2016 ANNUAL REPORT

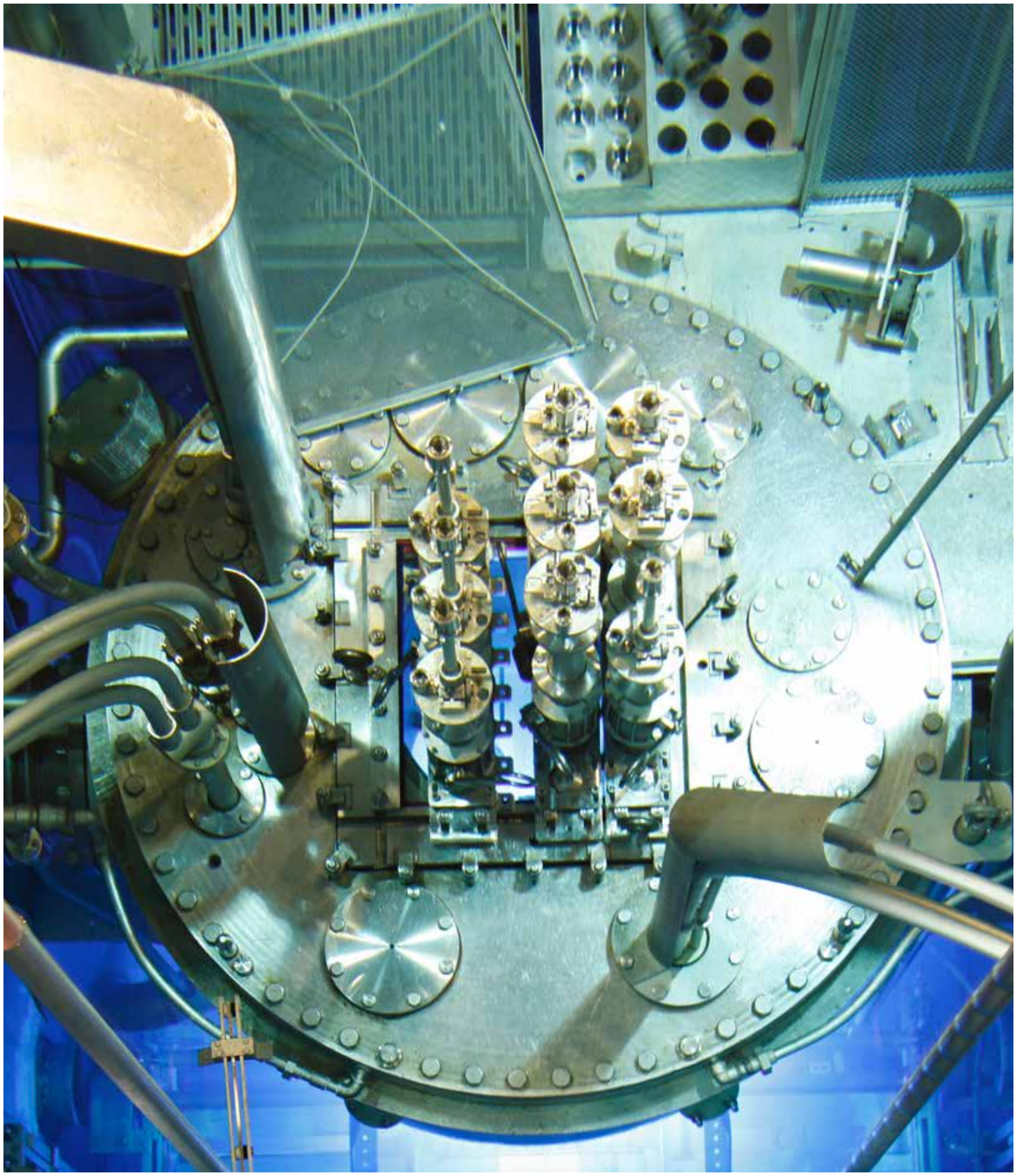
Nuclear Energy And Technology Towards Sustainable Development

necsa

We're in your world


nesa
NTP
pelchem
We're in your world

TABLE OF CONTENTS



01 ABOUT THIS INTEGRATED ANNUAL REPORT

This Integrated Annual Report is compiled in line with the King Report on Corporate Governance for South Africa 2009 (King III) and reference is made to King III to demonstrate the integrated application of its principles. Sustainability-related information has been guided by the Global Reporting Initiative (GRI G4). The report is also guided by the National Treasury Guidelines for Public Entities.

The Annual Financial Statements have been prepared in accordance with the South African Statements of Generally Accepted Accounting Practice (SA GAAP), the Companies Act, No. 71 of 2008, as amended, and the Public Finance Management Act (PFMA), No. 1 of 1999.

In this manner, the South African Nuclear Energy Corporation (Necsa) seeks to reflect that it operates in an integrated and sustainable manner, both in terms of its financial and non-financial strategy.

Scope and Boundaries of the Report

The Report covers the operations and, where possible, the impact of the Necsa Group for the financial year beginning 1 April 2015 and ended 31 March 2016. The report extends to Necsa's subsidiaries (NTP Radioisotopes SOC Ltd and Pelchem SOC Ltd), but does not extend in any substantial detail to their subsidiary companies.

While Necsa is structured operationally according to the divisions reflected in its Company Structure, these divisions seldom operate in isolation. At leadership level, the company therefore reports according to the clusters within which it operates, while the unique operations of the divisions are reported separately under divisional reports.

Assurance Statement

The Audit and Risk Committee has evaluated the Annual Financial Statements for the year ended 31 March 2016 and has concluded that these comply in all material respects with the requirements of SA GAAP which, in turn, is consistent in all material respects with International Financial Reporting Standards (IFRS). The Committee has reviewed the Auditor-General's Management report and Management's response thereto, as well as any significant adjustments resulting from the audit, and has recommended the approval of the Annual Financial Statements to the Board.

Directors Responsibility

The Directors acknowledge their responsibility to ensure the integrity of the 2015/16 Integrated Annual Report. The Directors believe that the report addresses all material issues and fairly presents the integrated performance and impact of Necsa.

Enquiries

Any enquiries regarding this report and its content can be directed via e-mail to the office of the Chief Financial Officer: zakes.myeza@necsa.co.za


HOU SMOON
KEEP CLEAN

02 PROFILE

The Company

Name and Registration Number

The South African Nuclear Energy Corporation, trading as Necsa, is a State-owned Company (SOC), with registration number 2000/003735/06.

Holding Company:	Department of Energy
Country of Incorporation and Domicile:	South Africa
Physical and **Business Address:**	Pelindaba Elias Motsoaledi (Church Street West Extension) Madibeng District North West Province 2025
Postal Address:	PO Box 582 Pretoria 0001
Telephone Number/s:	+27 12 305 4911
Fax Number:	+27 12 305 3111
E-mail Address:	webmaster@necsa.co.za
Website Address:	www.necsa.co.za
External Auditors:	Auditor-General of South Africa
Bankers:	Nedbank Limited

Company/Board Secretary: First Corporate Transfer Secretaries (Pty) Ltd

Origins

The Company's history dates back to 1948 when the Atomic Energy Board was established to regulate the uranium industry and to supply supporting research and development. In 1955 a three-person mission from South Africa was appointed to investigate the industrial uses of atomic energy in Europe. They went on to represent South Africa at the first United Nations Conference on the Peaceful Uses of Atomic Energy. Despite several name changes over the years and with a few exclusions, the principle mandate of the Company has changed only slightly since its inception.

Mandate

The Company derives its mandate from the Nuclear Energy Act, No. 46 of 1999. In terms of Section 13 of this Act, Necsa is mandated to:

- Undertake and promote research and development (R&D) in the field of nuclear energy and radiation sciences and technology and, subject to the Safeguards Agreement, to make these generally available;
- Process source material, special nuclear material and restricted material and to reprocess and enrich source and nuclear material; and
- Co-operate with any person or institution in matters falling within these functions, subject to the approval of the Minister.

