



Department of Mineral Resources



SHAREHOLDER
PERFORMANCE AGREEMENT
("SHAREHOLDER COMPACT")
(2014/15)

Entered into by and between the

MINTEK BOARD,
(herein represented by the Chairperson of the Board)

and

THE GOVERNMENT
of the
REPUBLIC OF SOUTH AFRICA,
(herein represented by the Minister of Mineral Resources)

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1. SHAREHOLDER PERFORMANCE AGREEMENT - AGREED PRINCIPLES

1.1 Introduction

1.1.1 In terms of regulation 29 of the Treasury Regulations issued in terms of the Public Finance Management Act No. 1 of 1999, as amended by Act 29 of 1999 ("PFMA"), the Accounting Authority for a public entity listed in Schedule 3 must, in consultation with its Executive Authority, annually conclude a Shareholder Compact.

1.1.2 The Shareholder Compact must document the mandated key performance measures and indicators to be attained by the public entity as agreed between the Accounting Authority and the Executive Authority.

1.1.3 The required Shareholder Compact, in the context of Mintek and the Executive Authority, comprises the agreed principles, key performance objectives, programmes, measures and indicators.

1.2 Interpretation

In this Shareholder Compact, unless otherwise indicated or contrary to the context, the words and phrases set out below shall have the meanings ascribed to them as follows:

1.2.1 An **Accounting Authority** of a national public entity is the board of directors appointed by the Executive Authority of that entity.

1.2.2 **Board** means the Mintek Board of Directors.

1.2.3 **Executive Authority** means the Minister.

1.2.4 **Mindev** means Mindev (Pty) Ltd, a company with limited liability in terms of the Companies Act No. 71 of 2008, which is a wholly owned subsidiary of Mintek, and has its registered head office at the same address as Mintek.

1.2.5 **Minister** means the Honourable Minister of Mineral Resources in her capacity as such.

1.2.6 **Mintek** is a Science Council established in accordance with the Mineral Technology Act No. 30 of 1989, having its principal place of business at 200 Malibongwe Drive, Randburg, South Africa.

1.2.7 **Party** means either the shareholder or Mintek and **parties** mean both the shareholder and Mintek.

1.2.8 **PFMA** means the Public Finance Management Act No. 1 of 1999 as amended by Act No. 29 of 1999.

1.2.9 **R&D** means research and development as set out in the Mineral Technology Act of 1989.

1.2.10 **Shareholder** means the Government of the Republic of South Africa, represented by the Minister.

1.2.11 **Shareholder Compact** means this performance agreement between the Board and the Shareholder together with all appendices attached hereto, as defined in the PFMA.

1.3 Nature of the Shareholder Compact

1.3.1 The Shareholder Compact is designed solely to regulate the relationship between the Shareholder and the Board.

1.3.2 The Shareholder Compact is not intended to:

(i) Interfere in any way with the normal company law principles and the normal relationship between the Shareholder, on the one hand, and the Board, on the other. In giving effect to those principles, the Shareholder would have communicated its expectations to the Board and management;

(ii) Create rights and expectations that third parties may rely upon. It is hereby specifically recorded that this Shareholder Compact does not create, confer and/or afford any third party rights or expectations in terms hereof.

1.4 Period

1.4.1 As contemplated in terms of the PFMA, the Shareholder Compact will be concluded annually.

1.4.2 This Shareholder Compact is effective for the period 1 April 2014 to 31 March 2015.

1.4.3 It is hereby recorded that the agreed principles, although subject to review annually, set out matters that are applicable beyond a period of a year. In the event that they are amended, the parties shall take into account initiatives already commenced on the basis of such principles.

1.5 Mandate, Vision and Mission of Mintek

1.5.1 The mandate of Mintek is set out in the Mineral Technology Act (Act No. 30 of 1989), which is to serve the national interest through research, development and technology transfer, to promote mineral technology and to foster the establishment and expansion of industries in the field of minerals and products derived therefrom.

1.5.2 The Shareholder acknowledges that, included in its mandate, Mintek has a developmental role that may require decisions that are not always optimal from a commercial perspective, but contribute to growth and development in South Africa and the rest of the continent.

1.5.3 The **vision** of Mintek is to be a global leader in mineral and metallurgical innovation.

1.5.4 The **mission** of Mintek is 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.

1.6 Strategic Intent & Objectives

1.6.1 Mintek's strategic intent and objectives are closely aligned with national imperatives and priorities, which include maximising the utilisation of finite ore resources, alleviating poverty and creating employment, adding value to mineral and metal products, and promoting the transition from a resource-dominated to a knowledge-based economy.

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

- i. **Enhance Mintek's visibility and credibility to all stakeholders** by implementing an integrated marketing and communication function;
- ii. **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;
- iii. **Promote the mineral-based economies of rural and marginalised communities** through technical assistance and skills development by establishing appropriate technologies and strategies 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;
- iv. **Uphold good governance practices** that comply with all applicable national and international regulatory frameworks and standards, maintain fiscal discipline, and enhance organisational efficiencies;
- v. **Develop human capital and organizational skills to 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.

In pursuit of its strategy, Mintek will focus its research and development activities in the following areas:

- Commodity sectors of particular economic importance to South Africa (platinum group metals, gold, iron, manganese and chromite ores);
- Energy minerals (uranium, thorium and coal);
- "Technology metals" of strategic importance in high technology applications (titanium, magnesium, Rare Earths);

- Mineral processing technologies that minimise the consumption of energy and water, and minimise environmental impact;
- Addressing point sources of environmental impact and environmental damage caused by mining activities, including rehabilitation of derelict and ownerless mines and development of technology for the treatment of acid mine drainage;
- Maximising the value derived from South Africa's mineral industry by promoting value-added downstream beneficiation and novel value-added metal products;
- Developing technologies for exploiting currently non-viable ore resources;
- Facilitating the entry of SMMEs and junior resource companies to the industry.

To this end, Mintek will continue to develop appropriate, innovative technological solutions for transfer to industry and provide testwork, consultancy, analytical and mineralogical services to industry.

1.6.3 Mintek's Products and Services

Mintek's products and services encompass the following areas:

- Research and development, financed from a combination of public and private sources, parliamentary grant, competitive national and international sponsorship and internal reserves;
- Laboratory-, pilot- and demonstration scale testwork, for the purposes of developing and evaluating various technologies applied to new projects and optimisation of existing operations;
- Transferring innovative technology to industry by licensing, sale or in exchange for project equity;
- Design and fabrication of specialised plant and equipment for the minerals industry;
- Production and supply of specialised mineral and metal products; and
- Provision of specialised consultancy, training and advisory services to the minerals industry.

1.6.4 Client Base

Mintek's client base includes other state enterprises, large multi-national mining companies (majors), junior resource companies, engineering contractors and SMMEs – both locally and internationally.

1.6.5 Competitors

Mintek operates in a global environment, servicing a multi-national industry. Clients thus have the option to source these services from similar facilities in Australia, Europe, Canada, Brazil, Chile, USA, China and Russia. Clients select the institution based on the reputation of the technical experts and the quality of the facilities. Mintek has the competitive advantages of excellent, large-scale facilities, a reputation as a "one-stop shop" and an enormous information database developed during its 80 years of

operation. Mintek's greatest challenge is sourcing and retaining world-class expertise.

1.6.6 Business Environment

The global mineral industry is cyclical in nature. After a rapid recovery from the 2008 recession, industry growth has softened in recent years. In particular, exploration and new project development is at a very low level.

Despite a slowdown in its growth, China remains by far the largest driver of mineral commodity demand. Global exploration and project development is currently focused on gold, base metals, iron ore and energy minerals, with increasing interest in "critical" strategic metals, such as Rare Earth Elements and lithium. Mining and processing companies remain focussed on economic exploitation of deeper, lower grade, more remote and more complex ores, reducing energy and water consumption, and meeting increasingly stringent environmental and social expectations.

These global factors shape Mintek's business environment. Demand for service work has reduced somewhat over the past year. In particular, industry demand for large pilot plant work (necessitated by new project development) has decreased.

In summary, the demand for Mintek's commercial services has weakened over the past year and this situation is expected to continue for at least another year.

1.7 Corporate Plan

1.7.1 Mintek's corporate plan, incorporating its budget, strategic intent and financial plans, is submitted to the Executive Authority in terms of Section 52 of the PFMA.

1.7.2 Mintek has ensured that its corporate plan and its goals and objectives are aligned with the strategic intent, which will inform the direction for Mintek into the future.

1.7.3 The strategic business targets, as set out in the Corporate Score Card Section, will be the measure for control and monitoring of performance by the Shareholder.

1.8 Roles and Responsibilities

1.8.1 The Shareholder is empowered and hereby reserves the right to determine initiatives, projects or activities that Mintek shall undertake or become involved in, in the national interest, subject to the requirement that such activities shall:

- be funded from the parliamentary grant, and
- not prejudice Mintek's operations, financial health and ongoing viability as a going concern.

1.8.2 The key performance measures for Mintek, if necessary, shall be adjusted by the Shareholder to take into account Mintek's developmental role.

1.8.3 Any Developmental Projects determined in terms of clause 1.8.1 shall be deemed to have been approved in terms of Section 54 of the PFMA, and no further approval shall be required in respect of such projects.

1.8.4 A definition of what constitutes major Developmental Projects and the applicable criteria shall be developed by the Board and agreed to with the Shareholder prior to commencement of the project.

1.8.5 The Board and the Shareholder shall agree on an amount to be set aside for developmental projects.

1.8.6 The Board:

1.8.6.1 Is hereby mandated to oversee and to contribute to development of the strategic intent and furthermore to oversee the management of the business in accordance with such strategic intent, corporate plan, the Mineral Technology Act and any applicable legislation. The directors shall exercise their skill and fiduciary duties to ensure that management pursue the objectives and targets as set out in the corporate plan;

1.8.6.2 Commits itself to the achievement of the vision, mission, goals and objectives, and strategic intent of Mintek, and always acts within its powers and in the best interest of Mintek;

1.8.6.3 Accepts its responsibility to direct and guide the business in a proper manner in keeping with good governance practices, the PFMA, the Mineral Technology Act, the Shareholder Compact, and in particular, in compliance with the materiality framework agreed to with the Shareholder, which is annexed hereto as Appendix I; and

1.8.6.4 Recognises the importance of speedy decision-making and will use its best endeavours to prevent undue delays with regard to critical decisions.

1.8.7 Subsidiaries:

1.8.7.1 The performance of Mindev will be regulated by Mintek in its capacity as shareholder in line with the broad policy and direction from the Shareholder. Mintek shall enter into a Shareholder Compact with each of the main subsidiaries formed or to be formed, which compacts shall be regarded by the Shareholder as compliance with the PFMA.

1.8.7.2 In addition, Mintek will ensure that Mindev and all its subsidiaries shall comply with the policies of the Shareholder, and that they adhere to acceptable governance practices in terms of reporting and

accountability, as well as the materiality framework annexed as Appendix I.

1.9 Undertakings by the Shareholder

The Shareholder undertakes for the duration of this agreement not to:

- 1.9.1 Introduce new or additional requirements during the validity of this compact other than through a process of consultation. Reasonable notice shall be provided before the introduction of any new or additional requirements. In addition, the parties shall, in such event, amend the key performance indicators and targets, failing which, no new requirements or targets may be introduced;
- 1.9.2 Impede or, in any way, restrict the discretion of the Board regarding matters falling within its authority, as provided for in this agreement;
- 1.9.3 Delay critical decisions or the proper constitution of the Board, and to fill vacancies that arise in the Board within a reasonable time; and,
- 1.9.4 Cause Mintek or any of its directors to breach any legal duty.

1.10 Mineral Technology Act

- 1.10.1 The Shareholder, in consultation with the Board, shall ensure that the Shareholder Compact and the compact between Mintek and its subsidiary shall be consistent with the Mineral Technology Act of 1989 and the Memorandum and Articles of Association of any of the main subsidiaries.
- 1.10.2 In the event that there is any conflict between the provisions of this agreement and the Mineral Technology Act the provisions of the Act shall prevail.

2. SUBSIDIARIES – MINDEV

Mindev is a sole Mintek subsidiary that was first registered in 2001 with the aim of having a flexible entity that would facilitate joint ventures and/ or participation with various partners in order to optimise Mintek's technologies.

In line with the Companies Act, No. 71 of 2008, Mindev registered its Memorandum of Incorporation with the Companies and Intellectual Property Commission and was issued with a certificate of confirmation by the Commission in 2012.

Mindev has entered into various joint ventures over the years but is currently dormant from both an investment and operational perspective. The resultant effect of Mindev's prior years' net investment activities is that there are reserves of R39.4 million, currently represented as an interest free loan receivable from Mintek.

Mintek is still of the view that Mindev should be retained in order to maximise the commercial value of Mintek's fully developed technologies in the future. In each specific instance, the role of Mindev in maximising the commercial value of fully developed technologies will be reassessed at the appropriate time.

Mintek will continue to invest all Mindev funds and provide for all resultant taxes due on the interest earned. The entity will also comply with the applicable company legislation requirements.

3. PROGRAMMES

This section describes the technical activities planned for each of Mintek's Strategic Business Units (SBUs). The activities are associated with either performing research and development, or providing products and services to the private sector.

R&D activity is either funded by state grants or under specific contractual arrangements with private sector companies. Allocation of state grant funding to various initiatives is more fully described in section 5.2. The rationale for the split of allocation between each technical programme is also described in that section.

The following are Mintek's programmes for the duration of this Shareholder Compact:

3.1 Technology

This programme consists of four Strategic Business Units that have a greater focus on commercial business compared to research programmes.

Hydrometallurgy is the field of extractive metallurgy that involves the use of aqueous chemistry for the recovery of metals from ores, concentrates, and recycled or residual materials. The Hydrometallurgy Division (HMD) at Mintek leverages its unprecedented range of integrated test and pilot facilities as well as a high level of expertise to develop optimum processing flow sheets for the minerals industry, primarily in South Africa, but also worldwide. This process development is supported by a broad in-house network of related disciplines such as minerals processing, pyrometallurgy and mineralogy as well as an extensive analytical facility.

Strategically, HMD is directed by a number of high level obligations which include:

- Sustainable development of South Africa's mineral wealth; and
- Development of novel technologies to support and stimulate identified growth areas in the industry.

In order to fulfil its mandate, HMD is broadly divided into leaching, solution concentration and purification as well as metal recovery. Particular areas of expertise within these categories are pressure leaching, direct electrowinning, solvent extraction and ion exchange, process simulation, and cyanide and arsenic speciation.

Although the development of processing technologies continues across the entire minerals industry from base metals through rare earths to precious metals, HMD currently focusses on the development of capacity in a number of key areas believed to be of strategic importance for the industry as well as the commercial sustainability of the Division and Mintek. These areas include:

- Gold processing (Continuous Pressure Oxidation, Advanced Leaching test work and AuSimPro process advisory system);
- Uranium processing (resin-in-pulp extraction, pressure oxidation of sulphide containing ores, high saline and high pH ion exchange recovery and direct precipitation);
- Rare Earth Element extraction and refining (Process Simulator, Rare Earth ore Cracking, REE concentrate purification and REE separation);
- Treatment of low grade high value streams (Ion exchange fibres); and
- Treatment of contaminated water and waste streams (SAVMIN™ and Ion Exchange fibres).

HMD also strives continuously to offer the most cost effective and value added services to the industry through innovations such as the establishment of a five channel Advanced Leach Facility. This brings normally very expensive feasibility test work within reach of many operators in the industry with the result that more mining activity is stimulated.

The impact and acceptance of new technologies or products developed in the Division are normally maximised through partnerships with the industry. Examples of these are the demonstration of the MetRIX Resin-in-Pulp technology for uranium and base metals in collaboration with Tenova as well as the demonstration of the SAVMIN™ acid mine drainage treatment process in partnership with the world's largest water treatment company, Veolia.

More established products such as the Minataur® gold refineries and the Nicksyn™ Ni and Co extraction synergist are supported from the Hydrometallurgy Division, while marketing and application of these products are done through collaboration with industry partners.

In summary therefore, HMD provides processing solutions for the promotion of sustainable exploitation of the mineral wealth in South Africa and globally by:

- Providing world class technical expertise and unparalleled test work facilities;
- Implementing, improving or adapting process flow sheets to suit clients' site-specific conditions; and
- Increasing process efficiencies resulting in increased viability of operations as well as reduced waste production and less environmental contamination.

Minerals Processing Division (MPD) comprises of three specialist groups: Comminution, Physical Separation and Flotation that provides industry proven metallurgical solutions. Valuable minerals are beneficiated from ores by

using comminution and concentration processes. Key commodities that the group works on include: Ferrous, Nonferrous, Platinum Group and Industrial Minerals. Depending on mineralogy and behaviour of the ore, separation can include size reduction, Sensor-sorting, gravity methods, magnetic separation or flotation techniques.

MPD offers mineral process engineering solutions ranging from development of appropriate flow sheets based on bench scale test work through to pilot test campaigns, optimizing of unit operations/plants, evaluation of technologies, benchmarking and metallurgical industry standard tests.

Mineralogy and chemistry of ore bodies are essential tools in guiding the scope of work for selecting process flowsheet options.

The **Comminution Group** focuses on development of total rock size reduction solutions for different ore types according to the client's needs. Comminution or crushing is normally carried out on "run-of-mine" ore, while grinding is usually conducted on dry or slurred material. A variety of bench-scale test facilities for ore characterisation and pilot plants (comminution) for scale-up purposes are available. The group has extensive experience in applications such as High Pressure Grinding Rolls (HPGR), Semi-Autogeneous Grinding Mill (SAG), rod and ball milling and stirred media mills. The group offers solutions on model development and simulation of comminution circuits.

Recent successes include improved liberation of hematite and magnetite ores using HPGR and development of improved grinding media for the minerals processing industry.

The **Physical Separation Group** offers solutions on various gravity separation techniques, magnetic and electrostatic separation processes. MPD has an in-house designed Mineral Density Separator (MDS) for predicting Dense Media Separation (DMS) and Jigging Plant performance in upgrading ferrous minerals such as iron, chromite and manganese ores.

Ore sorting techniques such as Optical, XRF and Near Infra-Red have been recently undertaken on ores such as chromite/PGM ores (e.g. UG2), Kimberlite and manganese on coarse run of mine feed sizes ranging between 150mm and 30mm, to evaluate viability of upfront waste rejection which will reduce downstream energy and water consumption.

The **Flotation Group** develops and evaluates flotation procedures for new ores, according to specific product grade and recovery requirements, by applying expertise on the selection of plant configuration, reagents, and processes, and by running extended pilot-scale testwork. A combination of Physical Separation and Flotation processes on certain Rare Earth Minerals has been demonstrated to significantly improve downstream leaching process economics as pre-concentration step to remove gangue acid consumers.

The Pyrometallurgy Division (PDD) aims to contribute to the growth of the South African minerals industry by providing technical and support services. Technical support includes theoretical calculations, laboratory and pilot plant testwork as well as a wide range of consulting services including flowsheet development, feasibility studies and pyrometallurgical process consulting. The aim is to facilitate optimum utilisation of existing operations and resources whilst continuing the development of more efficient high temperature processes. Unlocking previously unutilised resources through new technology and improved processes is an important focus area for the division as the demand for commodities continue to grow. More energy efficient processes, reduction of emissions and minimising the impact on the environment underpins the research and development strategy of PDD in ensuring the long term sustainability of the local industry.

PDD operates two large pilot-plant bays and various well-equipped high temperature laboratory areas. Bay 1 contains a variety of flexible research equipment, and Bay 2 is currently set up to operate a single large furnace on long-term demonstration-scale projects. The equipment housed in Bay 1 include a variety of small furnace facilities with complete feed and product handling capabilities as well as several pre-treatment applications. The testwork facilities were developed based on the needs identified in industry during the late 70s and strong ties with industry remains. The Bay 2 facility is currently utilised in partnership with Anglo American Platinum to demonstrate critical process principles over the remainder of a period of 2 years specifically focussed on recovery of nickel from slag and atomising of the iron rich alloy product.

The high temperature laboratory group offers a wide range of small-scale and fundamental studies by applying skills in mineralogy and experience in studying the products of pyrometallurgical systems which provides valuable complementary support for the pilot-scale, process modelling and development work conducted in the division. Equipment includes a range of muffle and tube furnaces, thermo-gravimetric analysers, batch rotary kilns, fluid beds and induction furnaces. Mintek's extensive mineralogical and analytical capacity is leveraged to provide high quality, technical investigations for clients when evaluating feed and products from all the testwork conducted in the division.

In the medium term, PDD aims to grow the portfolio of service offerings aimed at assisting industry with current challenges. Whilst the pilot facilities at Mintek are unique and will remain a strategic strength, existing smelter operators are primarily focussed on maximising throughput via incremental improvements rather than investing in new capital. Finding solutions to lower operating costs via improved refractory selections, taphole designs, process control and metallurgical optimisation are areas in which the division plans to contribute significantly via both services to industry as well as through research and development funding. Two main areas of focus include developing methodologies to assist clients with selection of refractories and raw materials, like reductants and fluxes or binders. All high temperature processes are energy intensive and recovery of energy from products as well as development of

new greener technologies and applications remain medium and long term targets for the future.

Analytical Services Division (ASD) serves as a primary analytical facility in support of Mintek's core divisions. As Mintek operates in the mining research industry, analytical support is vital to the success of its operations. The division also has extensive experience with geochemical and metallurgical analysis and routinely gets projects and sample submissions from the industry for these kinds of analyses.

ASD is an ISO 17025 accredited laboratory, and was one of the first laboratories to be accredited in South Africa. ASD provides expert analyses and has SANAS accredited methods in the following broad areas:

- The PGMs;
- Sample preparation (including ICP-OES, MS and AAs) the following; and
- Wet Chemistry and XRF.

ASD is the official producer of the South African Reference Materials (SARM). These reference materials are produced to serve different sectors of the global resource, mining and metallurgical industries. The certification process for the SARMS involves different internationally accredited laboratories from around the world.

ASD does routine analysis as well as Research and Development work to increase its scope of expertise.

To deliver the services, ASD has highly skilled and experienced senior staff, who provide guidance and supervision in the running of the laboratory. The division is involved with on the job training of both Mintek bursars and work integrated learners who are able to graduate after going through the on-the-job training at Mintek.

