mintek divisions. The knowledge and skills within the division allows MESU to provide support services to international agencies, and where required, governments and companies which operate elsewhere on the continent. MESU continues to be able to provide insight into all parts of the mining and minerals value chain and is establishing competence in facilitating the rehabilitation of derelict and ownerless mines across South Africa.



Mineralogy Division (MNL)

APPLIES THE PRINCIPLES OF MINERAL CHARACTERISATION to understand the processing behaviour of those minerals, thus empowering metallurgists and engineers to obtain optimum recovery and grade in mineral beneficiation. Further to this, mineralogical characterisation is applied to geological exploration, mine planning and remediation efforts, such that the entire spectrum of the minerals industry is served by the discipline of applied mineralogy. The division's commercial activities focus on identifying minerals or materials, and interpreting the data with respect to evaluating a deposit, beneficiating the ore, providing vital information for process design, as well as on-going support with minerals industry trouble shooting, analysing metallurgical products, and dealing with environmental issues.



Mineral Processing Division (MPD)

UNDERTAKES DESKTOP, LABORATORY AND PILOT PLANT SCALE STUDIES to develop detailed flowsheets for the effective comminution and upgrading of ore to a concentrate or final product. The work falls into the three main disciplines, namely Comminution (crushing and milling), Physical Separation and Flotation. The work of the division can be described as falling into two main categories; feasibility tests and incremental improvements to existing plants and flow sheets.



Pyrometallurgy Division (PDD)

DEVELOPS NEW AND IMPROVED HIGH TEMPERATURE PROCESSES using theoretical calculations, laboratory and pilot plant equipment. A particular area of expertise is the use of DC arc furnaces for the smelting of ores and concentrates. This expertise is supported by a range of pilot plant DC arc furnaces capable of smelting at up to 3 MW continuously over periods exceeding a year and treating up to 20 000 t per annum of feed materials.



Small-Scale Mining and Beneficiation Unit (SSMB)

A DIVERSE DIVISION OF MULTI-SKILLED PROFESSIONALS that address issues related to the small-scale mining industry. Areas covered are extractive technologies in small-scale mining, beneficiation of resources, training, sustainability and environmental matters. SSMB's beneficiaries include both existing and aspirant small-scale mining operators and crafters that use mineral and metallurgical resources as a raw material. SSMB supports Small, Medium and Micro Enterprises (SMMEs) in the mineral sector by identifying economically viable opportunities, providing access to appropriate technologies, and providing training and incubation.



Research, Development and Technology

Research, Development and Technology



The Biomed group undertakes early stage drug discovery, identifying novel biomedical applications for precious metals.



Autoclave Pilot Plant at Mintek.



The Atomiser demonstration plant for the water atomisation of alloys.



Uranium Pilot Plant at Mintek.



The Analytical Services Division is on a drive to develop rare earth analytical capability, offering a spectrum of analytical services.

MINTEK PROVIDES WORLD-CLASS RESEARCH AND DEVELOPMENT (R&D) EXPERTISE, testwork, and process optimisation for the precious metals, base metals, ferrous metals and alloys, industrial minerals, rare earth elements and uranium sectors in South Africa and internationally. The activities range from initial bench-top investigations to full process flowsheet development and the design, construction, commissioning, and optimisation of industrial plants.

Mintek is strongly committed to delivering high-quality results within strict schedules irrespective of budgetary constraints. To this end, our engineers, scientists and technicians work in close liaison with clients and their engineering contractors, who are encouraged to actively participate in project planning and testwork. This interaction enables clients to discuss issues as development work moves forward, and increases Mintek's own capabilities by drawing attention to areas that require focused and applied R&D. The newly acquired knowledge is then fed back into client-oriented services.

Mintek also undertakes medium- and long-term strategic applied R&D, which is aimed at building the organisation's science and technological base and developing new technologies and products for the benefit of the mining industry. This activity is funded mainly by the State Parliamentary Grant to Mintek as a Science Council, and also through supplementary sources such as bilateral agreements and other funding and donor agencies. Most of the projects in this category are undertaken as joint ventures or in collaboration with other research institutions, universities, professional bodies and industry partners locally and internationally.

Mintek was successful in securing R150-million of medium-term expenditure framework (MTEF) funding, for the 2012/13 – 2014/15 period, for certain key projects, namely:

- production of semi-precious gemstones in the Northern Cape;
- a rare earths elements pilot plant;
- a metal atomising demonstration plant;
- a facility focusing on mining effluents;
- the upgrade of the Mintek infrastructure;
- SAVMIN™ acid mine drainage pilot plant; and
- Recycling.

GOLD INDUSTRY

Continuous Autoclave Plant

The Hydrometallurgy Division has completed the installation of the automated continuous autoclave plant and has started its commissioning. Following the commissioning and successful operation of the plant, it is anticipated that a new line of service that Mintek can offer to its clients will be established. This development coincides with renewed interest in the evaluation of a pressure oxidation process as an alternative to biological treatment of gold ores. Mintek has been commissioned by a large Russian gold producer, to undertake a significant pilot testing programme for its operations, using the new facility. The sample material will be shipped from Russia to Mintek and successful test work for this producer is expected to be an important impetus for future revenue generation from this plant. As at the end of the financial year, the facility had attracted significant additional interest and indications are that it will be well utilised. The commissioning was delayed mainly due to new requirements for process liquor flows and operating conditions as well as safety recommendations from the certification engineer. All of the modifications required to operate the plant under the revised processing conditions have been completed and the plant is undergoing a certification by an external certifying engineer. All the test work on this facility is aimed at the gold industry, but potential applications in the uranium, base metals and rare earth elements (REE) fields will also be explored in the near future.

iGoli Process for Artisanal Mining

The iGoli process, which is developed for the extraction of gold by artisanal miners without the use of mercury, has been improved. Further studies and test work has been done on the chemistry and kinetics of the leaching process in order to improve gold recovery. Moreover, new pre-processing equipment made specifically for artisanal miners has been identified. This will make the process more efficient by increasing the gold content of the concentrate used in iGoli.

Catalysis

Under Project AuTEK Catalysis, a public-private partnership established since 2000, Mintek continued its effort to research and increase

the industrial usage of gold through application of gold-based catalysts. The most significant development was that Mintek has delivered a total of 50kg of gold catalyst to a company in Israel, 30 kg to another in Germany, and a further 3 kg to our United States based distribution partner. This makes a total of 83 kg gold catalyst sold for the year. Also as part of Project AuTEK, the scale up work on producing gold catalyst wash coated ceramic monolith bricks continued. Up to three large bricks (6 cm x 6 cm x 4 cm) can be coated at a time giving excellent reproducible gold loading and catalyst adherence. Several wash coated monoliths were sent to a local company for trial in CO₂ lasers. These catalysts will ultimately form Mintek's AUOLiTh™ range and will complement the existing commercial AUOLiTh™ catalysts that are distributed globally by the distribution partner. The primary focus of the project continued to be centered on the use of gold catalysts in emission control, fine chemicals production and petrochemical applications. Other applications like usage in wild fire gas masks are under investigation. An agreement was reached with the sponsor to continue sponsoring the project for a further three years. Efforts continue to be made to attract further industrial partnerships for AuTEK and a number of value propositions have been developed.

Gold Tailings Treatment

A Heads of Agreement was signed with a local gold mining company, for a collaborative research project on the *in situ* bio-treatment of tailings. This agreement enabled the Biotechnology Division to gain access to samples of the tailings on the company's property, which greatly assisted in the research towards the bio-treatment of wastes and tailings. The relevant techniques for the measurement and monitoring of bioleaching parameters in an *in situ* process were developed and successfully tested. Equipment necessary for the larger-scale test work was manufactured and a sampling campaign to identify a suitable sample was concluded. It is envisaged that this agreement would also be applicable to the establishment of an MTEF-funded mine-water research laboratory at Mintek.

Percolation Leach Geomechanics

Mintek's geomechanical testing apparatus places the Biotechnology Division at the leading edge of

predicting the hydrodynamic behaviour that can be anticipated of heaps upon scale-up.

Geomechanical testing has now been incorporated as a standard service offered to clients in all heap leach test work programmes in order to contribute towards making Mintek much more marketable and competitive.

In terms of the memorandum of understanding signed with the Tshwane University of Technology (TUT) for collaboration on heap leach modeling reported in the previous year, the Chemical Engineering Department of the university has coded a mathematical model in Comsol that is being tested on the batch leaching kinetics data that has been generated in the Biotechnology Division during 2012.

Nanoscience and Nanotechnology

The Department of Science and Technology (DST)/ Mintek Nanotechnology Innovation Centre (NIC) continued to address national imperatives outlined in the ten-year innovation strategy of the DST. Importantly, the centre successfully completed the 2025 strategy and business plans for Phase 3 (2013/14 to 2015/16) were also developed and submitted to the DST. The new laboratory for Water and Nanominerals Units is fully functional while work to revamp the MINPEPTIDES™ laboratory is now complete. Commercialisation activities for rapid diagnostic test kits, gold nanoparticles and peptides are progressing well and the NIC has started high level discussions with the Technology Innovation Agency (TIA) towards acquiring additional funding towards industrialisation and commercialisation of NIC products. The NIC is a multi-user, national research facility that is geographically spread across South Africa – comprising Mintek and University “nodes” at the University of Johannesburg, University of the Western Cape and Rhodes University.

Metal and Nanotechnology-based Systems, Therapies and Diagnostic Prototypes for Health

The NIC has developed a number of therapeutic nanosystems for cancer and obesity research under the Biolabels Unit. More than 21 new gold-based bioconjugate systems have been synthesised. *In vitro* studies show that systems developed by attaching gold nanoparticles to a cancer-targeting peptide and an anti-cancer drug can be targeted to cancer cells and that the drug is

several times more effective in killing cancer cells when loaded onto gold nanoparticles. Furthermore, the Unit has developed different types of surface-enhanced Raman scattering (SERS) probes for Malaria and TB diseases. Work is in progress to develop peptides under the MINPEPTIDES™ facility and collaborative work and high level discussions are ongoing with the National BioProducts Institute (NBI), in KwaZulu-Natal, to supply the NIC with proteins for specific infectious diseases.

The centre has made strides in developing electrochemical and lateral flow diagnostic prototypes for various human and zoonotic infectious diseases under the Biolabels and Sensors Units. This include the development of alternative molecular diagnostic beacons for cancer, development of improved lateral flow tests for HIV (third generation) and Rift Valley Fever Virus (RVFV) (at the proof of concept stage), and electrochemical sensors for Malaria and Measles (at the proof of concept stage). The centre is also developing a fourth generation HIV test which will be able to detect both HIV antibodies and antigens. This will shorten the window period for detection of the virus.

The Biomed group undertakes early stage drug discovery with the aim of identifying novel biomedical applications for precious metals. Specifically, the group conducts research and development into metal-based compounds and investigates their potential to be developed into inhibitors of HIV replication. Initiated in 2002, the Biomed group is now firmly established with current efforts directed towards the continued improvement and advancement of in-house capabilities. Over the past financial year, progress has been made through the introduction of several new biological assays and the development of new processes. In particular, the strategic decision to adapt select biological assays to an automated robotic platform has yielded significant increases in screening capacity. In total, over 900 distinct synthetic compounds were screened within the Biomed laboratory - a four-fold increase over the previous financial year - with the vast majority of the compounds screened through the automated platform. The screening efforts conducted over the year revealed three small-molecule compounds with good preliminary inhibition activity and potential for further development. These starting

compounds have already been investigated further within the Biomed laboratory and, along with two other compounds identified in previous years, are currently in various stages of the Biomed drug discovery pipeline. During the execution of existing projects, a monoclonal antibody was produced which holds commercial value and for which a small local market exists. In the upcoming financial year, resources and effort will be aligned to the development of further novel and innovative products.

PLATINUM GROUP METALS INDUSTRY

Mintek has reached an agreement with the Institute of Physical and Organic Chemistry (IPOC) in Belarus to commercialise fibre technology in the minerals processing industry, with Mintek having an exclusive right to apply the technology in this industry. This is a successful outcome of a bilateral governmental initiative by the Department of Mineral Resources (DMR). The evaluation of the IPOC ion exchange (IX) fibres on a platinum group metals (PGM) refinery in the treatment of waste streams was completed successfully and the decision on whether to proceed would be made by the potential client during the first quarter of the following year. The decision to evaluate these fibres under plant conditions was taken after Mintek had achieved very positive results and procured a suitable test unit from IPOC. This work was aimed at demonstrating the first potential commercial application of the fibres.

A number of patent applications have been filed for protection of novel mixer settler and ion exchange column designs. A test work programme is currently underway to establish fundamental equilibrium and dynamic parameters in the application of the Turlajet column in an ion exchange elution application. A commercial operator has shown great interest in this concept and has offered a large scale test site for this column.

Flotation Test Work

During the year, the PGM sector was in a decline due to the low PGM prices and this has caused a few mines to stop production and undergo 'care and maintenance' while others had cut back on capital expenditure for their projects. In spite of

this, there has been an increase in the recovery of PGMs from chromium tailings. As a result, sensor-based ore sorting of PGMs, in particular UG2 and Merensky reef ores, has grown significantly and lots of test work was conducted. The Minerals Processing Division completed a pilot plant campaign run in November on tailings samples. The campaign comprised flotation of gravity pre-concentrate for PGM recovery. A number of laboratory-scale flotation test campaigns on a wide variety of PGM ores from South Africa and Zimbabwe have also been conducted. In addition, flotation of copper ores from the Democratic Republic of Congo (DRC) was assessed. Flotation test work on rare earths and graphite continued to feature significantly and there has been a marked increase in the number of clients requesting test work on fluorspar.

Sensor-Based Sorting

Dry sensor-based sorting technology has continued to show promise, not only on platinum bearing ores but also on rare earths, uranium and base metals by upfront waste rejection. Further X-ray fluorescence sorting of PGM bearing ores (UG2, Platreef and Merensky) has been conducted and promising results were obtained. Sorting test work has progressed from laboratory-scale assessments to bulk treatment tests where more than 200 tons of ore per batch is treated.

Bay 2 Atomising Plant

The commissioning of the demonstration plant for the water atomisation of alloys at Bay 2 has been completed. Ramp up of the plant has reached about 50% of design capacity by the end of the year and a total of 78 atomising runs had been conducted. The rate of successful runs increased from less than 30% during the commissioning to 80% at the end of the year. Very high nickel recovery was also achieved. In total over 200 tons of atomised metal had been produced. This product has been shipped to the company that Mintek has partnered with in this demonstration. The ramp up in production will continue and it is hoped that acceptable production rates will be achieved during the next year. The technical issues with the atomiser have been solved and the whole plant (i.e. dryer, furnace and atomiser) is being de-bottlenecked as part of the ramp-up process.

Twenty new staff members commenced work in May, to boost the operating team for the facility,

which runs on a 24 hour basis. The facility includes an existing flash drying plant and a 3 MW DC electric arc furnace, to which the atomising plant has been added. The atomiser converts the molten metal produced in the electric furnace into a solid metal powder, suitable for a variety of further processes. The alloy powder produced has a median size of ~250 microns which is well within the design specification of 100% less than 2.0 mm.

Fuel Cell Catalysts

The HySA Catalysis Competence Centre has made great strides towards commercialisation of Pt/C fuel cell catalyst with a supply of catalysts to HySA/ Systems (University of the Western Cape) and to a German-based fuel cell company, for testing in high temperature proton exchange membrane (PEM) fuel cells. Early work at the university has shown excellent beginning-of-life performance on par with membrane electrode assemblies (MEA) it made using commercial catalysts. The most significant development has been that HySA Catalysis can now demonstrate the equivalent performance of low temperature PEM MEAs fabricated in-house using our Pt/C catalysts. Validation of the method has progressed with a repeat at the HySA/Catalysis Centre at the University of Cape Town (UCT), showing that the beginning-of-life performance of commercially available Johnson Matthey MEAs can be matched. This work has also been replicated and favourably compared to a Japanese sourced Pt/C catalyst that is considered another significant industrial benchmark material. In terms of the commercialisation of HySA fuel cell technology, a significant step has been taken with the signing of a memorandum of understanding between a United States-based company, Mintek, UCT (as HySA/ Catalysis) and a local company that is involved in installing fuel cell systems for telecommunications backup. In principle the agreement could lead to direct methanol fuel cell (DMFC) technology transfer to HySA, the manufacture of fuel cell components in SA, and ultimately the use of HySA technology in these fuel cell systems for sale in Africa through local companies and the rest of the world through the United States based partner.

PGM Catalyst Scale-up

Mintek has been awarded, under the DST sponsored Advanced Metals Initiative (AMI) – Precious Metals Development Network (PMDN) programme, a contract to undertake a

comprehensive (in stages) market/technoeconomic/ prefeasibility study to establish the viability of a competitive PGM catalysts and chemicals industry in South Africa. The first phase of the study has been completed and communicated to the DST and the second and third phases have been defined in agreement with DST. Opportunities identified for in-depth study in the second phase of the investigation are catalyst for nitric acid production, electroplating platinum chemicals, and platinum drugs used in cancer treatment. DST has extended the current three-year cycle for funding of the R&D programme of the AMI to a four-year cycle. Laboratory work has progressed to a point where one palladium catalyst (Lindlar catalyst) has been scaled up to 100g per batch. Several other palladium based catalysts have been identified for scale up to technically relevant scales.

URANIUM AND BASE METALS INDUSTRY

Marketing efforts for the commercialisation of the MetRIX resin-in-pulp technology is expected to be furthered by the sale of the MetRIX Demonstration Plant to a commercial minerals processing operator. A private partner will continue to support the refurbishment, supply and commissioning of this plant. This demonstrates the renewed interest in this technology, which was demonstrated successfully at a plant in Welkom, establishing an important building block in a radical new approach to uranium processing. It is one of Mintek's priorities to develop cost effective technologies for uranium extraction from southern African sandstone-hosted deposits, and from the existing gold slimes dams. Although South Africa holds about seven per cent of the world's uranium resources, it only produces around one per cent of total global production. Urgent attention to the reprocessing of the gold dumps is also required to reduce the uncontrolled leakage of uranium into the environment. With over 30 years of expertise in uranium processing, Mintek is re-establishing its reputation as a world leader in uranium hydrometallurgy. Mintek's primary goal is to develop more cost effective technologies that would render more South African primary uranium deposits and existing gold slimes dams economically viable.

Furthermore one additional invention (as a concept for evaluation) has been filed with the Mintek IP-office. The invention will be investigated further for

possible protection during the 2014 financial year.