Vision

To pursue nuclear technology excellence for sustainable social and economic development.

Mission

To develop, utilise and manage nuclear technology for national and regional socio-economic development through:

- Applied Research and Development;
- Commercial application of nuclear and associated technology;
- Fulfilling the state's nuclear obligations;
- Contributing to the development of skills in science and technology;
- Total commitment to health, safety and care for the environment;
- Developing and empowering our own human resource base; and
- Satisfying stakeholder expectations.

Values

- Foundational values – Integrity, respect, accountability;
- Business values – Excellence, innovation, stakeholder orientation; and
- People values – Trust, people orientation.

Necsa's Business

Inherent in its mandated activities is the responsibility for the operation and utilisation of the SAFARI-1 research reactor for radioisotope production and research activities. In addition the Company is responsible for the management and operation of the Vaalputs National Radioactive Waste Disposal Facility in the Northern Cape on behalf of the National Radioactive Waste Disposal Institute (NRWDI).

Necsa engages in commercial business mainly through its wholly-owned commercial subsidiaries. These include NTP Radioisotopes SOC Ltd (NTP), which is responsible for a range of radiation-based products and services for healthcare, life sciences and industry, and Pelchem SOC Ltd (Pelchem), which supplies fluorine

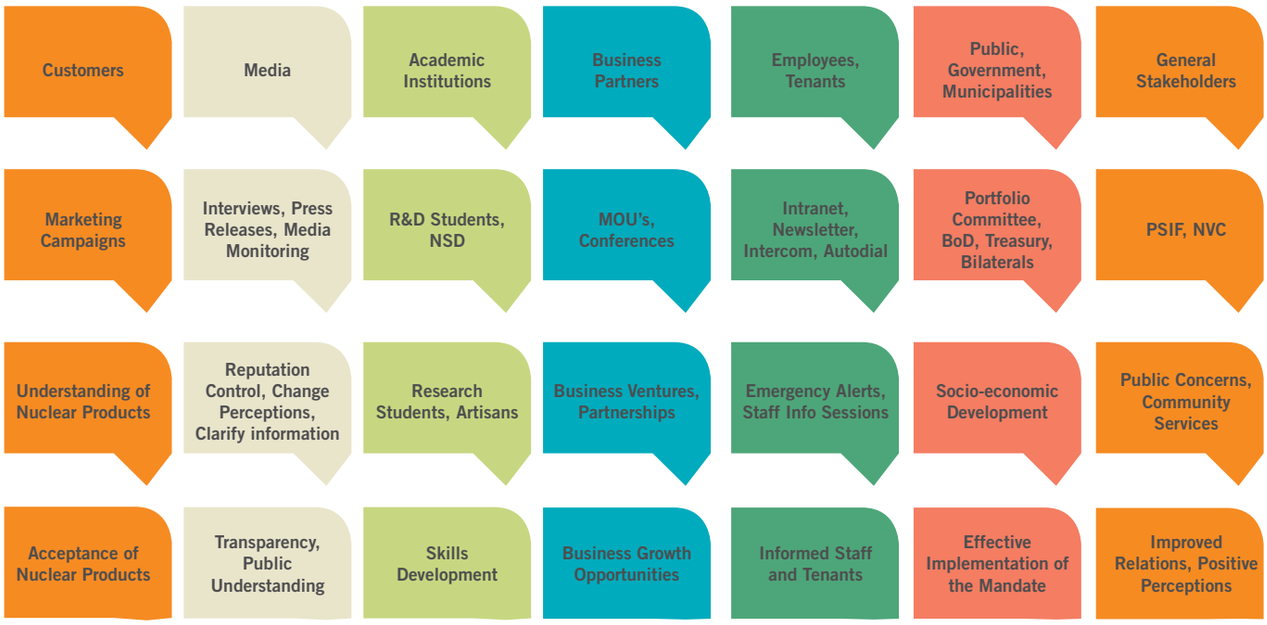
and fluorine-based products into various industry sectors including petroleum, electronics, automotive, steel and mining. These main subsidiaries, together with their subsidiaries, supply local and foreign markets, earning valuable foreign exchange for South Africa.

In addition, the Company is responsible for promoting the understanding of nuclear science and technology and facilitates regular communication with the public and its stakeholders as reflected in the following section.

Stakeholder Matrix

The following diagram depicts Necsa's business in terms of its broad stakeholder base, showing how the organisation communicates with its stakeholders, the organisational offering, and the outcome in line with its mandate.

THE COMMUNICATION PROCESS MATRIX



03 HIGHLIGHTS

- Necsa continues to play an integral role in South Africa's National System of Innovation (NSI) in the following areas:
  - The Nuclear Materials Development Network (NMDN) through the Advanced Metals Initiative (AMI);
  - Fluorochemical Expansion Initiative (FEI);
  - Nuclear Technologies in Medicine and the Biosciences Initiative (NTeMBI);
  - Nuclear materials and in-core components (including nuclear fuel); and
  - Instrument scientist support on neutron and complementary X-ray beam line facilities to users from within the NSI.
- The project to recover enriched uranium (EU) from decayed Mo-99 process residue continued to deliver promising results and will be further developed.
- Previous work done on a wet route for the recovery of uranium from U_3Si_2 is to be expanded to include development of dry recovery routes as well.
- A number of contracts for the manufacturing of demonstration plasma systems used in the development of Waste-to-Energy systems were placed with R&D. The execution of these contracts strengthens our experience in using plasma processes for nuclear applications as well as the commercial application of plasma gasification technology. A number of commercial applications are foreseen and will be pursued in 2016/17.
- The phase I/II clinical trials on the use of ^{195m}Pt-cisplatin as a companion diagnostic to optimise and individualize the dose for patients was thoroughly planned and the contract research organisation that will handle the data collection and regulatory aspects of the trial was appointed.
- Important milestones have been reached in the area of reactor physics method and code development including the testing of the newly implemented sparse-grid based generalized cross-section parameterization module in OSCAR-4. This represents an important milestone within the Nuclear Power Plant readiness development plan. User testing was also performed for beta version of the SAFARI-1 core design and the Fuel Inventory replacement tool is now ready for release to SAFARI-1 personnel.
- The neutron diffraction project team has been selected as finalists for the 2015/2016 National Science and Technology Forum (NSTF) Awards in the category "Research leading to innovation by teams or individuals in organisations". The nomination is based on the two world class neutron diffraction instruments and the host of local innovations incorporated into certain design features thereof.
- First results were achieved from irradiation of detector material for the ATLAS detector of the Large Hadron Collider of the European Organisation for Nuclear Research in SAFARI-1. This is part of collaboration where Necsa's expertise in irradiation damage studies can make a small contribution to a giant international science and technology project.
- The Micro focus X-ray based micro tomography system was operated highly efficiently with a total of 729 scans, mainly for researchers from six local universities and one international university in the fields of conservation (6%) non-destructive testing (3%) chemistry (12%), geosciences (5%), dentistry (20%), paleo anthropology (10%), anatomy (31%), and metallurgy (4%), with the remainder of the usage being for Necsa in-house research programmes.
- Necsa undertook the training of interns funded and supported by CHIETA (Chemical Industries Education and Training Authority), DST (Department of Science and Technology), AIDC (Automotive Industry Development Centre), DOL (Department of Labour); DOE (Department of Energy); SAASTA (South African Agency for Science and Technology Advancement) as part of our contribution towards the National Human Capital Development Strategy.
- In a difficult local and global economic climate Pelchem managed to undertake significant refurbishment of its hydrofluoric acid (HF) and nitrogen trifluoride (NF_3) production plants. This is sure to yield improved plant reliability and augurs well for its future growth strategy.
- NTP has made good progress on projects aimed at removing current production capacity bottlenecks.