ASD provides this specialised analytical service to the mineral, metallurgical and related industries, using state-of-the-art instrumentation for a variety of techniques, namely: AAs, ICP-OES, ICP-MS, XRF, Fire Assay and Wet chemistry. The division still maintains an extensive array of Classical Wet Chemistry analyses, including speciation of the common elements. The laboratory activities are managed by a LIMS system, which has been running in ASD for more than fifteen years.

Currently ASD is embarking on a large scale refurbishment and upgrading program. The refurbishment will include the following:

- Upgrade of the building to allow for a simpler, better and faster sample flow. There will also be a major reduction in the floor space occupied;
- Upgrade of the Laboratory Information Management System (LIMS); and
- Replacement of current Capital equipment just before they become obsolete in an effort to maintain the laboratory's high service level.

3.2 Research and Development

This programme consists of five Strategic Business Units that have a greater focus on research and development rather than commercial programmes.

Advanced Materials Division (AMD) 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 metallurgy, biomedical, catalysis and nanotechnology. The division has strong interactions with local and international higher education institutions (HEIs), and mainly derives its pipeline from various Department of Science and Technology (DST) and the National Research Foundation (NRF) internship programmes. The division's funding is primarily derived from large government-funded programmes, as well as the provision of products and services to local and international clients.

The DST-funded programmes and projects hosted by the division are as follows:

- Advanced Metals Initiative (AMI) – Under this initiative we have the:
 - Precious Metals Development Network (PMDN) under the catalysis group with an emphasis to conduct pilot plant work and develop products in collaboration with end-users; and
 - Ferrous Metals Development Network (FMDN) on research into durable and cost-effective materials for applications in the transport and petrochemical industries.
- Centre of Competence in Hydrogen Catalysis (HySA/Catalysis) – The primary task of the HySA Catalysis Centre of Competence, which is jointly hosted by Mintek and UCT, is to accelerate the establishment of a local value chain in the manufacturing of fuel cell catalysts, components and systems in collaboration with local and international industry partners.
- Nanotechnology Innovation Centre (NIC) – The centre focuses on the development of nanostructures and their usage as systems or tools for therapeutics, water treatment and diagnostic purposes (e.g. developing electrochemical sensors and optical diagnostic devices). A world-class clean room facility has been completed where the nano-device prototypes and products will be manufactured for sale to customers and collaborators.
- Technology Assistance Programme for the Foundry Industry (DST-TAP) – This is a technical support programme for the local foundry and metals-related companies. The programme has expanded into a Work Integrated Learnership (DST-TAP WIL) where students from Universities of Technology (UoTs) are matched with relevant foundry and engineering companies in order to gain experiential training and ultimately permanent employment in these industries.

All these programmes are focused on enabling the creation of new industries and on improving the competitiveness of existing industries in South Africa.

In addition to a healthy income stream from R&D activities resulting from government-funded programmes, there is a

major effort in the division to derive increased revenue from products and services that emanate from various R&D programmes. The product and services activities in AMD include the following:

- Metallurgical service work conducted under the Metals Technology Centre, which provides consulting and testing services to the metallurgical industry;
- The marketing and selling of gold catalyst products (AuroLITE™ and AuroLITH™). To date, over 400kg of catalysts have been sold to 18 local and international customers;
- The MinDiagnostics™ and the MinPeptides™ products and services activities from the Nanotechnology Group; and
- The positioning of the Biomedical group to be the preferred provider of metal-based compounds that can be used for various applications, including drug design and discovery. The other panel of services will include sample evaluation, development of assays, training and equipment usage.

The Biomedical group is also participating in the Medical Research Council (MRC) driven Strategic Health Innovation Partnerships (SHIP) programme to further evaluate the library of developed compounds against TB and Malaria diseases. The objective is that should some of these compounds be found to be promising, further development will be conducted in collaboration with the MRC and other TB and Malaria global communities.

Biotechnology (BIO) division's mature competencies pertain to hydrometallurgy, more specifically the extraction by leaching of base metals such as cobalt, copper, nickel and zinc, precious metals such as gold and uranium. This is achieved by means of bioleaching of concentrates and percolation leaching of whole ores by (chemical) heap leaching or heap bioleaching.

The division has always maintained a high level of research into the continual advancement of its technologies and services. Examples that can be mentioned in this regard include the adaptation over the past decade of bacterial consortia that exhibit tolerance to unprecedented levels of ionic strength including high levels of silver, and the adoption of quantified geomechanical characterisation of ores for heap leaching.

The division has also been diversifying its portfolio of services particularly in focusing on local needs. To this end the research portfolio for the foreseeable future is heavily biased towards electronic waste treatment, 'urban mining' in general, bio-reagents for mining as well as remediation and value-addition related to mine effluents. The division is developing the following competencies:

- Treatment of industrial wastes such as electronic waste (e-waste) and process solid residues (e.g. tailings from Au / U operations). This is developed under the Urban Mining project, which is conducted in collaboration with the Hydrometallurgy Division (HMD);
- Bio-reduction processes for the treatment of mining solution effluents, more specifically microbial-assisted

reduction of sulphate (SO₄) and prevention of (bio-) corrosion. The latter is undertaken in collaboration with the Advanced Materials Division (AMD).

- Treatment of waste material related to the ferro-chrome industry, more specifically the reduction of chrome (VI); and
- Development of bio-reagents for flotation. Signed agreement with SENMIN.

Measurement and Control Division (MaC) develops and commercialises advanced process control solutions for the minerals industry and niche specialised instruments to complement these control solutions. The division is recognised as a world-leading player in the control of mineral processing concentrators with its FloatStar and MillStar control systems, as well as in the control of submerged-arc furnaces with its FurnStar control system. MaC has installed well over 200 of these control systems across the globe. The division is also rapidly becoming a major player in the supply of inline real-time industrial cyanide measurement instruments with its Cynoprobe, having sold close to 100 instruments to both local and foreign gold producers.

The division's first layer of control aims to stabilise the process, minimising start-up times and effectively dealing with disturbances. The stabilisation control typically takes over from the plant's base layer local control loops and operates the whole process section in a more cohesive and effective manner. Once the process is stable, the division's advanced process control optimisers can then adjust the process operating point to seek and ensure the process is operated at its optimum under varying feed conditions. Using this approach, the division is able to provide established operations with substantial benefit in terms of throughput and recovery using their existing assets without the need for significant capital investment.

MaC's focus in terms of process control system development in the coming years will be to add additional sophistication to its control systems to make them more robust and simpler to use. In line with the Company's 2020 vision, the division will be seeking to build capacity in the field of ore sorting and materials handling, which it is believed, will provide the next major shift in terms of efficiency and throughput of mineral processing operations.

Mineralogy Division (MNL) is involved with every stage during the life cycle of a mineral deposit, from exploration to resource evaluation, mine planning, plant design, operation, product quality and control. The division is also expanding its activities in to the field of geometallurgy. The Division focuses its work into a commercial and a research stream. Commercial activities in the past two years focused on iron ore, chromite, precious metals and industrial minerals.

MNL research is driven by two needs: commercial/technology and socio-economic, which is undertaken through internal and external collaborations. The needs from our commercial projects inform the research to add value through improvements in quality, turnaround time and cost of mineralogical undertakings. Key focus areas in this respect include improvements in

automated SEM characterisation of different commodities, derivation of quantified mineralogical data from 3D computed tomography images, trace element deportment improvements using lower detection limits, and geometallurgical approaches in linking orebody knowledge with metallurgical performance.

In terms of socio-economic-driven research, conflict mineral provenance has gained increasing importance through initiatives such as the Kimberley Process Certification scheme. In this respect, the Division conducts fingerprinting research on conflict minerals such as diamonds, coltan, wolframite and cassiterite, in its provenance laboratory funded by the South African Diamond and Precious Metals Regulator (SADPMR). Secondly, the study of semi-precious mineral deposits in the Northern Cape facilitates downstream small-scale mining and beneficiation of such commodities, towards poverty alleviation and job creation in South Africa.

During the year the division will focus on method development within the Provenance Laboratory, as well as automation in rare earth analyses of phosphates, precious metals in sulphides and diamond analysis for skills development of staff members. The commercial activities will continue to focus on providing value added mineralogy to the different metallurgical flow sheets for both internal and external clients.

Mintek, through the **Small Scale Mining and Beneficiation (SSMB) Division**, has developed expertise in supporting existing and potential small, micro, medium enterprises (SMME's) by transferring mining, processing and manufacturing technologies and skills. Its range of skilled professionals, from scientists, engineers and training specialists, to crafters, artists and marketing personnel, enables it to take multi-disciplined approaches to project implementation, in order to meet the needs of project beneficiaries who all exist in socially and economically developing environments.

Over the years, SSMB has worked in poor communities and in its experiences has discovered that the wealth of culture that lies in these areas can be easily transferred into modern-style saleable products. The flagship programmes that are a vehicle for economic development, job creation, poverty alleviation and upliftment of both women and unemployed youth include jewellery, glass beads and pottery manufacturing. SSMB has been involved in the development of technologies that will help address the needs of small scale-miners. This is aimed at enhancing the operations of small scale miners, which will ensure a much safer, environmentally friendly, economical and sustainable operations. The iGoli "mercury free" gold extraction process for artisanal miners and the Biomin™ low cost soil ameliorant plant are examples of these technologies.

This year SSMB will focus on:

- The successful completion of the semi-precious gemstone training and beneficiation centres in Northern Cape that will benefit approximately 200 unemployed people within the province;
- Intensifying activities within the ceramic and jewellery support programmes to enhance the beneficiation of

minerals to stimulate sustainable livelihoods in local poverty nodes within South Africa;

- The development of new technologies for small scale operators related to energy efficiency, water purification, gold and industrial minerals processing; and
- Expanding training programmes under the Mining Qualifications Authority (MQA) and other relevant SETA's.

3.3 Business Development

Business Development provides support to Mintek's operating business units related to market intelligence, marketing support and the management and commercialisation of intellectual property. In addition, Business Development plays a key role in coordinating research at national level, which creates coherence and synchrony with other science councils and the mining community.

3.3.1 Mineral Economics and Strategy Unit

The Mineral Economic and Strategy Unit (MESU) provides insight and business intelligence into all parts of the mining and minerals value chain. Outputs include mineral economics assessments, supply/value chain assessments, statistical analysis and forecasting, second economy interventions related to the minerals sector and environmental sustainability assessments.

MESU also has competence in facilitating the rehabilitation of derelict and ownerless mines, and is responsible for implementing a 3-year rehabilitation programme as agreed between the DMR and Mintek in 2013.

3.3.2 Marketing

Mintek sells a range of metallurgical services, technologies, and plant equipment to the minerals industry worldwide. The nature of this commercial activity demands direct interaction between the client and the appropriate technical specialists ultimately providing the service. For this reason, Mintek employs a decentralised marketing model, with a small measure of central coordination and support which is offered by the Business Development section. Mintek's business units are thus, largely responsible for marketing their own products and services.

Much of Mintek's business is derived from repeat clients and maintaining their loyalty is of paramount importance. Creating market awareness of products to new clients is created via the presentation of quality papers at conferences and publishing of technical papers in internationally refereed journals.

3.3.3 Mintek Office of Technology Transfer

Mintek is required, in terms of the IPR Act, to maintain an office for technology transfer. This function falls under MESU, who ensure that publically-funded IP is recorded, properly exploited and reported to NIPMO. The office also provides IP advice to the business units, interfaces with

external IP attorneys and maintains the register of Mintek IP.

3.4 Corporate Services

Corporate Services currently gives support to all of Mintek divisions in terms of Human Resources Management and Development, Information Management and Communication as well as Corporate Governance and Organisational Compliance.

Corporate governance and compliance are an extremely important aspect of organisations and Corporate Services is tasked with ensuring that Mintek is a good corporate citizen that is fully compliant with all the relevant laws.

Corporate Services will continue carrying out the responsibility of ensuring that Mintek meets its obligations to the Department of Mineral Resources, including the reporting obligations to the Portfolio Committee on Mineral Resources. The unit will also ensure that the Board is given the necessary support to discharge its duties.

3.4.1 Human Resources Management and Development

The main objective of the Human Resources Division is to provide strategic, consultative and administrative support to divisions on people-related issues impacting on productivity, profitability and sustainability. The work of the Division is organized into four strategic programmes, namely:

- Training and skills development;
- Organizational development;
- Employee health and wellness; and
- Human resource management and administrative systems.

The *Training and Skills Development Programme* entails two categories of human capital development initiatives that are undertaken. The first category includes Mintek's contribution to the country's human capital in the mineral and metallurgical resources sector. In pursuit of this goal, Mintek participates actively in the promotion of Science, Engineering, Technology and Mathematics (STEM) as fields of study that are essential in creating a human capital base. Mintek has firmly established itself in the calendar of STEM promotion, and will continue to do so in the current financial year.

There are significant partnerships that have been established with Higher Education Institutions (HEIs) as part of this programme and the year 2014/15 will see us extending the partnerships to previously disadvantaged HEIs to increase the pool of previously disadvantaged students that can specialize in our area of operation. Initiatives undertaken in this category are of benefit, not only to Mintek, but to the country as a whole. We also partner with a number of state institutions in human capital development, including the MQA, the Department of Science and Technology (DST), the National Research Foundation (NRF). In these partnerships, Mintek either provides funding in bursaries and scholarship, or on-the-job training and structured learning in a workplace environment.

The second category of human capital development initiatives focuses on our staff. The intention is to ensure that we retain our credibility as a science council that is innovative and leads knowledge production in relation to minerals technologies. There has been an increase in a number of staff pursuing part-time studies in the past three years, and we intend to continue with this upward trend. As the current contingent of scientists, engineers, and technicians age, it is important to retain a steady stream of new entrants to ensure that the age profile maintains a healthy balance in terms of length of experience on the one hand, and age on the other hand.

One of the most successful programmes is Mintek's Graduate Development Programme (GDP) through which recent graduates in science and engineering are taken through a structured learning programme that is both educative and experiential. We will continue with the GDP in the next few years and ensure that participants are well rounded professionals by the end of the programme.

The *Organisational Development Programme* focuses on organizational capacity and addresses issues relating to attracting, motivating and retaining staff, as well as organizational performance management.

As we place emphasis on retaining staff that are motivated, we also ensure that we maintain a performance culture that rewards top performance and innovation, in keeping with our mandate as a science council.

The *Human Resource Management and Administrative Systems programme* aims to provide effective HR administration and information. In the next three to five years, we will continue with the progressive migration to electronic systems. The automation process that was started in the past few years has already yielded an automated time and attendance system to manage costs and improve productivity. The intention is to extend the automation to enable managers to be more effective in managing resources allocated to them by ensuring that management information is easily accessible.

The *Employee Health and Wellness Programme* focuses on maintaining a harmonious working relationship between the employer and the employees. The company's labour relations policies such the Code of Conduct and Business Ethics and the Disciplinary Code assist in enlightening the stakeholders on how to engage with one another. Training of staff and managers in labour relations matters is provided on a continuous basis. In order to further enhance the knowledge and skills of Mintek staff, all employees have been issued with the labour relations manual.

The programme also includes an Employee Wellness Programme (EAP), as well as Occupational Health and Safety and wellbeing of employees that is managed by our Clinic staff. Mintek is committed in conducting the HIV/AIDS screening sessions to mitigate the impact of the scourge on the organisation and to give support to employees affected by the disease. We continually host information sessions and events to educate the employees on various occupational and primary health issues.

Mintek's Employment Equity Plan will be rolled out in the next three years in line with the Employment Equity Act. Overall, Mintek aims to achieve a demographic profile that is comparable to that of the country in relation to population group, gender and people living with disability. The Board continuously monitors Mintek's performance in this regard. Our employment equity of 84% has been achieved. As a result, it has been increased to 90% for the current year.

3.4.2 Information and Communications Division

The Information and Communications Division's objective is to provide strategic information and communication service to Mintek and corporate governance. The division comprises of the Library and Information Services, Conferencing and Events, and Communications. In addition, the division provides secretarial services to the Board and its Committees.

The *Library and Information Unit* is responsible for providing Mintek's researchers with critical scientific and technical information in support of Mintek's business requirements. This includes the collection, organisation, retrieval and dissemination of information that ultimately adds value by meeting Mintek's high-level objectives of knowledge production and dissemination, innovation of new products/services and improved business process and procedures.

The unit's is responsible for developing electronic databases using the Star Library Management System, the management of Mintek's IP collection which forms the basis of Mintek's vast knowledge base, contributing to the patenting process by searching for prior art using sophisticated information resources, and ensuring that Mintek researchers remain in the forefront of their specialist areas by providing access to internationally recognised databases in full-text.

The *Conferencing and Events unit* enhances Mintek's competitive position and strives to be the best choice of clients, including all Mintek divisions, by helping to ease their event and conference planning burden. Some of the specific functions carried out by this unit includes organising site visits, exhibitions and trade fairs, corporate social investment events, colloquiums, workshops, open days, and consumer education programmes for Mintek and various external clients.

The *Communications unit* offers a wide range of strategic corporate, marketing and media communications and technical support services to the business-oriented divisions. In so doing, the unit contributes to the successful delivery of Mintek's mandate by guaranteeing that correct communication and messages are delivered to various audiences as required.

Mintek's communications plan is aimed at supporting the organisation's overall objective of maintaining its position as one of the world's leading mineral technology research and development organisations.

Communication materials are produced in digital as well as printed formats, and are aimed at a wide range of target audiences, local, national and international.

Internal communications function serves to inform Mintek staff of the latest news, forthcoming events, on-site services, policies and procedures. Staff announcements are communicated daily by e-mail with urgent announcements communicated instantaneously through newsflashes. Mintek News is a monthly staff newsletter which is also distributed to Board members and internal stakeholders. Information on services to staff, policies and procedures, health and safety as well as Staff Association matters are also hosted on the corporate intranet website.

Mintek's major external communications include the statutory Annual Report and Quarterly Reports to the DMR.

Mintek maintains a website to allow for communication with a wide spectrum of stakeholders and unrestricted external publications of general interest.

3.5 Internal Audit

Internal Audit is an independent, objective assurance and consulting activity established in terms of Section 51(1)(a)(ii) of the Public Finance Management Act No. 1 of 1999, as amended. Internal Audit adds value by enriching Mintek's operations through advice derived from its evaluation and assessment of Mintek's work during the course of the year. It also helps Mintek accomplish its objective by bringing a system driven, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance process.

Based on the decline in the tip-off line activity in the 2013/2014 financial year, which is an indication of success of the fraud prevention measures put in place, Internal Audit is planning to conduct fewer investigations in the 2014/2015 financial year.

The internal control environment and processes of the organisation have improved significantly in the last three to four years. This is evident in the reduction in the number and rating of findings identified during audits. As a result, internal audit will plan fewer audits in coming years but spend a considerable amount assessing and evaluating audit areas.

3.6 Finance

The Programme comprises of four main components; namely, Finance, Supply Chain Management (SCM), Information Technology and Estate Management. The programme provides a support service or creates an enabling environment to all other divisions within Mintek.

Finance Division provides a broad range of different services to meet corporate, statutory, and compliance requirements. They provide transactional, administrative and professional services to the business, and deliver financial and management reporting and value add decision support. The main activities of the division include: budget control,

internal control management, revenue and expenditure management and accounting system management.

The division will amongst others focus on the following:

- Improvement of efficiency and turnaround times in processing of routine transaction through use of technology;
- Improvement of communication channels to create a better user experience; and
- Enhancement of processes to strengthen internal controls.

Information & Technology Services (ITS) ensures that Mintek's IT infrastructure and systems remains available to Mintek's users. Typical IT related processes and functions include backing up of data, virus protection, providing remote access to mobile users, internet access, office utilities (e.g. word processing and spreadsheets), and electronic mail. The ITS Division also provide support for specialised systems, including SAP (ERP system) and LIMS.

During the year, ITS will continue working on a number of long term projects that started in the previous year, as well as a number of new initiatives, namely:

- Increasing the value of Mintek's SAP system to business through improvements to the SAP Plant Maintenance module and the development of new SAP Business Warehouse reports;
- Implementation of BESTime Time & Attendance Management System;
- Develop various SharePoint based processes, e.g. SHEQ management, document and records management;
- Improving Mintek's local area network (LAN) network speed;
- Implementation of System Centre Configuration Manager to improve management and support of computers;
- Completing the migration from Windows XP to Windows 7 computer operating systems; and
- Improving the backup process through disk-to-disk backups.

Mintek's ITS developed an IT Master System Plan in the past year which provides guidance for the identification and fulfilment of Mintek's business requirements over the next five years. Mintek's IT function has shown increased maturity over the years, this is especially noticeable in the reduced number of service calls and stability of the infrastructure and network. The Master System Plan will amongst others focus on documenting processes, technology selection and IT architecture for the next five years.

The **Engineering and Maintenance Services (EMS)** is responsible for the management and maintenance of Mintek facilities and other assets of Mintek. The services include basic maintenance service, electrical and instrumentation, building maintenance (including the laboratories) and mechanical maintenance (Drainage, Effluent, Bays, Mobile Equipment and Mechanical Equipment). The focus for this business unit has shifted from a division that effectively supports the needs of the SBU's to one that

introduces processes and systems that will enable detection of deficiencies and substandard performance. These will include optimization of preventive maintenance system, active energy monitoring and control, creation and documenting project management systems for the division. The focus on efficiency will yield improved delivery and human resource performance.

Upgrade of existing infrastructure and development of new infrastructure (where required) will continue to form the greater part of the divisions function as Mintek continues to embark on the improvement of the facilities to return them to modern and world class status.

The **Supply Chain Management (SCM)** unit is primarily responsible for the provisioning of products and services to sustain Mintek's business operations. It consists of procurement, vendor & tender administration, fixed assets and inventory management.

SCM assists business units with sourcing and the identification of suitable suppliers, the request-for-quotation process, the evaluation of quotations and vendor selection. Vendors for high value products and services are selected by way of a tender process. Stock of operational supplies and consumables are kept to minimise supply delays.

During the year SCM plans to introduce the following initiatives:

- Improving demand planning which is achieved through stakeholder engagement, involvement in the budgetary process and obtaining a 12-18 month-plan and requirements from end users;
- Improving supplier relationship management through monitoring of supplier performance by implementing service level agreements with critical suppliers and the improvement of contract management. Mintek is also focusing on sourcing more BEE accredited suppliers to increase BEE spend; and
- The section will continue to emphasise the importance of asset management. More asset verifications will be done to improve control over the movements of assets.