The uranium heap leach project's scope has been increased to include, inter alia, acid-in-agglomeration/curing time optimisation and scrubbing test work. Heap leaching was also selected as the preferred process route for a uranium project during the process selection phase or pre-feasibility study while another project entails tank bioleaching of a nickel sulphide concentrate. Excellent nickel dissolutions have been achieved in batch, amenability tests. A continuous pilot plant campaign has been initiated. Two further phases, which entail a uranium heap leach project, have been accepted. The geomechanical test work capacity was expanded and commissioned. Excellent client satisfaction reports were received for a final report from a major mining company.

FERROUS METALS

African iron ore deposits continued to be of prime interest during the year and there was demand for test work into such deposits. The main aim of test work conducted was to characterise the samples received by size and density to determine the ultimate product yields, iron grades and recoveries expected through upgrading processes. Flowsheet optimisation studies on iron ore have been undertaken on two deposits in India, centering around optimisation of the fines circuit. There is a renewed interest in the characterisation of iron ore from Angola. Density characterisation testwork has been conducted on ores from two local operations. In addition variability testing of Liberian magnetite was also undertaken with a second feasibility phase currently underway. A lot more interest has been shown on washability grade-recovery profiles for kimberlites. Physical upgrade of titaniferous magnetite from Mokopane in Limpopo was carried out, with focus on water retention flowsheet circuits. The pilot plant upgrading campaign for titaniferous magnetite from Mokopane will take place during the first quarter of the year and will provide an upgraded concentrate for pilot plant scale pyrometallurgical feasibility testwork.

The Metals Technology Centre (MTC) has attracted high profile local and new international clients from countries such as Botswana, India, Ghana and Brazil. It is executing a very important and strategic metal dusting project on behalf of the Johnson Matthey Technology Centre (UK). The MTC has

shown robust business growth, continuing to attract high profile local and new international clients. It added three more South African blue chip companies to its client base that already comprises several major local and international mining companies. The centre has executed another important project on behalf of a South African based multinational company, running for about six months. It is envisaged that if the levels of client satisfaction are maintained, there is likelihood that long term collaboration will be established. Several projects for overseas clients from countries such as the United Arab Emirates (UAE), Namibia and Mauritius were completed. In order to service these clients to their satisfaction, the Physical Metallurgy group has purchased two new electric discharge machines (EDMs), and one impact drop tester in order to increase throughput and efficient delivery to the clients.

The group had very fruitful discussions with the National Foundry Technology Network (NFTN) towards funding of the technology assistance services to the broader foundry industry under its cluster programmes such as the Vaal Foundry Initiative (VFI). Under the VFI banner, the group executed work a local company and outputs from this initial project triggered additional projects that will also be executed under the VFI.

Mintek has received and signed a Bilateral Confidentiality Agreement with the University of Houston (US) for collaborative research work on materials for the transportation industry under Ferrous and Base Metals Development Network (FMDN) programme funded by Advanced Metals Initiative (AMI) established by the Department of Science and Technology (DST).

RARE EARTHS

Mintek is one of the leaders in REE metallurgy, having developed treatment processes for rare earth metals production and has successfully run pilot plant scale operations over the last 25 years. Mintek has also developed separation and refining processes for REE salts from phosphoric acid sludges, which were successful at pilot plant level, with the product range including high purity cerium and europium oxides (95% to 98%), neodymium oxide as well as mixtures of light, medium and heavy oxides. The feasibility and flowsheet development work commissioned by a number of rare earth projects continues and is the single

biggest commodity stream in the Hydrometallurgy Division. In a number of cases innovative technological solutions have been developed significantly increasing the likelihood of the project being viable.

The work on the REE pilot separation facility has started and is proceeding according to a two year plan focusing on the preparation of feed to such a refinery as well as the construction of a pilot facility for the demonstration of Mintek's REE processing technology. The outcome of this two year programme will be an un-optimised facility capable of separating the REE into light, medium and heavy fractions as well as separating the light fraction into individual elements. Overall progress is slightly ahead of schedule and the project team begun executing the 2013/14 work-plan before the end of the financial year. In parallel to the building of the piloting facility, the process development work has continued. There have been a number of interesting developments that have shown that certain parts of the process are simpler than was originally envisaged. Huge interest has also been experienced in REE refining pilot plant test work from several international players in the field due to the availability of a pilot refining facility. Test work for a large Canadian client has also started and a pilot plant is planned for mid to late April 2013. This potential work is expected to provide much synergy with respect to the development of the Mintek REE refining technology. Development work for the concept of a centralised South African Rare Earth Refinery is continuing and there has been significant interest from a number of the rare earth projects that are being developed.

In an effort to enhance operational efficiency and improve on quality of analyses, the Analytical Services Division (ASD) is on a drive to develop Mintek's REE analytical capability, where in the division will offer a full spectrum of analytical services for REE, including analyses of rare earth ores and metallurgical products. This will offer strong financial and strategic benefit to Mintek.

The R&D priority over the next 10 to 20 years is to establish an African 'hub' at Mintek around the refining of rare earth elements. REEs have been afforded strategic mineral status by many countries due to their use in many high-tech, 'green' technologies, their limited supply in high concentrations, and increasing concerns regarding future security of supply from China – the leading

global producer of rare earth oxides (REOs). Due to their similarity in terms of chemical properties, particularly amongst the lanthanoid elements, the processing and refining of REEs is a highly capital- and technology-intensive activity. The industry is also characterised by long start-up times, limited recycling potential, and a very narrow/concentrated supply chain.



Operations and Developments

Operations and Developments

Minfurn Carbon Regeneration Furnace

The commissioning of two Minfurns supplied to a United States based client was completed in June 2012 following delays requested by the client to allow for structural changes to the facilities. In total, 21 Minfurn units have been installed on various sites across the globe since 1992 when the first one was commissioned at a Leeuodoorn gold mine and therefore this continues to sustain the demand of the carbon regeneration plant spares.

Biomed Synthesis Laboratory

Over the past year Mintek's Biomed group produced high quality research while advancing the capabilities of the laboratory. Amongst other developments, several new biological assays have been introduced and optimised within the laboratory. Most notably, an instrument on loan to Biomed was successfully utilised to optimise a new biochemical assay which enabled the discovery of a promising *Hit(Lead)* compound. This *Hit(Lead)* compound is particularly effective and further studies have been initiated to develop it further.

New Analytical Instruments for Research

The Mineralogy Division has acquired two new instruments, a Qemscan 650F and a MLA 650F. The QEMSCAN uses combinations of Backscattered Electron Intensity and rapidly acquired Electron Induced Secondary X-Ray spectra as the primary methods of mineral identification. The QEMSCAN automatically identifies minerals and phases under the electron beam by comparing the elemental proportions and BSE values derived from rapidly acquired EDS X-Ray spectra with a library of reference mineral and phase compositions, known as the Species Identification Protocol (SIP). QEMSCAN is equipped with a SIP editor to define and edit phase identification off-line.

The MLA automatically identifies minerals and phases under the electron beam by using an EDS X-Ray spectral pattern matching algorithm, by comparing the X-Ray spectrum to a library of reference spectra. The MLA uses combinations of Backscattered Electron Intensity and rapidly acquired Electron Induced Secondary X-Ray spectra as the primary methods of mineral identification. It offers expert-level, petrographic-based, image analysis functionality (e.g. grain size, grain shape analysis, liberation analysis etc).

SAVMIN Technology

Mintek developed the SAVMIN™ process during the 1990s for the treatment of Acid Mine Drainage (AMD) and it is the recent focus on this phenomenon that stimulated the re-evaluation of this technology.

Mintek has received funding to develop, build and test a demonstration water treatment plant using the SAVMIN™ process. A partnership agreement was signed with a commercial partner to assist with process engineering and marketing of the technology. Progress on the demonstration plant is proceeding according to plan, the process design has been reviewed and the site for the pilot plant has been finalised. A collaborative R&D effort has been initiated with the University of Cape Town in order to lower the costs of the process even further through better reagent recycling. The R&D programme aimed at optimising the rates of crystal growth between gypsum and Al(OH)₃ has proceeded well and has indicated that there is additional scope to improve the efficiency of the process. It is envisaged that the pilot plant will be commissioned during the second quarter of the next financial year.

Prototypes

Mintek has had another successful year of instrument and advanced process control product development, with five new product prototypes being produced, and two new discoveries being registered. Several product prototypes were tested on industrial mineral processing plants during the final quarter in order to demonstrate prototype reliability, robustness, and benefit. Of particular significance is the production of the first two process control products aimed at the strategically important uranium sector in the form of a Resin Meter instrument and a Uranium Leach Control system. At present there is no commercial online instrument capable of measuring this resin concentration directly in the leaching tanks, and most plants resort to taking unreliable and inaccurate manual measurements. Mintek's Resin Meter was tested at a uranium plant in Malawi, and the instrument produced excellent and very interesting results.

During the uranium extraction process, acid is used to leach uranium minerals from uranium-bearing ores in the uranium leaching tanks. The consumption of acid is one of the most significant consumable costs to a uranium plant, so accurate control of the acid dosage to keep the pH at the target value is very important. Dosing too little acid adversely affects the leaching performance and uranium is lost, dosing too much wastes acid and increases costs. Mintek has also demonstrated a prototype of the Uranium Leach Control system that controls both acid dosage and redox potential of the uranium leach tanks at local uranium plant. Despite a problematic pH measurement, the controller was able to show a marked improvement in the control of both pH and redox potential. The objective in the first quarter of the next financial year is to resolve pH measurement problem and produce a full benefit analysis.

Other notable advancements were made in Mintek's process control product and instrument market penetration during the year. Three of Mintek's highly successful industrial Cynoprobe cyanide analysers were shipped to a gold producer in Saudi Arabia in October, and another two to Finland. These are the first instruments to be sold by Mintek into these countries. The third quarter also saw the first process control product installation in Malawi, a MillStar milling control system, and the first FloatStar flotation control system in Zambia. Cynoprobe orders have also been secured for installations in the DRC, Mali, and Burkina Faso – all firsts for Mintek process control in these countries. The continued success and expansion in market penetration of Mintek's process control products and instruments is indisputable proof that Mintek is recognised as a world-leading supplier of these high-tech products. Furthermore, much of this expansion is occurring in Africa, where these products contribute to improved productivity and hence viability of these projects across Africa. Naturally these same products are installed extensively throughout South Africa and have been providing the same benefit to local industry for some time.

ProcessIQ has been appointed Mintek's approved distributor for Cynoprobe and sales agent for MillStar and FloatStar in the Australasian region, allowing Mintek's engineer to return to South Africa, while still ensuring continuity for the Australasian clients.

Water and Energy

Mintek continues to regard water and energy efficiency as important industry drivers and efforts to develop the organisation as a 'centre of excellence' in this area are afoot. As such the sensor-based ore sorting is regarded as one of the most important future technology shifts because of the benefits it offers to more complete resource utilisation and reduced energy and water consumption. The tests are made with a view to reducing water consumption within various plant flowsheets by upfront dry waste rejection and reducing size of existing plants by reducing plant feed tonnages. The sensor-based sorting programme has begun to accelerate in anticipation of the commencement of the MTEF funded project that begins in the first quarter of the next financial year. A new area of development is commencing in coal upgrading. This has two areas of attention, firstly the upgrading of low quality coal so that it meets the Eskom specifications for electricity generation. The second is scalping off of a high grade component of a normal run of mine coal stream. The high grade fraction can be used as a substitute for currently imported anthracites and metallurgical coal and coke. This programme will accelerate further during the new financial year.

Planning for the establishment of the MTEF funded Mine-Water Centre continued during the year. The focus was placed on the establishment of the needs of the industry the centre is going to serve as well as the identification of opportunities for collaboration. To this end, several visits were made to laboratories involved in water analyses and meetings were held with the DST, the Council for Scientific and Industrial Research (CSIR), Chamber of Mines, CoalTech, various universities and other relevant stakeholders. Mintek is also involved in the establishment of a forum that will coordinate water research efforts between the DST and other institutions. As part of the development of technological solutions for the centre, colorimetric analytical techniques for the detection of metal pollutants was established (albeit not to ppb levels) and promising results were obtained using low-value sorbents and waste products to quench metals from waste water.

Exploration activity in the minerals sectors typically served by the Biotechnology Division – namely copper and uranium, and to an extent nickel – has reduced drastically and reports from recent conferences suggest that investor funding for exploration by junior companies has dried up. It is also known that large mining companies have frozen virtually all developmental activities in order to brave the currently prevailing global economic conditions. As much as being a challenge to the generation of commercial revenue for Biotechnology, it also offers the opportunity to focus on the recently initiated research, funded by treasury, into mine water and effluents.

The Water Nanotechnology Unit has now found a method for scale-up of cyclodextrin polymer powder (up to 1000 g batch) and beads (up to 200 g batch). This has led to the unit exploring the option of purchasing a reactor or designing one in-house with a total volume of 25 litres. The formed beads have now been potted and testing on adsorption of pesticides using these columns will commence soon.



Business Development, Mineral Policy and Sustainable Development

Business Development, Mineral Policy and Sustainable Development

BUSINESS DEVELOPMENT PROVIDES SUPPORT TO MINTEK'S BUSINESS UNITS and business programmes. Its functions encompass:

- Protection of intellectual property.
- Guidance on the most effective means of commercialising Mintek's intellectual property.
- Coordination of Mintek's marketing efforts.
- Providing mineral economic data.
- Support to government agencies on mineral policy and development.
- Support to DMR on rehabilitation of derelict and ownerless mine sites.

Business Development continues to develop and promote the concept of a South African Rare Earth Refinery, which could facilitate the development of a number of REE mines in Southern Africa as well as create an opportunity for development of downstream high-technology REE manufacturing enterprises. Negotiations with a number of potential strategic partners in such a refinery have been promising. Mintek is collaborating with the Industrial Development Corporation (IDC), the Department of Science and Technology (DST) and Nuclear Energy Corporation of SA (NECSA) on this concept.

The Limpopo Economic Development, Environment and Tourism Department has approached Mintek with a research request relating to the reprocessing of chrome dumps in the province and Mintek is also participating in a consortium tender for the development of Special Economic Zones in KwaZulu-Natal.

Rehabilitation of Derelict and Ownerless Mines

Mintek has concluded a programme to rehabilitate derelict and ownerless mines, which had been going on as part of a three-year contract with the DMR. Under this programme, 14 separate projects have been successfully completed over a period of three years at a cost of R90-million. Several derelict and ownerless asbestos mines in the Northern Cape and Limpopo provinces were rehabilitated.

Mintek intends to use the expertise, structures and procedures it has established during this contract period to continue the rehabilitation programme and offer assistance to DMR in future. Throughout this period, at least 300 job opportunities were created and although most were not permanent, they have brought some relief to communities in some of the poorest regions of the country. Going forward, Mintek intends to use the expertise, structures and procedures it has established to continue the rehabilitation programme.

Support to Government Departments

MESU participates in various government mineral beneficiation initiatives, focused on identifying and addressing incentives and impediments to increasing mineral industry downstream value-

addition. Mintek was invited by the DMR to join a technical delegation to Turkey. The purpose of the trip was to discuss the development of programmes of action on cooperation in areas of mineral resources and geology. Mintek was also invited by the DST to accompany Sasol, Eskom and CSIR on a trip to Mongolia. A presentation was done on Biomin and the utilisation of fly ash. A memorandum of understanding was signed with the Mongolian Academy of Science and the Mongolian government have showed great interest in the use of Biomin to curb the expansion of the Gobi desert. Biomin is a soil ameliorant produced from organic waste, lime and flyash. Further research done during the year showed that the ameliorant lacked nitrogen compared to other commercially available fertilisers. Biomin was successfully reformulated to use either urea or ammonium phosphate in order to increase the nitrogen content. A greenhouse has been set-up at Mintek for conducting further studies on the improved Biomin.

Promotion of Rural Economies

With its expertise in the promotion of the mineral economies of rural and marginalised communities through technical assistance and skills development in order to stimulate economic development and job creation in such areas, the Small Scale Mining and Beneficiation (SSMB) division at Mintek plays an important role in fulfilling the national priorities. The programmes and projects that the division focused on during the year include:

- Pottery and ceramics
- Glass beads & Jewellery
- Technology Development
- Small scale mining training

During the year, Mintek signed a Service Level Agreement with the Department of Sport, Arts, Culture and Recreation of the Gauteng Provincial Government for a project that will see the creation of a community based pottery business that will result in 10 jobs and people being trained in pottery design and manufacturing.

Mintek signed a three year contract with the National Lotteries Board for the set-up of pottery manufacturing units across the country. After the successful completion of the first year's deliverables, the National Lottery Board has approved the second year's tranche of R1.8 million for the set-up of another three pottery units in De Aar (Northern Cape), Mapuve and Mamokgadi (Limpopo).

Mintek continued work on the MTEF-funded Northern Cape Gemstone project to reassess the gem mineral and dimension stone deposits in the area. The Siyathemba Local Municipality has pledged its support to the project and has identified three possible sites for a regional training and beneficiation centre.

Research, together with the information gathered from the field trips, has resulted in the following interim reports being generated:

- Utilisation of the waste industrial minerals associated with pegmatites in the Northern Cape.
- Understanding the Small Scale Mining Industry in the Northern Cape – Primary Focus on Tigers Eye.
- Skills Development & Training Plan for Northern Cape rural communities (Jewellery, Gemstones and Small Scale Mining).
- Study of the Pegmatite Belt in the Northern Cape
- Gemstone Mining Methods
- Value Chain Analysis of minerals in the Northern Cape

Mintek received an invitation from the National Youth Development Agency (NYDA) to talk at the Young Women Development & Mentorship Programme in Prieska. The response received by the municipality and participants was overwhelming and 120 people have been identified as prospective students for the gemstone cutting, polishing and jewellery courses to be offered as part of the project. Four Mintek staff were also trained over a two-month period in the Northern Cape in mapping and resource estimation.

Training Accreditation

The Mining Qualifications Authority (MQA) awarded Mintek a contract worth R1.3-million to train 125 people in the Western Cape, Mpumalanga, Limpopo, Free State and KwaZulu-Natal (KZN). These participants were trained on both the legal aspects, extraction methods and technologies for small scale mining. While some of the participants are already mining, most will be assisted to set up their own businesses and obtain mining permits.

The MQA also allocated a discretionary grant to SSMB for conducting a jewellery learnership. The project saw 15 learners trained at the Jewellery Workshop at Mintek and another 15 learners at a site in Thabazimbi. Training within the SSMB was bolstered with the signing of a new contract with Pretoria Portland Cement (PPC) Associations Trust for the set-up of a pottery manufacturing unit that has created jobs and up-skilled 12 people (including four people with a disability) in the local community of Mandini, KwaZulu-Natal.

Great emphasis has been placed on increasing the SSMB division's visibility to clients and stakeholders in order to secure more projects. Due to the nature of work and challenges faced with community development, projects take longer to implement than expected. A new project management system is being developed to help speed up and also improve the quality of service delivery.