04 SALIENT FEATURES AND VALUE ADDED

Salient Features of 2015/16

Changes from 2015	Nominal %	Real %
State dependence for operating costs	11.4%	4.8%
Group sales	12.9%	6.4%
Corporation sales	8.4%	1.8%
Corporation sales per capita	(2.6%)	(9.1%)
Group sales per capita	6.8%	0.2%
Group expenses	11.8%	5.3%
Company expenses	19.7%	13.2%
Group personnel costs	12.0%	5.4%
Company personnel costs	10.5%	3.9%
Group operating expenses (salaries and allowances excluded)	11.8%	5.2%
Company operating expenses (salaries and allowances excluded)	29.8%	23.3%

Inflation adjustment used in all calculations is 6.6%

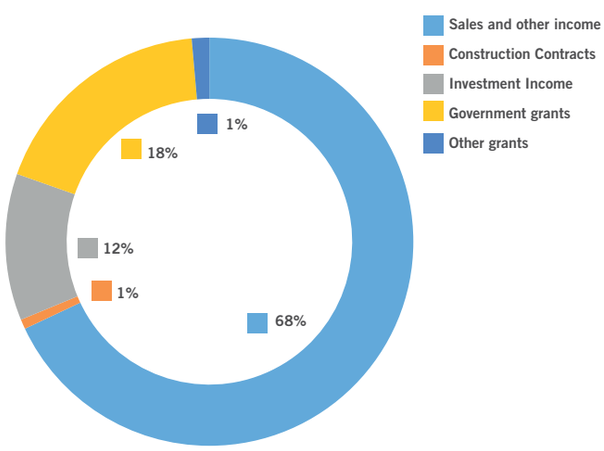
Value-added Statement as at 31 March 2016

	2016	2015	2014	2013	2012
Group	R'000	R'000	R'000	R'000	R'000
Income generated					
Sales and other income	1,881,844	1,512,054	1,289,512	1,264,054	1,163,240
Construction contracts	(21,349)	25,568	-	-	-
Government grant					
Operating Activities	436,479	417,421	395,730	393,192	436,144
LEU Fuel Conversion	1,087	-	535	503	87
Decommissioning and decontamination	58,609	57,997	57,934	58,907	60,550
Security	8,113	8,206	7,821	8,171	8,357
SAFARI 1	116	3,671	1,609	-	-
Other grants	38,411	32,781	59,007	35,520	25,114
Income from Investments	321,834	75,129	42,717	46,728	44,785
	2,725,144	**2,132,827**	**1,854,866**	**1,807,075**	**1,738,277**
Income distributed					
Employees	803,457	717,481	411,385	397,771	442,245
Providers of services, materials and products	1,070,610	1,024,664	1,016,040	798,034	797,179
Training and development	15,990	15,031	9,893	6,893	11,973
Government	273,589	205,707	210,034	203,212	203,962
National Facilities	148,630	140,217	124,486	117,933	130,571
Depreciation	77,965	65,770	74,276	106,142	79,533
Retained Income	327,210	(42,503)	2,116	171,255	65,403
Minority interest share of profit	7,693	6,460	6,636	5,835	7,411
	2,725,144	**2,132,527**	**1,854,866**	**1,807,075**	**1,738,277**

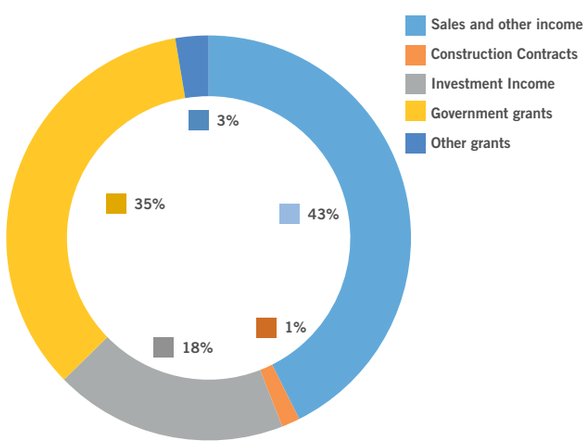
	2016	2015	2014	2013	2012
Group	%	%	%	%	%
Income generated					
Sales and other income	69.1%	70.9%	69.5%	70.0%	66.9%
Construction contracts	(0.8%)	1.2%	-	-	-
Government grant					
Operating Activities	16.0%	19.6%	21.3%	21.8%	25.1%
LEU Fuel Conversion	0.0%	0.0%	0.0%	0.0%	0.0%
Decommissioning and decontamination	2.2%	2.7%	3.1%	3.3%	3.5%
Security	0.3%	0.4%	0.4%	0.5%	0.5%
SAFARI-1	0.0%	0.2%	0.1%	0.0%	0.0%
Other grants	1.4%	1.5%	3.2%	2.0%	1.4%
Income from Investments	11.8%	3.5%	2.3%	2.6%	2.6%
	100%	**100%**	**100%**	**100%**	**100%**
Income distributed					
Employees	29.5%	33.6%	22.2%	22.0%	25.4%
Providers of services. materials and products	39.3%	48.0%	54.8%	44.2%	45.9%
Training and development	0.6%	0.7%	0.5%	0.4%	0.7%
Government	10.0%	9.6%	11.3%	11.2%	11.7%
National Facilities	5.5%	6.6%	6.7%	6.5%	7.5%
Depreciation	2.9%	3.1%	4.0%	5.9%	4.6%
Retained Income	12%	(2.0%)	0.1%	9.5%	3.8%
Minority interest share of profit	0.3%	0.3%	0.4%	0.3%	0.4%
	100%	**100%**	**100%**	**100%**	**100%**