4. SAFETY, HEALTH, ENVIRONMENT, QUALITY AND RADIATION PROTECTION PLAN (SHEQ-RP)

Mintek has established a SHEQ-RP policy and plan. Our priority is to make sure that all personnel across all levels are aware of and committed to the policy. We acknowledge that although our core business is research and development, we have people (our valued assets) and an environment in which we operate. Ignoring the impacts of our activities on our people and the environment would be irresponsible. In addition to this, for us to be global leaders in mineral and metallurgical innovation we must produce quality products and services, be competitive and demonstrate continuous improvement. Therefore the ISO9001, ISO17025,

ISO14001 and OHSAS18001 Safety, Health, Environment and Quality (SHEQ) internationally accepted management systems have been implemented and entrenched in the organisation throughout the years, ensuring the implementation and effectiveness of the SHEQ-RP policy and plan. The key focus areas of the plan are to:

- Prevent fatalities and strive to attain the lowest achievable accident rate;
- Train and develop our people so that they are capable of performing their duties;
- Satisfy our clients by delivering on time quality products and services;
- Engage with internal and external stakeholders in order to ensure that their expectations are met;
- Identify, eliminate and manage business and safety, health and environmental risks, hazards and aspects;
- Ensure that our activities, as well as those of our suppliers and clients do not cause environmental pollution or degradation; and
- Comply with the regulations, legislation and conventions that affect SHEQ-RP.

Management reviews the SHEQ-RP policy's effectiveness and efficiency as well as SHEQ-RP targets quarterly. Mintek is also audited annually by accredited independent external auditors to determine whether we are meeting our targets and adhering to the ISO standards. In August 2013 Mintek successfully passed its annual surveillance audit.

5. FINANCIAL PLANNING

5.1 Consolidated Budget – 2014/15 to 2016/17

The consolidated budget for the 2014/2015 financial year is presented below. The revenue budget for the previous financial year was expected to pass the R0.5 billion mark. This was not achieved due to technical challenges encountered in the execution of work on demonstration plants and the decrease in demand from the mining industry. The budget for the 2014/2015 financial year is characterised by an increase in state grant by about 20% compared to the 2013/2014 budget mainly due to MTEF allocations. This increase in state grant will enable Mintek to achieve revenue targets in the absence of anticipated commercial work.

A further increase of 20% is expected for state grant in the 2015/2016 financial year after which it will reduce by 21% to R231m. The additional allocations are project based and therefore the state grant allocation will be subject to significant fluctuations as and when the projects are completed. This trend is expected to be mirrored in the operational expenditure of the company.

The summarised budget is projecting a positive financial outlook through-out the MTEF period if the current economic conditions improve as anticipated.

Table 1. Income and Expenditure Budget (R'000)

Income ['000 Rand]	2013/2014 Forecast	2014/2015	2015/2016	2016/2017
State grant	203 027	243 974	294 372	231 911
Contracted research	84 743	59 871	61 069	62 290
Products and services	181 142	222 565	227 017	231 557
Sundry Income	15 690	15 555	15 866	16 183
Total Income	484 602	541 965	598 322	541 940
Expenditure				
Expenditure ['000 Rand]	2013/2014 Forecast	2014/2015	2015/2016	2016/2017
Staff Costs	268 443	295 115	301 017	307 037
Bursaries	13 368	15 807	16 123	16 445
Operating costs	183 469	202 220	246 265	194 190
Depreciation	17 832	19 403	19 597	19 793
Total Expenditure	483 112	532 545	583 002	537 466
Net result	1 490	9 420	15 321	4 475

5.2 State Grant allocation

The state grant allocation for the financial year 2014/2015 is presented below in broad categories, namely, Mintek's Strategic Business Units, Strategic Goals, Research and Development Clusters, and per Commodity.

A broad allocation of the State Grant is presented per Mintek Strategic Business Unit (SBU) in the columns of Table 2 below. Mintek's key performance areas and research and development clusters are also highlighted for reference. The budget values shown exclude value added tax (VAT), the administration fee, and the capital transfers. It can be seen from the table that the State Grant is allocated in accordance with Mintek's Mandate and Mission; namely, to develop mineral processing technologies and products/services derived therefrom, play a significant role in interventions in marginalized

communities, and in organisational development. Mintek supports the mineral strategies and initiatives of the Department of Mineral Resources. The DMR has identified 10 commodities and 5 value chains as priorities for beneficiation and value creation. Mintek uses these identified priorities as a basis for deciding on technical programmes. Mintek's R&D plans and activities are thus fully aligned with DMR priorities.

The annual process of allocating state grant is very extensive and involves consideration of progress and outputs of all current projects. In an effort to ensure that the priorities are addressed the grant is re-allocated between the clusters as can be seen in Table 2 below.

Table 2. State Grant allocations per Mintek's Strategic Business Units, 2014/2015 (R'000)

STRATEGIC GOAL	R&D CLUSTER	MINTEK STRATEGIC BUSINESS UNITS													
		AMD	ASD	BIO	EMS	HMD	MAC	MESU	MNL	MPD	PDD	SSMB	CORP	EXM	TOTAL
Research and develop efficient mineral processing technologies and value added products and services	Precious Metals	55	3 944	930	484	6 149	8 510	-	3 179	3 225	2 475	-	-	-	28 950
	Base Metals	11	303	4 125	176	4 241	-	-	398	171	220	-	-	-	9 644
	Energy Minerals	-	4 619	2 836	232	6 934	-	110	1 434	1 336	55	-	-	-	17 555
	Mineral Beneficiation & Value Addition	16 984	165	-	132	165	-	363	39	77	1 815	-	-	-	19 740
	Ferrous Minerals	2 090	462	-	231	759	1 375	-	605	5 731	9 220	-	-	-	20 473
sub-total		19 140	9 492	7 890	1 255	18 247	9 885	473	5 655	10 540	13 785	-	-	-	96 361
Research and develop efficient mineral processing technologies and value added products and services	Eco Efficiency	2 492	820	6 193	440	14 263	3 509	49 246	2 651	12 078	11 715	440	-	-	103 847
Promote the mineral-based economies of rural and marginalised communities	Small scale technology and enterprise development	-	39	-	55	-	-	2 750	594	-	-	23 444	-	-	26 882
Develop human capital and organizational skills to build world class R&D excellence	Strategy and capacity development	-	-	-	-	-	957	1 777	-	-	-	-	11 068	3 083	16 885
Grand Total		21 632	10 350	14 083	1 750	32 510	14 351	54 246	8 900	22 618	25 500	23 884	11 068	3 083	243 974

5.3 State Grant Reconciliation

Table 3 below shows a reconciliation of all allocations as per the Estimates of National Expenditure (ENE) document and the Mintek Budget.

Table 3. State Grant Reconciliation

State grant reconciliation (R'000)	2013/2014 Forecast	2014/2015	2015/2016	2016/2017
Available allocation CASH	341 495	338 456	390 742	311 416
less VAT	41 938	41 565	47 986	38 244
Amount excluding VAT	299 557	296 891	342 756	273 172
less capex	46 128	25 682	35 314	28 191
State grant - capital allocation	15 311	15 315	15 059	19 100
MTEF funding - capital allocation	30 817	10 367	20 255	9 091
Available state grant revenue	253 429	271 209	307 442	244 981
MTEF				
Mintek Infrastructure	15 000	25 000	4 000	-
Precious gemstones	15 000	20 000	2 000	-
Rare earth pilot	15 000	-	3 000	-
Mining discharges	15 000	10 000	3 000	-
Service conditions	8 500	11 400	14 900	14 900
Waste and scrap reprocessing	8 000	25 000	45 000	45 000
Sensor based sorting	3 000	-	-	-
Infrastructure upgrade, NC, RE and mining discharge	-	-	-	12 000
Derelict & Ownerless Mines Rehabilitation	50 000	55 000	60 000	-
Unallocated	-	-	70 000	-
SAVMIN	20 000	-	-	-
Total	149 500	146 400	201 900	71 900
less VAT	18 360	17 979	24 795	8 830
Available MTEF	131 140	128 421	177 105	63 070
MTEF funding - current allocation	88 401	106 380	140 750	48 246
MTEF funding - capital allocation	30 817	10 367	20 255	9 091
Admin fee at 10%	11 922	11 675	16 100	5 734
Available MTEF	131 140	128 421	177 105	63 070
Available state grant revenue		271 209		
MTEF funding - current allocation not classified as revenue		-29 235		
Carry over MTEF from 2013/2014		41 000		
Carry over MTEF to 2015/2016		-39 000		
Total state grant revenue		243 974		

5.4 Capital Investment Plan

Mintek will continue the capital expenditure investment averaging at R50 million annually. 21% of the total capex will be funded from MTEF funding while the balance comes from reserves and state grant allocation. The table below illustrates the capex budget for the MTEF period from the anticipated funding sources. It is evident that Mintek is becoming more reliant on internal funding for capital expenditure as the external funding has significantly decreased over the last 5 years mainly due to tough economic conditions and cost curtailment in the industry.

Table 4. Capital Investment Plan

Capital expenditure budget ['000 Rand]	2013/2014 Forecast	2014/2015	2015/2016	2016/2017
State grant - capital allocation	15 311	15 315	15 059	19 100
Other funding - capital allocation	800	4 893	-	-
MTEF funding - capital allocation	30 817	10 367	20 255	9 091
Capex funded from reserves	19 410	18 791	16 520	26 235
Total Expenditure	65 618	49 366	51 834	54 426

5.5 Allocation of Other Government Grants

5.5.1 Programme for the rehabilitation of derelict and ownerless mine sites

In terms of a contract with the DMR signed in June 2013, Mintek is managing the rehabilitation of certain abandoned mine sites identified by the DMR. This contract follows on from a similar previous 3-year programme which was concluded in March 2013. The current programme has a duration of 3 years and a total budget of R165 million.

The rehabilitation cost of a particular site is dependent on the nature of the specific site, and the type and extent of rehabilitation required. Consequently, the number of sites rehabilitated depends on the specific sites prioritised by the DMR.

5.5.2 Programme for developing human capital

A number of government grants are channelled to Mintek for the development of human capital. One of the government grant-funded interventions is the *Science, Technology, Engineering and Mathematics (STEM) Promotion*, which includes Mintek's Undergraduate and Postgraduate Bursary programmes, as well as the renowned *Minquix* competition. *Minquix* aims to encourage interest in careers in Science, Engineering and Technology through fulfilled and curriculum-aligned competition that combines the rigors of an Olympiad with the excitement of a live quiz show. Mintek's drive to establish additional *Minquix* centres across the country will continue in partnership with new host institutions and corporate sponsors to broaden the footprint of the competition. *Minquix* has been partially funded by corporate sponsorship and grants from a number of sponsors including DST, Sasol and others and a total of R2 million is budgeted for 2014/15.

Staff Bursaries are budgeted for Mintek staff members for part-time undergraduate studies (from diploma level and

above) and postgraduate studies, both for technical (science and engineering) and non-technical studies. The programme also augments Mintek's retention strategy. Technical studies will be funded through the Science Vote while non-technical studies will be funded from Mintek funds. The total budget for the period is at R8 million.

The *Work-Integrated Learning (WIL) Programme* provides a one year practical work-based learning experience for National Diploma students in fulfilment of their study requirements. The programme is fully-funded by the MQA. Mintek also hosts extra trainees that are partially sponsored by the Black Science, Technology and Engineering Professionals (BSTEP). A budgeted expenditure of R2.4 million is estimated for WIL during the 2014/15 financial year.

The *Artisan Learnership Programme (ALP)* is aimed at training learners to become artisans and to achieve trade status. The three year programme with MQA is ending in March 2014 and negotiations are underway to secure the extension of the programme for the 2014/15 period.

The *Graduate and Researcher Development* portfolio includes a Graduate Development Programme (GDP) which entails a structured on-the-job technical training programme, accompanied by soft skills training programme. 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). This will be financed entirely with unencumbered MQA funds. The programme has strong links with the Coaching and Mentoring Programme, and will also be aligned with the Performance Management System, and aims to address the 5-10 year experience gap.

Internship Programmes provide graduates the invaluable opportunity to obtain work exposure in a real world environment for a limited time period, and there is a

particular focus on providing internship opportunities to young unemployed Black science and engineering graduates. The programmes are: the Department of Science and Technology Professional Development Programme (DST PDP), the Mining Qualifications Authority Graduate Development Programme (MQA GDP), and the Department of Science and Technology National Research Foundation (DST-NRF) Internship Programme.

The DST PDP differs from the other two internship programmes in that it aims to address the accelerated development of a group of scientists and research professionals at post-graduate level (Doctoral and post-Doctoral), that is specifically to encourage black scientists and engineers in particular to remain involved in research and further their research careers within Mintek’s research environment. This programme is funded and administered using the NRF grant.

6. PERFORMANCE ASSESSMENT WEIGHTING

Table 5. Performance Assessment Weighting

PERFORMANCE ASSESSMENT WEIGHTING	
OBJECTIVES	WEIGHTING
Enhance Mintek’s visibility and credibility to all stakeholders	5%
Research and develop efficient mineral processing technologies and value added products and services	50%
Promote the mineral-based economies of rural and marginalised communities	15%
Uphold good governance	15%
Develop human capital and organizational skills to build world class R&D excellence	15%

7. CORPORATE SCORECARD, 2014/15 to 2016/17

To comply with the requirements of the Public Finance Management Act, a set of annual corporate objectives have to be included in Mintek’s Shareholder Compact and external reporting. For internal management control of the business, a more comprehensive set of indicators and Executive Committee priorities will apply and be used for regular internal reporting.

The corporate objectives and performance indicators for 2014/15 were developed during a planning session involving the Board and Mintek’s management team. The following national documents were taken into account during the planning session, and the process followed their performance methodologies closely:

- “Framework for Managing Programme Performance Information” – Published by the National Treasury, May 2007, ISBN 978-0-621-37152-9: Formaset Printers Cape (Pty) Ltd;
- “Guide to the Outcomes Approach” – Prepared by the Presidency, Version: 27 May 2010.

The 12 National Outcomes contained in the “Guide to the Outcomes Approach” formed the starting platform for the Mintek planning process. The possible support and contribution that Mintek could make to each of the Outcomes was carefully considered, and these were formulated into Mintek’s Strategic Objectives.

At the conclusion of the process five Objectives supporting 5 of the 12 National Outcomes were identified, and these were cascaded into a larger number of Activities with measurable Performance Indicators. The mapping of National Outcomes to Activities and Indicators that emerged is as follows:

National Priority	Mintek Objectives
Decent employment through inclusive economic growth	<ul style="list-style-type: none"> – Research and develop efficient mineral processing technologies and value added products and services
A skilled and capable workforce to support an inclusive growth path	<ul style="list-style-type: none"> – Research and develop efficient mineral processing technologies and value added products and services – Promote the mineral economies of rural and marginalised communities
Vibrant, equitable and sustainable rural communities	<ul style="list-style-type: none"> – Promote the mineral economies of rural and marginalised communities
An efficient, effective and development oriented public service and an empowered, fair and inclusive citizenship	<ul style="list-style-type: none"> – Enhance Mintek’s visibility and credibility to all stakeholders – Uphold good governance practices
Environmental assets and natural resources that are well protected and continually enhanced	<ul style="list-style-type: none"> – Research and develop efficient mineral processing technologies and value added products and services

The above Mintek Objectives have been grouped using a Balanced Scorecard Approach as shown below. Details of the score card highlighting Mintek’s Strategic Objectives, Programs, Measures and Indicators follow in section 7.

Stakeholder perspective
<ul style="list-style-type: none"> – 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.
Financial & Internal Business Perspective
<ul style="list-style-type: none"> – Uphold good governance practices.
Learning and Growth Perspective
<ul style="list-style-type: none"> – Develop human capital and organizational skills to build world class R&D excellence

7.1 Stakeholder Perspective

Strategic Objective 1: Enhance Mintek’s visibility and credibility to all stakeholders							
STRATEGIC PROGRAMMES PER OBJECTIVE (What elements constitute the Objective?)	ACTIVITY PER PROGRAMME (What have we achieved by 31 March 2015)	PERFORMANCE INDICATOR (What elements constitute the Objective?)	Baseline 2013/14 Forecast	Annual Targets			Compact Number
				2014 / 15	2015 / 16	2016 / 17	
Integrated marketing and communication functions	Updating and implementing the marketing and communications plan	Annually updated marketing and communications plan approved and implemented	1	1	1	1	2015-1.01
Enhancing the visibility and credibility of Mintek	Mintek promotion	# of technical articles in credible publications	40	32	33	35	2015-1.02
		# of conference presentations and posters	75	68	62	63	2015-1.03
	IP creation and transfer	# of Patents filed	4	6	4	6	2015-1.04
		# of IP license agreements	1	1	2	2	2015-1.05
		# of discoveries (IPRA)	8	10	10	10	2015-1.06
	Attained annual customer satisfaction target	Annual Customer Satisfaction Rating Index	90	90	95	95	2015-1.07
	Enhanced media exposure	# of media references for Mintek	700	720	850	900	2015-1.08
	Enhanced relations with oversight bodies	Technical assistance to the DMR (upon request)	1	1	2	2	2015-1.09
		Annual presentation to Parliament on impact of Mintek's work and role	2	1	2	2	2015-1.10
		Timely submission of Shareholder’s Compact	1	1	1	1	2015-1.11
		Timely submission of quarterly reports on the attainment of targets in the scorecard	4	4	4	4	2015-1.12

Strategic Objective 2: Research and develop efficient mineral processing technologies and value added products and services

STRATEGIC PROGRAMMES PER OBJECTIVE (What elements constitute the Objective?)	ACTIVITY PER PROGRAMME (What have we achieved by 31 March 2015)	PERFORMANCE INDICATOR (What elements constitute the Objective?)	Baseline 2013/14 Forecast	Annual Targets			Compact Number
				2014 / 15	2015 / 16	2016 / 17	
Competitive technologies, products and services for optimal mineral resource utilisation	Develop analytical and mineralogical methods and supply of services	# of methods	10	11	11	11	2015-2.01
		# of samples	50000	50000	55000	60000	2015-2.02
		Rand value (Rm)	39,9	45,6	48,0	51,0	2015-2.03
	Develop new technologies under Science Vote funding	# of internal reports	24	45	39	39	2015-2.04
		# of new technologies	0	0	1	0	2015-2.05
		# of prototypes evidenced by reports	4	6	5	5	2015-2.06
	Sales of products, plant and equipment	# of reports	16	16	16	16	2015-2.07
		Rand value of control system sales (Rm)	24	25	26	27	2015-2.08
		Rand value of Certified Reference Materials (CRM) sales (Rm)	4,0	4,0	4,5	5,5	2015-2.09
	Commercial investigations and feasibility studies	# of external reports	132	123	129	131	2015-2.10
	Provision of Mineral Economics and Strategy advice	# of internal reports	0	8	8	8	2015-2.11

Strategic Objective 2: Research and develop efficient mineral processing technologies and value added products and services

STRATEGIC PROGRAMMES PER OBJECTIVE (What elements constitute the Objective?)	ACTIVITY PER PROGRAMME (What have we achieved by 31 March 2015)	PERFORMANCE INDICATOR (What elements constitute the Objective?)	Baseline 2013/14 Forecast	Annual Targets			Compact Number
				2014 / 15	2015 / 16	2016 / 17	
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	12	16	18	2015-2.13
		# of external reports	160	170	180	200	2015-2.14
	Develop metallurgical processes and products for base-, light- (titanium, magnesium) and ferrous metals	# of internal reports	8	8	8	8	2015-2.15
Green technologies	Develop water efficient processes and flow sheets to optimise water consumption and enable processing of ore bodies in water stricken areas	# of internal reports	5	5	5	5	2015-2.16
		# of external reports	2	3	4	4	2015-2.17
	Develop energy efficient processes, flow sheets and control technologies that minimise energy consumption and carbon emissions	# of internal reports	4	11	8	8	2015-2.18
		# of external reports	0	4	4	5	2015-2.19
	Develop waste management and recycling technologies for treating and recycling waste in order to extend mineral resources	# of internal reports	4	9	6	6	2015-2.20
		# of external reports	0	1	1	1	2015-2.21
Rehabilitate derelict & ownerless mine sites	# of sites	4	4	4	0	2015-2.22	

Strategic Objective 3: Promote the mineral-based economies of rural and marginalised communities

STRATEGIC PROGRAMMES PER OBJECTIVE (What elements constitute the Objective?)	ACTIVITY PER PROGRAMME (What have we achieved by 31 March 2015)	PERFORMANCE INDICATOR (What elements constitute the Objective?)	Baseline 2013/14 Forecast	Annual Targets			Compact Number
				2014 / 15	2015 / 16	2016 / 17	
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	2	2	2015-3.01
		# of feasibility reports	14	12	12	14	2015-3.02
Economically sustainable businesses created in rural and marginalised communities	Develop and support economically sustainable rural and marginalised communities	# of new businesses created	5	5	5	6	2015-3.03
		# of jobs created from new businesses	60	60	60	70	2015-3.04
		% of businesses still in existence after 1 year	100	95	95	95	2015-3.05
		% of businesses still in existence after 2 years	75	76	78	80	2015-3.06
Training and skills development interventions in rural and marginalised communities	Provide accredited training relevant to rural and marginalised communities.	# of people trained	140	140	120	130	2015-3.07
		Maintain accreditation	maintained	maintained	maintained	maintained	2015-3.08