Human Capital Development & Management

Human Capital Development and Management

Employee Relations

By the end of the financial year, the membership of the National Union of Mineworkers had dropped to 12% of the total work force. This has reduced the union's status as a majority union to a minority union.

The recognition agreement between NUM and Mintek dictates that union membership be calculated on the total Mintek workforce and for the union to be recognised as a majority union it has to have 50%+1 of the staff complement. Interaction with NUM was supposed to be on a consultative basis as the union has ceased to be a majority union at Mintek. However, the union has not been able to hold elections and no shop steward is recognised as at the end of the financial year.

The number of disciplinary cases have stabilised as the employer/employee relations continue to improve. This is mainly due to education sessions held with various divisions, which were facilitated by the Employee Relations team. The unit had embarked on a drive to make all employees aware of the labour relations processes and procedures within Mintek, including awareness of the Code of Conduct and Business ethics, Practical Labour Law and training on chairing and initiating disciplinary hearings.

Job Evaluation, Time Keeping and Attendance

After months of extensive consultation and numerous meetings of the Job Evaluation Committee, the job evaluation process was finalised. The aim was to achieve a systematic and consistent approach to defining the relative worth of jobs within Mintek which will provide a basis for a fair and orderly grading system. All anomalies and inequities that existed in the pay structure were removed and internal equity was achieved.

The HRD team also spent time identifying and appointing a service provider for a SAP-integrated time and attendance system that will assist Mintek to keep track of the activities and attendance of employees in order to increase efficiency, security effectiveness and the level of compliance and to manage labour costs. The time and attendance system upgrade will address the challenge of limited automation of the HR process. It will record access and clock transactions for all employees, contractors and visitors by means of electronic cards. The recorded working times will be electronically

calculated and these transactions will be integrated through SAP and transferred to the Payroll System. This will ensure efficient control, reporting and accurate linking of pay to time actually worked.

Occupational Health

Mintek's Occupational Health Clinic undertakes various tests related to occupational health, including Spirometric tests, uranium screening tests and other biological tests for exposure to occupational hazards such as radiation, lead, methyl isobutyl ketone, trichloroethylene, chromium, nickel, cobalt and tetrabromoethane.

A high level of AIDS education continues to be maintained by means of outreach programmes, awareness events, and a dedicated team of peer educators and Counsellors. The peer educators are people who belong to a group of peers as equal participating members, and have received training and information therefore they are able to bring about or sustain positive behaviour change among group members. Their functions are to; give basic HIV/AIDS information to their peers, market the organisational HIV/AIDS management programme and help in organising Mintek's wellness events. All employees are encouraged to make use of the voluntary counselling and testing services that are provided through the Clinic.

An HIV/AIDS Knowledge, Attitudes and Practices (KAP) survey was conducted at Mintek towards the end of the financial year, in an effort to shape the organisation's HIV/AIDS strategy and future workplace interventions. The survey will provide important research information that will be used to monitor the effectiveness of interventions that Mintek has implemented as well as inform the HIV/AIDS strategy.

In June 2012, the Mintek Clinic held a Men's Health Day in an effort to assist men at Mintek to deal with their health problems. Scores of men participated in health related activities, which included screening and eye-tests; measuring blood pressure; glucose; cholesterol; weight; and, body mass index (BMI) as well as consultations and tests related to sexuality and prostate cancer.

Academic Support and Training

Mintek creates permanent employment for approximately 15 to 20 new graduates in terms of its in-house bursary programme for undergraduate and post-graduate studies as part of the skills

development objective. This programme is especially crucial when taking into account the dearth of skills in the mining and minerals processing industries. However since it has been noted that Mintek loses such graduates, on average, four years after their assumption of employment at the organisation, a strategy was devised to deal with this challenge. The strategy includes the graduate development programme and management programmes, which were initiated in the previous financial year and the continued interventions at high school level to encourage scholars to follow careers in Mathematics- and Science-related disciplines.

The following are part of the activities of the Academic Support Unit within the Human Resources Division:

- Undergraduate and postgraduate bursary programmes for full-time science and engineering students.
- Undergraduate and postgraduate bursary programmes for Mintek staff for part-time science, engineering and non-technical studies.
- Graduate and postgraduate internship programmes.
- Work-integrated learning for diploma students.
- Artisan Learnership Programme
- Science, technology, engineering and mathematics promotion programmes, including Minquiz™ – a national science competition for Grade 12 learners.
- Facilitation of access to various research and development grant and infrastructure funding opportunities for Mintek's operating divisions.

It is encouraging to see the increased number of staff participating in part-time studies is encouraging. This increase displays the eagerness of Mintek staff to further their skills through tertiary studies.

Mintek continues to experience challenges relating to:

- Availability of science, engineering and technical skills nationally and internationally, especially at senior level.
- Scarcity of science, engineering and technical black and female candidates.
- Competitive nature of remuneration and benefits for scarce and critical skills.

- Mobility of skilled professionals.
- Recruitment and retention of top talent.

Executive Development and Other Programmes

Mintek, in partnership with Regenesys Business School, launched the Executive Development Programmes (EDP), aimed at providing senior and middle managers with business related skills to deal effectively with business challenges facing the organisation. The programme accommodated 20 senior Mintek employees and has run over a period of eight months.

Upon its conclusion, a review of the programme was also held in the form of presentations, which allowed the participants to share their experiences of the programme. HRD successfully coordinated the programme and all attendees were constantly motivated and kept up to date with their assignments and tasks.

Work Integrated Learning

This is an annual programme facilitated by DST through the NRF. Interns continue to work on a number of technical projects throughout divisions within Mintek. The Physical Metallurgy group is implementing the Department of Science and Technology's (DST) internship programme for the foundry industry and has managed to place 38 students at various foundries.

A second phase of the programme has been approved by the DST and an additional 15 interns are planned to be placed at various foundry firms.

Graduate Development / Researcher Development Programme

The Graduate Development Programme (GDP), which was piloted in January 2012, was completed during the third quarter of the year. Fourteen new graduates, along with a further two staff members, were incorporated into the programme. The commencement of the programme included a three-and-a-half month term in a "Home" division.

The Graduate Development Programme entails a structured soft skills training programme, but the primary focus is to place scientists and engineers on a structured development programme for them to gain and upgrade their professional registration with the South African Council for Natural Scientific Professions (SACNASP) and the Engineering Council of South Africa (ECSA). Rotations and soft skills training will commence in the first quarter of the following financial year.

Progress on Employment Equity Against Target				
Occupational Levels	Designated Group		Blacks	
	Target %	Actual %	Target %	Actual %
Top Management	67	60	67	60
Senior Management	67	75	58	58
Professionally Qualified and Experienced Specialists	77	70	63	52
Skilled Technical and Academically Qualified Workers	92	89	85	71
Semi-Skilled and Discretionary Decision Making	91	99	85	94
Unskilled and Defined Decision Making	95	100	95	98

Employment Equity Report											
Occupational Category	Male %				Female %				Foreign Nationals %		Overall against Mintek compliment %
	A	C	I	W	A	C	I	W	Male	Female	
Top Management	60	-	-	40	-	-	-	-	-	-	0.7
Senior Management	42	-	8	25	17	-	-	8	-	-	1.7
Professionally Qualified and Specialists	26	2	3	21	20	1	8	9	6	4	29.1
Skilled Technical and Academically Qualified Workers	36	3	1	9	35	3	3	8	1	1	32.6
Semi-skilled and Discretionary Decision Making	68	3	-	1	26	1	-	1	-	-	23.1
Unskilled and Defined Decision Making	95	2	-	-	3	-	-	-	-	-	12.8

Mintek was awarded a further 10 MQA Higher Education Training (MQA/HET) positions to allow for the hosting of a further 10 graduates for a two-year period at Mintek. Mintek's continued relationship with Black Science, Technology and Engineering Professionals (BSTEP) saw the award of a further 10 sponsorships towards the hosting of 10 Work Integrated Learners from September 2012. The Biotechnology Division currently houses eight work-integrated-learning diplomates and one graduate intern. A large amount of on-the-job training is therefore taking place on all laboratory and process procedures involved in their work. Three Biotechnology Division staff members have completed in-house developed training modules.

Artisan Learnership Programme

Mintek, working closely with the MQA, established an on-site Artisan Learnership Programme. The first intake will seek to strike a balance between recruitment of potential apprentices from Mintek's ranks as well as recruiting from further education and training (FET) colleges. Mintek was awarded a grant for 10 learners. This programme is expected

to create permanent employment opportunities at Mintek for approximately 10 qualified artisans a year and in a small way thereby assist in addressing the dire shortage in South Africa of qualified artisans.

Science, Technology, Engineering and Mathematics (STEM) Promotion Programmes

Since its introduction in 1988 with a few schools in the Randburg area, Mintek's annual Minquiz Science Competition has grown to become a major national science competition for top Physical Science and Mathematics learners at schools in South Africa. The primary intention of this competition is to foster excellence in mathematics and physical science at schools by stimulating interest in careers in science, engineering and technology through a fun and informative curriculum-aligned competition. The national finals of competition took place in July 2012, with a participation of 13 teams representing 13 centres across the country. The 52 finalists participated in two fun filled days at the Mintek Campus. In total, the competition saw the participation of 1 464 learners representing 488 schools across nine provinces.

Summary of Human Capital Development Programmes			
Description	Black	Female	Total
Bursars (full-time)			
Undergraduate & Honours	28	20	42
Postgraduate	4	2	9
Bursars (part-time)			
Undergraduate	24	11	26
Postgraduate (Masters)	6	6	15
Postgraduate (Doctorate)	6	1	6
Other (BSc Hons, MBA, etc.)	21	15	25
Work-integrated learning			
Learners	48	25	48
Interns			
DST/NRF PDP Doctoral Fellows	1	0	1
DST/NRF PDP Post-Doctoral Fellows	0	0	0
DST/NRF Interns	15	6	15
ALP Candidates	9	0	11
Scholarships Minquiz	2	3	3
Absorptions			
Undergraduate & Honours Bursars	9	5	11
Postgraduate Bursars (Masters)	1	0	1

HRD facilitated the hosting of eight high school learners, through a partnership with the Ministry of Women, Children and People with disabilities, for the techno-girl job shadowing in November 2012. All the participants completed their job-shadowing experience, and it is hoped that a bigger group of learners will be accommodated in 2013, consisting of both boys and girls.

More than 55 learners from high schools in Limpopo visited the NIC facility and were afforded a chance to interact with the scientists. In addition, high school learners representing each province, for a water project competition (funded by Department of Water and Environmental Affairs (DWEA)).

Awards & Recognition

DURING 2012/13 A NUMBER OF MINTEK STAFF RECEIVED NATIONAL AND INTERNATIONAL RECOGNITION for their work. They were also recognised at Mintek for their contribution in making the organisation a research centre that can be compared to the best in the global R&D industry.

Mintek has been listed as one of the winners at this year's Technology Top 100 Awards programme (TT100), for Excellence in the Management of Research and Development.

DR RAYMOND HEWER was nominated by Academy of Science of South Africa (ASSAF) and accepted by Lindau-Nobel organisation committee to attend the 63rd Lindau Nobel Laureate meeting held in June 2013.



MS DENISE DOWNER (PhD candidate) was selected to participate in the Novartis Next Generation Internship Programme. This is a prestigious award and provides the candidate with three-month-long research visitation to Novartis in Switzerland.



MR ABSALOM MABEBA was awarded a seat on the CorriSA Corrosion Engineering Course from the Corrosion Institute Southern Africa for his paper presented at the Ferrous Conference 2012.



MR MARANDELA MULAUDZI was awarded a Best Poster Prize Postgraduate from the School of Chemical and Metallurgical Engineering at the University of the Witwatersrand.



THE DST/MINTEK NANOTECHNOLOGY INNOVATION CENTRE was also nominated for the NSTF-BHP Billiton awards and the commercialisation plans for malaria and the Au nanoparticles reached the finals of the Gauteng Accelerator Programme (GAP) Bioscience Competition hosted by The Innovation Hub in South Africa and Emory University (Atlanta, Georgia, USA).



Awards & Recognition

Mintek's APEX Awards 2012

Hydrometallurgy Division's **DR OLGA YAHORAVA** received the Mintek APEX award for her development of a novel and immediately implementable process for the recovery of uranium from hypersaline liquors.



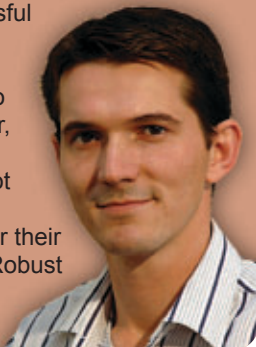
This was under the Technical Innovation category – an adaptation or discovery with novel characteristics, which could ultimately lead to advantageous commercial application.



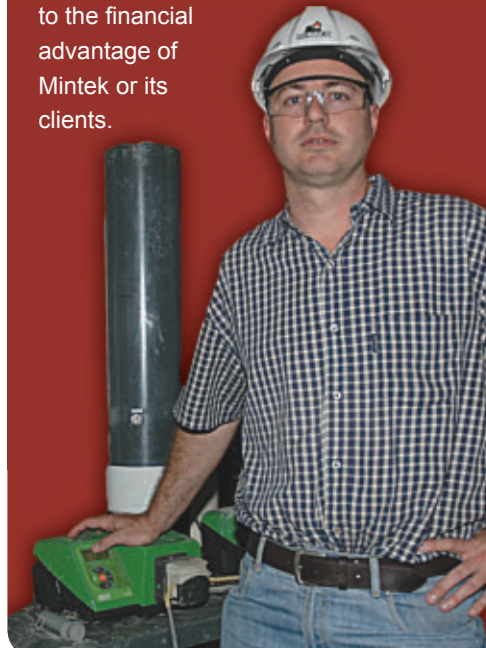
Pyrometallurgy Division's **ADITYA KALE**, Principal Engineer, **GRACE TAWANE**, Technician and **GIDEON MBEBE**, Laboratory Supervisor received the award, also under the Development category, for their successful demonstration of Mintek's capability on the chlorination process.



Measurement and Control (MaC) Division's Chief Engineer, **KOBUS OOSTHUIZEN** and Control Systems Engineer, **LOUTJIE COETZEE**, received the award under the Development category – successful demonstration of a process or product which could lead to technology transfer, usually the result of a successful pilot plant or prototype demonstration – for their demonstration of Robust Nonlinear Model Predictive Control.



STEFAN ROBERTSON, Principal Engineer at the Biotechnology Division, won the award for the enhancements to Geomechanical Testing Procedures, under the Procedural Innovation category – an adaptation or discovery which could accelerate, simplify, or improve quality and cost effectiveness to the financial advantage of Mintek or its clients.



IT Specialists, **LETHU NDLAZI**, **THUSO MODISE** and **THENJIWE MBATHA**, won the Apex Award for their outstanding work on the implementation of SAP ECC6 Enhancement Pack 5, also under the Procedural Innovation category.



Publications, Conferences and Staff Papers

THE PUBLISHING OF TECHNICAL PAPERS in internationally refereed journal enhances Mintek's reputation as a developer of high quality research, and promotes the content of those papers. Attendance at local and international conferences is required to keep abreast of technical developments globally, to identify business opportunities and also to enhance Mintek's reputation for high quality research. It is against this background that Mintek aimed to maintain a high level presence at various conferences, locally and broad, where a range of papers and presentations were made. Creative ways are being explored to align the available library space and resources with the current demand for online services at the Mintek Library. The immediate challenge with respect to this going forward would be to continue the establishment of a hybrid library, due to Mintek's physical collections and more emerging digital collections. What remains a bigger challenge is the establishment of a potentially virtual organisation, that comprehensively collects, manages and preserves for the long depth of time rich digital content, and offers to its targeted user communities specialised functionality on that content. This is in keeping with the industry trend, which appears to be less physical traffic and more online usage. The ongoing digitisation project entails the digital preservation of Mintek's IP and also online reference books, the McGraw-Hill Access Engineering, which includes e-books like Perry's Chemical Engineers Handbook, Chemical Process Design Handbook, Corrosion Engineering and Practical Control Engineering. These are now available to all of Mintek's researchers and so far, are being used and reviewed positively. The popular Metal Bulletin metal industry directory is available in electronic format as the Metal Bulletin Company's Database.

- ▲ Mintek participated in the annual Southern African Research & Innovation Management Association (SARIMA) conference in Port Elizabeth. The conference showcased technologies and sharing of best practices and lessons learnt across the country while it allowed for networking with research and innovation managers from Southern Africa.
- ▲ In September 2012, Mintek played host to the prestigious Annual Symposium of the Science Councils and Statutory Bodies Sector of the National Science and Technology Forum (NSTF) – "Green Technologies, Innovation & Collaboration". The conference was attended by over 100 delegates from institutes across South Africa.

- ▲ At the Gold 2012 conference in Japan, Project AuTEK presented four posters and maintained an exhibition booth displaying AuTEK's commercially available gold catalyst products. Dr Mpfunzeni Raphulu, Project AuTEK senior scientist, presented a keynote lecture titled; "Current and potential commercial applications of gold catalysts."
- ▲ The Catalysis group has managed to publish one paper on glycerol oxidation kinetics over gold catalysts. In addition the Catalysis group currently has a book chapter and a provisional patent and several papers in preparation.
- ▲ At CATSA 2012 Dr Matthew Stevenson gave an oral presentation highlighting the excellent progress made by HySA/ Catalysis, and a further three posters were also presented.
- ▲ The Biomed group presented a poster at the NRF/DST Internship Presentation Day and an internal report comprising findings and methodology from a number of completed research projects. The three Biomed staff members' oral presentations were accepted and the members will be attending the South African AIDS conference in June 2013.
- ▲ The NIC has produced two journal publications and one South African patent - thus African Regional Intellectual Property Organisation (ARIPO) international filing: Convention Design Application 'Immunochromatographic Assay' - has been successfully filed. Applications for two new discoveries for HIV and RVFV peptides and three trademarks were submitted. Several manuscripts have been submitted for review and possible publications in international peer-reviewed journals.
- ▲ The Nano group has produced two journal publications and one book chapter. It has also made six national and international conference contributions.
- ▲ In October, two members of Biomed attended the H3D Drug Discovery conference in Cape-Town and presented two posters. Two journal articles were also published.
- ▲ Two Physical Metallurgy Group staff members took part in The South African Metal Casting Conference (MCC) 2013 held at the Kwa Maritane Bush Lodge in the Pilaesberg, North West Province.
- ▲ A joint Mintek /Ternova paper on the MetRIX technology will be presented at the ALTA 2012 conference in Perth,

Australia and is aimed at generating further interest in the industry.