Income Generated

Group - 2016

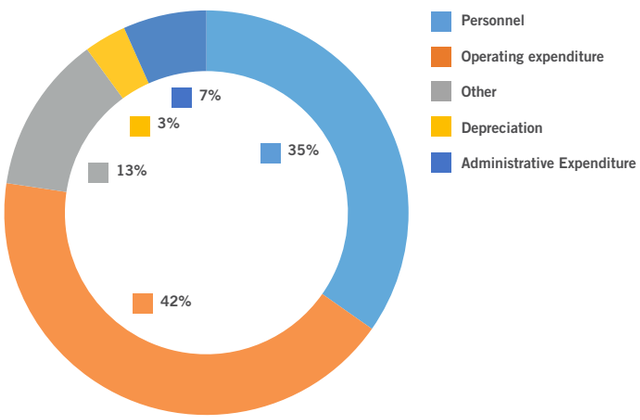


Company - 2016

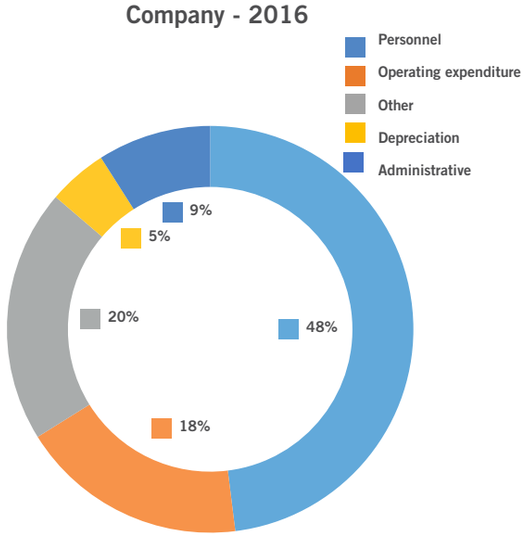


Income Distributed

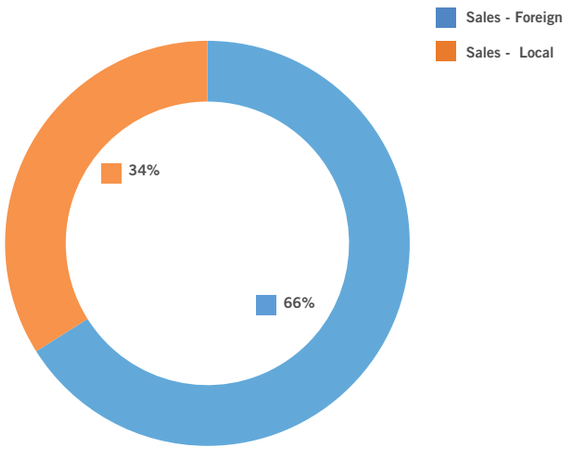
Group - 2016



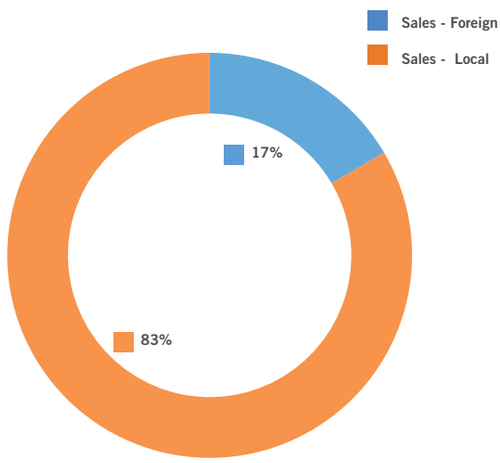
Company - 2016



Sales Group - 2016



Sales Company - 2016



05 CHAIRPERSON'S REVIEW

"We continually strengthen the structures that will assure robust governance and promote the work of transformation. Our plan reaching to 2030 is aimed at the renewal of Necsa to take advantage of the present and emerging nuclear market."

I am pleased to present our Annual Report for the year end 31 March 2016. This year there has been a significant number of changes within Necsa. What has not changed, however, is the unique ability of this organisation to continue to adapt to an environment that remains volatile and challenging, and to respond in a manner that reflects our qualities and experience.

Our executive management team, led by Chief Executive Officer Mr Phumzile Tshelane, put in place a consistent strategy with R&D at our core, allied to a growing support services business, recognising the attractive structural growth opportunities of each.

As we move into the new year, Necsa will develop new linkages and enhance existing partnerships with all spheres of government and across related industries.

Strategic Alignment

The nuclear energy expansion programme is a central feature of South Africa's future energy mix. The vision around this programme is centred on creating a nuclear industry, with the objective of catapulting South Africa into the top echelons of the knowledge economy.

We are confident that the nuclear programme will respond to job creation needs, by creating employment and fighting poverty. The programme will develop skills, create sustainable jobs, and contribute to dynamic economic growth in South Africa. Necsa is ready to play its role in the new build programme including supporting localisation, manufacturing of equipment and components as well as skills development.

The establishment of a network of key strategic relationships in the nuclear and related technology domain is of vital importance for all global high technology players and Necsa was fortunate to maintain and expand its relationships in this regard.

Necsa remained a regarded partner in SA's National System of Innovation, local and international universities, the IAEA and AFRA, as well as local and international industries. Necsa has entered into a number of new cooperation agreements with international nuclear institutions and we are looking forward to the opportunities that our closer cooperation with local and international players will offer.

Through our MoU's, Necsa has made it possible to train a number of individuals in nuclear power plant operations in preparation for the imminent procurement of the nuclear-build programme. During this year, candidates completed training covering six specialised areas in Nuclear Engineering held at Koeberg, under the SACNET programme. The next part of the training will be held in China from 6 June to 8 July 2016. Fifty participants from South Africa will benefit from this opportunity.

Overall Performance

South Africa's economic landscape continued to be impacted by instability in the labour market, high levels of unemployment and low productivity, a weakening and volatile currency and rising inflation, with the domestic economic growth deteriorating as the year progressed.

It has been my experience that the Necsa Group has been able to consolidate and strengthen the foundations of its various businesses during difficult times, with a view to emerging far stronger into better market conditions.

Our core competencies and values guide our sustainable development framework, which is underpinned by an understanding of the concerns of our stakeholders. These tie into our risk management processes, which integrate financial and non-financial risk identification, management and monitoring for the most significant subsidiaries.

One of Necsa's main achievements had been the development of medical isotopes for cancer detection and treatment. This had been done through one of Necsa's subsidiaries, NTP Radioisotopes SOC Ltd (NTP), which acts as a responsible party for a range of radiation-based products and services for healthcare, life sciences and industry, supplying both local and foreign markets, and earning valuable foreign exchange for South Africa. Export sales accounted for approximately 90% of the revenue of this subsidiary.

Pelchem was hard hit by the challenging global market conditions, but has shown good progress in both its existing business portfolio and in developing new growth opportunities.

Whilst Necsa has experienced increasing pressure on its financial, human and infrastructure resources due to a combination of a high fixed cost base, rising operating costs, a declining government grant (in real terms) and pressure on its non-grant revenue streams, these risks are being addressed through its risk management processes. Research and innovation outputs have grown well, but the development of new business opportunities has not proceeded as quickly as planned.

Satisfactory results were achieved in a very challenging environment during this year. The Necsa Group achieved most of its predetermined objectives and key performance indicator targets for 2015/16, as per the Shareholder's Compact with the Minister of Energy. The fact that Necsa did not achieve 23% of its targets was mainly attributable to very difficult market conditions in some of the sectors that Necsa operates in.

Corporate Governance

The Group has long adopted a philosophy that governance extends beyond compliance with legislation, regulation and voluntary codes. By adopting sound governance principles which are aligned to the Group's business philosophy and values we have developed a culture of good governance across the business.

Our governance standards are independently rated each year. While the Group's governance practices are robust, policies and processes are constantly reviewed to align with emerging best practice.

Both 2014/15 and 2015/16 financial years were prepared concurrently and will be tabled simultaneously in Parliament. There was a delay in the tabling of 2014/15 due to a dispute between Necsa and the Auditor General of South Africa (AGSA) on the accountability for decommissioning and decontamination liabilities in respect of past strategic nuclear facilities. The dispute was resolved only in 2016 whereby a legal opinion obtained by DoE concluded that Necsa is liable for these liabilities and the State is legally bound to fund these liabilities.

Outlook

This year's achievements have been remarkable given the massive challenges that needed to be addressed.

Challenges will doubtlessly continue in the year ahead, but I am confident that our businesses are well positioned for the immediate and long-term future. We anticipate global economic conditions will remain challenging. However, the actions we are taking give us confidence that we will achieve greater successes. As we enter 2016 on a sound footing, a greater determination to succeed, and a strong commitment to provide exceptional customer service, we are confident of the future prospects for our businesses and of our resolve to manage both the opportunities and the challenges ahead.

Growth is the only way to create jobs, attract skills and establish a stable and affluent society. At Necsa, we equip our people with new skills, we support enterprise development and we foster the increased participation of the black majority in the economic life of Necsa. We continually strengthen the structures that will assure robust governance and promote the work of transformation. Our plan reaching to 2030 is aimed at the renewal of Necsa to take advantage of the present and emerging nuclear market. This ambitious plan will require significant commitment from Necsa, the Board and Government.

Necsa is confident that the implementation of this plan will yield the desired results to ensure that its mandate will be fulfilled and that it will be looked upon as a centre of excellence for the nuclear industry.

Acknowledgements

I have been consistently impressed by the quality and commitment of our teams. Our people are a key element of our formula for success and, on behalf of the Board, I would like to thank them for their continued dedication, active support and resilience in implementing the many savings and structural changes.

The Necsa Group has delivered a pleasing performance in an increasingly competitive environment and on behalf of the board I thank Mr Phumzile Tshelane and his Executive Team for their outstanding leadership. I thank my fellow board members for their continued guidance and support in another successful year. We also appreciate the commitment of our management teams and employees around the world, who have ensured that the Group continues to strengthen its market position. Finally, to all our external stakeholders, including our customers, shareholders, suppliers, industry regulators and business partners, thank you for your continued support.

The board wishes to express its sincerest appreciation to the Department of Energy for their guidance and support.