7.2 Financial & Internal Business Perspective

Strategic Objective 4: Uphold good governance practices							
STRATEGIC PROGRAMMES PER OBJECTIVE (What elements constitute the Objective?)	ACTIVITY PER PROGRAMME (What have we achieved by 31 March 2015)	PERFORMANCE INDICATOR (What elements constitute the Objective?)	Baseline 2013/14 Forecast	Annual Targets			Compact Number
				2014 / 15	2015 / 16	2016 / 17	
Enhanced fiscal discipline and the effective management of resources	BEE procurement as a % of total discretionary spend	% BEE Spend of total discretionary spend	55	58	60	60	2015-4.01
	Strengthened Internal Financial Controls	Unqualified audit	Unqualified	Unqualified	Unqualified	Unqualified	2015-4.02
	Sound Debtor Management	% Debtors write off of total revenue	<0.5	<0.5	<0.5	<0.5	2015-4.03
		Average Debtors Days	<65 days	<65	<65	<60	2015-4.04
	Total Income	Rand Value (R'000)	484 602	541 965	598 322	541 940	2015-4.05
	Net Result (surplus)	Rand Value (R'000)	1 490	9 420	15 321	4 475	2015-4.06
	Optimal Yield on Investment	Rand Value (R'000)	15 125	15 000	15 300	15 606	2015-4.07
	Total Capital Expenditure	Rand Value (Including Funding) (R'000)	65 618	48 866	51 309	53 875	2015-4.08
Enhanced organisational efficiencies and energy efficiency	Maintained balance between R&D and Commercial Revenue streams	Ratio of Research / Total Revenue expressed as a %	55	55	55	55	2015-4.09
	Maintained balance between TCTC Salary Bill/Total Expenditure	Ratio of TCTC Salary Bill / Total Expenditure expressed as a %	55	55	55	55	2015-4.10
	Enhanced Liquidity Ratio	Liquidity Ratio	>2	>2	>2	>2	2015-4.11
	Improved cash flows from operations	Cash generated from operations after working capital (excluding movements in deferred income) (R'000)	>2 000	>2 000	>2 000	>2 000	2015-4.12
	Productivity Ratio	Recoverability %	-	85	87	90	2015-4.13
	Energy Efficiency	Power factor correction	0	<1.0	<0.9	<0.8	2015-4.14
Enhanced Quality, Environment and Safety	SHEQ standards maintained and enhanced	Maintain Mintek accreditation status	Maintained	Maintained	Maintained	Maintained	2015-4.15
		Achieved Target for fatalities	0	0	0	0	2015-4.16
		Achieved Target for LTIFR	≤1	≤1	≤1	≤1	2015-4.17
Compliance with national and international regulatory frameworks, and applicable standards	Compliance with appropriate standards, regulations and legislation	% achievement of compliance checklist	100	100	100	100	2015-4.18
	Internal Audits conducted	No. of audits	18	16	16	16	2015-4.19

Strategic Objective 4: Uphold good governance practices

STRATEGIC PROGRAMMES PER OBJECTIVE (What elements constitute the Objective?)	ACTIVITY PER PROGRAMME (What have we achieved by 31 March 2015)	PERFORMANCE INDICATOR (What elements constitute the Objective?)	Baseline 2013/14 Forecast	Annual Targets			Compact Number
				2014 / 15	2015 / 16	2016 / 17	
Enhanced business integration and organisational effectiveness.	Implementation of ICT Master plan	Achievement of 60% server virtualization	Approved Master Plan	Upgrade of e-mail system to Exchange2010	Develop various SharePoint processes		2015-4.20
	Monitoring of critical facility availability	Upside/availability of critical facilities.	0	90%	95%	95%	2015-4.21

7.3 Learning & Growth Perspective

Strategic Objective 5: Develop human capital and organizational skills to build world class R&D excellence							
STRATEGIC PROGRAMMES PER OBJECTIVE (What elements constitute the Objective?)	ACTIVITY PER PROGRAMME (What have we achieved by 31 March 2015)	PERFORMANCE INDICATOR (How do we measure our progress?)	Baseline 2013/14 Forecast	Annual Targets			Compact Number
				2014 / 15	2015 / 16	2016 / 17	
Training and Skills Development	Enhanced Skills Development	WSP Compliance Report	1	1	1	1	2015-5.01
		Total spend on training expressed as a % of payroll	2.0	2.0	2.5	3.0	2015-5.02
	Enhanced relationships with Institutions of Higher Education and other similar organisations.	Number of partnerships in place	5	5	8	8	2015-5.03
		# of partnerships with previously disadvantaged Higher Education Institutions	-	2	2	3	2015-5.04
		# of Graduate Recruitment Programs and other Science Events	10	12	12	12	2015-5.05
	Science, Technology, Engineering and Maths (STEM) Promotion	Annual Minquiz competition	1	1	1	1	2015-5.06
	Effective Full-time Bursary Programme	# of under-graduate bursars	45	45	45	45	2015-5.07
		% Under-graduates Absorption Rate	100	100	100	100	2015-5.08
		# of post graduate bursars	15	15	15	15	2015-5.09
		% Masters Graduates Absorption Rate	100	100	100	100	2015-5.10
		% PhD Graduates Absorption Rate	100	100	100	100	2015-5.11
	Effective Part-time Bursary Programme	# of under-graduate bursars	29	40	40	40	2015-5.12
		# of post-graduate bursars	51	51	51	51	2015-5.13
	Work-Integrated Learning, Studentships and Internship Programmes	# of Candidates employed	50	60	60	60	2015-5.14
		% Trainee Absorption Rate	5	5	5	5	2015-5.15
	Artisan Learnership Programme	# of Employees Enrolled	7	8	6	4	2015-5.16
		% Retention	100	100	100	100	2015-5.17
	Development Programmes for recent graduate scientists & engineers	Graduate Development Programme	Full implement	Full implement	Full implement	Full implement	2015-5.18
	Development programme for mid-level professionals, including researchers, scientists, engineers and technicians	An approved strategy for a mid-level Professional Development Programme	-	1	1	1	2015-5.19

Strategic Objective 5: Develop human capital and organizational skills to build world class R&D excellence

STRATEGIC PROGRAMMES PER OBJECTIVE (What elements constitute the Objective?)	ACTIVITY PER PROGRAMME (What have we achieved by 31 March 2015)	PERFORMANCE INDICATOR (How do we measure our progress?)	Baseline 2013/14 Forecast	Annual Targets			Compact Number
				2014 / 15	2015 / 16	2016 / 17	
Organizational Development	Transformation of the Mintek Organisation	Report on compliance with DoL regulations	1	1	1	1	2015-5.20
		Overall % achievement of Employment Equity targets	100	100	100	100	2015-5.21
	Structured mentorship programme to transfer skills and knowledge from specialists to mid-level professionals	One report per Division on staff participation in structured interactions between specialists and mid-level professionals	-	Full implement	Full implement	Full implement	2015-5.22
	Compliance with Performance Management Policy	% Performance Contracts done and signed (for each employee)	100	100	100	100	2015-5.23
		% Performance Assessment done and signed (for each employee)	100	100	100	100	2015-5.24
	Enhanced Experience Profile of "SCIENTISTS"	Average years of Mintek experience in industry of Mintek "scientists"	3.0	3.5	3.8	3.8	2015-5.25
		Average Age of "Scientists" at Mintek	36	36	36.5	36.5	2015-5.26
	Proportion of Researchers to Total Staff	Proportion expressed as a %	40	40	40	40	2015-5.27
	Proportion of staff with MSc & MEng	Proportion of staff with MSc & MEng expressed as a %	5	7	8	8	2015-5.28
	Proportion of staff with PhD	Proportion of staff with PhD expressed as a %	7	7	7	7	2015-5.29
	Enhanced staff Retention & Succession	Staff Turnover rate	10	10	10	10	2015-5.30
		% Staff Turnover of Professionals in Mintek core Divisions	10	10	10	10	2015-5.31
	Enhanced Coaching and Mentoring	% of management trained on coaching and mentoring	60	80	90	100	2015-5.32
		% of other staff coached and mentored	100	100	100	100	2015-5.33
	Effective Leadership Development Programme	# of employees benefiting from Leadership Development Programme	20	35	0	35	2015-5.34
	Upholding of Mintek values	Performance assessment report	Monitor adherence	Monitor adherence	Monitor adherence	Monitor adherence	2015-5.35
	Enhanced induction programme	Number of feedback sessions	4	4	4	4	2015-5.36
Conduct skills audit	Skills gap analysis report	1	1	1	1	2015-5.37	

Strategic Objective 5: Develop human capital and organizational skills to build world class R&D excellence


STRATEGIC PROGRAMMES PER OBJECTIVE (What elements constitute the Objective?)	ACTIVITY PER PROGRAMME (What have we achieved by 31 March 2015)	PERFORMANCE INDICATOR (How do we measure our progress?)	Baseline 2013/14 Forecast	Annual Targets			Compact Number
				2014 / 15	2015 / 16	2016 / 17	
Employee Health and Wellness	Enhanced Employee Health and Wellness Programme	# of Employee Wellness Programme interventions	4	1	2	2	2015-5.38
		% of Working days lost to absenteeism	0.50	0.40	0.35	0.35	2015-5.39
		# of days lost due to strike action	0	0	0	1	2015-5.40
		% compliance with obligatory annual medical assessment	100	100	100	100	2015-5.41
Effective human resource systems	Data verification and cleaning	95% accuracy of data	-	100	100	100	2015-5.42
		Quarterly data quality control audits by HR Division	-	4	4	4	2015-5.43
	Time and attendance	95% accuracy of time and attendance data	-	100	100	100	2015-5.44
	Implementation of an electronic leave management system	% coverage of the electronic leave management system	-	90	100	100	2015-5.45

It is hereby recorded that the Corporate Scorecard, as presented in Section 7 above has been accepted by the Shareholder.

Dated at PRETORIA on this the 10 day of 03 2014.

AS WITNESSES:

1. _____



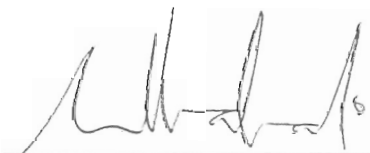
(Minister of Mineral Resources for and on behalf of the Republic of South Africa)

2. _____

Dated at RANDBURG on this the 31ST day of JANUARY 2014.

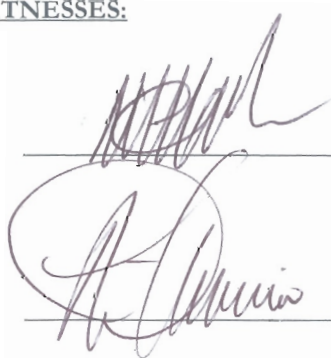
AS WITNESSES:

1. _____



(Chairperson of the Board of Mintek)

2. _____



APPENDIX I – MATERIALITY FRAMEWORK

MATERIALITY FRAMEWORK FOR THE 2013/2014 FINANCIAL YEAR

1. BACKGROUND

Mintek's **vision** is to be a global leader in mineral and metallurgical innovation.

The **mission** of Mintek is to serve our stakeholders by adding value to mineral resources through technology, industrial growth and human development in a sustainable manner.

Mintek's strategic goals are 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;
Develop human capital and organizational skills to build world class R&D excellence

2. SCOPE

The materiality framework is developed in accordance with Treasury Regulation 28.3.1 which requires that for the purposes of materiality [sections 50(1), 55(2), & 66(1) of the Public Finance Management Act (PFMA)] and significance [section 54(2) of the PFMA], the Accounting Authority must develop and agree on a framework of acceptable levels of materiality and significance with the relevant Executive Authority. This framework will be reviewed annually prior to the commencement of the financial year.

3. PURPOSE

The purpose of the document is to record the level and reasoning for the suggested levels of materiality for consideration by the Board and approval by the Executive Authority as required. It outlines management's assessment of qualitative and quantitative materiality, taking cognizance of the existing framework of risks and controls within Mintek. The materiality framework, as set out below, represents management's assessment of the potential impact of transactions and other events within Mintek on the presentation of financial information used for decision making by management, and other users of the financial statements.

Corporate accountability in essence requires companies to be accountable for their decisions and performance that have a potentially large impact on people, the environment or company value.

Materiality as a concept is therefore used to determine the materiality or significance of the issues to be reported for Mintek as noted above.

4. DEFINING 'MATERIAL' AND 'SIGNIFICANT'

'Significant' implies a higher level of importance than 'material'. A significant transaction impacts to Mintek as a whole. An occurrence may be material but not necessary significant, whereas any occurrence that is significant will be material, as it will have an impact on the fulfilment of Mintek's mandate as a public entity and its operative effectiveness. In terms of Mintek's nature of business and extent of operations, a significant item is defined as one which exceeds the maximum monetary limit that the Chief Executive Officer of Mintek can authorize, in terms of Mintek's Delegation of Authority.

International Accounting Standards (IAS 1), Presentation of Financial Statements, read together with South African Accounting Standards (SAAS 320.03), defines items as material 'if they could, individually or collectively, influence the economic decisions of users taken on the basis of the financial statements. Materiality depends on the size and nature of the omission or misstatement judged in the surrounding circumstances. The size or nature of the item, or a combination of both, could be the determining factor.' Materiality can thus be either quantitative or qualitative or both.

In the Mintek environment, the public nature of the funds that constitute a significant portion of Mintek's income necessitates a narrower definition of "material" than merely being an influence on economic decisions. As such, therefore, the definition of "material" transactions within Mintek will necessarily include any transactions that may have an impact on the presentation of the annual financial statements, as an accurate representation of the "full and proper records of the financial affairs" of Mintek, as required by Section 55(1)(a) of the PFMA.

Implications

An understanding and application of the concept of materiality helps to manage, and be seen to be managing significant impacts and issues better. Things that rise to the level of 'materiality' are those that require high-level, co-coordinated effort. Many other issues, whilst not material, will still be addressed and managed by the company, and need to be communicated to stakeholders – but in focused, targeted ways – not in the annual report.

With a full understanding of materiality and how it works, stakeholders should become better equipped to raise the issues that matter most to them.

5. DETERMINATION OF MATERIALITY - GUIDELINES APPLIED IN THE COMPUTATION OF MATERIALITY

Quantitative Materiality can be based on a number of financial indicators of the type that is widely used and accepted in the accounting profession as a basis of calculating materiality.

The following table depicts acceptable basis used in the computation of materiality.

Basis	Acceptable Ranges
Gross Revenue/Turnover	0.2% – 1 %
Net Income	1 – 5 %
Total Asset	1 – 2 %
Equity	0.5 – 2 %

5.1 Significance of Indicators

The nature of Mintek is such that both the balance sheet and the income statement indicators are of significance. Mintek has both significant assets and revenue streams – both are significant to the users of the financial information.

5.2 Stability of Indicators

Gross revenue and total assets remained stable indicators for Mintek despite the volatile economic conditions of recent years and will therefore be used in the calculation of materiality. The preliminary gross revenue for the first 9 months of the 2012/13 financial year and the forecast revenue for the remaining three months, appear to be indicative of the likely results for the year. This figure will then be adjusted by an anticipated inflation growth average of 6% for the 2013/14 year.

Net income should be disregarded as MINTEK is not a profit making institution, and there are fluctuations and many dependencies that influence this figure.

Mintek has historically used a rate of 0.3% in calculating the materiality level. This is within the range specified above of 0.2% - 1% of gross revenue and provides a level that is acceptable both quantitatively and qualitatively.

5.3 Computation of Materiality

Gross revenue:

As stated above, Mintek has historically used the preliminary results for the nine months of the 2012/13 financial year and the forecast revenue for the remainder of the year; however the budget as indicated in the compact will be used for the computation of materiality. The calculations are as follows:

Gross Turnover:

0.3% of R 541 965 000= R1 625 895

Asset calculation

Use 1% of R568 239 806(total assets) = R5 682 398

Different levels can be set for different classes of transactions. Mintek has however decided to take a less conservative approach by using gross revenue and not assets as the basis for calculating Materiality. The Materiality level will cover all classes of transactions.

The materiality for the previous financial period was set at R1.5m, representing the lower end of the range for gross revenue. Gross revenue/turnover includes 100% state grant

allocation, revenue from contract research, and sales of products and services. The calculations above results in the materiality figure of R1.6 million however Mintek has decided to keep materiality at the same levels as in the previous financial period mainly because the sudden increase in revenue is project driven and may decrease in future.

Therefore the materiality for the current period will be kept at R1.5 million.

6. CONTROL ENVIRONMENT

The Board of Directors consists of independent non-executive members who are appointed by the Minister of Mineral Resources. The Audit Committee consists of some Board members and two independent non-Board members.

Mintek is managed by a CEO assisted by five General Managers, who together make up the Executive Management team. Mintek maintains a system of internal controls designed to provide reasonable assurance as to the integrity and reliability of its financial statements, to safeguard its assets and to minimize the risk of fraud. In terms of the Audit Committee charter, the Audit Committee reviews the effectiveness of the system of internal controls.

A Risk Steering Committee assists in reviewing the risk management process and significant risks facing the organization. In terms of the Risk Management Framework, this review is delegated to the CEO.

The Internal Audit function is established and operational. The performance of the Internal Audit function is subject to evaluation by the Audit and Risk Committee, in terms of the Audit and Risk Committee and Internal Audit charters. Additionally, the Audit and Risk Committee reviews and approves the Internal Audit charter, internal audit plans and ongoing internal audit reports on the effectiveness of Mintek's internal controls.

Although Mintek is an entity within the Department of Mineral Resources (DMR), it is also accountable to the Department of Science & Technology (DST) for its Research and Development (R&D) and technology related activities. Strategic goals encompassing economic, technical, social and environmental objectives, determined by the Government and DMR, provide Mintek with a basis for evaluating its activities. These criteria are, therefore, also used in the assessment of significant risks facing Mintek.

6.1 Stakeholders

The primary stakeholders are the Departments of Mineral Resources and Science & Technology.

Users of financial statements:

- Department of Mineral Resources
- Department of Science & Technology
- National Treasury
- Banking institutions
- South African Revenue Services
- Suppliers and other creditors

7. QUANTITATIVE MATERIALITY

Materiality refers to the extent or nature of a misrepresentation and/or omission of financial information which, individually or collectively, can, in the light of surrounding circumstances cause the judgment or decision of a reasonable person to be influenced by such misrepresentation and/or omission when making a decision on the basis of the said information.

In addition to the overall quantitative materiality determined, all transactional items exceeding R50 000 in value which meet the necessary prerequisites for recognition as accruals at year-end, will be classified as such.

Items less than R50 000 which meet the criteria will be considered on merit. Where it is too difficult to value small items, these will be regarded as immaterial. The overriding criteria, however, is that the aggregate of all such small items, individually judged to be immaterial, may not exceed 0.3% of Gross revenue.

In addition, items that individually or collectively meet the definition of “significant” or “material”, as defined earlier in this framework will be considered separately for assessment of materiality and risk. The figure of R1.5 million therefore, functions as a guideline to inform management in the overall consideration and management of risk.

8. QUALITATIVE MATERIALITY

Materiality is not merely related to the size of the entity and elements of the financial statements. Misstatements that are large individually or in aggregate may affect the reasonable users’ judgement. Misstatements may also be material on qualitative grounds. The following are some of the qualitative factors to be considered:

- Any breaches to procedures or processes required by legislation or regulation
- Transaction entered into that could result in the reputation risk to Mintek.
- Unusual transaction entered into that are not of a repetitive nature as well as new ventures that Mintek has entered into. These are purely disclosed due to their nature and the knowledge that they could affect the decision of the users of financial statements.
- Any Fraudulent and dishonest behaviour of officers or staff.

APPENDIX II – FRAUD PREVENTION PLAN

GLOSSARY OF TERMS

Throughout this document, unless otherwise stated, the words in the first column below have the meanings stated opposite them in the second column (and cognate expressions shall bear corresponding meanings):

“Cabinet” Parliamentary Cabinet of the Republic of South Africa

“Code” For Mintek Staff Members as prescribed in the Mintek Code of Conduct and Business Ethics policy

"Fraud and corruption" includes, but is not limited to, the following legal definitions:

- (i) Fraud, i.e. "the unlawful and intentional making of a misrepresentation resulting in actual or potential prejudice to another";
- (ii) Theft, i.e. the unlawful and intentional misappropriation of another's property or property which is in his/her lawful possession, with the intention to deprive the owner of its rights permanently";
- (iii) Offences in respect of corrupt activities as defined in the Prevention and Combating of Corrupt Activities Act, 2004, i.e.:
 - The general offence of corruption which could be summarised as directly or indirectly accepting or agreeing to accept any gratification from another person; giving or agreeing to give any other person any gratification in order to influence that person directly or indirectly to exercise his powers, duties or legal obligations in a manner which is/amounts to:
 - a. Illegal, dishonest, unauthorised, incomplete, or biased;
 - b. Misuse or selling of information or material acquired;
 - c. Abuse of position of authority;
 - d. Breach of trust;
 - e. Violation of a legal duty or set of rules;
 - f. Designed to achieve an unjustified result; and
 - g. Any other unauthorised or improper inducement to do or not to do anything.
 - Corrupt activities in relation to:
 - a. Public officials;
 - b. Foreign public officials;
 - c. Agents;
 - d. Judicial officers;
 - e. Members of the prosecuting authority;
 - f. Unauthorised gratification received or offered by or to a party to an employment relationship;

- g. Witnesses and evidential material during certain proceedings;
 - h. Contracts;
 - i. Procuring and withdrawal of tenders;
 - j. Auctions;
 - k. Sporting events; and
 - l. Gambling games or games of chance.
- Conflicts of interests and other unacceptable conduct, e.g.:
 - a. Acquisition of private interests in contract, agreement in or investment in public body;
 - b. Unacceptable conduct relating to witnesses; and
 - c. Intentional interference with, hindering or obstruction of investigation of offence;
 - Other offences relating to corrupt activities, viz.:
 - a. Accessory to or after an offence;
 - b. Attempt, conspiracy and inducing another person to commit offence; and
 - Failure to report corrupt transactions.

Fraudulent and corrupt acts may include:

- i. Systems issues: where a process/system exists which is prone to abuse by employees, the public or other stakeholders, e.g.:
 - a. Procurement fraud, e.g. irregular collusion in the awarding of tenders or orders for goods and/or services;
 - b. Deliberate non-compliance with delegation of authority limits;
 - c. Collusion in contracts management;
 - d. Revenue fraud; e.g. Mintek officials' reluctance in verifying the suppliers/contractors VAT details before any contractual agreement can be entered into with the purposes of rendering services to Mintek.
 - e. Travel and subsistence fraud;
 - f. Abuse of sick leave or other permissible leave;
 - g. Disclosing confidential or proprietary information to outside parties.
- ii. Financial issues: i.e. where individuals or companies have fraudulently obtained money from Mintek, e.g.:
 - a. Syndicate fraud;
 - b. Creditors fraud, e.g. diverting payments to incorrect creditors;
 - c. Suppliers submitting invalid invoices or invoicing for work not done; and
 - d. Payroll fraud, e.g. creation of "ghost employees".

- iii. Equipment and resource issues: i.e. where Mintek's equipment or other sources utilised for personal benefit or stolen, e.g.:
 - a. Theft of assets, e.g. computers, face value forms, consumables, (stationery, globes, fuses) etc.;
 - b. Personal use of resources, e.g. telephones, internet, e-mail; and
 - c. Irregular destruction, removal, or abuse of records (including intellectual property); and
 - d. Misuse of the Mintek's official time for personal gain/purposes.