- ▲ The NIC members attended several strategic workshops and special training courses including, EELS course at Nelson Mandela Metropolitan University, IP introduction as well as commercialisation at Innovation Hub, start up and spin out workshop at Wits Enterprise.
- ▲ In raising the awareness for nanotechnology, NIC participated in the Science Week in Zimbabwe as well as in the University of Limpopo in the outreach programme with SAASTA.
- ▲ The NIC made a remarkable impact at the IUPAC-sponsored MAM-2012 Conference by delivering keynote addresses, and chairing important sessions including the plenaries. The NIC was elected to host and organise the MAM-2014 conference in South Africa.
- ▲ Physical Metallurgy group hosted "The Ferrous 2012", AMI-Ferrous and Base Metals Development Network (FMDN) Conference which was attended by renowned international and national speakers.
- ▲ Mr Marandela Mulaudzi was awarded a Best Poster Prize Postgraduate from the School of Chemical and Metallurgical Engineering at the University of the Witwatersrand.
- ▲ Four papers were presented at Process Mineralogy Conference in Cape Town on the 07 – 09 November 2012.
- ▲ Ms Nosiphiwo Mzamo attended Kimberley Process Intercessional meeting in Washington DC November 2012.
- ▲ The Biotechnology Division delivered a paper at the ALTA 2012 Conference in Perth, Australia, titled "Heap Leaching Philosophy with Specific Reference to Uranium Ores". This was well received and led to extensive discussions on heap leaching scale-up during the subsequent panel discussion on uranium heap leaching.
- ▲ The Biomed group published an article in the Journal of Inorganic Biochemistry and a book chapter which are currently in press. Four poster abstracts were presented at the GOLD 2012 and one paper has been submitted to a catalysis journal for review. A paper was published in Nano Today and more than six posters or orals were presented at various conferences.
- ▲ Three (3) papers from the Physical Metallurgy group were accepted for publication in the peer-reviewed Journal of the Southern African Institute of Mining and Metallurgy.
- ▲ Abstracts submitted to the Australian ALTA Conference and the Chilean HydroProcess Conference were presented in May and July 2012 respectively.
- ▲ Ms Manini Ramagaga from the Physical Metallurgy group has been accepted for the inaugural DST-funded Research and Innovation in Foundry Technology (RIFT) programme to pursue a MSc degree jointly offered by CPUT and RWTH Aachen University of Technology.
- ▲ In April and May 2012, four NIC Biolabels scientists attended Biodot workshop in California-USA on Rapid Diagnostic Tests and also received advanced training on the development of rapid diagnostic tests at the Diagnostic Consulting Network (DCN).
- ▲ Four members of the NIC Sensors Unit spent a week in the United Kingdom (Gwent, University of West England, Biodot and Cranfield) receiving training on advanced Biosensors fabrication.
- ▲ Mintek gave a presentation at the Africa Mining Conference 2012, and participated in a workshop in Addis Ababa around the establishment of an African Mining Development Centre as part of the implementation of the African Mining Vision.
- ▲ Dr Matthew Stevenson attended the ICYRAM 2012 conference in Singapore where he presented a poster, but more important to note is that Matthew was involved in the organisation of the conference and was responsible for organising the session on fuel cells, which he chaired. Furthermore two posters were presented at the South Africa/Korea workshop that sought to establish collaboration between the two countries.
- ▲ The NIC has successfully organised the 5th NIC workshop which was held at the Medical Research Council (MRC) in Cape Town from the 21-22 September 2012.
- ▲ The NIC was invited to participate at the National Science Week organised by the DST in August 2012. A number of NIC prototypes were exhibited at this event and the then Minister of Science and Technology, Honourable Naledi Pandor appreciated the developments that the NIC is making in particular towards commercialisation.

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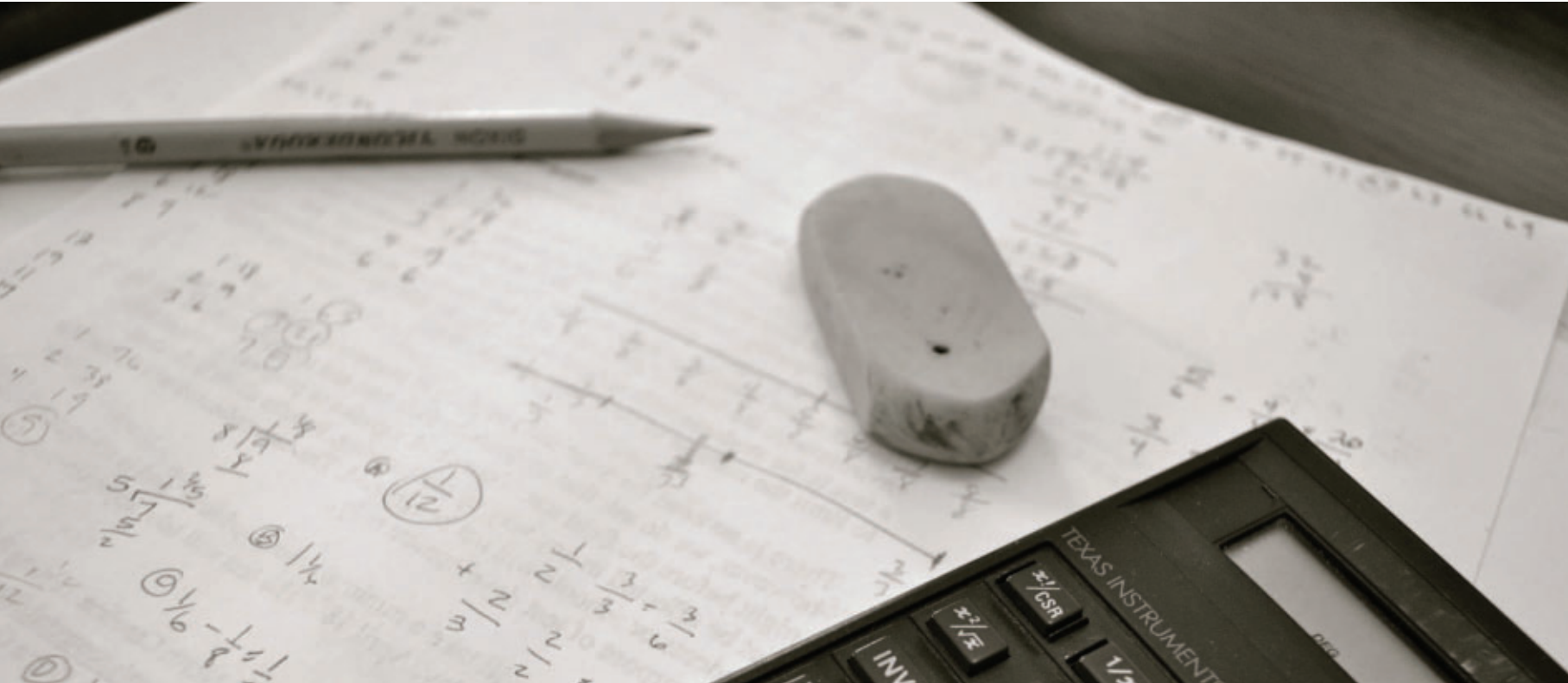
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Group Annual Financial Statements and Notes 2013



FOR THE YEAR ENDED 31 MARCH 2013

GENERAL INFORMATION

Country of incorporation and domicile	South Africa
Mintek Directors (until 31 March 2013)	M Mphomela (Chairperson) S Maja (Deputy Chairperson) MA Mngomezulu (President and CEO) P Streng D Block S Sekgobela (resigned 10 July 2012) J Ndlovu S Mohale I Patel T Nell (Alternate to S Mohale)
New Board was appointed with effect from 1 April 2013	
Mindev Directors	SA Simelane RL Paul GL Rapoo MA Mngomezulu M Mphomela
Registered office	200 Malibongwe Drive, Randburg 2194, South Africa
Business address	200 Malibongwe Drive, Randburg 2194, South Africa
Postal address	Private Bag X3015, Randburg 2125, South Africa
Bankers	Absa Bank Limited
Auditors	Auditor-General South Africa

Table of Contents

Audit and Risk Committee Report	40
Directors' Responsibilities and Approval	41
Directors' Report	42
Report of the Auditor-General	45
Statements of Financial Position	46
Statements of Comprehensive Income	47
Statements of Changes in Equity	48
Statements of Cash Flows	49
Accounting Policies	50
Notes to the Financial Statements	54

Audit and Risk Committee Report

REPORT OF THE AUDIT AND RISK COMMITTEE – as required by Treasury Regulations 27.1.7 and 27.1.10 (b) and (c) issued in terms of sections 51(1)(a)(ii) and 76(4)(d) of the Public Finance Management (PFMA) Act 1 of 1999, as amended by Act 29 of 1999.

1. Audit and Risk Committee members and attendance

The Audit and Risk Committee (ARC) term of office coincided with the term of office of the Board which ended on 31 March 2013. Therefore the review of the current annual financial statements were done by the new ARC, and the ARC Report will be signed by the new ARC Chairperson.

The ARC consisted of the members listed hereunder. During the financial year under review the audit and risk committee met four times and appropriate feedback was provided to the relevant Accounting Authority on matters that were within the mandate of the ARC.

Audit and Risk committee member's name	Qualification	Board /Audit & Risk /Independent member	Number of meetings attended
Mr Paul Streng	B.Com, B.Acc Chartered Accountant (SA)	Board member	3 out of 4
Dr Jan Bredell*	MSc, DSc Pr. Sci. Nat.	Independent member	2 out of 2
Doris Dondur**	CA (SA) MBA	Independent member	3 out of 3
Ms S Maja	LLB, B.Juris.	Board member	3 out of 4
Ms S Sekgobela***	MSc, Honours B.Com, B.Com	Board member	0 out of 1
Ms S Mohale	MSc, BA	Board member	3 out of 4
Adv Derick Block	LLB, B.Juris.	Interim member	1 out of 1

* member resigned from the audit and risk committee on 21 July 2012

** member resigned from the audit and risk committee on 21 November 2012

*** member resigned from the audit and risk committee on 10 July 2012

2. Audit and Risk Committee Responsibility

The MINTEK ARC wishes to report that it has complied with its responsibilities arising from section 51(1)(a) as well as with Treasury Regulations 27.1.7 and 27.1.10 (b) and (c) issued in terms of sections 51(1)(a)(ii) and 76(4)(d) of the Public Finance Management Act 1 of 1999, as amended by Act 29 of 1999. The ARC also wishes to report that it had adopted formal terms of reference.

The ARC is able to report that external audit, which is performed by the Auditor-General, is independent of MINTEK.

The ARC has discharged all its responsibilities as contained in the ARC charter.

3. Effectiveness of internal control

The PFMA 51(1)(a)(i) states that the accounting authority must ensure that the entity has maintained an effective, efficient and transparent system of financial and risk management and internal control.

The system of internal control and the concomitant control environment within MINTEK were reasonably effective as the various reports of the Auditor-General and Internal Audit will attest.

The ARC wishes to report that full compliance with legal and regulatory provisions and the policies and procedures of MINTEK occurred during the financial year under review.

4. Governance of risk

The PFMA 51(1)(a)(i) states that the accounting authority must ensure that the entity has maintained an effective, efficient and transparent system of financial and risk management and internal control.

The ARC has the responsibility to ensure that a risk management process is in place at MINTEK and as such can report that risks are being appropriately managed within MINTEK.

Additional information regarding the risk events and their effect on this annual report are detailed elsewhere in the annual report.

5. Internal audit

The ARC was responsible for ensuring that MINTEK's internal audit function was independent and had the necessary resources, standing and authority within MINTEK to enable it to effectively and efficiently discharge its duties. Furthermore, the audit and risk committee oversaw cooperation between the internal and external auditors, and served as a link between the accounting authority and these functions.

The ARC also considered and recommended the internal audit charter for approval by the accounting authority during the year under review.

6. Whistle blowing

The ARC received and dealt with any concern or complaints, whether from within or outside of MINTEK, relating to the accounting practices and internal audit of MINTEK, the content or auditing of MINTEK's financial statements, the internal financial controls of MINTEK and related matters.

7. The quality of management and monthly/quarterly reports submitted in terms of the PFMA

The ARC reports that, during the year under review, they were presented with regular monthly or quarterly management reports to enable them to:

- Monitor the integrity, accuracy and reliability of the financial position of MINTEK;
- Review the management accounts of MINTEK to provide the accounting authority with an authoritative and credible view of the financial position of MINTEK;
- Review the disclosure in the financial reports of MINTEK and the context in which statements on the financial health of MINTEK are made; and
- Review all material information presented together with the management accounts.

8. The quality of budgets submitted in terms of the PFMA.

The ARC reports that, during the year under review, they were regularly presented with a budget to enable them to:

- Review and ensure that the annual budgets of MINTEK were balanced, credible and realistic against the approved business plans; and
- Monitor and periodically review the implementation of the approved budget of MINTEK by the accounting authority.

9. Evaluation of financial statements

The annual financial statements were approved by the newly appointed Board.



Ms K Mthimunye (newly appointed Chairperson)
for the Audit and Risk Committee
26 July 2013

Directors' Responsibilities and Approval

THE DIRECTORS ARE REQUIRED IN TERMS OF THE PUBLIC FINANCE MANAGEMENT ACT 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 group 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 South African Statements of Generally Accepted Accounting Practice and are based upon appropriate accounting policies consistently applied and supported by reasonable and prudent judgements and estimates. The external auditors are engaged to express an independent opinion on the financial statements.

The directors acknowledge that they are ultimately responsible for the system of internal financial control established by the group and place considerable importance on maintaining a strong control environment. To enable the directors to meet these responsibilities, the directors set 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 group and all employees are required to maintain the highest ethical standards in ensuring the group's business is conducted in a manner that in all reasonable circumstances is above reproach. The focus of risk management in the group is on identifying, assessing, managing and monitoring all known forms of risk across the group. While operating risk cannot be fully eliminated, the group 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.

In the opinion of the directors the group has adequate resources to continue in operational existence for the foreseeable future. This opinion is based on the 2014 budget and the current financial position of the group.

The external auditors are responsible for independently reviewing and reporting on the group's financial statements. The financial statements have been examined by the group's external auditors and their report is presented on page 45.

The financial statements set out on page 46 to 67, which have been prepared on the going concern basis, were approved by the directors on 26 July 2013 and were signed on their behalf by:



Adv Linda Makatini
Chairperson



MA Mngomezulu
Chief Executive Officer/President

Directors' Report

THE DIRECTORS OF MINTEK take pleasure in submitting their 2012/2013 report together with the Annual Financial Statements as at 31 March 2013. The Mintek Group's Annual Financial Statements comply with South African Standards of Generally Accepted Accounting Practice (SA Standards of GAAP) and the PFMA.

Nature of the business

Mintek was established by the Mineral Technology Act 30 of 1989 (Mintek Act) and is listed as a national government business enterprise in schedule 3B of the Public Finance Management Act (PFMA), 1999, as amended.

In terms of the Mintek Act, Mintek's main mandate is to promote mineral technology and to foster the establishment and expansion of industries in the field of minerals and products derived therefrom through research, development and technology transfer.

In fulfilling the mandate, the directors and executive management of Mintek are committed to the following strategic objectives:

- ▲ Enhance Mintek's visibility and credibility to all stakeholders by implementing an integrated marketing and communication function;
- ▲ Research and develop efficient mineral processing technologies and value added products and services in order to, amongst others, strengthen Mintek's position as a global supplier of mineral-processing technologies, equipment, process design and control-optimisation systems;
- ▲ Promote the mineral-based economies of rural and marginalised communities through technical assistance and skills development by developing technologies appropriate to the local jewellery, artisanal and small scale mining (ASSM) industries with the aim of expanding the industry and of lowering entry barriers. Initiate poverty alleviation programmes and support the growth of Small, Medium and Micro Enterprises (SMMEs) in the mineral sector;
- ▲ Uphold good governance practices that comply with all applicable national and international regulatory frameworks and standards, maintain fiscal discipline, and enhance organisational efficiencies;
- ▲ Build world class R&D excellence whilst transforming its internal and external business processes and the workforce profile to ensure that it is in line with the socio-economic realities of South Africa today, whilst ensuring broad representation of diverse cultures and peoples.

Mindev (Proprietary) Limited is a 100% owned Mintek subsidiary that was dormant in the year under review. Details of Mintek's investment and financial interest in Mindev is disclosed in note 4 of the Annual Financial Statements

Financial Results

The financial results for the year ended 31 March 2013 are detailed in the annual financial statements as set out on pages 46 to 67 of the annual report. The year under review is covered fully in the Chairperson's and the Chief Executive's reports and also in the financial review below.

Audit and Risk Committee Report

The report of the Audit and Risk Committee for the year ended 31 March 2013 is set out in detail on page 40.

Financial Performance

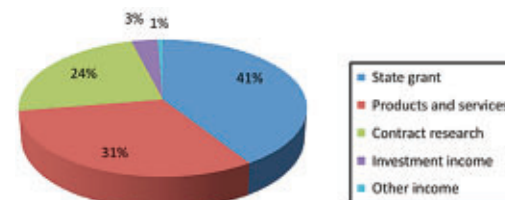
▲ Review of Income and Expenditure

The financial year-ending March 2013 began with a general optimism that 2013 would see improved economic conditions and higher growth forecasts for the local economy estimated at 3,6%. However, the continued industrial action in the mining sector and the depressed economic climate has contributed to a revised GDP growth figure for 2013 which is now estimated by the IMF to be only 2,5%, significantly down from the 3,6% initial forecast. Much was dependent on the anticipated recovery of the European Zone, where some of our customers are operating from, and their growth figures have been cut from an uninspiring 2,4% to a paltry 1,9% for 2013. All of this contributed to what has transpired to be yet another very challenging year for the country and Mintek. History has however taught us that Mintek only begins to feel the economic challenges a year later than the general public, and as such, the projects pipeline remained strong.

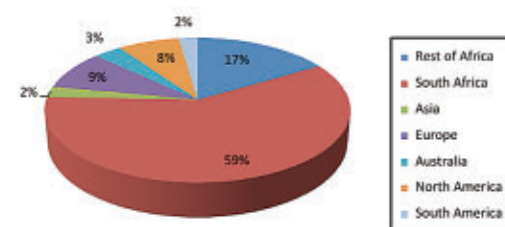
Mintek group revenue increased by 13% compared to the prior year. The growth arose largely from the MTEF funding and state grant received in the financial year. Commercial

income has decreased by 5% due to the reduction in the demand of mining research and the slow ramping up of the Bay 2 project. International revenue shrunk by a devastating 40% in the F2012/2013 which could be largely attributed to the mining labour instability that had a significant negative impact on all sectors of the local economy thereby increasing the perception of increased risks in investment in SA. As a result, foreign investment has suffered and in fact, the rand has weakened as a result of outflows of foreign money, following this imbalance within the South African economy. Products and services revenue decreased by 42% as a result of lower growth in the mineral processing, pyrometallurgy and hydrometallurgy fields where fewer large pilot plant campaigns were conducted.