Dr KR Kemm
Chairperson Necsa Board

06 CEO'S REVIEW

"The main focus in the year ahead would be to implement projects to enable further growth and to ensure that Necsa is effectively able to service the current and future nuclear research needs of our nation."

Introduction: Necsa Strategic Development

Necsa initiated a strategic repositioning in response to the severe financial constraints facing the organisation primarily due to its fixed cost base growing at a higher rate than the increase in income. Implementation of this initiative commenced during the previous reporting period with the creation of contract R&D and technology commercialisation functions within the R&D division. During the current reporting period a New Business Development department was established in the Office of the CEO. The technology commercialisation function was consolidated into this New Business Development department. This clearly signals Necsa's intention to further leverage its intellectual property portfolio.

In reflecting on Necsa Group performance for the year, the following salient points are worth noting:

Necsa achieved, and in many instances exceeded, the targets of 10 of the 13 key performance indicators. Most noteworthy of these are the following: NTP Group net profit after tax; Pelchem Group net profit after tax; SAFARI-1 operational availability of 303 days (against a target of 287 days) was achieved; exceeding the peer reviewed and other scientific publications target; exceeding the annual new innovation disclosures target; and the public dose impact from liquid and gaseous releases was well below target. This improvement of Necsa's performance should be lauded and it is acknowledged that there is further room for improvement particularly with regards to the Necsa external sales.

There are some exciting new developments with regards to radiopharmaceuticals, some of which have moved beyond the development phase to commercialisation and others which are at advanced stages of development. The neutron strain scanner diffraction instrument was 100% utilised and productive research with local universities is under way. This facility ranks amongst the top ten neutron strain scanning facilities world-wide.

Financial performance was less than satisfactory with Necsa corporate external sales, recorded at R381.96m, which were 22.1% worse than budget.

Necsa Group Programme Clusters Developments

NUCLEAR POWER CLUSTER

The first version of the business case for the establishment of the front end of the nuclear fuel cycle on industrial scale in South Africa was completed and made available to the DoE. A case for the establishment of Nuclear Fuel Cycle (NFC) facilities in South Africa will likely be driven by both national strategic arguments such as beneficiation of locally available uranium resources and security of supply of fabricated fuel as well as business considerations.

A Necsa team comprising executives and staff participated in the nuclear vendor parades in support of the DoE. The first vendor parade was held with Rosatom of Russia during October 2014 and the subsequent vendor parades with the French; the Chinese; the South Koreans; and the USA took place during November 2014. The final vendor parade with Canada and Japan took place during March 2015. The intention of these vendor parades was for the SA team (DoE, Necsa, NNR, ESKOM, Government, Academia, etc.) to learn of the possible offerings by the different vendor countries for our nuclear new build programme and serves as a pre-procurement phase of the rollout of this new build programme.

During the reporting period South Africa continued to experience sluggish growth in the manufacturing sector as well as lower than projected GDP growth. This trend reflects the slow global economic recovery post-2008. Pelindaba Enterprises ended the 2015/16 financial year with an operating loss of (R39.5m).

At the end of the 2015/16 financial year, Pelchem still faces significant financial challenges related to low sales which are under pressure due to global economic factors as well as the economies of scale which significantly hampers its cost competitiveness. A joint Necsa-Pelchem BoD sub-committee was established to investigate future options for Pelchem's sustainability. At the end of the reporting period significant progress was made with the Industrial Development Corporation of South Africa (IDC) on support funding for plant life extension and debottlenecking projects.

RADIATION SCIENCE AND APPLICATIONS CLUSTER

Mo-99 production volumes are still lower than the period prior to the processing incident which occurred during November 2013 and resulted in the prolonged shutdown of NTP's radiochemical plant. A major effort continues to be made with the joint Necsa/NTP project to bring additional dissolver cells online.

Reports for Works Order 2 (phase 1) that constitutes the second deliverable of the Basic Ordering Agreement (BOAB) with Argonne National Laboratory (ANL) have been accepted and payment of R16m was received by Necsa (the total contract value is approximately R70m over 4 years relating to the management of waste from the Mo-99 isotope production). This is a joint project with the Australian Nuclear Science and Technology Organisation (ANSTO).

First results were achieved from irradiation of detector material for the ATLAS detector of the Large Hadron Collider of the European Organisation for Nuclear Research in SAFARI-1. This is part of collaboration where Necsa's expertise in irradiation damage studies can make a small contribution to a giant international science and technology project.

Establishment of a skills base in radiation effects in materials is of importance to both the nuclear and aerospace industries. The first irradiation of graphite with a 4 MeV deuteron beam from the Radiofrequency quadruple accelerator was performed in this regard and forms the basis of a research project in collaboration with the University of Johannesburg (UJ) to determine the effect of intense pulsed irradiation damage on nuclear materials.

R2.5m was awarded by the DST for the Malaria Sterile Insect Technique (SIT) project managed by Necsa. The money will be spent on an insectary at the National Institute for Communicable Diseases (NICD) site, by a Necsa project team.

Necsa received R3.8m funding from the NRF under the National Equipment Programme for the purchase of a Plasma spheroidisation and alloying system. The first payment (80%) of the NRF contribution was received.

TIA had previously approved a R6.75m application from Radiochemistry to conduct clinical trials on the use of ^{195m}Pt-cisplatin to optimise and individualise the dose of patients that will require chemotherapeutic treatment with cisplatin. The tender process to appoint a Clinical Research Organisation (CRO) to administer the planned phase I/II clinical trial for the ^{195m}Pt-cisplatin project was completed and awarded to Triclinium.

A Necsa contract R&D proposal valued at R1.1m for GLUCAB development (a new radiopharmaceutical conjugate for use in improved methods of diagnosis and treatment of cancer) was accepted by BGM Pharma.

A full meta-analysis report mapping out the South African Research Infrastructure Roadmap (SARIR) for Nuclear Medicine was submitted to the DST (Department of Science and Technology) in January 2016 and presented to the steering committee in 26 January 2016.

The neutron diffraction instruments continued to be 100% utilized and were further equipped and benchmarked. The first neutron texture measurements have been performed on the Materials Probe for Internal Strain Investigations (MPISI) neutron strain scanning instrument and its capability has been benchmarked against the Kowari instrument of the ANSTO. The comparison reconfirmed world class performance of the locally developed instrument. A new double focused Si monochromator has been commissioned on the Necsa neutron powder diffraction instrument. Experts sent by

the IAEA to evaluate the capabilities of the instrument also confirmed world-class performance.

The Micro focus X-ray based micro tomography system was operated highly efficiently with a total of 729 scans, mainly for researchers from six local universities and one international university in the fields of conservation (6%) non-destructive testing (3%) chemistry (12%), geosciences (5%), dentistry (20%), paleo anthropology (10%), anatomy (31%), and metallurgy (4%), with the remainder used for Necsa in-house research programmes.

The SAFARI-1 Research Reactor achieved availability of 303 days versus the targeted 287 days, which represents an utilisation of 105.6% of targeted availability during the past financial year at an average reactor power of 19.93 MW. This good operational performance can be ascribed to an effective maintenance programme, the fully trained reactor operations group and to reactor ageing management.

NECSA AS HOST OF NUCLEAR PROGRAMMES CLUSTER

During the year under review, Necsa held three site emergency exercises, including an NNR Regulatory emergency exercise on 9 September 2015.

Execution of the annual decommissioning and decontamination (D&D) plan was achieved at a 90% level. 345 Batches of contaminated material were decontaminated and the clearance levels achieved were in excess of 99%. The cumulative total number of waste packages transported to and disposed at Vaalputs at 31 March 2016, is 5 685. The radiological content of 5 708 drums was characterized and the waste content of 5 015 drums was physically verified and captured on the waste tracking system.