- iv. Other issues: i.e. activities undertaken by employees of Mintek, which may be against policies or fall below established ethical standards, e.g.:
 - a. Soliciting gifts or favours from consultants or other suppliers, e.g. acceptance of "kick-backs";
 - b. Pursuing private business interests without permission;
 - c. Nepotism; and Favouritism.

"Fraud Policy"	Fraud risk and whistle blowing policy
"Managers"	Includes all Members of Management and, where appropriate Supervisors
"PFMA"	The Public Finance Management Act (PFMA), 1999 (Act No. 1 of 1999)
"Plan"	Fraud Prevention Plan
"Protected Disclosures Act"	Protected Disclosures Act, Act 26 of 2000

1. INTRODUCTION

Section 27.2.1 of the Treasury Regulations, issued in terms of the Public Finance Management Act, 1999 states that the Accounting Authority must ensure that a risk assessment is conducted regularly so as to identify emerging risks of the public entity. A risk management strategy, which must include a fraud prevention plan, must be used to direct internal audit effort and priority and to determine the skills required of managers and staff to improve controls and to manage these risks

2. APPROACH TO UPDATING THE PLAN

- 2.1 Mintek has a risk register/plan in place, which is updated on a regular basis. The plan was updated with the view to put measures in place to mitigate the effects of the risks identified in the risk register of Mintek.
- 2.2 The Plan also incorporates principles contained in the Public Sector Anti-Corruption Strategy dated January 2002, endorsed by Cabinet.
- 2.3 The Code and the Fraud Policy, as approved, forms an integral part of the Fraud Prevention Plan.
- 2.4 The fraud and corruption risks identified in the updating of the Plan cannot be relied upon as an indication of the full spectrum of fraud and corruption risks facing Mintek, but rather as an indication of the type of risks.

2.5 The Plan does not guarantee that Mintek will not be impacted by incidents of fraud and corruption but is intended to serve as an additional measure to assist in the limitation of fraud and corruption risk with a particular focus on creating awareness and promoting ethical business conduct.

3. COMPONENTS OF THE PLAN

The main principles of the Plan are the following:

- Creating a culture which is intolerant to fraud and corruption;
- Deterrence of fraud and corruption;
- Preventing fraud and corruption which cannot be deterred e.g. miss use of internet, conducting private affairs during official hours, etc.;
- Detection of fraud and corruption;
- Investigating detected fraud and corruption;
- Taking appropriate action against fraudsters and corrupt individuals, e.g. prosecution, disciplinary action, etc.; and
- Applying sanctions, which include redress in respect of financial losses.

The objectives of the Plan could be summarised as follows:

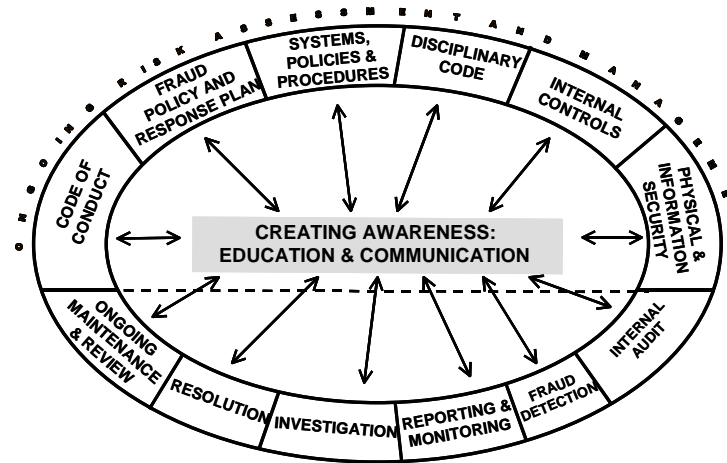
- Encouraging a culture within Mintek where all employees, the public and other stakeholders continuously behave ethically in their dealings with, or on behalf of Mintek;
- Improving accountability, efficiency and effective administration within Mintek;
- Improving the application of systems, policies, procedures and regulations;
- Changing aspects of Mintek which could facilitate fraud and corruption and allow these to go unnoticed or unreported; and
- Encouraging all employees and other stakeholders to strive toward the prevention and detection of fraud and corruption impacting or having the potential to impact on Mintek's activities.

The above is not intended to detract from the premise that all the components are equally essential for the successful realisation of the Plan. The components of the Plan for Mintek are the following:

- (a) A Code of Conduct and Business Ethics Policy in which the management of Mintek believes, and requires their employees to subscribe;
- (b) Mintek's systems, policies, procedures, rules and regulations;
- (c) The Disciplinary and Grievance Code;
- (d) Sound internal controls to prevent and detect fraud and corruption;
- (e) Physical and information security management;
- (f) Internal Audit;
- (g) Ongoing risk assessment and management, which includes systems for fraud and corruption detection;
- (h) Reporting and monitoring of allegations of fraud and corruption;
- (i) A Fraud Policy which includes the policy stance of Mintek on fraud and corruption and a response plan which incorporates steps for the reporting as well as proper resolution of reported and detected incidents and allegations of fraud and corruption;
- (j) Creating awareness amongst employees, the public and other stakeholders (e.g. goods and service providers) through communication and education relating to relevant components of the Plan, the Code and the Fraud Policy; and

- (k) Ongoing maintenance and review of the Plan to ensure effective project-management of its further implementation and maintenance.

An illustration of the Plan is contained in the figure below:



4. PREVENTING FRAUD AND CORRUPTION

4.1 Code of Conduct and Business Ethics

- 4.1.1 The ethical principles contained in the Code are applicable to all employees of Mintek. Therefore, the Code forms part of the Plan for Mintek.
- 4.1.2 Mintek will arrange workshops to create awareness of the Code among employees. A further objective of this training is to reinforce the expectations of Mintek and the governance of employees of Mintek with regard to their conduct and behaving ethically and with integrity.
- 4.1.3 Processes and mechanisms to manage professional ethics are key to the fight against fraud and corruption. In line with the principles contained in the Public Sector Anti-Corruption Strategy, Mintek will pursue the following additional steps to communicate the principles contained in the Code:
 - a) A copy of the Code will continue to be circulated to all employees and included in induction packs for new employees.
 - b) Include relevant aspects of the Code in further awareness presentations, training sessions and communication programmes to create awareness thereof amongst employees and other stakeholders. Further objectives of this training will be the following:
 - Helping employees to understand the meaning of unethical behaviour (including harassment in any form) in line with expectations of Mintek;
 - Presenting case studies which will assist in developing behaviour to articulate and encourage attitudes and values which support ethical business conduct;
 - Helping employees to understand issues involved in making ethical judgements; and

- Communicating the implications of unethical behaviour and its impact for individuals, the workplace, professional relationships, Mintek as whole and external stakeholders including the public.

4.1.4 The development of a more robust system for the declaration of private business interests, actual or potential conflicts of interest by all employees and a policy regarding the acceptance and offering of business courtesies as keeping of a centralised record thereof will be considered.

4.2 Mintek's Systems, Policies, Procedures, Rules and Regulations

4.2.1 Mintek has a number of systems, policies, procedures, rules and regulations designed to ensure compliance with government legislation.

4.2.2 The management of Mintek will improve awareness and knowledge of the relevant systems, policies, procedures, rules and regulations, including the requirements of the PFMA and the Preferential Procurement Policy Framework Act amongst its employees. Mintek will develop clearly defined communication and training strategies to create awareness of existing and new policies and procedures in order to ensure that all employees are made aware of, and adequately trained in the implementation of policies and procedures relevant to their duties and responsibilities, including:

- (a) Provisions for all employees to acknowledge, in writing, that they have read the policies and procedures applicable to their duties, have undergone relevant training and/or are aware of these policies and procedures;
- (b) The keeping of adequate records serving as proof that employees have been made aware of the policies and procedures relevant to their duties; and
- (c) The development and distribution of a regular communiqué outlining the importance of complying with policies and procedures and the implications for employees; for example, the taking of corrective action against offenders not complying with policies and procedures.

4.2.3 A structured monitoring mechanism will be administrated for the keeping of proper records of the policies and procedures that are being updated, and of new policies and procedures that are being developed in order to set clear targets and monitor progress.

4.2.4 Mintek is committed to developing human resources systems, policies and procedures, which will incorporate the fraud and corruption prevention practices detailed below.

- (a) The administration of a system for transparent and merit-based hiring and promotion practices with objective standards in order to reduce the risk of nepotism and favouritism, both of which are damaging forms of fraud and corruption;
- (b) Thorough pre-employment and security clearance screening of candidates for sensitive positions. Mintek will verify at least the previous employment, qualifications, citizenship, and criminal records of all persons before they are employed;
- (c) Mintek recognises that, despite ongoing organisational and policy changes, for example employment equity policies, matching of competence to the job is extremely important. As part of its approach to the management of human resources, Mintek will continue to pursue steps to limit the risk of incompetent people being appointed.

4.2.5 Management must be held accountable for complying with, and implementing, Mintek's systems, policies, procedures, rules and regulations and for preventing fraud and corruption. This will be addressed in job descriptions, agreed work plans and performance contracts.

4.2.6 Mintek will also administrate a system with clear guidelines for the placing of prohibitions on individuals and restriction of entities found guilty of fraud and corruption against it.

Disciplinary and grievance code

4.2.7 The disciplinary and grievance code prescribes appropriate steps to be taken to resolve disciplinary matters.

4.2.8 Mintek recognises the fact that the consistent and efficient application of disciplinary measures is an integral component of effective fraud and corruption prevention. The following steps to expedite the consistent, efficient and speedy application of disciplinary measures will be initiated:

- (a) Creating awareness amongst employees of conduct which is forbidden in terms of the disciplinary and grievance code. Where disciplinary standards are not adhered to, action will be taken against offenders;
- (b) Ongoing training of managers in the application of disciplinary measures and the disciplinary process, and sustaining this training;
- (c) Developing a system to facilitate the consistent application of disciplinary measures; and
- (d) Regular monitoring and review of the application of discipline with the objective of improving weaknesses identified.

4.2.9 Where managers are found to be inconsistent and/or inefficient in the application of discipline corrective action will be implemented.

Internal Controls:

4.2.10 This section of the Plan relates to basic internal controls to prevent and detect fraud and corruption and the training of employees in internal control and the conducting of their day-to-day duties. The systems, policies, procedures, rules and regulations of Mintek prescribe various controls, which if effectively implemented, would limit the risk of fraud and corruption. These controls may be categorised as follows, it being recognised that the categories contain overlapping elements:

Prevention controls: These are divided into two sub-categories, namely, Authorisation and Physical;

Detection controls: These are divided into four categories, namely, Arithmetic and Accounting, Physical, Supervision, and Management Information; and

Segregation of duties.

PREVENTION CONTROLS:

- (a) *Authorisation:*
 - (i) All transactions require authorisation or approval by an appropriate responsible person.
 - (ii) The limits for these authorisations are specified in the delegations of authority of Mintek as well as in various government prescripts.

- (b) *Physical:*
These controls are concerned mainly with the custody of assets and involve procedures and security measures designed to ensure that access to assets is limited to authorised personnel.

DETECTION CONTROLS:

- (a) *Arithmetic and accounting*
 - (i) These are basic controls within the recording function which check that transactions to be recorded and processed have been authorised, that they are complete, and that they are correctly recorded and accurately processed.
 - (ii) Such controls include checking the arithmetical accuracy of records, the maintenance and checking of totals, reconciliations, control accounts, and accounting for documents.
- (b) *Physical*
 - (i) These controls relate to the security of records. They therefore underpin arithmetic and accounting controls.
 - (ii) Their similarity to preventive controls lies in the fact that these controls are also designed to limit access.
- (c) *Supervision*
This control relates to supervision by responsible officials of day-to-day transactions and the recording thereof.
- (d) *Management information*
 - (i) This relates to the review of management accounts and budgetary control.
 - (ii) These controls are normally exercised by management outside the day-to-day routine of the system.

SEGREGATION OF DUTIES:

- (a) One of the primary means of control is the separation of those responsibilities or duties that would, if combined, enable one individual to record and process a complete transaction, thereby providing him/her with the opportunity to manipulate the transaction irregularly and commit fraud and corruption.
- (b) Segregation of duties reduces the risk of intentional manipulation or error and increases the element of checking.
- (c) Functions that should be separated include those of authorisation, execution, custody, and recording and, in the case of computer-based accounting systems, systems development and daily operations.
- (d) Placed in context with fraud and corruption prevention, segregation of duties lies in separating either the authorisation or the custodial function from the checking function.

4.2.11 Mintek will continue to initiate steps to address the problem of lack of training, expertise and knowledge in systems, policies, procedures, rules and regulations to improve internal control. Areas of weakness will be identified during audits and risk assessments.

4.2.12 Furthermore, Mintek will also continue to re-emphasise to all supervisors that consistent compliance by all employees with internal control is one of the fundamental controls in place to prevent fraud and corruption.

4.2.13 Where managers do not comply with basic internal controls, e.g. non-adherence to the delegation of authority limits, firm disciplinary action(s) will be considered.

Physical and Information Security

PHYSICAL SECURITY

4.2.14 Mintek will consider conducting a regular detailed review of the physical security arrangements at its offices and improve weaknesses identified. Specific focus areas will be physical security over infrastructure, assets and staff.

INFORMATION SECURITY

4.2.15 Mintek will ensure that all employees are sensitised on a regular basis to the fraud and corruption risks associated with information security and the utilisation of computer resources, in particular – access control, and ensure that systems are developed to limit the risk of manipulation of computer data.

4.2.16 Regular communiqués will be forwarded to employees pointing security policy, with a particular emphasis on e-mail and Internet usage and the implications (e.g. disciplinary action) of abusing these and other computer related facilities. Where employees are found to have infringed on prevailing policy in this regard, disciplinary action will be taken.

4.2.17 Regular reviews of information and computer security will also be considered. Weaknesses identified during these reviews will be addressed.

5. DETECTING AND INVESTIGATING FRAUD AND CORRUPTION

5.1 Internal Audit

5.1.1 Mintek recognises the fact that the positive support by all its managers for Internal Audit and its functions, speedy response to, and the addressing of queries raised by Internal Audit is vital to the success of the Plan. Where managers are found to be slow in addressing internal control queries raised by Internal Audit, firm action will be taken.

5.1.2 Mintek will regularly re-emphasise to all managers that consistent compliance by employees with internal control is one of the fundamental controls in place to prevent fraud and corruption. Managers will be encouraged to recognise that internal control shortcomings identified during the course of audits are, in many instances, purely symptoms and that they should strive to identify and address the causes of these internal control weaknesses, in addition to addressing the control weaknesses.

5.1.3 Awareness strategies will also be developed to enhance managers' understanding of the role of Internal Audit.

5.2 Ongoing Risk Assessment and Management

5.2.1 Acknowledging the fact that Mintek faces diverse business risks from both internal and external sources, Mintek is administering an ongoing process of risk identification and risk management. This information will be used to assist management with the following:

- (a) Prioritising areas for attention and subsequently developing appropriate controls to limit the material risks identified; and
- (b) To enable management to continually assess and update the risk profile (incorporating fraud and corruption risk) of Mintek.

5.2.2 Presentations to employees of Mintek will be conducted in order to ensure that they have a more detailed understanding of the fraud and corruption risks facing Mintek and the areas wherein these risks exist, thus enhancing the prospect of detecting irregularities earlier.

5.2.3 Mintek will also consider performing specific fraud and corruption detection reviews in the following areas on a regular basis:

- Asset and inventory management;
- Procurement/Supply Chain Management;
- Conflicts of interest;
- Project management and maintenance;
- Contracts management;
- Fleet management;
- Compliance to delegations of authority;
- Budget control;
- Creditor payments;
- Revenue management;
- Payroll;
- Travel and subsistence; and
- Human Resources.

This will include the conducting of presentations to managers and staff to ensure that they have a more detailed understanding of the fraud and corruption risks associated with these areas, thus also enhancing the prospect of detecting irregularities earlier.

5.3 Reporting and Monitoring

5.3.1 Mintek has implemented a Fraud Hotline, which is controlled by an independent service provider and is intended to achieve the following:

- (a) To deter potential fraudsters and corrupt individuals by making all employees and other stakeholders aware that Mintek is not a soft target, as well as encouraging the participation of employees in supporting, and making use of this facility;
- (b) To raise the level of awareness that Mintek is serious about fraud and corruption;
- (c) To detect incidents of fraud and corruption by encouraging whistle blowers to report incidents which they witness;
- (d) To assist Mintek in managing the requirements of the Protected Disclosures Act by creating an additional channel through which whistle blowers can report irregularities which they witness or which come to their attention; and
- (e) To further assist Mintek in identifying areas of fraud and corruption risk in order that preventive and detective controls can be appropriately improved or developed.

5.3.2 Mintek will ensure that a fraud and corruption information system is developed for the following purposes:

- (a) Recording all allegations;
- (b) Tracking progress of investigation of allegations;

- (c) To facilitate the early identification of systemic weaknesses and recurring risks, and inform managers and employees of systemic weaknesses/risks;
- (d) Provide feedback to employees and other whistle blowers on the management of allegations;

The Fraud Policy and Response Plan:

- 5.3.3 A Fraud Policy, which contains the policy stance of Mintek to fraud and corruption as well as the response mechanisms in place to report, investigate and resolve incidents of fraud and corruption which impact it, has been developed for Mintek.
- 5.3.4 The Fraud Policy will be circulated to all employees of Mintek and appropriate sections to the public and providers of goods and services.
- 5.3.5 Fraud and corruption must be reported according to the provisions of the fraud policy.

6. FURTHER IMPLEMENTATION AND MAINTENANCE

6.1 Creating awareness

This component of the Plan comprises two approaches, namely education and communication.

6.1.1 **Education:** The creation of awareness amongst employees is intended to address the following issues:

- (a) Informing employees on an ongoing basis on what constitutes fraud and corruption;
- (b) Promote Mintek's and national policies that must be adhered to;
- (c) Informing employees of fraud and corruption risks to enable understanding of specific risks to which Mintek may be exposed, thus enhancing the prospect of detecting irregularities earlier;
- (d) Encouraging employees to blow the whistle on fraud and corruption;
- (e) Employee awareness of the current legislative framework as it relates to fraud and corruption, and their obligations and rights should they blow the whistle on fraud and corruption, the nature of the witness protection system and the roles and responsibilities of existing anti-corruption institutions; and
- (f) Inform employees of their obligations and rights in terms of the Access to Information Act.

6.1.2 **Communication:** The objective of the communication approaches is to also create awareness amongst employees, the public and other stakeholders, of the Plan in order to facilitate a culture where all stakeholders strive to contribute toward making the Plan a success as well as for the sustaining of a positive, ethical culture within Mintek. This will increase the prospect of fraud and corruption being reported and improve Mintek's prevention and detection ability.

6.1.3 Communication strategies that will be considered by Mintek are the following:

- (a) Posters, newsletters, pamphlets and other publications to advertise the Code and the Fraud Policy, aimed at employees, the public and other stakeholders;
- (b) Screensavers on computers with appropriate anti-fraud and corruption and pro-ethics messages;
- (c) Attachments to tender invitation documents relating to Mintek's stance to fraud and corruption, where such irregularities can be reported and the actions which will be considered;
- (d) Appropriate attachments to offers of employment and inclusion of appropriate items in induction and training programmes;

- (e) Prudent terms in contracts signed with providers of goods and/or services relating to offering of gifts to employees of Mintek;
- (f) Ensuring that fraud and corruption prevention is a fixed agenda item in meetings;
- (g) Signing of declarations of commitment by all employees to the Plan; and
- (h) Endorsements of correspondence directed at providers of goods and/or services with anti-fraud and corruption and pro-ethics messages.

6.2 Ongoing Maintenance and Review

6.2.1 The Chief Executive Officer will be responsible for ensuring the ongoing maintenance and review of the Plan. This includes appointing appropriate officials to ensure that:

- (a) Reports of fraud and corruption received are evaluated and highlight areas of fraud and corruption risk within Mintek;
- (b) Fraud and corruption threats to Mintek are considered and recommendations to appropriate committees or management are made;
- (c) Criminal activities threatening Mintek are considered and fraud and corruption prevention recommendations with regard to areas that should be examined are made;
- (d) Action taken to implement recommendations relating to incidents of fraud and corruption are monitored;
- (e) The Code and the Fraud Policy are reviewed and appropriate amendments are made;
- (f) The awareness programme as necessary is amended, and the changes are implemented; and
- (g) Ongoing communication and implementation strategies are developed and implemented.

6.2.2 The Plan will be reviewed as the risk profile of Mintek changes, whilst progress with the implementation of the various components will be reviewed regularly. In the latter regard, specific priorities stemming from the Plan, actions to be taken, responsible persons and feedback dates relating to progress made will also be set.