The table below indicates revenue sources:



Mintek Group commercial revenue for the current financial year has been generated primarily in South Africa, Australia, Congo and Canada. Revenue derived from foreign customers relates mostly to pilot plant work.



The State grant increased by 52% in the baseline allocation over the Medium Term Expenditure Framework (MTEF). This is the revenue derived from the F2013 budget cycle, where a significant amount was allocated to Mintek over the MTEF

for project-specific allocation for environmental technologies, rare earth pilot plant research work, establishment of a Northern Cape semi-precious gemstone facility, enhancement of the atomiser facility and the rehabilitation of ownerless and derelict mines.

Investment income continues to be a strong source of revenue for Mintek despite lower interest rates and increased working capital requirements, arising from the Bay 2 capital project. The interest income for the period under review is R15,7m (F2012: R16,6) which is 6,5% lower than in F2012. This has been as a result of the large capital investment made for the Bay 2 project and the execution of the derelict and ownerless mines project. The cashflow situation in the next financial year is expected to remain stable and therefore interest received is not expected to grow beyond current levels.

In addition to the above, the weakening of the Rand against the US Dollar during the reporting period had a R2,3m positive impact on our finances compared to the R2,7m surplus in the previous financial year.

▲ **Expenditure**

The increase in total expenditure compared to the prior period amounted to 20%. This is largely due to the management of the derelict and ownerless mines rehabilitation project where monies were paid out to contractors to perform the work and also due to the increase in electricity costs incurred in the F2013. Compensation of employees still remains our largest expenditure compared to total expenditure mainly because most of our work is highly dependent on the skills base and capacity.

The depreciation charge decreased by R5,6m following a review of the useful life and residual value of property, plant and equipment in line with the requirements of SA GAAP.

▲ **Review of Operations**

Mintek began seeing a downturn in market demand for commercial services towards year-end, related to softening of the minerals industry. This was particularly prevalent in the demand for platinum work. An exception to this trend was a continued high demand for service work related

to rare earth element (REE) projects. Both local and international REE work accounted for a large component of commercial revenue for both the Mineral Processing and Hydrometallurgy Divisions.

Construction and commissioning of the metal atomising large-scale demonstration facility was successfully completed and the production capacity is in the process of being ramped up to design levels. This two-year Anglo American Platinum project accounts for the greatest proportion of the Pyrometallurgy Division's commercial revenue.

The Mineral Processing Division undertook significant commercial work related to African phosphate and graphite projects. Increased industry recognition of the potential for sensor-based ore sorting, which Mintek believes will be one of the paradigm-shifting technologies of the future, was also evident.

The Biotechnology Division continued to benefit from service work demand for its world-leading heap bioleaching expertise, but envisages a downturn in commercial work during the 2013/14 financial year.

An increase in research activity was made possible by increased levels of MTEF funding. Mintek now has a far more healthy balance between commercial and research activities – appropriate for a Science Council.

Promising results were obtained from research activities related to Mintek's SAVMIN acid mine drainage technology, sensor-based ore sorting and REE refining. The Advanced Metal Division continued to participate in the HySA (hydrogen fuel cell) and AMI (Advanced Metal Initiative) programmes, and generated exciting results from its drug and catalyst research.

Preliminary planning was completed for Mintek's two major research initiatives related to mining environmental impacts and "Urban Mining" (metal recycling and treatment of industrial wastes and residues), so that work could immediately commence in the new year.

Mintek's three-year contract with the Department of Mineral Resources relating to the rehabilitation of derelict and ownerless mines was successfully completed, with the rehabilitation of 14 projects

and full expenditure of the R90 million budget allocated to Mintek. Mintek anticipates entering into a new contract with DMR so that this national-important programme can be continued.

▲ **Review of the Financial Position**

There has been a 4% decrease in the Mintek asset base from the previous financial year. This is largely attributable to the funding applied for the expansion of the Bay 2 facility and laboratory equipment acquisitions.

Equity increased by R16 m being the surplus that Mintek achieved this year.

Deferred income reduced significantly in the current financial year as the derelict and ownerless mine rehabilitation project was executed and funds received in prior years were utilised.

▲ **Cash Flow**

Mintek's financial position remain strong. The group has minimal liabilities and is cash positive. Mintek's operations generated a strong cash flow which has been used to finance working capital and capital expenditure requirements, necessitated by the organic growth or revitalisation required in certain divisions.

Cash utilised in operations was R35,5 million for the group. This is due to the execution of the rehab project as mentioned previously.

This current status supports Mintek's continued business activities and expansion in certain areas. However Mintek will continue to exercise caution with such investment, given the uncertainty and volatility of the current economic conditions.

This current status supports Mintek's continued business activities and expansion in certain areas. However Mintek will continue to exercise caution with such investment, given the uncertainty and volatility of the current economic conditions.

Outlook

The outlook for F2014 is very positive with several projects already signed up and a strong pipeline for the remainder of the next financial year. The global mineral industry is cyclical in nature. The industry initially recovered well from the two-year

global recessionary downturn, but has since regressed again. The first activities to be cut back in an industry downturn are exploration and R&D. Junior companies experience severe finance-raising difficulties which constrains their project development. Major companies focus on controlling costs, particularly discretionary items like process optimisation and technology innovation. Mintek expects a decline in demand for its commercial services during the latter part of the 2013/14 financial year. Such a time of commercial slowdown is, however, an ideal time to undertake state-funded research and development activities – increased staff and facilities are available, and such a state-funded intervention contributes in positioning the industry to take best advantage of the next market upturn. In addition to this, the MTEF projects will continue and significant revenue will be derived from these activities. The attraction and retention of highly-skilled resources remains an issue for concern in the future.

Judicial Proceedings

The directors are not aware of any significant judicial proceedings against Mintek, except for those as disclosed in Note 24 of the Annual Financial Statements.

Post Financial Year-end Events

The directors are not aware of any material post financial year-end events.

The new Board of Directors was appointed with effect from 1 April 2013.

The Group Directors of Mintek as at 31 March 2013

Non-Executive Directors:

Mr M Mphomela – *Chairperson*

Mr P Streng

Adv D Block

Ms S Maja – *Deputy Chairperson*

Ms J Ndlovu

Mr I Patel

Ms S Mohale

Mr T Nell (*Alternate to Ms S Mohale*)

Mr GL Rapoo

Executive Directors:

Mr MA Mngomezulu

Mr SA Simelane

The Acting Board secretary is Mr Peter Craven and the business and postal addresses are as follows:

200 Malibongwe Drive	Private Bag X3015
Randburg	Randburg
2194	2125

Auditors

The Auditor General of South Africa will continue in office in accordance with Section 4 of the Public Audit Act, and will conduct audits in terms of section 8(2) of the Public Finance Management Act No.1 of 1999.

Report of the Auditor-General South Africa

REPORT OF THE AUDITOR-GENERAL SOUTH AFRICA TO PARLIAMENT ON COUNCIL FOR MINERAL TECHNOLOGY (MINTEK) REPORT ON THE CONSOLIDATED FINANCIAL STATEMENTS

Introduction

1. I have audited the consolidated and separate financial statements of MINTEK and its subsidiaries set out on pages 46 to 67, which comprise the consolidated and separate statement of financial position as at 31 March 2013, the consolidated and separate statement of comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, and the notes, comprising a summary of significant accounting policies and other explanatory information.

Accounting authority's responsibility for the consolidated financial statements

2. The accounting authority is responsible for the preparation and fair presentation of these consolidated and separate financial statements in accordance with South African Standards of Generally Accepted Accounting Practice (SA Standards of GAAP) and the requirements of the Public Finance Management Act of South Africa, 1999 (Act No. 1 of 1999) (PFMA), and for such internal control as the accounting authority determines is necessary to enable the preparation of consolidated and separate financial statements that are free from material misstatement, whether due to fraud or error.

Auditor-General's responsibility

3. My responsibility is to express an opinion on these consolidated and separate financial statements based on my audit. I conducted my audit in accordance with the Public Audit Act of South Africa, 2004 (Act No. 25 of 2004) (PAA), the *General Notice* issued in terms thereof and International Standards on Auditing. Those standards require that I comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the consolidated and separate financial statements are free from material misstatement.
4. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated and separate financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the consolidated and separate

financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the consolidated and separate financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the consolidated and separate financial statements.

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

Opinion

6. In my opinion, the consolidated and separate financial statements present fairly, in all material respects, the financial position of MINTEK and its subsidiaries as at 31 March 2013, and their financial performance and cash flows for the year then ended in accordance with SA Standards of GAAP and the requirements of the PFMA.

REPORT ON OTHER LEGAL AND REGULATORY REQUIREMENTS

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

Predetermined objectives

8. I performed procedures to obtain evidence about the usefulness and reliability of the information in the annual performance report as set out on pages 13 to 16 of the annual report.
9. The reported performance against predetermined objectives was evaluated against the overall criteria of usefulness and reliability. The usefulness of information in the annual performance report relates to whether

it is presented in accordance with the National Treasury's annual reporting principles and whether the reported performance is consistent with the planned objectives. The usefulness of information further relates to whether indicators and targets are measurable (i.e. well defined, verifiable, specific, measurable and time bound) and relevant as required by the *National Treasury Framework for managing programme performance information*.

The reliability of the information in respect of the selected objectives is assessed to determine whether it adequately reflects the facts (i.e. whether it is valid, accurate and complete).

10. There were no material findings on the annual performance report concerning the usefulness and reliability of the information.

Compliance with laws and regulations

11. I performed procedures to obtain evidence that the entity has complied with applicable laws and regulations regarding financial matters, financial management and other related matters.

I did not identify any instances of material non-compliance with specific matters in key applicable laws and regulations as set out in the *General Notice* issued in terms of the PAA

Internal control

12. I considered internal control relevant to my audit of the financial statements, annual performance report and compliance with laws and regulations. I did not identify any deficiencies in internal control which I considered sufficiently significant for inclusion in this report.

Auditor-General

Pretoria
31 July 2013



Statements of Financial Position at 31 March 2013

<i>Figures in Rand</i>	Note(s)	MINTEK GROUP		MINTEK	
		2013	2012	2013	2012
Assets					
Non-Current Assets					
Property, plant and equipment	2	245,531,259	257,264,383	245,531,259	257,264,383
Intangible assets	3	2,868,814	3,147,243	2,868,814	3,147,243
Investments in subsidiaries	4	-	-	100	100
		248,400,073	260,411,626	248,400,173	260,411,726
Current Assets					
Inventories	5	5,550,527	5,466,901	5,550,527	5,466,901
Current tax receivable		459,822	502,469	-	-
Trade and other receivables	6	45,463,717	45,739,490	45,463,717	45,739,490
Short term investments	7	255,293,799	274,493,109	255,293,799	274,493,109
Cash and cash equivalents		13,071,868	30,806,130	13,071,868	30,806,130
		319,839,733	357,008,099	319,379,911	356,505,630
Total Assets		568,239,806	617,419,725	567,780,084	616,917,356
Equity and Liabilities					
Equity					
Reserves		130,237,037	131,591,356	130,237,037	131,591,356
Retained income		293,756,502	276,328,093	253,781,737	236,353,328
		423,993,539	407,919,449	384,018,774	367,944,684
Liabilities					
Non-Current Liabilities					
Retirement benefit obligation	8	29,400,140	28,286,244	29,400,140	28,286,244
Current Liabilities					
Loans from group companies	9	-	-	39,515,043	39,472,396
Trade and other payables	10	43,953,051	64,090,001	43,953,051	64,090,001
Deferred income	11	70,582,211	116,811,875	70,582,211	116,811,875
Provisions	12	310,865	312,156	310,865	312,156
		114,846,127	181,214,032	154,361,170	220,686,428
Total Liabilities		144,246,267	209,500,276	183,761,310	248,972,672
Total Equity and Liabilities		568,239,806	617,419,725	567,780,084	616,917,356

Statements of Comprehensive Income for the year ended 31 March 2013

<i>Figures in Rand (s)</i>	Note(s)	MINTEK GROUP		MINTEK	
		2013	2012	2013	2012
Continuing operations					
Revenue	13	451,853,632	398,970,138	451,853,632	398,970,138
Other operating income	14	3,191,704	5,166,614	3,191,704	5,166,614
Surplus on exchange differences		2,291,526	2,664,002	2,291,526	2,664,002
Investment income	15	15,564,179	16,584,981	15,564,179	16,584,981
Employee costs		(245,811,772)	(248,087,824)	(245,811,772)	(248,087,824)
Operating expenses		(103,524,120)	(80,349,728)	(103,524,120)	(80,349,728)
Finance costs	16	(3,062,740)	(2,678,886)	(3,062,740)	(2,678,886)
Auditors remuneration	17	(2,526,990)	(2,301,239)	(2,526,990)	(2,301,239)
Fees for services	18	(89,427,176)	(47,276,003)	(89,427,176)	(47,276,003)
Depreciation, amortisation and impairments	19	(14,606,560)	(13,048,603)	(14,606,560)	(13,048,603)
Reassessment of assets useful lives	19	5,633,718	12,832,877	5,633,718	12,832,877
(Loss)/surplus on sale of assets		(3,295,327)	161,022	(3,295,327)	161,022
Actuarial (losses)/gains		(205,984)	799,947	(205,984)	799,947
Surplus for the year		16,074,090	43,437,298	16,074,090	43,437,298
Other comprehensive income:		-	-	-	-
Total comprehensive income		16,074,090	43,437,298	16,074,090	43,437,298

Statements of Changes in Equity for the year ended 31 March 2013

<i>Figures in Rand(s)</i>	Revaluation reserve	Retained income	Total equity
MINTEK GROUP			
Balance at 01 April 2011	132,945,675	231,536,476	364,482,151
Surplus for the year	-	43,437,298	43,437,298
Depreciation on revaluation of land and buildings	(1,354,319)	1,354,319	-
Total comprehensive income for the year	(1,354,319)	44,791,617	43,437,298
Balance at 01 April 2012	131,591,356	276,328,093	407,919,449
Surplus for the year	-	16,074,090	16,074,090
Depreciation on revaluation of land and buildings	(1,354,319)	1,354,319	-
Total comprehensive income for the year	(1,354,319)	17,428,409	16,074,090
Balance at 31 March 2013	130,237,037	293,756,502	423,993,539
MINTEK			
Balance at 01 April 2011	132,945,675	191,561,711	324,507,386
Surplus for the year	-	43,437,298	43,437,298
Depreciation on revaluation of land and buildings	(1,354,319)	1,354,319	-
Total comprehensive income for the year	(1,354,319)	44,791,617	43,437,298
Balance at 01 April 2012	131,591,356	236,353,328	367,944,684
Surplus for the year	-	16,074,090	16,074,090
Depreciation on revaluation of land and buildings	(1,354,319)	1,354,319	-
Total comprehensive income for the year	(1,354,319)	17,428,409	16,074,090
Balance at 31 March 2013	130,237,037	253,781,737	384,018,774

Statements of Cash Flow for the year ended 31 March 2013

<i>Figures in Rand(s)</i>	Note(s)	MINTEK GROUP		MINTEK	
		2013	2012	2013	2012
Cash flows from operating activities					
Cash receipts from customers		409,397,192	416,946,963	409,397,192	416,946,963
Cash paid to suppliers and employees		(459,227,531)	(342,614,764)	(459,227,531)	(342,614,764)
Cash (utilised in)/generated from operations	21	(49,830,339)	74,332,199	(49,830,339)	74,332,199
Interest received		14,686,482	15,718,249	14,686,482	15,718,249
Provisions utilised		(395,336)	(1,395,594)	(395,336)	(1,395,594)
Finance costs		(6,279)	(12,332)	(6,279)	(12,332)
Tax received		42,647	-	-	-
Net cash from operating activities		(35,502,825)	88,642,522	(35,545,472)	88,642,522
Cash flows from investing activities					
Additions to property, plant and equipment	2	(60,191,855)	(70,482,066)	(60,191,855)	(70,482,066)
Additions to intangible assets	3	(430,780)	(36,330)	(430,780)	(36,330)
Funding received towards purchasing of property, plant and equipment	2	60,366,325	21,058,125	60,366,325	21,058,125
Proceeds from loans from group companies		-	-	42,647	-
Decrease/(increase) in investments		19,199,310	(27,683,670)	19,199,310	(27,683,670)
Net cash from investing activities		18,943,000	(77,143,941)	18,985,647	(77,143,941)
Cash flows from financing activities					
Post-retirement health care - settlement		(1,174,437)	(1,394,997)	(1,174,437)	(1,394,997)
Total cash movement for the year		(17,734,262)	10,103,584	(17,734,262)	10,103,584
Cash at the beginning of the year		30,806,130	20,702,546	30,806,130	20,702,546
Total cash at end of the year		13,071,868	30,806,130	13,071,868	30,806,130

Accounting Policies for the year ended 31 March 2013

1. Presentation of Financial Statements

The financial statements have been prepared in accordance with SA GAAP, the Public Finance Management Act and Treasury Guidelines. The financial statements have been prepared on an accrual basis in accordance with historical cost basis except for certain assets and liabilities at fair value, and incorporate the principal accounting policies set out below. They are presented in South African Rand.

These accounting policies are consistent with the previous period.

For purposes of these financial statements, all references to 'Company' refers to Mintek, the public entity.

1.1 Basis of consolidation

The consolidated financial statements incorporate the financial statements of the company and all entities, controlled by the company.

Control exists when the company has the power to govern the financial and operating policies of an entity so as to obtain benefits from its activities.

All intra-group transactions, balances, income and expenses are eliminated in full on consolidation.

1.2 Property, plant and equipment

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

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

Property, plant and equipment are initially measured at cost.

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

Land and buildings are carried at revalued amount, being the fair value at the date of revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses. Revaluations are made with sufficient regularity such that the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period.

When an item of property, plant and equipment is revalued, any accumulated depreciation at the date of the revaluation is restated proportionately with the change in the gross carrying amount of the asset so that the carrying amount of the asset after revaluation equals its revalued amount.

Any increase in an asset's carrying amount, as a result of a revaluation, is recognised to other comprehensive income and accumulated in the revaluation surplus in equity. The increase

is recognised in other comprehensive income to the extent that it reverses a revaluation decrease of the same asset previously recognised in the Statement of Comprehensive Income.

Any decrease in an asset's carrying amount, as a result of a revaluation, is recognised in the Statement of Comprehensive Income in the current period. The decrease is recognised in other comprehensive income to the extent of any credit balance existing in the revaluation surplus in respect of that asset. The decrease recognised in other comprehensive income reduces the amount accumulated in the revaluation surplus in equity.

The revaluation surplus in equity related to a specific item of property, plant and equipment is transferred directly to retained earnings when the asset is derecognised.