Good progress was made against the Volume Reduction Facility (VRF) project plan. The current progress of 75% means that the baseline target completion date of September 2016 remains achievable. Cold commissioning has commenced and is expected to be completed in April 2016. The installation of the Smelter's off-gas system is progressing well and is almost complete. The installation of the hydraulic systems has been completed. The installation of the cooling systems has also been completed. Final testing of all electrical equipment is in progress. Once the above processes are completed, cold commissioning of the Smelter will commence.

The Necsa Visitor Centre (NVC) hosted 8 905 visitors during the 2015/16 financial year. Different programmes were presented to different audiences to entertain the level of understanding of nuclear technologies. These programmes included tailor made presentations, workshops, monthly talks on interesting topics, guided tours through the NVC as well as local and international exhibitions.

Safeguards conducted a total of sixty four (64) inspections under the Comprehensive Safeguards Agreement (INFCIRC/394) and two (2) Complementary Access (CA) inspections under the Additional Protocol (INFCIRC/394.Add1).

There was a delay (non-compliance) in submitting the first draft of the 2015/16 annual report and AFS on 31 May 2016 due to the dispute resolution mechanisms that were put in place by DoE, Necsa and AGSA. An extension was therefore requested from the Ministers of Energy and Finance respectively, to deal mainly with the D & D complexities and their impact on DoE and Necsa's AFS.

Human Capital Development

Necsa continued to make a significant contribution to nuclear human capacity development in South Africa across the spectrum from artisan training to post-doctoral fellowships. In response to the growing demand for artisans training, the Nuclear Skills Development Centre trained 311 apprentices.

Capacity building in nuclear science and engineering was maintained at a high level. This included lectures to post-graduate students at various universities, and the provision of on-going supervision and study support for 32 students doing full time research projects at Necsa as well as 15 post-graduates performing research on Necsa-affiliated projects at universities.

In preparation for South Africa's nuclear new build programme cooperation agreements were signed with China and Russia to develop our nuclear skills. The status of implementation of these agreements is as follows:

- The South African Civil Nuclear Energy Training Program (SACNET) between Necsa and State Nuclear Power Technology Corporation (SNPTC) of China:
  - Phase 1 of this agreement which entailed Basic Training has been completed with 50 South Africans benefiting, 20 of which were Necsa staff members who spent four months in China;
  - The second phase (specialised training) has commenced with 50 South Africans, of which 32 were from Necsa having attended classes at Koeberg presented by Chinese lecturers. Further Phase 2 training programmes are being scheduled in China; and will include training related to nuclear engineering design, procurement technology; manufacturing technology,

construction technology, commissioning and start up technology and project management;
  - The third phase of training, which is yet to commence, entails 'on-the-job' training which will be undertaken in China. The third phase includes training related to nuclear island engineering design, manufacturing technology, construction technology, project management, and technical training.
- Signing of the bilateral nuclear collaboration agreement between South Africa and China – CAP1400 construction project management:
  - Necsa is coordinating the implementation of this training agreement on behalf of South Africa. This training programme entails classroom training over 2 weeks for 10 candidates in China, followed by 4 – 6 months practical training for 5 people on the CAP1400 construction site.

International Collaboration

Necsa staff members continued to participate in a variety of IAEA and AFRA activities, IAEA consultative meetings and expert missions. Necsa staff members benefited from the IAEA's technical Co-operation Programme through their involvement in training courses, scientific visits and workshops.

Highlights of Future Plans and Projects

The main focus in the year ahead would be to further align the organisation's expenditure framework with the available resource base and implement projects to enable further growth of the resource base to ensure that Necsa is effectively able to service the current and future nuclear research needs of our nation. Necsa will continue to be vigilant of strategic risks facing it and institute necessary treatment actions in this regard (refer to section 15).

The CEO, Executive Management of Necsa and, its subsidiaries, reaffirm their commitment to sustainability and to ensure that the Necsa Group's primary focus going forward, is for all businesses and functions to operate sustainably and on the basis of sound governance and to achieve their targets on safety, cost optimisation, profit, transformation and the environment.

Necsa growth prospects for the near future include the following:

- Government decision regarding the procurement process of the planned nuclear power reactor fleet;
- The project to establish a sustainable supply of LEU fuel and target plates;
- The multipurpose reactor project to replace SAFARI-1 at the end of its operational life;
- Continued progress with the Ketlaphela Project;
- Further market penetration for new NTP business initiatives;
- Demonstration of the Plasma-based waste-to-energy system;
- Demonstration of the uranium recovery process that was proven on laboratory scale; and
- Further expansion of the NTeMBI network and clinical trials of candidate radiopharmaceuticals.

Mr GP Tshelane
Chief Executive Officer


HAAS
VF 1
HAAS
VF 1

07 STRATEGIC OUTCOME ORIENTATED GOALS

The long term strategy of the Necsa Group provides for the execution of its core research and development mandate through directed programmes and collaborative R&D to meet the identified current and projected future needs of the Necsa Group as well as South Africa at large. Implied in this is the drive to support the planned South African nuclear power expansion programme, for which Necsa will endeavour to purposefully expand its expertise, technology base and infrastructure to enhance the security of local nuclear fuel supply for South Africa and entering the global market amongst others.

In the field of radiation science and applications, the Necsa Group will purposefully maintain and expand its global leadership position in the supply of medical radioisotopes through partnerships, expansion of its product portfolio and the eventual replacement of the SAFARI-1 research reactor with a suitable multipurpose irradiation facility.

At its strategic planning workshop the BoD envisioned the following 2033 future for the Necsa Group:

- Necsa Group is a financially viable and structurally robust organization by 2033.
- The organization's diversified nuclear energy mandate has positioned Necsa as a key player in the energy sector in South Africa and the continent.
- The organization has world-class nuclear energy and components production facilities.
- While Necsa continues to undertake research projects assigned by the principal stakeholder, the organization funds its own R&D Programme to enhance nuclear and related research and innovations.
- Employees view Necsa as a preferred employer and attractive career opportunity enhancing environment.
- Necsa, as a result of its Skills Pipeline Development Strategy, has ensured an adequate supply of suitably qualified personnel that contribute to the nation's pool of nuclear scientists and engineers.
- The organization has adequate capital reserves to fund planned capital expenditure in infrastructure and growth in its operations.
- Necsa is recognized for its contribution to the growth and development of the South African economy having met all targets set in terms of localization, job creation and energy security in terms of the overall energy mix.
- Lastly, Necsa has met and exceeded all its institutional obligations.

The Necsa EXCO subsequently confirmed the following critical success factors as a means of attaining the 2033 vision set by the BoD:

- Innovation and Growth
- Performance Management (Business and Financial)
- Research and Development
- People Development
- Stakeholder Management
- Strategy Execution and Operational Excellence
- Business Process and Procedures including Security, Safety, Health, Environmental and Quality.

Necsa executes its mandate through three strategic Clusters (groups of activities):

Nuclear Power Cluster

This cluster refers to Necsa's nuclear fuel development and production programmes as well as projects to support the South African nuclear power programme. The key strategic objectives for this cluster are:

- To assess the viability of a future nuclear fuel cycle (front end) services industry in South Africa and to progress towards the development or demonstration of required processes and technologies.
- To prove the viability of Pelindaba Enterprises (Pelindaba Manufacturing; Pelindaba Engineering Services; Pelindaba Consulting Services; and Necsa Learning Academy).
- To ensure the retention of competitive commercial fluorine capability through securing Pelchem's strategy for growth and sustainability.

In addition to positioning for opportunities presented by the planned South African nuclear energy expansion programme, Necsa continues to explore opportunities for future partnerships and access to the international nuclear fuel and fluorine based chemical products markets.

Radiation Science and Applications Cluster

This cluster includes radiation sciences research and services as well as products based on the SAFARI-1 reactor and Necsa's other radiation infrastructure and expertise. The key strategic objectives for this cluster include:

- To maintain full operational capability of SAFARI-1 and implement the reactor's ageing management programme.
- To expand SAFARI-1 based R&D facilities and outputs;

- To develop and implement the project for security of supply of LEU, LEU fuel and LEU target plates;
- To secure core strategic capability through the replacement of SAFARI-1 by a multipurpose research reactor before it reaches the end of its operational lifetime;
- To grow NTP Group net profit from (R14m) (2014/15 forecast) to R160.5m by 2017/18.