APPENDIX III – GOVERNANCE STRUCTURE

BOARD OF DIRECTORS (NON-EXECUTIVE)

NAMES	POSITION	GENDER	RACE	QUALIFICATIONS	AREAS OF EXPERTISE	OTHER BOARD MEMBERSHIPS
Linda Makatini	Chief Executive Officer: Ngwane Mining	Female	African	LLM International Law; BA Law (LLB)	Law; Business and Strategy Consulting	Regulator member of the National Energy Regulator of SA; Jacob Zuma Educational Trust
Francis William Petersen	Dean: Engineering and the Built Environment at University of Cape Town	Male	Coloured	Ph.D (Eng); M.Eng (Metal. Eng.); B.Eng (Chem. Eng.)	Research & Development, Business Administration, General Management, Engineering, Industrial Consulting	Chairperson of the Board of the CSIR; Board of the Precious Metal and Diamond Regulator; Board of the Royal Bafokeng Platinum; Board of Pragma Holdings; Advisory Board of the Platinum Development Fund, Anglo Platinum; Board of the Unlimited Group; Chairperson of the Board of Trustees of the Seedcap (Venture Capital) Trust
Derick Jeffrey Block	Management Consultant	Male	Coloured	B. Juris, LL.B, H Dip Tax	Corporate Governance, Legal & Ethics, Property Investments, Risk Management	Member of South African Veterinary Council; Member of Western Cape Liquor Authority
Catherine Leso	Chief Information Officer: Department of Mineral Resources	Female	African	BTech in Business Administration, NDip in Information Technology	ICT technologist and portfolio management in financial services & automobile sector.	None
Khomotso Ramasela Mthimunye	Managing Partner: KR Mthimunye CA (SA)	Female	African	B.Com; B.Compt (Hons); Higher Diploma in Tax Law; Chartered Accountant (SA)	Finance; Accounting; Auditing; Strategy and Business Development	Member of SAICA, Independent Regulatory Board of Auditors, Investment Analyst Society; Member of the National Energy Regulator and Council for GeoScience
Stoffel Nhlapo	Deputy Vice-Chancellor: Cape Peninsula University of Technology	Male	African	PhD; MA (Higher Education); M.Sc Chemistry; Hons. B.Sc; HEd; B.Sc	Business Administration; Research and Development; Chemistry; Project Management	Member of the SA Chemical Institutes; Member of the Macromolecular Society of SA; Member of the National Committee for IUPAC
Imraan Ebrahim Patel	Deputy Director General: Department of Science and Technology	Male	Indian	BSc Hons; PDM: PPDA	Science Policy, Public Management	Southern African Science Service Centre on Climate Change and Adaptive Land Management (SASSCAL)
Vuyelwa Toni Penxa	Managing Director: Lingcaphephe Metallurgical Services	Female	African	PhD in Public Affairs; MSc in Science Education; BSc; P.D.E; BEd	Analytical Sciences; Biotechnology; Business Administration	Deputy Chairperson of the South African Qualifications Authority (SAQA) Board; Trustee of the Red Meat Industry Trust
Nompumelelo Zikalala	Managing Director: De Beers Sightholder Sales South Africa	Female	African	BSC Chem Eng	Mining; General Management; Strategy	Chairperson of Ponahalo/De Beers Equal Allocation Trust; Board Member of De Beers Sightholder Sales South Africa; Board Member of Ponahalo

MINTEK EXECUTIVE MAGEMENT TEAM

NAMES	POSITION	GENDER	RACE	QUALIFICATIONS	YEARS OF SERVICE AT MINTEK	AREAS OF EXPERTISE	BOARD MEMBERSHIPS
Abiel Mngomezulu	CEO	Male	African	BSc Hons (Geology), GDE	6 Years	Engineering (Mining), Business Management Mineral Economics	African Exploration, Mining and Finance Company, MINDEV (Pty) LTD, Merafe Resources Ltd
Sakhi Simelane	GM: Finance	Male	African	BCom Hons (Auditing), BCom (Degree)	5 Years	Finance and Auditing. General Management	Unisa Council, National Department of Economic Development (EDD), Public Service Commission (Audit Committee), MINDEV (Pty) LTD
Gugulethu Nyanda	GM: Corporate Services	Female	African	BPaed, BA Hons; Dip. HRM	0.5 Years	Human Resources Management, Strategic Planning, Communication, Integrity & Compliance Management and General Management	None
Peter Craven	GM: Business Development	Male	White	BSc (Chem Eng), Professional Eng, Chartered Eng; MChE, MSAIMM	11 Years	Management of Commercial Operations, Large Construction Projects, Strategic R&D Programmes and Technology Commercialisation	None
Alan McKenzie	GM: Technology	Male	White	MSc, BSc Hons	21 years	Pyrometallurgy, Mineral Processing and General Management	None
Makhapa Makhafola	GM: Research & Development	Male	African	PhD (Analytical Chemistry), MSc, Post-Graduate Diploma in Project Management, BSc Hons, Executive Development Programme	3 Years	Analytical chemistry, quality assurance and general management	Board Member of the Centre of Excellence in Strong Materials. Chairperson of the Karoo Centre for Human Rights.

APPENDIX IV – RISK MANAGEMENT POLICY

Extract from Mintek Policy, Version 1.8, approved by the Mintek Board on 27 July 2012

1. Legal Mandate

Mintek is classified in terms of The Public Finance Management Act (PFMA), 1999, as a Schedule 3 Public Entity. The following sections of the PFMA are relevant to this Risk Management Policy:

Section	Description
49 (1)	Every public entity must have an authority which must be accountable for the purposes of this Act.
(2)	If the public entity has a board or other controlling body, that board or controlling body is the accounting authority for that entity.
51 (1)	An accounting authority for a public entity –
(a)	must ensure that public entity has and maintains –
(i)	effective, efficient and transparent systems of financial and risk management and internal controls;
(ii)	a system of internal audit under the control of an audit committee.
56 (1)	The accounting authority for a public entity may –
(a)	in writing delegate any of the powers entrusted or delegated to the accounting authority in terms of this Act, to an official in that public entity.
(2)	A delegation or instruction to an official in terms of subsection (1) –
(b)	may either be to a specific individual or to the holder of a specific post in the relevant public entity; and
(c)	Does not divest the accounting authority of the delegated power or the performance of the assigned duty.

In terms of the above, the Mintek Board delegates the duties of risk management to the General Manager: Business Development, who will, hereafter, be referred to as the Risk Management Officer (RMO). A model for the governing structures responsible for the management of risk in Mintek is illustrated in Figure 1.

2 Corporate Governance

'Corporate governance' is the system by which an organisation is directed and controlled at its most senior levels, in order to achieve its objectives and meet the necessary standards of accountability, probity and openness.

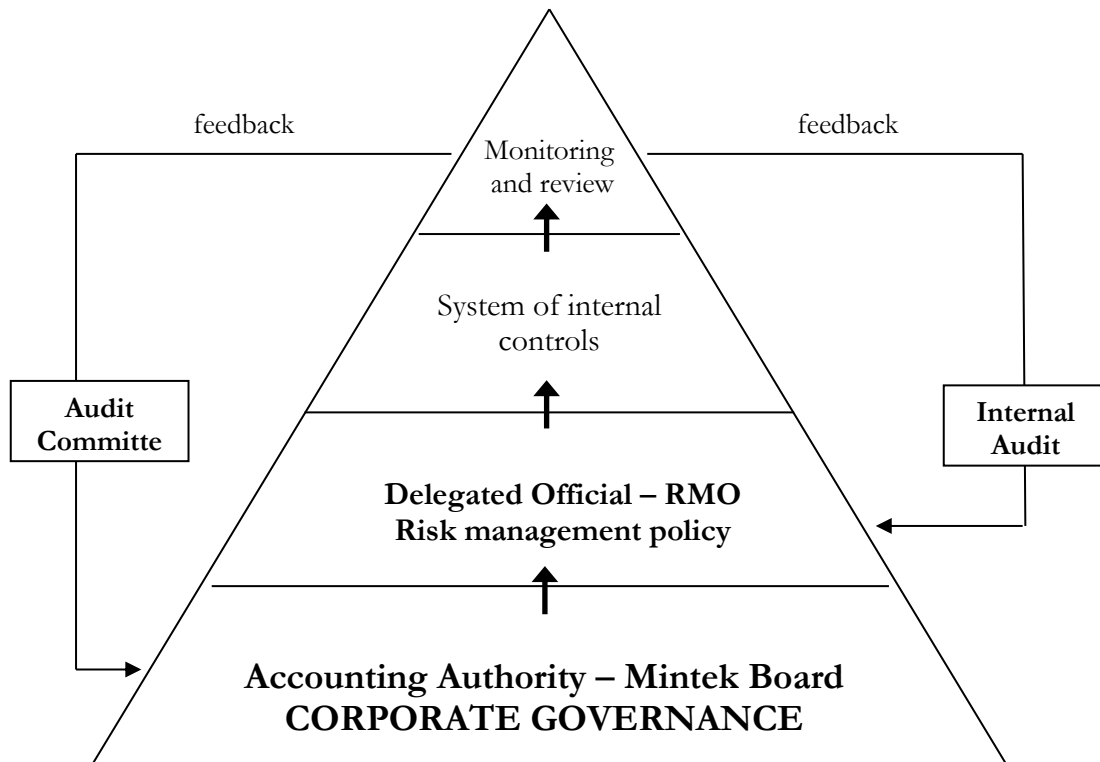


FIGURE 1. Governing structure for the management of risk (RMO is the Risk Management Officer)

Demand for improved corporate governance has grown over the last decade. This has led to a body of guidance on corporate governance, including risk management and internal control. A set of responsibilities must be established in order to cascade the governance requirements down into Mintek. These responsibilities cover:

- a. Establishing an appropriate accountability framework encompassing management structures and practices (leadership, committees, reporting arrangements, policies and strategies etc.) within which the system of internal control can operate.
- b. Ensuring that the core and supporting processes are in place to produce the desired outcome (including a risk management process).
- c. Having the necessary capability (leadership, knowledgeable and skilled staff and adequate financial and physical resources) to ensure the processes and internal controls can work effectively.
- d. Regularly monitoring and reviewing the system of internal control.
- e. Ensuring proper communication and consultation at all levels within Mintek and with external stakeholders.
- f. Obtaining sufficient independent and objective assurance as to the robustness of Mintek's key processes.

The Board fully accepts its responsibility to discharge these governance obligations, including the management of risk. In order to deliver its accountability responsibilities, the Board has agreed a risk management policy that sets out its approach to risk management and the context for the system of internal control.

3 Risk Implementation Plan

Mintek is encouraged to adopt well managed risk-taking. It therefore needs to have in place the skills, management arrangements, and organisational structures to take advantage of opportunities to do things better and to reduce the possibility of failing to achieve key objectives. This document defines Mintek's approach to risk and how risk management will be embedded into management processes to ensure that the key strategic risks are being effectively managed.

Risk management needs to allow for the effective assessment and exploitation of opportunities while also identifying what would prevent us from achieving our objectives, and ensuring we have in place procedures to minimise, or manage, those risks. Risk management therefore involves a planned and systematic approach to the identification, assessment and mitigation of the risks which could hinder the achievement of strategic objectives.

3.1 The Role of the Risk Steering Committee

The Risk Management Officer (RMO) is responsible, on behalf of the Board, for ensuring that Mintek has an effective and operational system for managing risks. All types of high-level risk will be covered. The effectiveness of the system will be reviewed on a regular basis. The RMO will constitute a Risk Steering Committee with the following members:

- Chairman (RMO)
- Chief Executive Officer
- General Manager: Finance
- General Manager: Technology
- General Manager: Research & Development
- General Manager: Corporate Services
- Manager: Finance
- Manager: Human Resources Division
- Manager: Estate Management Services
- Head: Information Technology
- Head: Security
- Head: Safety & Environment

The Committee may, at their discretion, co-opt other participants with specialised knowledge or skills to attend any meeting. The key activities of the Risk Steering Committee will be to:

- identify the key strategic risks that would prevent achievement of Mintek's objectives;
- assign ownership of specific identifiable risks;
- evaluate the significance of each risk;
- assess Mintek's risk appetite;
- identify suitable responses and mitigating actions to each risk;
- ensure that the internal control system helps manage the risks;
- regularly review the Risk Management Policy and the Risk Implementation Plan.

Copies of the Minutes of each meeting of the Risk Steering Committee, together with the latest version of the Risk Management Policy and the Risk Implementation Plan, will be submitted to the Audit and Risk Committee for discussion. Any comments received will be incorporated into the documents and submitted to the Mintek Board for approval.

Running in tandem with the Risk Steering Committee is Mintek's corporate quality, environmental, and safety management programs. Mintek has been certified compliant with ISO 9001: 2000, ISO 14001: 2004, and OHSAS 18001: 2007. The identification of technical risks, the implementation of appropriate risk mitigation measures, and continuous improvement is an integral part of these management programs. Mintek is audited annually by external auditors, SGS South Africa (Pty) Ltd, who check for consistency, compliance, and conformity with the international standards.

A meeting of the Corporate Safety Committee is held four times per year, whereas the Corporate Quality and Corporate Environmental committees meet twice per year. The Chairman of these committees, (viz. the General Manager: Technology) is also a permanent member of the Risk Steering Committee, thereby ensuring effective communication between these bodies.

3.2 Critical Success Factors

In order to assess the adequacy and success of our approach to risk management a number of critical success factors have been identified:

- senior management support, own, and lead on risk management;
- risk management policies and the benefits of effective management are clearly communicated to all staff;
- the organisational culture supports well thought through risk taking and innovation;
- management of risk is fully embedded in management processes and consistently applied;
- management of risk is closely linked to achievement of objectives;
- risks associated with working with other organisations are assessed and managed;
- risks are actively monitored and regularly reviewed.

3.3 Risk Identification

A strategic approach to risk management depends on identifying risks against key organisational objectives. Operating within this framework helps ensure a consistent approach across the organisation and enables a clear structure to be established.

The mandate of Mintek is set out in the Mineral Technology Act (Act No. 30 of 1989), which is to serve the national interest through research, development and technology transfer, to promote mineral technology and to foster the establishment and expansion of industries in the field of minerals and products derived therefrom.

The vision of Mintek is to be a global leader in mineral and metallurgical innovation.

The mission of Mintek is 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.

In order to support the mission the Mintek Board will, from time to time, identify Strategic Objectives for the guidance of Management. These Strategic Objectives will be expanded further into Targeted Activities (TAs) to aid the identification of risks.

The Strategic Objectives and TAs will be listed in the Risk Implementation Plan. Mintek will identify the risks relevant to these TAs, which forms the basis of Mintek’s Risk Implementation Plan (copy appended), and each risk is cross-referenced to one or more of these TAs.

3.4 Evaluating the significance of each risk

Mintek has followed the method outlined by National Treasury in their document “Final Risk Management Framework” for the Public Sector for assessing the significance of each risk. The significance, or rating, of risk is a combination of impact multiplied by probability. A system of risk rating can be created by assessing the impact and probability of every risk on a 10 point scale. Such a system results in a 1 to 100 scale, where a score of 1 is indicative of an insignificant risk, and 100 would indicate a potentially catastrophic risk.

The best quantitative criterion for assessing risk is to calculate the financial value of the occurrence. This provides the guideline basis for the risk rating in the table above. However, sometimes there are consequences which cannot be quantitatively reduced to a financial value. Examples include major reputational set-backs, loss of life, decrease in staff morale, etc. All these consequences should be taken into account in determining the impact of the occurrence and corresponding risk rating – the economic impact is only one criterion. The following tables are to be used to assist management in quantifying the potential that a risk exposure may have on the organisation:

Rating	Title	Description of Impact
9-10	Catastrophic/ fundamental	Disaster with the potential to significantly harm the business and is fundamental to the non-achievement of objectives.
7-8	Critical	Critical event which can be endured but which may have a prolonged negative impact and extensive consequences.
5-6	Serious	Major events which can be managed but requires additional resources and management effort.
3-4	Significant	Event which can be managed under normal operating conditions.
1-2	Minor	Not worth worrying about.

Rating	Title	Description of Probability
9-10	Almost Certain	The event is expected to occur in most circumstances.
7-8	Likely	The event will probably occur in most circumstances.
5-6	Moderate	The event should occur at some time.
3-4	Unlikely	The event could occur at some time.
1-2	Rare	The event may occur in exceptional circumstances.

The economic impact of an identified risk includes both the direct cost of the event associated with the risk occurring (e.g. the cost of repairs after a fire) and the indirect costs that are a consequence of the event (e.g. the loss of production and income while the repairs are taking place).

Most of the risks in a business environment are controllable, so that the probability of a risk actually occurring is dependent upon the effectiveness of the control measures in place. Added value is therefore to be gained by estimating

the probability of each risk before and after the implementation of suitable control measures, resulting in the assessed inherent and controlled risk.

The assessment of the potential impact of Mintek’s risks and their associated probabilities are determined by the members of Mintek’s Risk Steering Committee. The assessment process is designed to be as objective and quantitative as possible, but still contains a degree of judgement. Some risks will be connected to, or dependent upon, other risks. It is important to understand the relationships between risks so that they can be effectively prioritised. The table below places the risk rating in an economic framework:

Risk rating	Qualitative assessment	Economic assessment
70-100	Catastrophic	>R150m
50-69	High	R60m – R150m
35-49	Medium-high	R20m – R60m
24-34	Medium	R7.5m – R20m
15-23	Low-medium	R1.5m – R7.5m
1-14	Low	<R1.5m

All risks that are determined as having a rating in excess of 15 (greater than R1 million) will be identified and recorded for future monitoring and control, and is in line with Mintek’s Materiality Framework.

Management response to each risk:

Having identified the key strategic risks, the Risk Steering Committee will consider the different ways that Mintek can respond to these risks, and the responses will be recorded in the Risk Implementation Plan. The options for responses include:

- **avoiding** the risk by not starting the activity that creates exposure to the risk;
- **mitigating** the risk through improvements to the control environment (risk treatment may include methods, procedures, applications, management systems, and the use of appropriate resources that reduce the probability or possible severity of the risk);
- **transferring** the risk exposure, usually to a third party better able to manage the risk, e.g. through insurance or outsourcing;
- **exploiting** the risk, where the risk exposure represents a potential missed or poorly-realised opportunity;
- **terminating** the activity that gives rise to the intolerable risk; and
- **integrating** some or all of the risk responses outlined above.

3.5 Assigning ownership

Having identified the key strategic risks, the responsibility for managing them must be allocated. Whereas the Chief Executive Officer remains personally accountable for the organisation as a whole and for its risk management, a framework of senior level delegation of the key risks is essential to effective risk management. The delegation of responsibility has been effected in the Risk Implementation Plan by assigning ownership of every risk element to an appropriate position in Mintek.

3.6 Risk appetite

The main focus of private sector risk management is on maintaining and enhancing profitability. In contrast, the public sector focuses on the fulfilment of objectives and delivery of a beneficial outcome in the public interest. Mintek, as a Schedule 3 Public Entity, is positioned between the private and public sectors.

Mintek must adopt well-managed risk taking where it is likely to lead to improvements in service delivery. It is recognised that risk taking is essential if Mintek is to innovate and improve. Mintek's risk appetite is reflected in our strategic objectives. Our overall portfolio of risks must be balanced to ensure, as far as possible, that the mix of risks remains tolerable.

3.7 Control assurance sources

Having identified the key risks, we have then considered how we manage them to reduce their probability or impact, should they occur. The control assurance sources available to Mintek are listed below, and each identified risk in the Risk Implementation Plan is cross-referenced to one or more of these sources:

- Internal audit
- ISO 9001 internal audits
- ISO 9001 external audits
- ISO 14001 internal audits
- ISO 14001 external audits
- OHSAS 18001 internal audits
- OHSAS 18001 external audits
- Legal compliance audits
- GMR(2) inspections
- Workplace inspections
- IT Steering Committee reviews
- SAP project steering committee
- Security audits
- Wellness Committee reviews

4. System of Internal Control

A control is any action or procedure performed by management to increase the likelihood of activities achieving their objectives. In other words, control is a response to risk, either to contain the risk to an acceptable level or to increase the likelihood of a desirable outcome.

A system of internal control provides a framework for all processes and activities designed to give reasonable assurance regarding achievement of objectives. Such systems should be designed to manage, rather than eliminate, the risk of failure. Controls are broken down into three categories:

Operational:	relating to the effective and efficient use of resources
Financial:	relating to the proper management and oversight of the organisation's finances, leading to the preparation of reliable published financial statements
Compliance:	relating to compliance with applicable laws and regulations

The Chief Executive Officer participates in the exercise of many of the key internal controls or, through participation in activities, sees evidence of their existence and operation. In addition the Chief Executive Officer receives confirmation from the Council's General Managers and others that the controls are working effectively.

5. Monitoring and Review

Because risk management is explicitly linked to the achievement of objectives, reporting will be embedded within the regular processes for reporting on our operating performance. The monitoring and reporting of risks is therefore linked to the operating plan and budget cycle.

The Risk Steering Committee will meet four times per year. The minutes of these meetings, and any review or update of any of the risk documentation, will be included in the pack of documents submitted to members of the Audit and Risk Committee and the Mintek Board at least two weeks prior to the date of the meeting.

6. Roles and Responsibilities

6.1 The Board and Audit and Risk Committee

As the Accounting Authority in terms of the PFMA, the Board has a fundamental role in the management of risk. It will:

- receive an opinion from the Audit and Risk Committee that will include its review of the processes of risk management and internal control;
- consider risk issues as they affect Board decisions;
- review key strategic risks that will be analysed annually alongside the strategic plan;
- periodically review risks as part of the monitoring of the annual operating plan.

6.2 The Chief Executive Officer

The Chief Executive Officer remains ultimately accountable for the organisation and its management of risk. He must:

- have a clear understanding and assessment of the risks that could prevent delivery of objectives;
- ensure that the organisation has effective risk management and control processes;
- be provided with assurance that the processes and the key strategic risks are being effectively managed.

As part of this process the Chief Executive Officer must undertake an annual review of the effectiveness of the system of internal control, which will enable the appropriate statement to be made in Mintek's annual accounts.

6.3 Executive Management

Mintek's General Managers have a key role in facilitating the flow of information from the Board to staff and vice versa. They should:

- report to the Chief Executive Officer on key strategic risks as and when necessary;
- discuss the findings of internal and external audits and implement changes as appropriate;
- take responsibility for the risks that relate to the objectives of their line management;
- ensure that all Board papers identify impact on strategic risks;
- promote a consistent approach within Mintek with respect to risk management;
- act as mentors to all employees and promote a risk awareness culture.

6.4 Risk Management Officer (RMO)

The RMO is responsible for:

- facilitating the identification of key strategic risks and controls mechanisms;
- establishing and co-ordinating Mintek's action plan for implementing appropriate risk reduction management;
- integrating Mintek's ISO 9001, 14001, and OHSAS 18001 quality, environmental, and occupational health / safety management systems into the Risk Management Policy;
- promoting risk awareness and skills in risk assessment and reporting.

6.5 *All employees*

All staff should be aware of, and understand, the Mintek's Risk Management Policy, the policies on risk, and how these apply to their own roles and responsibilities. In particular, project managers need to understand and manage the risks relating to their activities and the impact on Mintek's key strategic risks.

APPENDIX V – RISK PLAN

Mintek has identified five Strategic Objectives to support Mintek's Mission. These Strategic Objectives, in accordance with the requirements of the Risk Management Policy, have been expanded further into Targeted Activities (TA's) to aid the identification of risks.

Strategic Objective 1: Enhance Mintek's visibility and credibility to all stakeholders by implementing an integrated marketing and communication function;

- (i) Broaden Mintek's local and international marketing footprints;
- (ii) Improve interaction with key stakeholders, and develop suitable intervention strategies;
- (iii) Improve quality of service and response time.