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

Item	Average useful life
Buildings	50 years
Plant and machinery	5 - 10 years
Furniture and fixtures	5 - 10 years
Motor vehicles	5 years
Office equipment	5 - 10 years
IT equipment	3 - 5 years

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

The depreciation charge for each period is recognised in the Statement of Comprehensive Income unless it is included in the carrying amount of another asset.

The gain or loss arising from the derecognition of an item of property, plant and equipment is included in the Statement of Comprehensive Income when the item is derecognised. The gain or loss arising from the derecognition of an item of property, plant and equipment is determined as the difference between the net disposal proceeds, if any, and the carrying amount of the item.

1.3 Intangible assets

An intangible asset is recognised when:

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

Intangible assets are initially recognised at cost.

Expenditure on research (or on the research phase of an internal project) is recognised as an expense when it is incurred.

Intangible assets are carried at cost less any accumulated amortisation and any accumulated impairment losses.

Gains or losses arising from derecognition of an intangible asset are measured as the

difference between the net disposal proceeds and the carrying amount of the asset and are recognised in the statement of comprehensive income when the asset is derecognised.

Amortisation is provided to write down the intangible assets, on a straight-line basis, to their residual values as follows:

1.4 Investments in subsidiaries

In the Mintek financial statements, investments in subsidiaries are carried at cost less any accumulated impairment.

The cost of an investment in a subsidiary is the aggregate of:

- ▲ the fair value, at the date of exchange, of assets given, liabilities incurred or assumed, and equity instruments issued by the company; plus
- ▲ any costs directly attributable to the purchase of the subsidiary.

An adjustment to the cost of a business combination contingent on future events is included in the cost of the combination if the adjustment is probable and can be measured reliably.

1.5 Financial instruments

Classification

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

- ▲ financial assets at fair value through the Statement of Comprehensive Income - held for trading;
- ▲ held-to-maturity investment;
- ▲ loans and receivables; or
- ▲ 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, except for derivatives and financial assets designated as at fair value through the Statement of Comprehensive Income, which shall not be classified out of the fair value through the Statement of Comprehensive Income category.

Initial recognition and measurement

Financial instruments are recognised initially at cost when the group becomes a party to the contractual provisions of the instruments.

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

For financial instruments which are not at cost through the Statement of Comprehensive Income, transaction costs are included in the initial measurement of the instrument.

Subsequent measurement

Financial instruments at cost through the Statement of Comprehensive Income are subsequently measured at fair value, with

Accounting Policies for the year ended 31 March 2013 (continued...)

gains and losses arising from changes in fair value being included in profit or loss for the period.

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

Held-to-maturity investments are subsequently measured at amortised cost, using the effective interest method, less accumulated impairment losses.

Gains and losses arising from changes in fair value are recognised in other comprehensive income and accumulated in equity until the asset is disposed of or determined to be impaired.

Financial liabilities at amortised cost are subsequently measured at amortised cost, using the effective interest method.

Derecognition

Financial assets are derecognised when the rights to receive cash flows from the investments have expired or have been transferred and the group has transferred substantially all risks and rewards of ownership.

Impairment of financial assets

At each reporting date the group assesses all financial assets, other than those at fair value through the Statement of Comprehensive Income, to determine whether there is objective evidence that a financial asset or group of financial assets has been impaired.

For amounts due to the group, 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 the Statement of Comprehensive Income.

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.

Reversals of impairment losses are recognised in the Statement of Comprehensive Income except for equity investments classified as available-for-sale.

Impairment losses are also not subsequently reversed for available-for-sale equity investments which are held at cost because fair value was not determinable.

Where financial assets are impaired through use of an allowance account, the amount of the loss is recognised in the Statement of Comprehensive Income 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.

Loans to/(from) group companies

These include loans to and from the holding company and the subsidiary.

Loans to group companies are classified as loans and receivables.

Loans from group companies are classified as financial liabilities measured at amortised cost.

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. Appropriate allowances for estimated irrecoverable amounts are recognised in the Statement of Comprehensive Income when there is objective evidence that the asset is impaired. 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. The allowance recognised is measured at the carrying amount.

The carrying amount of the asset is reduced through the use of an allowance account, and the amount of the loss is recognised in the Statement of Comprehensive Income 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 the Statement of Comprehensive Income.

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.

Derivatives

The Group does not use derivative financial instruments including forward rate agreements and forward exchange contracts to hedge exposure rate and foreign fluctuations. It is the Group's policy not to hedge its exposure from foreign currency fluctuations, as it does not consider the impact to be significant. It is the policy of the Group not to trade in derivative financial instruments for speculative purposes.

1.6 Investments

Investments consist of short-term money market instruments initially recorded at cost, which is the fair value of the cash placed with

the institution. These investments are surplus funds which are classified as held-to-maturity financial assets.

Interest is accrued using the effective interest rate method and included in the Statement of Comprehensive Income on an accrual basis.

1.7 Taxation

Current tax assets and liabilities

Current tax for current and prior periods is, to the extent unpaid, recognised as a liability. If the amount already paid in respect of current and prior periods exceeds the amount due for those periods, the excess is recognised as an asset.

Current tax liabilities/(assets) for the current and prior periods are measured at the amount expected to be paid to / (recovered from) the tax authorities, using the tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period.

The company is exempt from paying Income Tax in terms of section 10(1) cA(i) of the Income Tax Act no.58 of 1962, but registered for VAT. Mindev is registered for Income Tax.

The tax currently payable is based on taxable profit for the financial year. Mindev's liability for current tax is calculated using tax rates that have been enacted or substantively enacted at the financial year end date.

1.8 Irregular, fruitless and wasteful expenditure

Irregular expenditure means expenditure incurred in contravention of, or not in accordance with, a requirement of any applicable legislation, including:

- ▲ The Public Finance Management Act; or,
- ▲ Any provincial legislation providing for procedures in that state owned entity.

Fruitless and wasteful expenditure means expenditure that was made in vain and could have been avoided had reasonable care been exercised. All irregular, fruitless and wasteful expenditure is charged against income in the period in which they are incurred.

1.9 Financing costs

Interest in Mintek arises from bank overdraft, creditors and post retirement medical aid liability. Financing costs are recognised in the statement of comprehensive income in the period in which they are incurred.

1.10 Leases

A lease is classified as a finance lease if it transfers substantially all the risks and rewards incidental to ownership. A lease is classified as an operating lease if it does not transfer substantially all the risks and rewards incidental to ownership.

Finance leases – lessee

Finance leases are recognised as assets and liabilities in the Statement of Financial Position at amounts equal to the fair value of the leased property or, if lower, the present value of the minimum lease payments. The corresponding

Accounting Policies for the year ended 31 March 2013 (continued...)

liability to the lessor is included in the Statement of Financial Position as a finance lease obligation.

The discount rate used in calculating the present value of the minimum lease payments is the company's incremental borrowing rate.

The lease payments are apportioned between the finance charge and reduction of the outstanding liability. The finance charge is allocated to each period during the lease term so as to produce a constant periodic rate on the remaining balance of the liability.

Operating leases - lessor

Operating lease income is recognised as an income on a straight-line basis over the lease term.

Initial direct costs incurred in negotiating and arranging operating leases are added to the carrying amount of the leased asset and recognised as an expense over the lease term on the same basis as the lease income.

Income for leases is disclosed under other operating income in the Statement of Comprehensive Income.

Operating leases – lessee

Operating lease payments are recognised as an expense on a straight-line basis over the lease term. The difference between the amounts recognised as an expense and the contractual payments are recognised as an operating lease asset.

This liability is not discounted.

1.11 Inventories

Inventories are measured at the lower of cost and net realisable value on the weighted average cost method.

Net realisable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary to make the sale.

The cost of inventories comprises of all costs of purchase, costs of conversion and other costs incurred in bringing the inventories to their present location and condition.

The cost of inventories of items that are not ordinarily interchangeable and goods or services produced and segregated for specific projects is assigned using specific identification of the individual costs.

When inventories are sold, the carrying amounts of those inventories are recognised as an expense in the period in which the related revenue is recognised. The amount of any write-down of inventories to net realisable value and all losses of inventories are recognised as an expense in the period the write-down or loss occurs. The amount of any reversal of any write-down of inventories, arising from an increase in net realisable

value, are recognised as a reduction in the amount of inventories recognised as an expense in the period in which the reversal occurs.

1.12 Impairment of assets

The group 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 group estimates the recoverable amount of the asset.

Irrespective of whether there is any indication of impairment, the group also:

- ▲ tests intangible assets with an indefinite useful life or intangible assets not yet available for use for impairment annually by comparing its carrying amount with its recoverable amount. This impairment test is performed annually.

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. Any impairment loss of a revalued asset is treated as a revaluation decrease.

The company assesses at each reporting date whether there is any indication that an impairment loss recognised in prior periods for assets may no longer exist or may have decreased. If any such indication exists, the recoverable amounts of those assets are estimated.

A reversal of an impairment loss of assets carried at cost less accumulated depreciation or amortisation other than goodwill is recognised immediately in the Statement of Comprehensive Income. Any reversal of an impairment loss of a revalued asset is treated as a revaluation increase.

1.13 Share capital and equity

An equity instrument is any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities.

1.14 Employee benefits

Defined contribution plans

Payments to defined contribution retirement benefit plans are charged as an expense as they fall due.

Payments made to retirement benefit schemes are dealt with as defined contribution

plans where the group's obligation under the schemes is equivalent to those arising in a defined contribution retirement benefit plan.

For defined contribution plans, the Group pays contribution to privately administered pension insurance plans on a contractual basis. The Group has no further payment obligations once the contributions have been paid. The contributions are recognised as employee benefit expense when they are due.

Defined benefit plans

Actuarial valuations are conducted on an annual basis by independent actuaries separately for each plan.

Actuarial gains and losses are recognised in full in the reporting period it relates to and is the excess over the greater of the present value of the past service obligation at the reporting period before deducting the present value of assumed assets at the same date.

Valuations of these obligations are carried out annually by independent, qualified actuaries using the appropriate mortality tables, long-term estimates of increases in medical costs and appropriate discount rates.

Consideration is given to any event that could impact the funds up to the end of the reporting period where the interim valuation is performed at an earlier date.

Past service costs are recognised immediately to the extent that the benefits are already vested, and are otherwise amortised on a straight line basis over the average period until the amended benefits become vested.

The liability recognised in the balance sheet in respect of the defined benefit pension plans is the present value of the defined obligation at the balance sheet date less the fair value of plan assets, together with adjustments for unrecognised past-service costs. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method.

Prepaid contributions are recognised as an asset to the extent that a cash refund or a reduction in the future payment is available.

The Group has an obligation to fund the medical aid benefits of all its past employees and dependents of past employee who retired or were in the employment of the Group prior to 1 January 2000. The plan liability is unfunded and fully provided for in the financial statements. The Group uses the projected unit credit actuarial method to determine the present value of its past service cost. General increases to medical aid contributions were estimated taking into account the projected future changes in the cost of medical services resulting from both inflation and specific changes to medical costs.

1.15 Provisions and contingencies

Provisions are recognised when:

- ▲ the group has a present obligation as a result of a past event;

Accounting Policies for the year ended 31 March 2013 (continued...)

- ▲ it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation; and

- ▲ a reliable estimate can be made of the obligation.

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

Where some or all of the expenditure required to settle a provision is expected to be reimbursed by another party, the reimbursement shall be recognised when, and only when, it is virtually certain that reimbursement will be received if the entity settles the obligation. The reimbursement shall be treated as a separate asset. The amount recognised for the reimbursement shall not exceed the amount of the provision.

Provisions are not recognised for future operating losses.

If the company has a contract that is onerous, the present obligation under the contract shall be recognised and measured as a provision.

After their initial recognition contingent liabilities recognised in business combinations that are recognised separately are subsequently measured at the higher of:

- ▲ the amount that would be recognised as a provision; and
- ▲ the amount initially recognised less cumulative amortisation.

Contingent assets and contingent liabilities are not recognised. Contingencies are disclosed in note 24.

1.16 Government grants

Government grants are recognised at fair value when there is reasonable assurance that:

- ▲ the group 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 (separately).

Where a loan is received from government

at below market interest rate, the difference between the fair value of the loan and the amount received is recognised as a government grant.

1.17 Revenue

Revenue from the sale of goods is recognised when all the following conditions have been satisfied:

- ▲ the group has transferred to the buyer the significant risks and rewards of ownership of the goods;
- ▲ the group retains neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods sold;
- ▲ the amount of revenue can be measured reliably;
- ▲ it is probable that the economic benefits associated with the transaction will flow to the group; and
- ▲ the costs incurred or to be incurred in respect of the transaction can be measured reliably.

When the outcome of a transaction involving the rendering of services can be estimated reliably, revenue associated with the transaction is recognised by reference to the stage of completion of the transaction at the end of the reporting period.

The outcome of a transaction can be estimated reliably when all the following conditions are satisfied:

- ▲ the amount of revenue can be measured reliably;
- ▲ it is probable that the economic benefits associated with the transaction will flow to the group;
- ▲ the stage of completion of the transaction at the end of the reporting period can be measured reliably; and
- ▲ the costs incurred for the transaction and the costs to complete the transaction can be measured reliably.

When the outcome of the transaction involving the rendering of services cannot be estimated reliably, revenue shall be recognised only to the extent of the expenses recognised that are recoverable.

Service revenue is recognised by reference to the stage of completion of the transaction at the end of the reporting period.

Stage of completion is determined by the actual costs in relation to the planned cost of a project.

Service fees included in the price of the product are recognised as revenue over the period during which the service is performed.

Contract revenue comprises:

- ▲ the initial amount of revenue agreed in the contract; and
- ▲ variations in contract work, claims and incentive payments:

to the extent that it is probable that they will result in revenue; and

- they are capable of being reliably measured.

Revenue is measured at the fair value of the consideration received or receivable and represents the amounts receivable for goods and services provided in the normal course of business, net of trade discounts and volume rebates, and value added tax.

Interest is recognised, in the Statement of Comprehensive Income, using the effective interest rate method.

1.18 Translation of foreign currencies

Foreign currency transactions

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

At the end of the reporting period:

- ▲ foreign currency monetary items are translated using the closing rate;
- ▲ non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the date of the transaction; and
- ▲ non-monetary items that are measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was determined.

Exchange differences arising on the settlement of monetary items or on translating monetary items at rates different from those at which they were translated on initial recognition during the period or in previous financial statements are recognised in profit or loss in the period in which they arise.

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

Notes to the Annual Financial Statements for the year ended 31 March 2013

MINTEK GROUP and MINTEK						
	2013			2012		
	Cost/Valuation	Accumulated depreciation	Carrying value	Cost/Valuation	Accumulated depreciation	Carrying value
2. Property, plant and equipment						
Land	91,747,897	-	91,747,897	91,747,897	-	91,747,897
Buildings	89,236,382	(20,618,574)	68,617,808	86,635,700	(18,630,246)	68,005,454
Plant and machinery	38,544,541	(28,397,701)	10,146,840	38,326,218	(27,724,707)	10,601,511
Furniture and fixtures	5,758,862	(2,993,526)	2,765,336	4,718,354	(2,442,355)	2,275,999
Motor vehicles	990,581	(850,651)	139,930	990,581	(765,928)	224,653
Equipment	270,062,365	(214,249,465)	55,812,900	194,028,795	(143,984,117)	50,044,678
Capital assets under construction	16,300,548	-	16,300,548	34,364,191	-	34,364,191
Total	512,641,176	(267,109,917)	245,531,259	450,811,736	(193,547,353)	257,264,383

Reconciliation of the carrying value of property, plant and equipment									MINTEK GROUP and MINTEK - 2013									
	Opening balance	Additions	Disposals	Funded Assets	Transfers	Adjustments	Depreciation	Total										
Land	91,747,897	-	-	-	-	-	-	91,747,897										
Buildings	68,005,454	2,600,682	-	-	-	-	(1,988,328)	68,617,808										
Plant and machinery	10,601,511	4,673,723	(8,471)	-	(4,432,058)	1,100,023	(1,787,888)	10,146,840										
Furniture and fixtures	2,275,999	1,234,805	(26,427)	-	-	154,393	(873,434)	2,765,336										
Motor vehicles	224,653	-	-	-	-	-	(84,723)	139,930										
Equipment	50,044,678	35,463,552	(3,260,429)	(60,366,325)	38,714,794	3,864,173	(8,647,543)	55,812,900										
Capital assets under construction	34,364,191	16,219,093	-	-	(34,282,736)	-	-	16,300,548										
Total	257,264,383	60,191,855	(3,295,327)	(60,366,325)	-	5,118,589	(13,381,916)	245,531,259										

Reconciliation of the carrying value of property, plant and equipment									MINTEK GROUP and MINTEK - 2012									
	Opening balance	Additions	Disposals	Funded Assets	Transfers	Adjustments	Depreciation	Total										
Land	91,747,897	-	-	-	-	-	-	91,747,897										
Buildings	69,779,520	-	-	-	1,148,279	-	(2,922,345)	68,005,454										
Plant and machinery	10,564,439	363,847	(33,255)	-	-	1,300,637	(1,594,157)	10,601,511										
Furniture and fixtures	1,886,125	689,940	(44,772)	-	302,498	139,325	(697,117)	2,275,999										
Motor vehicles	54,819	-	-	-	-	189,638	(19,804)	224,653										
Equipment	31,927,207	35,111,269	(818,965)	(21,058,128)	1,157,473	10,630,453	(6,904,631)	50,044,678										
Capital assets under construction	2,655,431	34,317,010	-	-	(2,608,250)	-	-	34,364,191										
Total	208,615,438	70,482,066	(896,992)	(21,058,128)	-	12,260,053	(12,138,054)	257,264,383										

Other information

A register containing the information required by Regulation 25(3) of the Companies Regulations, 2011 is available for inspection at the registered office of the company.

Fully depreciated assets and funded assets with a total acquisition value of R137,127,343 (2012 - R107,640,958) are still in use. These assets are recorded at R1 in the asset register.

Mintek reassessed the useful life of all zero value assets due to the fact that they are still in use and have future economic value. The useful lives were extended based on the assumptions that assets will be replaced in the next two years due to a capitalisation plan. The original acquisition value for these assets were R22,298,801 and the resultant depreciation write back was R5,633,718, of which R5,118,589 relates to property, plant and equipment and R515,129 relates to intangible assets (refer to note 19).