Necsa as Host of Nuclear Programmes Cluster

This cluster refers to Necsa's capacity to house nuclear programmes due to its unique integrated SHEQ system, licensed nuclear infrastructure and specialized supporting capabilities. The key strategic objectives for this cluster include:

- To increase Necsa's research, development and innovation outputs;
- To constantly improve SHEQ management performance;
- To maintain infrastructure at a suitable level.

Key Policy Developments and Legislative Changes

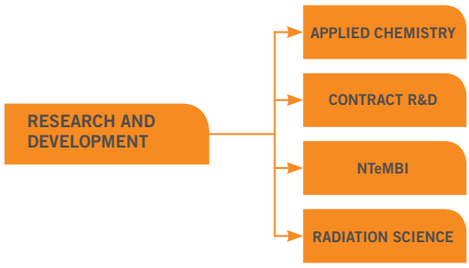
There were no changes to government policies or legislation which directly impacted on Necsa during the reporting period.


436.2

08 NUCLEAR TECHNOLOGY REPORT

Research and Development

R&D Structure



R&D Alignment with the Necsa Mandate

The R&D structure, programmes and activities are informed by the Necsa mandate and government priorities and imperatives. Necsa R&D engages in the production of knowledge, intellectual property, technological innovations, business development, contract research and human capital development in the field of nuclear and radiation science and technology. R&D pursuits are done in collaboration with local and international partners in support of Necsa's mandated activities and initiatives.

The close synergy between R&D and Necsa's subsidiaries ensures a complete and unique value chain for the development of nuclear technology relating to the nuclear fuel cycle, radiation products, radiation services and products for exploitation by the subsidiaries, NTP and Pelchem, and to the benefit of the wider science community. The relationships which Necsa R&D has fostered with local Universities and Science Councils have embedded its role in the National System of Innovation.

The R&D mandate, as derived from Section 13 of the Nuclear Energy Act, No 46 of 1999, incorporates the following responsibilities:

- Undertake and promote research and development in the field of nuclear energy and radiation sciences and technology;
- Expand Necsa's local and international R&D collaborative network;
- Grow Necsa's research, development and innovation outputs;
- Expand Necsa's core research capacity and capabilities; and
- Support Necsa research facilities and commercial product sustainability.

Nuclear Fuel Cycle

Rather than strategizing around a future national plan for the nuclear fuel cycle (NFC) re-establishment in the context of a power reactor fleet, R&D supports basic skills development to ready Necsa for localisation of conversion, enrichment and fuel fabrication. In the near term, efforts are focused on research into enrichment as well as recovery of enriched uranium (EU) from various matrices for possible reuse in production of Low Enriched Uranium (LEU) fuel and target plates.

Research has commenced to purify and homogenise uranium feed material related to conversion as well as the development of a process to recover uranium from the historic 'unburnts' waste stream. In addition, this research could have implications for the recovery of uranium from other fluoride-based waste streams associated with NFC activities. Efforts are underway to develop an engineering package based on the previous conversion plant.

Fluorine Technology

R&D proceeded to build core fluorine skills capability as part of a revived NFC to support a reactor power fleet with support for spin-off commercial fluorine products. In addition to the use of fluorine (F_2) in the nuclear fuel cycle, R&D focused on support to the activities of the Necsa subsidiary, Pelchem, especially through participation in the Fluorochemical Expansion Initiative (FEI) programme. A pipeline of new products such as components for Li-ion batteries and products derived from CoF_3 were identified and is under development.

Waste Management

R&D continued with our efforts to establish a fundamental knowledge base in the processing of high level nuclear waste (HLW) forms through technologies such as partitioning and encapsulation. This will service the Necsa enriched uranium strategy and create a platform from which to address a future HLW Programme. This programme is supported through the USA-funded programme to condition nuclear waste streams created by NTP's production of Mo-99. The first phase of Work Order 2 was successfully completed and it is foreseen that the full Work Order 2 will be completed in early 2017, before completion of the last deliverable, Work Order 3. Negotiations have also started on additional supporting programmes funded by the US.

The selective leaching and initial purification of Enriched Uranium (EU) from the Mo-99 solid waste stream has been successfully demonstrated at laboratory level. The

final purification step to return the EU for target plate manufacturing is still under development.

In the non-nuclear field, plasma gasification technology was further developed. This technology is applicable to organic toxic waste destruction or biomaterial gasification. In selected cases the off-gas energy could be utilized in the form of heat or synthetic fuels. It is expected that these applications will be further demonstrated through the funding of private entities.

Radiochemicals and Radiopharmaceuticals

R&D continued to perform pipeline research to retain and enhance Necsa's status as an internationally competitive isotope (radiochemical) producer, enhancing quality of life. Diversification of the product portfolio of NTP remains a priority through research into two new radiopharmaceuticals which are at various stages of clinical trials. Opportunities to participate in and support the NTeMBI Programme were fully utilised and more than 10 papers were published. A clinical trial to prove the clinical efficacy of one of these technologies is in process. The recently acquired microPET/CT was commissioned and two studies on mice were successfully performed.

The phase I/II clinical trials on the use of ^{195m}Pt-cisplatin as a companion diagnostic to optimise and individualize the dose for patients was thoroughly planned and the CRO that will handle the data collection and regulatory aspects of the trial was appointed through a tender process. Triclinium was the successful bidder. The Technology Innovation Agency (TIA) funds the study with R6.75 million of which the first tranche payment of R1 million was received.

SAFARI-1 Beam Line Instrument Development

- The new world-class neutron diffraction instruments were 100% utilised during the report period by local and international users. The work performed established a unique expertise base for advanced manufacturing research support to both Necsa and the South African industry at large.
- The first neutron texture measurements have been performed on the neutron strain scanning instrument and its capability has been benchmarked against a similar instrument of the Australian Nuclear Science and Technology Organisation (ANSTO). The comparison reconfirmed world class performance of the locally developed instrument.
- A new double focused Si monochromator has also been commissioned on the Necsa neutron powder diffraction instrument. Experts sent by the IAEA to evaluate the capabilities of the instrument confirmed world-class performance on this instrument as well.
- Primarily as a result of the excellent performance of the new instrument, an equipment grant to the value of R2.4m has been awarded by the IAEA within a Technical Cooperation project to expand the neutron powder diffraction instrument sample environment further.
- Steady progress was made with licensing documentation for the new Neutron Radiography and Small Angle Neutron Scattering instruments. All internal parts of the new neutron radiography and tomography facility upgrade passed rigorous scientific quality test. Licensing documentation to remove the old Radiography collimator at SAFARI-1 has been completed as well as licensing documentation towards clearance to construct the shielding, but the National Nuclear Regulator has not yet given permission to proceed.

Safety

The excellent safety and operational efficiency record of SAFARI-1 (amongst the most efficiently run research reactors in the world) as well as other Necsa nuclear and radiation facilities demonstrated the level of excellence of safety support on both practical and calculational levels. R&D played a central role in performing the calculational support for ensuring safe and optimized operations of SAFARI-1 and for safety assessment and licensing support of all other Necsa projects.

In-house Programmes

The in-house research programmes supported predominantly NFC activities and SAFARI-1 operational and isotope production, such as:

- Recovery of enriched uranium for reuse in isotope production;
- Treatment of solid Mo-99 production waste through encapsulation
- Isotope and radiopharmaceutical product development;
- Uranium feed purification and uranium recovery from front end NFC waste streams to support the establishment of a uranium conversion plant;
- Nuclear waste liability minimisation;
- Treatment of non-nuclear waste through high temperature plasma processes;
- Nuclear materials research and analysis;
- Radiation calculation support for safe facility design, construction and operation and for licensing support; and
- Reactor code development and reactor analysis for optimised SAFARI-1 utilisation.