Strategic Objective 2: 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 efficient and environmentally-sustainable mineral-processing technologies, equipment, process design and control-optimisation systems;

- (iv) Identify, and respond to, the needs of Mintek's clients (public and private) with innovative technologies, services, and products;

Strategic Objective 3: 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 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;

- (v) Create business opportunities for SMMEs;

Strategic Objective 4: Uphold good governance practices that comply with applicable national and international regulatory frameworks and standards, maintain fiscal discipline, and enhance organisational efficiencies;

- (vi) Prudent financial management of Mintek's investments & liabilities;
- (vii) Implementation of effective financial controls;
- (viii) Maintain the integrity of IT and financial systems;
- (ix) Maintain effective safety and environmental programs, and reduce Mintek's Lost Time Injury Frequency Rate below 1,0;
- (x) Where appropriate, leverage Mintek technology into business opportunities via Mindev;
- (xi) Protect and maintain returns from Mintek's Intellectual Property;
- (xii) Maintain the effectiveness of Mintek's technical assets and infrastructure.

Strategic Objective 5: 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.

- (xiii) Improve Mintek's succession and internal transformation processes;

(xiv) Continual on-the-job training and multi-skilling

Mintek will identify the risks relevant to these TAs. The Strategic Objectives and TAs will be listed in the Risk Implementation Plan. Further evaluation of these risks forms the basis of Mintek's Risk Implementation Plan (copy appended), and each risk is cross-referenced to one or more of these TAs.

Evaluating the significance of each risk:

Mintek has followed the method outlined by National Treasury in their document "Final Risk Management Framework" for the Public Sector for assessing the significance of each risk. The significance, or rating, of risk is a combination of impact multiplied by probability. A system of risk rating can be created by assessing the impact and probability of every risk on a 10 point scale. Such a system results in a 1 to 100 scale, where a score of 1 is indicative of an insignificant risk, and 100 would indicate a potentially catastrophic risk.

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All risks that are determined as having a rating in excess of 15 (greater than R1.5 million) will be identified and recorded for future monitoring and control. This is in line with Mintek's Materiality Framework.

Management response to each risk:

Having identified the key strategic risks, the Risk Steering Committee will consider the different ways that Mintek can respond to these risks, and the responses will be recorded in the Risk Implementation Plan. The options for responses include:

- ***avoiding*** the risk by not starting the activity that creates exposure to the risk;
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- ***transferring*** the risk exposure, usually to a third party better able to manage the risk, e.g. through insurance or outsourcing;
- ***exploiting*** the risk, where the risk exposure represents a potential missed or poorly-realised opportunity;
- ***terminating*** the activity that gives rise to the intolerable risk; and
- ***integrating*** some or all of the risk responses outlined above.

Mintek's Risk Implementation Plan: an assessment of Mintek's major risks

#	Risk classification Risk owner	Description of Risk	Risk reduction measures	Before			After			Present status of risk reduction measures	Targeted Activity (The Roman numerals refer to the Targeted Activities associated with Mintek's Strategic Objectives, as listed in the beginning of this document)	Control assurance
				Risk Rating	Impact	Probability	Risk Rating	Impact	Probability			
1	Physical and operational risks GM Finance Manager: EMS Operational Risk	Loss of external electrical power e.g. loss of power from City Power's infrastructure, load shedding from Eskom Management response: Mitigate	<ul style="list-style-type: none"> Mintek has a 250kVa, a 350 kVa and a 750kVa power generator to ensure adequate emergency power. SBU's emergency power requirements have been analysed. The outcome of this exercise provided information on MIntek's UPS and emergency generator requirements Design and configure an internal integrated emergency power grid to maximize loading of E-power plants. 	48	8	6	42	7	6		xii Maintain the effectiveness of Mintek's technical assets and infrastructure	Workplace inspections
2	Business risk Executive management Strategic Risk	Loss of revenue due to the business environment Management response: Mitigate	<ul style="list-style-type: none"> Ensure top quality control of all products and services Timely delivery of all products and services Ensure competitive pricing Good maintenance backup and/or after sale customer care Adequate business planning 	48	6	8	42	6	7	Adequate	<ul style="list-style-type: none"> iv Identify, and respond to, the needs of Mintek's clients (public and private) with innovative technologies, services, and products xiv Continual on-the-job training and multi-skilling iii Improve quality of service and response time vii Implementation of effective financial controls 	<ul style="list-style-type: none"> Internal audit ISO 9001 internal audits ISO 9001 external audits
3	Human resource risk Executive Management GM Corp services Managers SBU Manager: HRD Strategic Risk	Loss of skilled personnel Management response: Mitigate	<ul style="list-style-type: none"> Ascertained how the local and international industry is currently managing attracting and retaining key staff Annual performance appraisals conducted on all employees to identify necessary skills for accelerated development. Coaching and Mentoring program Succession planning Closed salary gap with the market median Exit interview process introduced to determine the reasons for staff resigning from Mintek. Retention policy is being applied 	42	7	6	42	7	6	Adequate	<ul style="list-style-type: none"> xiii Improve Mintek's succession and internal transformation processes xiv Continual on-the-job training and multi-skilling 	Internal audit
4	Physical and operational risks GM Technology Head: Corp. SHEQ Manager: EMS Operational Risk	Major fire or explosion causes destruction of building and equipment, and /or injuries to employees Management response: Mitigate	<ul style="list-style-type: none"> Firefighting equipment is serviced once a year. Emergency response and evacuation procedures (including site evacuation) are in place. Training of staff on emergency response and evacuation procedures. The emergency response and evacuation procedures officially tested three times per year. Fire fighting and first aid courses for relevant personnel Three yearly fire risk assessments performed by the Fire Protection Association 	70	10	7	40	10	4	Adequate	<ul style="list-style-type: none"> xii Maintain the effectiveness of Mintek's technical assets and infrastructure xiv Continual on-the-job training and multi-skilling ix Maintain effective safety programs, and reduce Mintek's Disabling Injury Frequency Rate (DIFR) below 1,0 	<ul style="list-style-type: none"> OHSAS 18001 internal audits OHSAS 18001 external audits Legal compliance audit GMR(2) inspections Workplace inspections Fire risk assessments

#	Risk classification Risk owner	Description of Risk	Risk reduction measures	Before			After			Present status of risk reduction measures	Targeted Activity (The Roman numerals refer to the Targeted Activities associated with Mintek's Strategic Objectives, as listed in the beginning of this document)	Control assurance
				Risk Rating	Impact	Probability	Risk Rating	Impact	Probability			
			<ul style="list-style-type: none"> Ensure detailed documentation is readily available on hazardous agents in inventory to be utilised by Fire Department Overall disaster response procedure developed 									
5	Physical and Operational risk GM Technology Head: Corp. SHEQ Operational Risk	Spillage of materials containing natural radioactive elements e.g. uranium and/or thorium causing an unfavorable public response. This can cause the loss of major clients. Management response: Mitigate	<ul style="list-style-type: none"> Public communication procedure (Emergency Response Procedure) developed to deal with communication aspects involved in the case of any spillages, or gas releases, affecting the public. Mintek only use transporters approved by the National Nuclear Regulator. Mintek's responsibility w.r.t. this issue must be investigated. Emergency response plan developed to respond to accidents both at Mintek and associated with the transporting of Radioactive Material which may give rise to a risk of nuclear damage. Appointment of Radiation Protection Officer to ensure that the transporting of Radioactive Material is done according to the Regulations for the Safe Transport of Radioactive Material. (International Atomic Energy Agency TS-R-1) All work on Radioactive Material done in a designated area. Samples are kept in a physically secure area that will prevent unauthorised access and the unauthorised removal of such material. Guideline document drawn up specifying the Control and Handling of Radioactive samples entering and leaving Mintek. Mintek employs the services of an external Radiation Specialist approved by the NNR. 	64	8	8	36	6	6	Adequate	<ul style="list-style-type: none"> xii Maintain the effectiveness of Mintek's technical assets and infrastructure xiv Continual on-the-job training and multi-skilling ix Maintain effective safety and environmental programs 	<ul style="list-style-type: none"> OHSAS 18001 internal audits OHSAS 18001 external audits ISO 14001 internal audits ISO 14001 external audits Legal compliance audit NNR external audits
6	Financial Risks GM: Finance Manager: EMS and the Head: Security Operational Risk	Theft of physical assets and/or consumables Management response: Mitigate	<ul style="list-style-type: none"> Security on site 24/7/365 Access control systems implemented Regular asset and stock counts Staff and vehicles searched Surveillance cameras installed 	54	6	9	36	4	9	Adequate	<ul style="list-style-type: none"> vii Implementation of effective financial controls xii Maintain the effectiveness of Mintek's technical assets and infrastructure 	<ul style="list-style-type: none"> Internal audit Security audits
7	Physical and operational risks GM Technology Head: Corp. SHEQ Operational Risk	Employee exposure to hazardous substances Management response: Mitigate	<ul style="list-style-type: none"> HazChem database, containing updated Material Safety Data Sheets, made available on all computers Training on safe handling of hazardous materials provided to employees working with hazardous materials SHEQ briefings and Job Observation conducted Biological monitoring of employees exposed to hazardous materials Fume cupboards in use, flow rate checked annually First Aiders trained and available on all shifts Medical Oxygen available in areas where Cyanide is used PPE issued to employees Standard Operating Procedure reviewed annually Emergency response procedures implemented 	72	9	8	32	8	4	Adequate	<ul style="list-style-type: none"> xiv Continual on-the-job training and multi-skilling ix Maintain effective safety and environmental programs 	<ul style="list-style-type: none"> OHSAS 18001 internal audits OHSAS 18001 external audits Legal compliance audit GMR(2) inspections Workplace inspections

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				Risk Rating	Impact	Probability	Risk Rating	Impact	Probability			
8	Physical and operational risks GM Finance Manager: EMS Operational Risk	Loss of internal electrical power e.g. loss of main transformer Management response: Mitigate	<ul style="list-style-type: none"> Mintek has a 250kVA, a 350 kVA, and a 750 kVA power generator to ensure adequate emergency power. A second 750 kVA power generator has been installed. Monthly maintenance checks on the emergency power generators are done by the electrical department. The cabling has been upgraded to handle 7.9MVA (main incoming supply from City Power). Those sub-stations around Mintek that are fitted with low Voltage circuit breakers have been upgraded. SBU's emergency power requirements have been analysed. The outcome of this exercise provided information on Mintek's UPS and emergency generator requirements. The potential for implementing an internal load shedding program is being investigated in cases where Mintek's power consumption nears the 7.9MVA limit Annual oil transformer oil test 	48	8	6	32	8	4	In progress	xii Maintain the effectiveness of Mintek's technical assets and infrastructure	<ul style="list-style-type: none"> ISO 9001 internal audits ISO 9001 external audits OHSAS 18001 internal audits OHSAS 18001 external audits GMR(2) inspections Workplace inspections
9	Physical and operational risks GM Technology Manager: PDD Manager: HMD Operational Risk	Major release of hazardous gas or fume (e.g. chlorine) causes Mintek's license to operate scheduled processes to be cancelled. (It is unlikely that Mintek's license would be renewed if this occurred.) Management response: Mitigate	<ul style="list-style-type: none"> Engineering solutions, gas monitoring, operating procedures and associated training implemented (maintenance of scrubbing systems, online SO2 monitor, replacement fo caustic soda with sodium carbonate in scrubbers, airline Totally enclosed chlorine plant, monitors and interlocks and emergency shutdown and evacuation procedures, airline breathing system Chlorine cylinders enclosure vented to scrubber, which has adequate capacity and banded area, is serviced regularly Bag house and gas monitoring on stacks (at least one accredited check per campaign) Scrubbers for chlorine and other gases, with pump backups Chlorine detector after scrubber interlocked to chlorine supply, with battery backup Fail safe shut-off valve installed on the chlorine manifold Procedures and training of operators by chief investigators and divisional heads; appointment of responsible superintendent in PDD; work permit system; cylinder transport procedures; testing of systems before operation; Overall disaster response procedure implemented 	70	10	7	30	10	3	Adequate	xii Maintain the effectiveness of Mintek's technical assets and infrastructure xiv Continual on-the-job training and multi-skilling ix Maintain effective safety and environmental programs	<ul style="list-style-type: none"> ISO 14001 internal audits ISO 14001 external audits OHSAS 18001 internal audits OHSAS 18001 external audits Legal compliance audits GMR(2) inspections Workplace inspections
10	Physical and operational risks GM Technology Head: Corp. SHEQ Head: Corp. Quality Strategic Risk	Loss of quality, environment or safety certification affects clients decision to use Mintek's services Management response: Mitigate	<ul style="list-style-type: none"> Integrated Safety, Health, Environment and Quality (SHEQ) Management System implemented SHEQ management system audited internally and externally against ISO 9001, ISO 14001 and OHSAS 18001 requirements Regular internal audits and checking of system compliance. Audit reports submitted to Divisional Management. Legal compliance audits done by third party to ensure Mintek's compliance to all legislation that impact on Mintek's operations Regular management reviews by SHEQ Committee to monitor, review and modify 	56	8	7	30	6	5	Adequate	iv Identify, and respond to, the needs of Mintek's clients (public and private) with innovative technologies, services, and products iii Improving quality of service and response time xiv Continual on-the-job training and multi-skilling xii Maintain the effectiveness of	<ul style="list-style-type: none"> ISO 9001 internal audits ISO 9001 external audits ISO 14001 internal audits ISO 14001 external audits OHSAS 18001 internal audits OHSAS 18001 external

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				Risk Rating	Impact	Probability	Risk Rating	Impact	Probability			
			policies and procedures								ix Mintek's technical assets and infrastructure Maintain effective safety and environmental programs	audits • Legal compliance audits • GMR(2) inspections • Workplace inspections
11	Financial Risks Executive Management Managers: SBU Fraud Risk	Adequacy of internal controls to limit fraudulent transactions Management response: Mitigate	<ul style="list-style-type: none"> Review all internal controls, reporting systems and procedures on a regular basis. Clearly formalised powers and responsibilities and delegation thereof Fraud hotline available Fraud prevention and awareness program Accounts Payable procedure stipulates requirements for changes made to SAP master data, e.g. supplier bank details. 	50	5	10	30	5	6	Adequate	vii Implementation of effective financial controls	<ul style="list-style-type: none"> Internal audit Fraud hotline
12	Product risk GM Technology Managers: SBU Operational Risk	Consequential damage to clients process or plant caused by Mintek product or process Management response: Mitigate	<ul style="list-style-type: none"> Covered by contracts and indemnity insurance. Mintek's responsibility for consequential damages caused by Mintek products is specifically excluded in contracts signed with clients. Standard conditions of agreements in use. Special conditions for agreements, which do not fit into the standard contract agreement, in use. Exemption of Liability clauses included in Mintek's "Conditions of Sale" template (available on the intranet) 	45	9	5	30	6	5	Adequate	iii Improve quality of service and response time	<ul style="list-style-type: none"> Internal audit ISO 9001 internal audits ISO 9001 external audits
13	Financial risk GM Technology Managers: SBU Strategic Risk	Unforeseen surge in operational costs resulting in loss of profitability Management response: Mitigate	<ul style="list-style-type: none"> Comply to accurate and realistic budgeting and implementation thereof Designed ability to pass through increased costs to customers via change in rates/tariffs Pro-active management accounting and variance/trend analysis thereon Regular reviews of pricing policy for Mintek's products and services undertaken 	40	5	8	30	5	6	Adequate	vi Prudent financial management of Mintek's investments & liabilities vii Implementation of effective financial controls	<ul style="list-style-type: none"> Internal audit
14	Financial Risks Executive Management Manager: FIN Managers: SBU Operational Risk	Inadequate asset management system Management response: Mitigate	<ul style="list-style-type: none"> Review and modify Fixed Assets standard operating procedure and policy, and monitor compliance Undertake asset audit, document and rectify all anomalies Developed and implemented new asset tagging system aligned to serial numbers of asset 	35	5	7	30	5	6	Adequate	vii Implementation of effective financial controls xiii Maintain the effectiveness of Mintek's technical assets and infrastructure	<ul style="list-style-type: none"> Asset Implementation Committee Internal Audit
15	Product risk GM Technology Head: Corp. SHEQ Operational Risk	Foreign laws relating to safety health and or environment transgressed Management response: Mitigate	<ul style="list-style-type: none"> Client is made responsible for these items in the contract. Mintek to supply product to meet SA requirements of safety health and environment When applicable for contracts in foreign countries, this will be handled on a project specific basis. Project Information Chart (PIC) prompts Chief Investigator to state whether foreign laws are applicable 	42	7	6	25	5	5	Adequate	vi Prudent financial management of Mintek's investments & liabilities ix Maintain effective safety and environmental programs	<ul style="list-style-type: none"> ISO 14001 internal audits ISO 14001 external audits OHSAS 18001 internal audits

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				Risk Rating	Impact	Probability	Risk Rating	Impact	Probability			
												<ul style="list-style-type: none"> OHSAS 18001 external audits Legal compliance audits ISO 9001 internal audits ISO 9001 external audits Legal compliance audits
16	Product risk GM Technology GM: R&D Operational Risk	Loss of product while being delivered to client, late delivery penalties etc Management response: Transfer	<ul style="list-style-type: none"> Ensure goods are adequately insured on a project specific basis. "All risk" insurance required for high value items, e.g. plant. Mintek's All Risk Policy provides some cover 	40	8	5	25	5	5	Adequate	vii Implementation of effective financial controls	<ul style="list-style-type: none"> Internal audit
17	Physical and operational risks GM Technology Head: Corp. SHEQ Operational Risk	Major spillage of hazardous solutions into drains which lead directly to river which has to be reported and cleaned up. Management response: Mitigate	<ul style="list-style-type: none"> Procedures, training, and supervision Environmental emergency response procedures tested and audited. Work areas where there is a risk of spillages, are situated north of Bays. All drains in this area lead to the tailings dam. Water from tailings dam gets treated in effluent plant before release to sewer. The storm water drains, situated in the road that runs directly south of the Bays, have been routed to the effluent treatment system. Public communication policy developed to deal with communication aspects involved in the case of any spillages, or gas releases, affecting the public. Overall disaster response procedure developed 	64	8	8	24	8	3	Adequate	xii Maintain the effectiveness of Mintek's technical assets and infrastructure xiv Continual on-the-job training and multi-skilling ix Maintain effective safety and environmental programs,	<ul style="list-style-type: none"> ISO 14001 internal audits ISO 14001 external audits Legal compliance audits
18	Physical and operational risks GM Corp services Manager: EMS Manager: INF Operational Risk	Archives containing research records are destroyed by fire. Management response: Mitigate	<ul style="list-style-type: none"> New Pyroshield fire extinguishing systems has been installed and is in operation. System is serviced every three months by external company. Archived material scanned into electronic format. If a fire destroys the hard copies, the electronic versions of the documents will still be available. This also allows for backups. 	40	8	5	24	8	3	Adequate	xi Protect and maintain returns from Mintek's Intellectual Property (IP) xii Maintain the effectiveness of Mintek's technical assets and infrastructure	<ul style="list-style-type: none"> OHSAS 18001 internal audits OHSAS 18001 external audits ISO 9001 internal audits ISO 9001 external audits GMR(2) inspections Workplace inspections Legal compliance audits
19	Financial Risks GM: Finance Manager: FIN Fraud Risk	Lack of sufficient controls on identification on goods received/prevent employee collusion with preferred suppliers	<ul style="list-style-type: none"> Reviewed and updated Procurement Policy and Standard Operating procedure 	36	6	6	24	6	4	Adequate	vii Implementation of effective financial controls	<ul style="list-style-type: none"> Internal Audit

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				Risk Rating	Impact	Probability	Risk Rating	Impact	Probability			
		Management response: Mitigate										
20	Business Risks Executive Management GM: Business Development Strategic Risk	Inadequate marketing results in missed business opportunities Management response: Mitigate	<ul style="list-style-type: none"> Annual Marketing Plan approved by EXCO Immediate responsibility of SBUs, with executive oversight 	24	4	6	24	4	6	Adequate	iv Identify, and respond to, the needs of Mintek's clients (public and private) with innovative technologies, services, and products i Broaden Mintek's local and international marketing footprints	<ul style="list-style-type: none"> Internal audit
21	Business Risks Executive Management GM: R&D Strategic Risk	Lack of integrated business model for rural and marginalised communities Management response: Mitigate	<ul style="list-style-type: none"> SSMB business model was developed 	24	4	6	24	4	6	Adequate	v Create business opportunities for SMMEs	<ul style="list-style-type: none"> Internal audit
22	Financial Risks GM: Finance Manager: FIN Operational Risk	Loss of Credit Rating with suppliers Management response: Mitigate	<ul style="list-style-type: none"> Ensure that payment of all creditors are within stipulated timeframes Regular review of creditor age analysis Review all terms and conditions with approved suppliers - Letters sent to all suppliers stipulating Mintek requirements i.t.o. payments Supplier evaluations Regular review of procurement policy 	24	4	6	24	4	6	Adequate	vii Implementation of effective financial controls	<ul style="list-style-type: none"> Internal audit
23	Physical and operational risks GM Finance Head: ITS Operational Risk	Loss of server functionality Management response: Mitigate	<ul style="list-style-type: none"> Physical security measures in place, e.g. locked doors, biometric access, motion detection and recording system Server room fire rated and gas based fire-extinguishing (checked periodically) Daily backups of user and server data , off-site storage of backup tapes and backup tapes tested on regular basis by doing restores Regular maintenance checks of server room infrastructure, e.g. air conditioning and UPS Hardware is readily available from vendors if servers had to be damaged or stolen Developed and implemented IT disaster recovery process Dedicated UPS systems with built-in redundancy Server virtualization allows for automated migration of a server to another location 	56	8	7	21	7	3	Adequate	viii Maintain the integrity of IT and financial systems xii Maintain the effectiveness of Mintek's technical assets and infrastructure	<ul style="list-style-type: none"> IT Steering Committee reviews Internal audit ISO 9001 internal audits ISO 9001 external audits Security audits OHSAS 18001 internal audits OHSAS 18001 external audits GMR(2) inspections Workplace inspections
24	Physical and operational risks GM Finance Head: ITS	Loss of business critical electronic data Management response:	<ul style="list-style-type: none"> Storage Area Network (SAN) in place with RAID configuration (disk redundancy) Backup process in place. Daily incremental backups and weekly full tape backups done. Backup tapes stored off-site. 	56	8	7	21	7	3	Adequate	viii Maintain the integrity of IT and financial systems xiv Continual on-the-job training and multi-skilling	<ul style="list-style-type: none"> IT Steering Committee reviews Internal audit