Notes to the Annual Financial Statements for the year ended 31 March 2013

<i>Figures in Rand(s)</i>	MINTEK GROUP		MINTEK	
	2013	2012	2013	2012
2. Property, plant and equipment (continued)				
Carrying value				
Land	91,747,897	91,747,897	91,747,897	91,747,897
Buildings	68,617,808	68,005,454	68,617,808	68,005,454
Plant	10,146,840	10,601,511	10,146,840	10,601,511
Equipment	55,812,900	50,044,678	55,812,900	50,044,678
Vehicles	139,930	224,653	139,930	224,653
Furniture and fittings	2,765,336	2,275,999	2,765,336	2,275,999
Capital work in progress	16,300,548	34,364,191	16,300,548	34,364,191
	245,531,259	257,264,383	245,531,259	257,264,383
Freehold land and buildings at costs:				
Land and buildings original cost	11,759,900	11,759,900	11,759,900	11,759,900
Revaluation until 31 March 2006	75,373,132	75,373,132	75,373,132	75,373,132
Revaluation 31 March 2008	49,324,836	49,324,836	49,324,836	49,324,836
Additions and transfers 2009	3,068,180	3,068,180	3,068,180	3,068,180
Additions and transfers 2010	12,401,768	12,401,768	12,401,768	12,401,768
Additions and transfers 2011	882,252	882,252	882,252	882,252
Revaluation 31 March 2011	24,485,158	24,485,158	24,485,158	24,485,158
Additions and disposals 2012	1,088,371	1,088,371	1,088,371	1,088,371
Additions for 2013	2,600,682	-	2,600,682	-
Revaluation at cost	180,984,279	178,383,597	180,984,279	178,383,597
Directors' valuation	180,984,279	178,383,597	180,984,279	178,383,597

Portion 175 and portion 226 of the farm Klipfontein, 203-IQ Johannesburg, with buildings thereon and the sectional title of units at Malanshof Heights located at Erf 560 Malanshof. The value of the land and building complexes were estimated at R158,859,898 by Resurgent Projects (Pty) Ltd, an independent valuator, during the financial year ending 31 March 2011.

The valuation is done every 5 years and the latest valuation report was issued on 25 May 2011. The key assumptions used were that the value of the property be based as sale of vacant land and buildings for rental investment using various rental income figures for different areas of the Mintek property. These calculated rentals were then capitalised at 13%.

The estimated useful lives of depreciable property, plant, equipment and vehicles are as follows:

Buildings	50 years
Plant	5 - 10 years
Equipment	5 - 10 years
Vehicles	5 years
Furniture and fittings	5 - 10 years

Notes to the Annual Financial Statements for the year ended 31 March 2013

<i>Figures in Rand(s)</i>	2013			2012		
3. Intangible assets						
	Cost / Valuation	Accumulated amortisation	Carrying value	Cost / Valuation	Accumulated amortisation	Carrying value
Computer software	8,215,551	(5,346,737)	2,868,814	7,784,771	(4,637,528)	3,147,243
Reconciliation of intangible assets - Mintek Group and Mintek - 2013						
	Opening balance	Acquisitions	Adjustments	Amortisation	Total	
Computer software	3,147,243	430,780	515,129	(1,224,338)	2,868,814	
Reconciliation of intangible assets - Group and Mintek - 2012						
	Opening balance	Acquisitions	Disposals	Adjustments	Amortisation	Total
Computer software	2,948,386	36,330	1	1,073,075	(910,549)	3,147,243

The estimated useful lives of amortisable intangible assets are as follows: 3 - 5 years

<i>Figures in Rand(s)</i>		MINTEK GROUP		MINTEK	
		2013	2012	2013	2012
4. Investments in subsidiaries	Held by Mintek	% holding	% holding	Carrying amount (R)	Carrying amount (R)
Mindev (Pty) Ltd		100%	100%	100	100

Mindev is engaged in the commercialization of Mintek's patents and technology through the identification of suitable partners to advance such interests by way of direct investment in equity and through joint ventures.

Mintek holds 100% of the issued share capital of Mindev (Propriety) Limited. The carrying amounts of the subsidiaries are shown net of impairment losses.

<i>Figures in Rand(s)</i>	2013	2012	2013	2012
5. Inventories				
Consumables	4,244,778	3,565,074	4,244,778	3,565,074
Finished goods	593,301	1,137,934	593,301	1,137,934
Work-in-progress	1,034,292	765,478	1,034,292	765,478
	5,872,371	5,468,486	5,872,371	5,468,486
Provision for obsolete inventories	(321,844)	(1,585)	(321,844)	(1,585)
	5,550,527	5,466,901	5,550,527	5,466,901
Carrying value of inventories carried at fair value less costs to sell	5,550,527	5,466,901	5,550,527	5,466,901

Consumables are held in stock for daily business requirements. Finished goods relate to products manufactured by the MAC division.

Finished goods manufactured by the MAC division to the value of R240,000 were written-off during year due to obsolescence.

6. Trade and other receivables				
Trade receivables	28,690,317	27,650,265	28,690,317	27,650,265
SARS - VAT	895,668	735,600	895,668	735,600
Prepayments	3,670,386	2,348,693	3,670,386	2,348,693
Unearned interest on fair value debtors (discounting)	76,576	88,678	76,576	88,678
Project work-in-progress	11,634,394	14,825,494	11,634,394	14,825,494
Other receivables	621,246	348,618	621,246	348,618
Less: Provision for impairment	(124,870)	(257,858)	(124,870)	(257,858)
	45,463,717	45,739,490	45,463,717	45,739,490

Project work-in-progress relates to projects where work has been executed, but not yet billed.

Notes to the Annual Financial Statements for the year ended 31 March 2013

<i>Figures in Rand(s)</i>	MINTEK GROUP		MINTEK	
	2013	2012	2013	2012
6. Trade and other receivables (continued)				
The following is an age analysis of trade receivables at balance sheet date:				
0-30 days	22,512,563	23,012,428	22,515,563	23,012,428
31-60 days past due	2,552,106	3,604,375	2,552,106	3,604,375
61-90 days past due	1,421,578	170,405	1,421,578	170,405
90+ days past due	2,204,070	863,057	2,204,070	863,057
	28,690,317	27,650,265	28,693,317	27,650,265
The age analysis reflects the categories of overdue debtors.				
Fair value of trade receivables				
Trade and other receivables	45,463,717	45,739,490	45,463,717	45,739,490
In terms of IAS 39 outstanding customer invoices are discounted throughout the year to show the deemed interest that Mintek has forfeited. A basis rate of prime interest rate less 5% has been used due to the fact that this is a fair representation of the interest that Mintek earns through fixed term deposits.				
Provision for impairment				
Included in the trade receivable balance are debtors which are past the original expected collection date at the reporting date, with a carrying amount of R3,500,788 (2012:R775,604) for which the company has not provided as there has not been a significant change in credit quality and the amounts are still considered recoverable. The company does not hold any collateral over these balances. The average age of outstanding balances is 69 days (2012: 65 days). A summarised age analysis of due debtors is set out below.				
The ageing of amounts due but not impaired is as follows:				
60 - 90 days	1,421,578	170,405	1,421,578	170,405
More than 90 days	2,079,200	605,199	2,079,200	605,199
	3,500,778	775,604	3,500,778	775,604
Trade and other receivables impaired				
As of 31 March 2013, trade receivables of R257,858 (2012: R50,434) of which R257,858 (2012: R46,284) was provided for in the prior year were impaired and written-off. An amount of R93,176 was written-off as bad debts directly to the statements of comprehensive income during the year under review.				
The amount of the provision was R124,870 as at 31 March 2013 (2012:R257,858). The ageing of these trade receivables is as follows:				
More than 90 days	124,870	257,858	124,870	257,858
Reconciliation of provision for impairment of trade receivables				
Opening balance	257,858	301,325	257,858	301,325
Provision for impairment	124,870	257,858	124,870	257,858
Amounts written off as uncollectable	(257,858)	(46,284)	(257,858)	(46,284)
Amounts settled	-	(255,041)	-	(255,041)
	124,870	257,858	124,870	257,858
In determining the recoverability of a trade receivable, the company considers any change in the credit quality of the trade receivable from the date credit was initially granted up to the reporting date. Accordingly, the directors believe that there is no further credit provision required in excess of the provision for doubtful debts.				
The maximum exposure to credit risk at the reporting date is the fair value of each class of receivable. The group does not hold any collateral as security.				
Currencies				
The carrying amount of trade receivables are denominated in the following currencies				
Rand	26,451,671	26,851,880	26,451,671	26,851,880
USD	1,853,564	126,863	1,853,564	126,863
EUR	267,587	89,972	267,587	89,972
AUD	117,495	551,550	117,495	551,550
	28,690,317	27,650,265	28,690,317	27,650,265

7. Short term investments

Short term investments - Current Portion	255,293,799	274,493,109	255,293,799	274,493,109
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Investments in short-term fixed deposits are held with various reputable financial institutions at market value and interest has been earned at prime overdraft rates less a varied percentage over the year.

Fixed investments held with various financial institutions are partly earmarked for the financing of Mintek's liabilities.

A cession of R 2,236,636 (2012: R2,436,636) is held over these investments. Refer to note 24.

Notes to the Annual Financial Statements for the year ended 31 March 2013

<i>Figures in Rand(s)</i>	MINTEK GROUP		MINTEK	
	2013	2012	2013	2012
8. Retirement benefits				
Carrying value				
Post-retirement medical aid	27,700,000	26,800,000	27,700,000	26,800,000
Pension benefit liability	1,700,140	1,486,244	1,700,140	1,486,244
	29,400,140	28,286,244	29,400,140	28,286,244
Number of employees	115	127	115	127
Post-retirement medical benefits				
Medical cover is provided through a number of different schemes. Post-retirement medical cover in respect of qualifying employees is recognised as an expense over the expected remaining service lives of the relevant employees. Mintek has an obligation to provide medical benefits to certain pensioners and dependents. These liabilities have been provided for in full, calculated on an actuarial basis. These liabilities are unfunded. Periodic valuation of this obligation is carried out by an independent actuaries every year, the latest one being 31 March 2013.				
The amounts included in the balance sheet arising from Mintek's obligation in respect of post-retirement medical benefits are as follows:				
Present value of obligations as at 31 March 2013	27,700,000	26,800,000	27,700,000	26,800,000
Fixed investment held with various financial institutions is partly earmarked as financing for post-retirement medical aid liability. Mintek has not assigned a specific fund to hedge the post-retirement medical aid liability.				
Movement in the net liability recognised in the statement of financial position				
Net-past service benefit liability: Beginning of the year	26,800,000	26,933,679	26,800,000	26,933,679
Interest costs	2,200,000	2,300,000	2,200,000	2,300,000
Contributions paid to service providers	(117,651)	(105,917)	(117,651)	(105,917)
Net actuarial gain	(7,912)	(932,765)	(7,912)	(932,765)
Settlements	(1,174,437)	(1,394,997)	(1,174,437)	(1,394,997)
Net-past services benefit liability: End of the year	27,700,000	26,800,000	27,700,000	26,800,000
Key assumptions				
Expected rate of return on assets	8.50 %	8,50 %	8.50 %	8.50 %
Expected increase in salaries health care costs	6.70 %	6.60 %	6.70 %	6.60 %
Amounts recognised in the Statement of Comprehensive Income are as follows:				
Current costs	2,200,000	2,300,000	2,200,000	2,300,000
Benefits paid				
Contributions paid	117,651	105,917	117,651	105,917
The results are dependent on the assumptions used. The table below shows how the past service cost as at 31 March 2013 would be impacted by changes to these assumptions.				
Sensitivity analysis on past service cost				
Discount rate increased by 1% p.a.	24,000,000	23,300,000	24,000,000	23,300,000
Discount rate decreased by 1% p.a.	32,200,000	31,200,000	32,200,000	31,200,000
Subsidy inflation increased by 1% p.a.	32,100,000	31,200,000	32,100,000	31,200,000
Subsidy inflation decreased by 1% p.a.	24,000,000	23,200,000	24,000,000	23,200,000
Retirement age 58	30,800,000	29,700,000	30,800,000	29,700,000
Pension benefit liability				
Pension benefits are provided to members of the Mintek Retirement Fund (MRF).				
Movement in the net-liability recognised in the balance sheet				
Employer liability at beginning of year	1,486,244	1,353,426	1,486,244	1,353,426
Actuarial loss	213,896	132,818	213,896	132,818
Net employee liability at end of year	1,700,140	1,486,244	1,700,140	1,486,244
Current cost	213,896	132,818	213,896	132,818

At inception of the Fund a Retirement Reserve was allocated to certain members which will become payable at the time of the member's death or withdrawal. The employer also funds a minimum guaranteed pension for a member who entered the fund as at 1 January 1995. For purpose of calculating the valuation, investment returns are expected to exceed salary increases by 3%.

These payments are made from within the MRF and Mintek has no direct control over it.

Notes to the Annual Financial Statements for the year ended 31 March 2013

<i>Figures in Rand(s)</i>	MINTEK GROUP		MINTEK	
	2013	2012	2013	2012
9. Loans from group companies				
Subsidiaries				
Mindev (Pty) Ltd	-	-	39,515,043	39,472,396
The loan granted is unsecured and does not have any fixed repayment terms.				
The carrying amount of the loan to Mintek is denominated in Rands.				
10. Trade and other payables				
Trade payables	20,030,167	24,120,735	20,030,167	24,120,735
Other payables	6,331,521	5,442,833	6,331,521	5,442,833
Salary provision	-	18,168,528	-	18,168,528
Accrued leave pay	9,572,355	9,163,832	9,572,355	9,163,832
Accruals	7,996,636	7,227,622	7,996,636	7,227,622
Unpaid interest - creditors	22,372	(33,549)	22,372	(33,549)
	43,953,051	64,090,001	43,953,051	64,090,001
Fair value of trade and other payables				
Trade and other payables	43,953,051	64,090,001	43,953,051	64,090,001
In terms of IAS 39 outstanding supplier invoices are discounted throughout the year to show the deemed interest that Mintek has forfeited. A basis rate of prime interest rate less 5% has been used due to the fact that this is a fair representation of the interest that Mintek earns through fixed term deposits.				
11. Deferred income				
Deferred income	52,749,343	93,356,963	52,749,343	93,356,963
Advance client billing (Unearned income)	17,832,868	23,454,912	17,832,868	23,454,912
	70,582,211	116,811,875	70,582,211	116,811,875

Deferred income arises as a result of contracts undertaken for several government departments and institutions in respect of amounts received in cash not yet accounted for as revenue.

Advance client billing income arises as a result of contracts undertaken in terms of commercial work where invoices are raised based on work that has not been done. The quantum of costs incurred provides the basis for the level of revenue recognised in the period.

12. Provisions

Reconciliation of provisions - Group and Mintek - 2013

	Opening balance	Additions	Reversed during the year	Total
Product warranties	312,156	394,045	(395,336)	310,865

Reconciliation of provisions - Group and Mintek - 2012

	Opening balance	Additions	Reversed during the year	Total
Product warranties	568,432	1,139,319	(1,395,595)	312,156

The provision for product warranties arises from Mintek recognising its probable liability for meeting its obligation in terms of products and services as stipulated in its contracts with its customers.

Notes to the Annual Financial Statements for the year ended 31 March 2013

<i>Figures in Rand(s)</i>	MINTEK GROUP		MINTEK	
	2013	2012	2013	2012
13. Revenue				
Rendering of services	451,853,632	398,970,138	451,853,632	398,970,138
Components of revenue				
Government grants	192,510,527	126,262,095	192,510,527	126,262,095
State Grant	222,395,614	172,768,421	222,395,614	172,768,421
Prior year carry-over	33,665,492	5,975,582	33,665,492	5,975,582
<i>Less:</i>				
Portion of grant utilised to acquire fixed assets and set-off against infrastructure improvements	(52,770,379)	(18,816,416)	(52,770,379)	(18,816,416)
Portion of grant carried over for committed fixed asset purchases and expenses	(10,780,200)	(33,665,492)	(10,780,200)	(33,665,492)
Other revenue streams	259,343,105	272,708,043	259,343,105	272,708,043
Products and services	148,153,762	165,314,040	148,153,762	165,314,040
Contract research	111,189,343	107,394,003	111,189,343	107,394,003
	451,853,632	398,970,138	451,853,632	398,970,138
14. Other operating income				
Other income	3,191,704	5,166,614	3,191,704	5,166,614
Components of operating income				
Library services	43,557	80,903	43,557	80,903
Breach of contract (employees)	136,550	259,870	136,550	259,870
Bad debts recovered	-	1,160,560	-	1,160,560
Sundry income	1,002,401	1,437,479	1,002,401	1,437,479
Rental income - properties	2,009,196	2,227,802	2,009,196	2,227,802
	3,191,704	5,166,614	3,191,704	5,166,614
15. Investment income				
Short term deposits	14,680,317	15,713,960	14,680,317	15,713,960
Bank balances	6,165	2,029	6,165	2,029
Fair value interest on debtors	877,697	866,732	877,697	866,732
Loans to employees	-	2,260	-	2,260
	15,564,179	16,584,981	15,564,179	16,584,981
Total interest income, calculated using the effective interest rate, on financial instruments not at fair value through the Statement of Comprehensive Income amounted to R14,680,317 (2012: R15,713,960).				
16. Finance costs				
Trade creditors	6,279	12,332	6,279	12,332
Fair value interest on creditor	856,461	366,554	856,461	366,554
Retirement benefits	2,200,000	2,300,000	2,200,000	2,300,000
	3,062,740	2,678,886	3,062,740	2,678,886

Notes to the Annual Financial Statements for the year ended 31 March 2013

<i>Figures in Rand(s)</i>	MINTEK GROUP		MINTEK	
	2013	2012	2013	2012
17. Auditors' remuneration				
External audit fees	2,290,447	2,142,489	2,290,447	2,142,489
Other audits	236,543	158,750	236,543	158,750
	2,526,990	2,301,239	2,526,990	2,301,239
18. Fees for services				
Outsourced services	89,427,176	47,276,003	89,427,176	47,276,003
Components of fees for services				
Technology services	23,998,962	18,320,584	23,998,962	18,320,584
Facility management	4,051,028	5,352,029	4,051,028	5,352,029
Legal fees	2,603,691	2,546,647	2,603,691	2,546,647
Contract services	57,447,116	17,536,994	57,447,116	17,536,994
Other	269,167	1,412,063	269,167	1,412,063
Professional consultancy	1,057,212	2,107,686	1,057,212	2,107,686
	89,427,176	47,276,003	89,427,176	47,276,003
19. Depreciation, amortization and impairments				
Depreciation, amortisation and impairments	14,606,560	13,048,603	14,606,560	13,048,603
Components of depreciation, amortization and impairments				
Buildings	1,988,328	2,922,345	1,988,328	2,922,345
Plant	1,787,888	1,594,157	1,787,888	1,594,157
Equipment	8,648,168	6,904,631	8,648,168	6,904,631
Vehicles	84,724	19,804	84,724	19,804
Furniture and fittings	873,114	697,117	873,114	697,117
Computer software (intangible assets)	1,224,338	910,549	1,224,338	910,549
	14,606,560	13,048,603	14,606,560	13,048,603
Reassessment of assets useful lives	(5,633,718)	(12,832,877)	(5,633,718)	(12,832,877)

Mintek reassessed the useful life of all zero value assets due to the fact that they are still in use and have future economic value. The useful lives were extended based on the assumptions that assets will be replaced in the next two years due to a capitalisation plan. The original acquisition value for these assets were R22,298,801 and the resultant depreciation write back was R5,633,718 (refer to notes 2 and 3).