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	Operational Risk	Mitigate	<ul style="list-style-type: none"> Critical servers can be restored from two different sources (backup tapes and Platespin Forge) The DRP implemented by ITS caters for business continuity of critical IT services In-house IT skills developed, e.g. SAP basis and Exchange SLA in place with SAP consulting company to ensure availability of required SAP basis and functional skills Skills transfer with retention clause, succession planning Off-site storage paper records and original contracts - Metrofile system implemented 								<ul style="list-style-type: none"> ISO 9001 internal audits ISO 9001 external audits 	
25	Financial Risks GM: Finance Manager: FIN Strategic Risk	Foreign currency fluctuations Management response: Avoid / Mitigate	<ul style="list-style-type: none"> Proposals quoted in Rands whenever possible. If managers do business in a foreign currency, they must contact the Manager: Finance for the best exchange rate at that specific stage. This forms part of the pricing policy. 	35	7	5	21	7	3	Adequate	vii Implementation of effective financial controls	<ul style="list-style-type: none"> Internal Audit
26	Business Risks Executive Management CEO Strategic Risk	Government priorities and policy changes Management response: Mitigate	<ul style="list-style-type: none"> Continuous monitoring 	21	7	3	21	7	3	Adequate	iv Identify, and respond to, the needs of Mintek's clients (public and private) with innovative technologies, services, and products	<ul style="list-style-type: none"> Senior management
27	Human resource risk GM Technology GM Corp Services Manager: HRD Managers: SBU Head: Corporate SHEQ Head: Security Operational Risk	Fatality caused by Mintek operations or plant Management response: Mitigate	<ul style="list-style-type: none"> Controlled access to hazardous areas, work permits issued, no-entry signs Engineering controls on plant Induction and training of employees, job observations done to ensure that training was adequate. Records of induction, training and job observations kept. Induction of contractors. Induction records signed and filed. Mintek ensures that contractors provide a Letter of Good Standing from the Compensation Commissioner. This ensures that labour broker and contractor personnel can claim workman compensation via the companies officially employing them. Visitors must sign an indemnity form, and is given a safety pamphlet to read. In addition to this, area supervisors must make visitors aware of risks involved in the areas they visit. Visitors must be accompanied by a Mintek contact person at all times while inside a hazardous area. In cases where a third party claim (civil case) is made by someone injured at Mintek, Management has ensured that Mintek is adequately insured. Incorporated limited liability clauses in Mintek's "General Conditions of Contract" and "Conditions of Service" (for claims by people that are not employed by Mintek who are seriously injured, or from his/her family in the event of a fatality) 	80	10	8	20	10	2	Adequate	xiv Continual on-the-job training and multi-skilling ix Maintain effective safety and environmental programs	<ul style="list-style-type: none"> OHSAS 18001 internal audits OHSAS 18001 external audits Legal compliance audit GMR(2) inspections Workplace inspections Internal audit

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			<ul style="list-style-type: none"> Indemnity certificates signed and filed 									
28	Physical and operational risks GM Finance Manager: EMS Head: Corp. SHEQ Operational Risk	Bulk LPG storage and reticulation causes explosion which destroys surrounding buildings and causes fatalities Management response: Mitigate	<ul style="list-style-type: none"> LPG tank is protected by water sprays and shut off valves, which are checked and maintained by gas supplier on a yearly basis. EMS checks these on a monthly basis. Leak detection in the tunnels conducted weekly by EMS. A professional consultant has done an MHI and fault tree analysis. He has determined that the installation complies with MHI requirements. Gas supplier did a risk assessment and Mintek is complying with all their requirements. Monthly safety inspections are done and recorded by EMS maintenance and gas supplier does two yearly inspections. The emergency response and evacuation procedures officially tested three times per year, and the site evacuation once per year. Site evacuation alarm installed. Overall disaster response procedure developed 	50	10	5	20	10	2	Adequate	xii Maintain the effectiveness of Mintek's technical assets and infrastructure xiv Continual on-the-job training and multi-skilling ix Maintain effective safety and environmental programs	<ul style="list-style-type: none"> OHSAS 18001 internal audits OHSAS 18001 external audits Legal compliance audits GMR(2) inspections Workplace inspections
29	Physical and operational risks GM Technology Manager: PDD Operational Risk	Major explosion in bay 1 or 2 results in Mintek's license to operate scheduled processes to be suspended Public may be able to object to operations of certain processes on premises on re application for license Management response: Mitigate	<ul style="list-style-type: none"> Hazop studies conducted on PDD operations to identify high-risk operations and plant/process weaknesses, which are then addressed. A possible cause of explosions could be water leaks into a furnace. Various interlocks (fatal alarms, etc) installed to monitor water flows, temperature, etc. Procedures written for all equipment and tasks addressing identified hazards. These procedures are reviewed for each project and where necessary modified to accommodate the project specific risks. Training and retraining and close supervision of operating staff is done Combustible gases that have not combusted could result in explosions. To safeguard against this occurrence the gases are combusted in a controlled safe manner as close to the source as possible. Phasing out of Khron switches in sub stations. EMS determined that the current switches are still legal, but they will be replaced with vacuum breakers as circumstances allow. Electrical protection/tripping systems have been implemented in SUB 1. Protection networks have been installed on Bay 2 contactors to protect feed transformers to the DC drives. All oil breakers are being serviced and checked (Oil tests to be conducted annually). Infrared assessments of High Tension switchgear performed on a yearly basis by external company. 	50	10	5	20	10	2	Adequate	xii Maintain the effectiveness of Mintek's technical assets and infrastructure xiv Continual on-the-job training and multi-skilling xix Maintain effective safety and environmental programs	<ul style="list-style-type: none"> OHSAS 18001 internal audits OHSAS 18001 external audits GMR(2) inspections Workplace inspections

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30	Physical and operational risks GM Corporate Services and R&D Head: Corp. SHEQ Operational Risk	Public exposed to contaminated biological matter Management response: Mitigate	<ul style="list-style-type: none"> Mintek makes use of an approved medical waste disposing company. Spillages of medical waste by the medical waste disposing company, e.g. in the case of a vehicle accident, is cleaned up by trained personnel from that company. 	50	10	5	20	10	2	Adequate	xiv Continual on-the-job training and multi-skilling ix Maintain effective safety and environmental programs	<ul style="list-style-type: none"> ISO 14001 internal audits ISO 14001 external audits OHSAS 18001 internal audits OHSAS 18001 external audits Legal compliance audit GMR(2) inspections Workplace inspections
31	Financial Risks GM: Finance Manager: FIN Strategic Risk	Extent of Mintek's liquidity ratio Management response: Mitigate	<ul style="list-style-type: none"> Increased effort to collect outstanding debt Cash flow planning to increase investment returns Control over expenditure 	30	5	6	20	4	5	Adequate	vii Implementation of effective financial controls	<ul style="list-style-type: none"> Internal audit
32	Financial Risks Manager: EMS and the Head: Security Fraud Risk	Poor key control Management response: Mitigate	<ul style="list-style-type: none"> Use of specialized key safes where practical Use of biometric access where practical 	20	4	5	20	4	5	Adequate	vii Implementation of effective financial controls	<ul style="list-style-type: none"> Internal audit Security audits
33	Business Risks Executive Management Management: Support Divisions Managers SBU Head: SHEQ Strategic Risk	Non-compliance to the applicable legislation, e.g. <ul style="list-style-type: none"> Labour Act Environmental Act OHS Act GAAP PFMA Mintek Act Companies Act Tax Act Management response: Mitigate	<ul style="list-style-type: none"> Database for Occupational Health & Safety, as well as Environmental, legislation, is available to Mintek staff. Database kept updated with new or changed legislation – updates communicated to SHEQ Department. Applicable new and updated legislation communicated to relevant Divisions for implementation. Mintek is subscribed to Sabinet Netlaw and it gets updated when legislation is updated. Keep abreast of changes to the relevant legislation through training Employment of skilled personnel 	60	6	10	18	6	3	Adequate	vii Implementation of effective financial controls ix Maintain effective safety and environmental programs,	<ul style="list-style-type: none"> ISO 14001 internal audits ISO 14001 external audits OHSAS 18001 internal audits OHSAS 18001 external audits Legal compliance audit Internal audit Compliance checklists (FIN)
34	Financial and business risk GM: Finance Head: ITS	Inadequate change control leading to loss or destabilization of business or technical systems	<ul style="list-style-type: none"> Clear identification of milestones and the monitoring thereof by the project manager. Change control process in place 	30	6	5	18	6	3	Adequate	vii Implementation of effective financial controls viii Maintain the integrity of IT and financial systems	<ul style="list-style-type: none"> Project steering committee

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				Risk Rating	Impact	Probability	Risk Rating	Impact	Probability			
35	Physical and operational risks GM: Finance Manager: EMS Operational Risk	Danger to employees on Mintek site arising from criminal activity Management response: Mitigate	<ul style="list-style-type: none"> • Camera surveillance to cover major vulnerable areas • Improve camera monitoring, security reaction times and procedures • Adequate security presence in high risk areas • Improve enforcement of access control • Increase general staff and security staff awareness of risk • Implement access control of parking area 	24	6	4	18	6	3	In progress	ix Maintain effective safety and environmental programs	<ul style="list-style-type: none"> • Campus inspections • Compliance with security audits • Security committee
36	Business Risks GM: Corporate Services Manager: HRD Operational Risk	Industrial action Management response: Mitigate	<ul style="list-style-type: none"> • Keep abreast of developments • Reviewed strike management policy and procedure • Reviewed security procedure for industrial action • Defined roles in dealing with media, police and public • Developed communication strategy 	24	6	4	18	6	3	Adequate	xiv Continual on-the-job training and multi-skilling	<ul style="list-style-type: none"> • HR Committee • Internal audit
37	Business Risks GM: Corporate Services Manager: INF Operational Risk	Records of key external and internal documents cannot be found. Management response: Mitigate	Procedures developed to ensure good record keeping practices.	24	4	6	16	4	4	Adequate	vii Implementation of effective financial controls viii Maintain the integrity of IT and financial systems xi Protect and maintain returns from Mintek's Intellectual Property (IP)	<ul style="list-style-type: none"> • Internal audit • ISO 9001 internal audits • ISO 9001 external audits • ISO 14001 internal audits • ISO 14001 external audits • OHSAS 18001 internal audits • OHSAS 18001 external audits • Legal compliance audits • GMR(2) inspections • Workplace inspections • IT Steering Committee reviews • SAP project steering committee • Security audits • HIV/AIDS committee reviews
38	Physical and operational risks GM Finance	Diesel tank leaks underground causing environmental incident	<ul style="list-style-type: none"> • Monthly check on stock levels indicates whether there are leaks. 	20	4	5	16	4	4	Adequate	xii Maintain the effectiveness of Mintek's technical assets and infrastructure	<ul style="list-style-type: none"> • ISO 14001 internal audits • ISO 14001 external

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				Risk Rating	Impact	Probability	Risk Rating	Impact	Probability			
	Manager: EMS Operational Risk	which has to be reported. Clean up and repair would be needed. Management response: Mitigate									ix Maintain effective safety and environmental programs, • audits • Legal compliance audits	
39	Physical and operational risk GM Technology Managers SBU Operational Risk	Passenger and goods liability when transporting goods and hazardous substances on public transport roads and public carriers Management response: Mitigate / Transfer	<ul style="list-style-type: none"> Mintek only makes use of accredited Hazardous Substance Transport companies to transport hazardous material. Mintek has the required insurance cover in cases where Mintek is held jointly liable with client 	64	8	8	15	5	3	Adequate	ix Maintain effective safety and environmental programs, and reduce Mintek's Lost Time Injury Frequency Rate (LTIFR) below 1,0 • ISO 14001 internal audits • ISO 14001 external audits • Legal compliance audits • Internal audit	
40	Management risks Risk Management Officer Strategic Risk	Inadequate risk management Management response: Mitigate	<ul style="list-style-type: none"> Developed and implemented a risk management framework Risks identified, categorized, impacts assessed and mitigation strategies thereof determined Risks reviewed quarterly 	49	7	7	15	5	3	Adequate	vii Implementation of effective financial controls • Internal audit • ISO 9001 internal audits • ISO 9001 external audits • ISO 14001 internal audits • ISO 14001 external audits • OHSAS 18001 internal audits • OHSAS 18001 external audits	
41	Business Risks Executive Management GM: Finance GM Corp services Manager: FIN Managers SBU Strategic Risk	Non-achievement of BEE accreditation Management response: Mitigate	<ul style="list-style-type: none"> Understand the legislative requirements of the Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry Developed and implemented a BBSEE strategy Reviewed, modified and implemented procurement policy to align to BBBEEE scorecard to achieve accreditation Undertook a supplier audit to verify Broad-Based Black Economic Empowerment accreditation with focus on the preferred supplier list Investigate new suppliers to achieve goal Ensure that Mintek attains its employment equity targets 	40	8	5	15	5	3	Adequate	vii Implementation of effective financial controls xiii Improve Mintek's succession and internal transformation processes • Internal audit	
42	Physical and Operational risk Manager: MESU Strategy Risk	Excessive CO ₂ emissions (carbon footprint), arising from high electricity usage, result in application of financial penalties	<ul style="list-style-type: none"> Evaluate and update Mintek's carbon footprint annually Ensure that electricity is being used as effectively as possible Demonstrate that Mintek's R&D, which is resulting in the direct electricity usage, focuses on technologies to reduce industry's electricity consumption, and that the net effect will be beneficial to the SA economy. 	28	4	7	15	3	5	Adequate	ix Maintain effective safety and environmental programs vii Implementation of effective financial controls • ISO 9001 internal audits • ISO 9001 external audits • ISO 14001 internal audits • ISO 14001 external	

#	Risk classification Risk owner	Description of Risk	Risk reduction measures	Before			After			Present status of risk reduction measures	Targeted Activity (The Roman numerals refer to the Targeted Activities associated with Mintek's Strategic Objectives, as listed in the beginning of this document)	Control assurance
				Risk Rating	Impact	Probability	Risk Rating	Impact	Probability			
		Management response: Mitigate										audits • OHSAS 18001 internal audits • OHSAS 18001 external audits
43	Financial Risks Executive Management Fraud Risk	Lack of controls on approval of overtime Management response: Mitigate	• Overtime policy implemented	24	4	6	15	3	5	Adequate	vii Implementation of effective financial controls	• Internal Audit
44	Physical and operational risks GM Finance Head: ITS Fraud Risk	Inadequate IT security leading to unauthorized access to electronic data Management response: Mitigate	<ul style="list-style-type: none"> • IPS implemented (intrusion prevention solution). • No unsecured shares allowed on servers. Hidden and normal shares have been implemented for all user shares. • ITS has implemented secure dial up connection. The Remote Access System (RAS) has been replaced with a Virtual Private Network (VPN). • ITS supplies cable locks for all our users who have Mintek laptops • Firewalls maintained and antivirus software kept up to date • Users to comply with security policies • A document management system implemented with strict control over access to Mintek IP • Multi-level PC security to prevent unauthorized use internally. This is based on group security membership and user profiles. • Developed and implemented a password change policy 	56	8	7	12	6	2	Adequate	viii Maintain the integrity of IT and financial systems	<ul style="list-style-type: none"> • IT Steering Committee reviews • Internal audit • ISO 9001 internal audits • ISO 9001 external audits
45	Security risk GM: Finance Manager: EMS Head: Security	Inadequate access control	<ul style="list-style-type: none"> • Implemented database to record and control visitor access • Electronic access control • CCTV at all gates • IT server room fitted with biometric access control • Manual access control on secondary gates, these gates are only opened at specific times, at which time it is also guarded. • Additional lighting provided at critical areas and gates. • Patrols of fence, buildings and grounds. • Armed response linked to panic alert system • PSIRA rated security company used • Security audits performed by external company on annual basis 	50	5	10	12	3	4	Adequate	xii Maintain the effectiveness of Mintek's technical assets and infrastructure	<ul style="list-style-type: none"> • Internal audit • Security audits
46	Financial Risks GM: Finance Manager: FIN	Non-compliance to Pension & Medical aid fund Legislation	<ul style="list-style-type: none"> • Keep abreast of developments. • Total cost to company packages aligned the benefit as a defined contribution • Capped liability for post-retirement medical aid funding by contracting liability to an 	50	5	10	12	2	6	Adequate	vi Prudent financial management of Mintek's investments & liabilities	<ul style="list-style-type: none"> • Internal audit • Board of Trustees

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				Risk Rating	Impact	Probability	Risk Rating	Impact	Probability			
			external financial service provider • Liability settled for Group 1 and 2 employees									
47	Financial and business risk GM: Finance Head: ITS Manager: HRD	Lack of capacity to maintain business critical IT systems	<ul style="list-style-type: none"> Employ adequately trained and qualified staff Enter into SLA with SAP partner for maintenance Skills transfer with retention clause Succession planning Opportunity to contract in skills 	42	7	6	12	4	3	Adequate	viii Maintain the integrity of IT and financial systems xiv Continual on-the-job training and multi-skilling	• IT Steering Committee
48	Financial Risks Executive Management Managers:SBU Fraud Risk	Non-compliance to the delegation of authority, checks and balances system	<ul style="list-style-type: none"> Clearly defined and communicated organisational structure Delegation of authority document approved and communicated 	25	5	5	12	4	3	Adequate	vii Implementation of effective financial controls	• Internal Audit
49	Physical and operational risks GM Technology Head: Corp SHEQ Manager: EMS	Natural disasters, e.g. major floods.	<ul style="list-style-type: none"> The emergency response and evacuation procedures being reviewed and improved. Site evacuation procedure included. Training of staff on new emergency response and evacuation procedures. The emergency response and evacuation procedures officially tested three times per year. Overall disaster response procedure being developed 	10	10	1	10	10	1	Adequate	xii Maintain the effectiveness of Mintek's technical assets and infrastructure ix Maintain effective safety and environmental programs, and reduce Mintek's Disabling Injury Frequency Rate (DIFR) below 1,0	• OHSAS 18001 internal audits • OHSAS 18001 external audits
50	Credit/Bad debt Risks GM: Finance Manager: FIN	Client unable to complete payment for plant, product or process	<ul style="list-style-type: none"> Review debtors ageing report regularly. Seek legal advice on long outstanding debts No services to be rendered until a credit rating has been obtained from credit bureau Develop a policy and framework in relation to new and existing clients in relation to credit vetting, invoicing and collection Credit guaranties on foreign customers 	30	6	5	9	3	3	Adequate	vii Implementation of effective financial controls	• Internal audit • Mancom
51	Physical and operational risks GM Finance Manager: EMS Operational Risk	Loss of water supply Management response: Mitigate	<ul style="list-style-type: none"> Ultrasonic level detector has been installed at the water tower. A technical review of Mintek's entire water reticulation system is being undertaken, which will focus on reduction of Mintek's Rand Water Board water use as well as minimising impacts of any future supply disruption. 	18	6	3	9	3	3	In progress	xii Maintain the effectiveness of Mintek's technical assets and infrastructure	• ISO 9001 internal audits • ISO 9001 external audits • OHSAS 18001 internal audits • OHSAS 18001 external audits • GMR(2) inspections Workplace inspections
52	Financial Risks GM Finance Manager: SBU Fraud Risk	Internal requisition fraud - staff taking goods etc.	<ul style="list-style-type: none"> Automated requisition process via maintenance system Matching of requisition to job card Clearly formalised powers and responsibilities and delegation thereof Reviewed and improved access control Ensure all goods are adequately insured 	24	3	8	8	2	4	Adequate	vii Implementation of effective financial controls	• Internal audit
53	Financial Risks GM: Finance GM Technology/R&D	Procurement fraud - requester/ buyer /supplier collusion	<ul style="list-style-type: none"> Review all Internal Controls and reporting systems and procedures on a regular basis Check and ensure compliance with procurement policy 	16	2	8	8	2	4	Adequate	vii Implementation of effective financial controls	• Internal audit

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				Risk Rating	Impact	Probability	Risk Rating	Impact	Probability			
	Manager: FIN Managers: SBU Fraud Risk	Lack of internal controls – procurement	<ul style="list-style-type: none"> Clearly formalise powers and responsibilities and delegation thereof 									
54	Human Resource Risk GM: Corporate Services Manager: HRD Fraud Risk	Fraudulent misrepresentation of qualifications results in risk of technical or professional errors, client dissatisfaction, reputation loss or safety issues Mitigate	<ul style="list-style-type: none"> Verification check on new employee qualifications 	16	2	8	8	2	4	In progress	vii Implementation of effective financial controls	<ul style="list-style-type: none"> Internal audit
55	Financial Risks GM: Finance Manager: FIN	Accuracy of financial reporting – impact on decision making	<ul style="list-style-type: none"> Regular review of financial system (SAP) and system of internal controls for integrity. Measurement against budgets. Reporting on major variances Implemented a financial reporting framework, incorporating due dates, responsibilities, delegated authority. 	30	5	6	4	2	2	Adequate	vii Implementation of effective financial controls viii Maintain the integrity of IT and financial systems	<ul style="list-style-type: none"> Internal audit MANCOM EXCO Board and subcommittees
56	Financial Risks GM: Finance Manager: FIN	Adequacy of insurance cover Fire and theft Public liability Product recall Professional indemnity Fidelity Accident cover	<ul style="list-style-type: none"> Reviewed current insurance policy for completeness and accuracy Implement asset management system, incorporating detailed asset register 	25	5	5	4	2	2	Adequate	vii Implementation of effective financial controls	<ul style="list-style-type: none"> Internal audit
57	Investment Risk Executive Management	Equity position of Mintek in other companies causes Mintek to incur financial loss	<ul style="list-style-type: none"> Due diligence and regular financial reporting Investment and disinvestments policy in place 	12	4	3	4	2	2	Adequate	vi Prudent financial management of Mintek's investments & liabilities	<ul style="list-style-type: none"> Internal audit Mindev Board EXCO Mintek Board
58	Financial Risks GM: Finance Manager: FIN	Poor investment of surplus cash reserves at Banking institutions	<ul style="list-style-type: none"> Surplus reserves to be invested as per investment policy Compliance to investing activities by Schedule 3 PFMA companies Accounting treatment and disclosure of such investments 	10	2	5	2	1	2	Adequate	vi Prudent financial management of Mintek's investments & liabilities	<ul style="list-style-type: none"> Internal audit