Notes to the Annual Financial Statements for the year ended 31 March 2013

<i>Figures in Rand(s)</i>	MINTEK GROUP		MINTEK	
	2013	2012	2013	2012
20. Taxation				
Reconciliation of the tax expense				
No provision for income tax has been made for Mintek during the current financial year as Mintek is exempt in terms of Section 10(1)(CA)(i) of the Income Tax Act, No. 58 of 1962, and Mindev is a dormant company.				
21. Cash (utilised)/generated from operations				
Surplus for the year	16,074,090	43,437,298	16,074,090	43,437,298
Adjustments for:				
Depreciation and amortisation	14,606,560	13,048,603	14,606,560	13,048,603
Loss on sale of assets	3,295,327	896,992	3,295,327	896,992
Actuarial (loss)/gain	88,333	(905,864)	88,333	(905,864)
Interest received	(15,564,179)	(16,584,981)	(15,564,179)	(16,584,981)
Finance costs	3,062,740	2,678,886	3,062,740	2,678,886
Provisions raised	394,045	1,139,319	394,045	1,139,319
Fair value adjustment - trade receivables	877,697	866,732	877,697	866,732
Fair value adjustment - trade payables	(856,461)	(366,554)	(856,461)	(366,554)
Assets adjustment	(5,634,024)	(13,333,129)	(5,634,024)	(13,333,129)
Changes in working capital:				
(Increase)/decrease in inventories	(83,626)	255,445	(83,626)	255,445
Decrease/(increase) in trade and other receivables	275,773	(1,824,648)	275,773	(1,824,648)
(Decrease)/increase in trade and other payables	(20,136,950)	29,082,484	(20,136,950)	29,082,484
(Decrease)/increase in deferred income	(46,229,664)	15,941,616	(46,229,664)	15,941,616
	(49,830,339)	74,332,199	(49,830,339)	74,332,199

22. Insurance and Risk Management

The insurance and risk management policies adopted by Mintek are aimed at obtaining sufficient cover at the minimum cost to protect its asset base, earning capacity and legal obligations against acceptable losses.

All property, plant and equipment are insured at current replacement value. Risks of a possible catastrophic nature are identified and insured at acceptable risks.

Notes to the Annual Financial Statements for the year ended 31 March 2013

<i>Figures in Rand(s)</i>	MINTEK GROUP		MINTEK	
	2013	2012	2013	2012
23. Commitments				
Authorised capital expenditure				
Authorised and contracted for				
• Property, plant and equipment	2,807,030	40,332,700	2,807,030	40,332,700
This committed expenditure relates to property, plant and equipment and will be financed by existing cash resources, and funds internally generated.				
Operational expenditure				
Contracted for	12,167,733	26,100,270	12,167,733	26,100,270
Operating leases for vehicles – as lessee (expense)				
Minimum lease payments due				
- within one year	574,847	411,504	574,847	411,504
- in second to fifth year inclusive	333,928	468,967	333,928	468,967
	908,775	880,471	908,775	880,471
Operating leases for office equipment				
Minimum lease payment due				
- within one year	318,155	417,282	318,155	417,282
- in second to fifth year inclusive	162,544	481,908	162,544	481,908
	480,699	899,190	480,699	899,190

24. Contingencies

Mintek has disputed employment termination contracts with former employees, the aggregate of which is not expected to exceed R1,963,510. None of these cases are considered probable.

Cessions in favour of Absa Bank for R2,236,636 (2012: R2,436,636) to meet requirements for credit card and other banking facilities has been registered.

Notes to the Annual Financial Statements for the year ended 31 March 2013

Figures in Rand(s)	MINTEK GROUP		MINTEK	
	2013	2012	2013	2012
25. Related parties				
Controlling entity				
The Group comprises of Mintek and its wholly owned subsidiary Mindev (Proprietary) Limited. Mindev is engaged in the commercialisation of Mintek patents and technology through the identification of suitable partners. The Group, in the ordinary course of business, enters into various sale and purchase transactions with related parties.				
None of the directors, officers or major shareholders of the Mintek Group or, to the knowledge of Mintek, their families, had any interest, direct or indirect, in any transactions which has affected or will materially affect Mintek or its investment or subsidiary.				
Related party transactions				
Related party transactions exist within the Group. During the year all sales transactions were concluded at arm's length.				
Details of material transactions with related parties not disclosed elsewhere in the financial statements are as follows:				
Loan accounts - Owing to related parties				
Mindev (Pty) Ltd	-	-	39,515,043	39,472,296
Amounts included in Deferred Income regarding related parties				
Department of Mineral Resources	1,379,020	29,877,886	1,379,020	29,877,886
Mining Qualification Authority	687,469	3,405,409	687,469	3,405,409
Department of Science and Technology	35,099,393	51,572,201	35,099,393	51,572,201
National Lottery Board	620,089	-	620,089	-
National Research Foundation	5,333,920	8,230,915	5,333,920	8,230,915
Minquiz Sponsorship	249,862	194,634	249,862	194,634
Amounts included in Trade receivables regarding related parties				
Mining Qualification Authority	963,283	13,806	963,283	13,806
Water Research Commission	-	150,000	-	150,000
Department of Science and Technology	499,398	13,157	499,398	13,157
National Research Foundation	150,950	-	150,950	-
CSIR	48,017	-	48,017	-
Sales to related parties				
Department of Mineral Resources	54,814,655	18,546,025	54,814,655	18,546,025
Department of Science and Technology	50,170,889	47,621,239	50,170,889	47,621,239
Water Research Commission	-	150,000	-	150,000
National Research Foundation	586,387	2,047,825	586,387	2,047,825
Department of Trade and Industry	-	400,000	-	400,000
Minquiz Sponsorship	181,223	78,173	181,223	78,173
Mining Qualification Authority	5,980,247	1,931,504	5,980,247	1,931,604
CSIR	159,692	29,144	159,692	29,144
National Lottery Board	1,265,876	-	1,265,876	-
Relationships				
Subsidiary:	Mindev (Pty) Limited			
Parent National Department:	Department of Mineral Resources			
Other Government Science Departments:	Department of Science and Technology and its Entities			
Other Government Departments and Entities:	Department of Trade and Industries and its Entities			
	Department of Higher Education and Training and its Entities			
	Department of Water and Environmental Affairs and its Entities			

Notes to the Annual Financial Statements for the year ended 31 March 2013

<i>Figures in Rand(s)</i>	Basic salary	Performance bonus and other expenses	Total
26. Board members and executive management remuneration			
2013 Executive Management			
Mr MA Mngomezulu	2,028,375	160,219	2,188,594
Mr AD McKenzie	1,232,000	101,714	1,333,714
Mr P Craven	1,303,077	102,929	1,406,006
Mr SA Simelane	1,352,250	106,813	1,459,063
Adv M Ramoshaba (Resigned 28/02/2013)	1,098,918	88,473	1,187,391
Dr M Makhafola	1,220,378	84,512	1,304,890
	8,234,998	644,660	8,879,658

	Entity	Fees for services as directors	Other expenses	Total
2013 Non-Executive Board members				
Mr M Mphomela (Contract ended 31/03/2013)	Independent Management Consultant	111,294	9,168	120,462
Mr P Streng (Contract ended 31/03/2013)	Independent Management Consultant	65,070	2,277	67,347
Adv D Block	Independent Management Consultant	89,745	3,930	93,675
Ms S Maja (Contract ended 31/03/2013)	Jacques Van Der Merwe Maja Inc.	68,359	3,589	71,948
Ms J Ndlovu (Contract ended 31/03/2013)	NPC Cimpor (Pty) Ltd	55,034	3,443	58,477
		389,502	22,407	411,909

	MINTEK GROUP		MINTEK	
	2013	2012	2013	2012
Travel	201,448	155,540	201,448	155,540
Strategic planning	113,089	144,000	113,089	144,000
Legal fees	52,632	49,258	52,632	49,528
Independent committee members - fees and travel costs	20,472	35,865	20,472	35,865
	387,641	384,663	387,641	384,933

Messrs. I Patel, M Mabuza, T Nell and GL Rapoo and Ms. S Mohale were not paid any directors' emoluments during the year under review as they are serving as government employees.

Notes to the Annual Financial Statements for the year ended 31 March 2013

<i>Figures in Rand(s)</i>		Basic salary	Performance bonus and other expenses	Total
26. Board members and executive management remuneration				
2012 Executive Management				
Mr MA Mngomezulu		1,835,238	8,244	1,843,482
Dr RL Paul (Retired 30/09/2011)		776,173	20,522	796,695
Mr AD McKenzie (Appointed 01/10/2011)		583,886	16,492	600,378
Mr P Craven		1,179,001	7,307	1,186,308
Mr SA Simelane		1,223,492	1,004	1,224,496
Adv M Ramoshaba (Appointed 01/05/2011)		1,041,822	1,203	1,043,025
Dr M Makhafola (Appointed 16/05/2011)		999,690	12,093	1,011,783
		7,639,302	66,865	7,706,167
2012 Non-Executive Board members				
Mr M Mphomela (Chairperson)	Independent Management Consultant	110,912	6,748	117,660
Ms N Qunta (Resigned 04/10/2011)	ZBQ Consulting	9,217	871	10,088
Mr P Streng	Independent Management Consultant	102,462	8,555	111,017
Adv D Block	Independent Management Consultant	64,411	2,754	67,165
Mr P White (Deceased 10/11/2011)	Venmyn Techno Consulting Firm	66,795	5,809	72,604
Ms S Sekgobela	Agriculture and Rural Development, Gauteng	3,709	402	4,111
Ms S Maja	Jacques vd Merwe Maja Inc	88,551	4,456	93,007
		446,057	29,595	475,652
MINTEK GROUP				
		2012	2011	MINTEK
				2011
Travel		155,540	-	155,540
Strategic planning		144,000	-	144,000
Legal fees		49,258	-	49,258
Independent committee members - fees and travel costs		35,865	-	35,865
		384,663	-	384,663

This is the first year that this disclosure has been made with regards to expenditure incurred by the Board and therefore there are no comparatives available.

Messes. I Patel, M Mabuza, T Nell and GL Rapoo and Ms. S Mohale and J Ndlovu were not paid any directors' emoluments during the year under review as they are serving as government employees except for Ms J Ndlovu who is employed in the private sector and her employer has requested that no emoluments be paid for her services as director.

The following director was appointed during the financial year; S Mohale. The following directors terminated their services during the financial year; N Qunta, P White (deceased) and M Mabuza.

Figures in Rand(s)

27. Financial Instruments

Foreign currency risk

Foreign currency risk is the risk that the fair value or future cash flow of a financial instrument will fluctuate because of changes in foreign exchange rates. The group undertakes certain transactions denominated in foreign currencies hence exposure to exchange rate fluctuations arises. Exchange rate exposures are managed by operating a US Dollar based bank account within approved policy parameters and the group does not use derivatives to hedge its exposure.

Credit risk management

Financial assets that could subject the group to credit risk consist principally of bank balances and cash, deposits, trade and other receivables, and short-term investments. The Group bank balances and short-term investments are placed with several financial institutions with at least BBB credit ratings as rated in terms of the Fitch Global Rating system. The Group reviews its trade and other receivables at each balance sheet date to ensure adequate allowances for doubtful receivables or loan write-offs are made, the level of this provision is disclosed in note 6. Credit risk with respect to trade receivables is limited to the large number of customers comprising the Group's customer base and their dispersion across different industries and geographical areas. Accordingly the Group does not have significant concentration of credit risk.

The Group considers its short-term investments to be secured and readily available as cash should the need arise for the conversion of the investments.

The carrying amounts of financial assets included in the balance sheet represent the Group's exposure to credit risk in relation to these assets. The Group does not have any significant exposure to any customer or counter party.

Liquidity risk

Prudent liquidity risk management implies maintaining sufficient cash resources to meet cash flow requirements. Management monitors forecasts of liquidity reserve on the basis of expected cash flow. Analysis of the various requirements is disclosed in note 7 of the financial statements.

Fair values

As at 31 March 2013 the carrying amount of bank balances and cash, deposits, trade and other receivables, trade and other payables, contracts in progress, advances received and short-term borrowings approximated their fair values due to the short-term nature of these assets and liabilities. The group does not hedge foreign exchange fluctuations.

Interest rate risk

The valuation of interest rate exposure and investment strategies is done on a regular basis. The risk arises from substantial interest-bearing assets at variable interest rates. To minimise exposure to this risk, the Group uses a mixture of variable and fixed interest rates.

28. Fruitless, wasteful and irregular expenditure

No fruitless, wasteful and irregular expenditure was identified during the current financial year.

Corporate

Directors

Executive

Mr Abiel Mngomezulu

Non-Executive Board Members

Adv Linda Makatini
 Prof Francis William Petersen
 Dr Vuyelwa Toni Penxa
 Ms Nompumelele Zikalala
 Dr Nkongwana Stoffel Nhlapo
 Adv Derrick Block
 Ms Khomotso Ramasela-Mthimunya
 Ms Cathy Leso
 Mr Imraan Patel

Auditor

Auditor General South Africa,
 Pretoria, South Africa

Mintek Address details

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 200 Malibongwe Drive
 Strijdom Park, Randburg 2194
 South Africa

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Company Secretariat

Ms Gugulethu Nyanda

RP: 55/2013
 ISBN: 978-0-621-41597-1

Contact details

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Internal Auditor	Mr Mpho Mathose	011-709 4796
External Auditors	Auditor General (AG)	012-426 8000
GM's Secretary	Ms Christa Scheepers	011-709 4908
GM's Secretary	Ms Evah Motsego	011-709 4906
Switchboard		011-709 4111

General Managers

Business Development	Mr Peter Craven	011-709 4934
Research & Development	Dr Makhapa Makhafola	011-709 4485
Corporate Services	Ms Gugulethu Nyanda	011-709 4680
Technology	Mr Alan McKenzie	011-709 4736
Finance	Mr Sakhi Simelane	011-709 4328

Divisions

	Contact Person	Tel. No.
Advanced Materials	Dr Jones Papo	011-709 4471
Analytical Services	Mr Joe Baloyi	011-709 4053
Biotechnology	Mr Petrus van Staden	011-709 4205
Engineering & Maintenance Services	Mr Boni Hewu	011-709 4140
Finance	Ms Hester Pretorius	011-709 4698
Human Resources & Training	Ms Bolekwa Maseti	011-709 4373
– Bursars & SET promotions	Ms Bolekwa Maseti	011-709 4373
Hydrometallurgy	Dr Leon Kruger	011-709 4656
Information & Communications	Mr Haveline Michau	011-709 4256
– Communications	Mr Lesego Mashigo	011-709 4251
– Conferences and Events	Ms Zinhle Dennison	011-709 4321
– Library	Ms Manil Moodley	011-709 4277
Information Technology	Mr Hennie Venter	011-709 4103
Measurement & Control	Mr Paul Brereton-Stiles	011-709 4355
Mineral Economics & Strategy Unit	Mr Godfrey Mothapo	011-709 4304
Minerals Processing	Mr Bernard Joja	011-709 4295
Mineralogy	Ms Nosiphiwo Mzamo	011-709 4163
Pyrometallurgy	VACANT	011-709 4642
Safety, Health, Environment & Quality	Mr Leon Swanepoel	011-709 4747
Small-Scale Mining & Beneficiation	Mr Nirdesh Singh	011-709 4335



Acronyms and Abbreviations

AMD	Advanced Materials Division
AMI	Advanced Metals Initiative
ARC	Audit and Risk Committee
ASSM	Artisanal and Small-Scale Miners/Mining
ASD	Analytical Services Division
BDD	Business Development Division
CCMA	Commission for Conciliation, Mediation and Arbitration
CDFR	Client Dissatisfaction Rate
DG	Designated Group
DMR	Department of Mineral Resources
DoL	Department of Labour
DoE	Department of Energy
DRC	Democratic Republic of Congo
DST	Department of Science and Technology
DTI	Department of Trade and Industry
ECSA	Engineering Council of South Africa
EIFR	Environmental Incident Frequency Rate
ESD	Engineering Support Division
FET	Further Education and Training
FMC	Full Mill Charge
FMDN	Ferrous and Base Metals Development Network
GAAP	Generally Accepted Accounting Practices
GDP	Graduate Development Programme
GM	General Manager
HEI	Higher Education Institute
HIC	Hydrogen-Induced Cracking
HIV	Human Immunodeficiency Virus
HMD	Hydrometallurgy Division
HR	Human Resources
HRTEM	High-Resolution Transmission Electron Microscope
HySA	Hydrogen South Africa
IA	Internal Audit
IFRS	International Financial Reporting Standards
IKS	Indigenous Knowledge Systems
KPI	Key Performance Indicator
LED	Local Economic Development
LTIFR	Lost-Time Injury Frequency Rate
MBT	Marked Ball Test
MESU	Mineral Economics and Strategy Unit
MgO	Magnesium oxide
MOU	Memorandum Of Understanding
MQA	Mining Qualifications Authority
MPD	Minerals Processing Division
MRC	Medical Research Council
MTC	Metals Technology Centre
MTEF	Medium Term Expenditure Framework
MW	Megawatts
NEF	National Empowerment Fund
NCI	National Cancer Institute
NDA	National Development Agency
Necsa	South African Nuclear Energy Corporation
NFTN	National Foundry Technology Network
NGP	New Growth Path
NIC	Nanotechnology Innovation Centre
NIH	National Institute of Health
NNR	National Nuclear Regulator
NRF	National Research Foundation
NSTF	National Science and Technology Forum
NUM	National Union of Mineworkers
OECD	Organisation for Economic Co-operation and Development
OHSAS	Organisation for Health & Safety
PFMA	Public Finance Management Act
PGMs	The Platinum Group Metals (platinum, palladium, ruthenium, rhodium, iridium and osmium)
PMDN	Precious Metals Development Network
POC	Point Of Care
PPD	Pyrometallurgy Division
R&D	Research and Development
RIP	Resin-In-Pulp
RPP	Radiation Protection Programme
RPDP	Research Professional Development Programme
SACNASP	South African Council for Natural Scientific Professions
SADPMR	SA Diamond And Precious Metals Regulator
SE	Secondary Electron (image)
SEDA	Small Enterprise Development Agency
SHEQ	Safety, Health, Environment and Quality
SSMB	Small-Scale Mining and Beneficiation division
TIA	Technology Innovation Agency
TiCl	Titanium Tetrachloride
WIL	Work Integrated Learning



**Thank you to all Mintekkers
who contributed to 2012/2013
financial year**



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who contributed to 2012/2013
financial year**