Research in Support of the National System of Innovation

The main research programmes supporting the National System of Innovation are:

- Nuclear Materials Development Network (NMDN)

through the Advanced Metals Initiative (AMI);
- Fluorochemical Expansion Initiative (FEI);
- Nuclear Technologies in Medicine and the Biosciences Initiative (NTeMBI);
- Nuclear materials and in core components (including nuclear fuel); and
- Instrument scientist support on neutron and complementary X-ray beam line facilities to users from within the NSI.

Key Achievements

Apart from the achievements listed above, the following are notable strategic achievements in line with the R&D mandate and objectives listed under the different strategic clusters relevant to the Necsa mandate and government outcomes:

Front-end Nuclear Fuel Cycle Activities

- Uranium enrichment research is continuing, at a slow but steady rate; and
- Research has commenced to purify and homogenise uranium feed material related to conversion as well as to develop a process to recover uranium from the historic 'unburnts' waste stream.

Nuclear and non-nuclear waste research

- The project to recover enriched uranium (EU) from decayed Mo-99 process residue, continued to produce promising results. Isotopes responsible for most of the total radioactivity could be removed from the uranium-containing leaching solution in the hot cell-performed purification steps. The final purification step, using advanced purification technology, showed great promise both in the selective extraction and stripping of uranium.
- This recovery project was further supported through the US-funded programme to condition the nuclear waste streams created by the NTP production of Mo-99. The first phase of the second Work Order (WO 2) was successfully completed and published as an open report. These WOs are executed in collaboration with the Australian Nuclear Science and Technology Organisation.
- Necsa developed a wet route for the recovery of uranium from U_3Si_2. This work is being expanded to develop dry recovery routes.
- A number of contracts for the manufacturing of demonstration plasma systems, used in the development of Waste-to-Energy systems, were placed with R&D. The execution of these contracts strengthened Necsa's experience in using plasma processes for nuclear applications as well as the commercial application of plasma gasification technology. A number of commercial applications are foreseen and will be pursued in 2016, using funding from private entities.

National Programmes in Support of the NFC

- Product development through the Fluorochemical Expansion Initiative (FEI) funded by the DST has reached the phase where the synthesis technology of some products was transferred to Pelchem for pilot and commercial scale production. With the help of Delta F, the fluorination kinetics for rare earth fluorides and COF_2 were established for Pelchem.
- A new six-year AMI contract has been awarded to Necsa by DST. The plasma synthesis of kg quantities of Zr metal was demonstrated.
- In another related contract Ti particles were successfully spheroidised in support of the AMI contract of the Titanium Centre of Competence at the CSIR.
- The NRF has awarded >R3 million to the Plasma Technology section of Applied Chemistry under the NEP program to purchase a spheroidisation unit in support of the rapid manufacturing community in South Africa. This will create additional commercial applications for metal products of the AMI networks.

Radiation and Reactor Theory

- SAFARI-1 Calculation Support was continually kept at the highest level of excellence (as also exhibited by the high operational performance of the reactor) and included core follow and reload calculations for efficient and safe operations.
- Calculational support to NTP was likewise maintained at a high level with respect to both quantity and quality and included technical support on irradiation planning for five isotope production projects, prediction of Iridium-191 irradiation outcome with consideration of self-shielding, detector calibration curve simulation and radiation safety aspects of Lu-177 production.
- In the area of radiation safety, Radiation and Reactor Theory provided specialized training in activation, dose rate, criticality safety and shielding to improve radiation safety; and progressed well with OSCAR-4 developments that will make the code system more applicable to power reactors.
- Important milestones that have been reached in the area of reactor physics method and code development include the testing of the newly implemented sparse-grid based generalized cross-section parameterization module in OSCAR-4, which represents an important milestone within the Nuclear Power Plant readiness development plan. User testing was also performed for beta version of the SAFARI-1 core design and the Fuel Inventory replacement tool is now ready for release to SAFARI-1 personnel.

Beam Line Based Radiation Science

- Necsa hosted the first African Regional Cooperative Agreement Research Reactor School of the IAEA from 22 to 26 February 2016, which was attended by nineteen delegates from ten African countries.
- Necsa also hosted a successful local collaboration workshop with Wits University from 10-11 September 2015, where, altogether, 34 presentations were made, highlighting research focus areas at Necsa and Wits in order to identify areas of synergy and collaboration.
- The two world-class neutron diffraction instruments were fully utilized by users from the National System of Innovation (NSI) with full support from Necsa instrument scientists. These neutron instruments are unique in the country and provide insight, through non-destructive testing, into bulk properties of materials as opposed to complementary X-ray techniques that can only assess similar properties in the near surface region.
- The diffraction project team has been elected as finalists for the 2015/2016 National Science and Technology Forum (NSTF) Awards in the category "Research leading to innovation by teams or individuals in organisations". The nomination is based on the two world class neutron diffraction instruments and the host of local innovations incorporated into certain design features thereof.
- The Micro focus X-ray based micro tomography system was operated highly efficiently with a total of 729 scans, mainly for researchers from six local and one international universities in the fields of conservation (6%) non-destructive testing (3%), chemistry (12%), geosciences (5%), dentistry (20%), palaeoanthropology (10%), anatomy (31%), and metallurgy (4%), with the remainder of the usage being for Necsa in-house research programmes.
- Establishment of a skills base in radiation effects in materials is of importance to the nuclear and aerospace industries. The first irradiation of graphite with a 4 MeV deuteron beam from the Necsa radiofrequency quadruple accelerator was performed in this regard and forms the basis of a research project in collaboration with the Universities of Johannesburg and the Witwatersrand to determine the effect of intense pulsed irradiation damage of materials.
- Fast neutron irradiation of rhino horn, as part of a possible novel radioactivity based detection and deterrent program to prevent poaching and illegal trade, yielded first results.
- A new fast neutron camera for the linear accelerator based fast neutron source has arrived that will greatly facilitate fast neutron radiography for nuclear forensics, mineral sample evaluation and cultural heritage studies.

International Collaborations

- Apart from hosting the African Regional Cooperative Agreement Research Reactor School of the IAEA, general IAEA research co-operation was maintained in the areas of use of neutron beams in nuclear materials, heritage object studies and standardization of quantitative neutron techniques. Expert interaction entailed the invitation of a Necsa expert (Mr FC de Beer) to a Consultation Meeting at the IAEA with the aim to review the status of neutron imaging facilities in several countries and another Necsa expert (Dr RH Prinsloo) as lecturer at the IAEA Workshop on Research Reactor Related Modelling from Core Optimization to Safety Analysis for Various Applications, Vienna, Austria, 12 - 16 October 2015.
- Mr Lesego Moloko, who spent a year on the Jules Horowitz Research Reactor Design Team at Cadarache, has identified a PhD project that can be done in collaboration with a French University as part of the Necsa-CEA research collaboration and can also benefit SAFARI-1.
- Necsa scientists were regularly invited to review beam line proposals and papers submitted for publication in their field of expertise.
- Two experts from the Department of Nuclear Engineering of the North Carolina State University presented a course entitled "Pressure Water Reactor and Water-Water Energetic Reactor Design" at Necsa from 7 – 11 March 2016. It was attended by staff from Necsa as well as participants from Eskom, the North West University and the National Nuclear Regulator. This initiative is to provide for the establishment of a skills base to support localisation in the event anticipation of a Nuclear New Build program.
- First results were achieved from irradiation of detector material for the ATLAS detector of the Large Hadron Collider of the European Organisation for Nuclear Research in SAFARI-1. This is part of collaboration where Necsa's expertise in irradiation damage studies can make a small contribution to a giant international science and technology project.
- Radiation Science professionals received recognition in that Dr A M Venter invited as a speaker at the African Light Source Conference and Workshop in Grenoble France, where Mr TP Ntsoane and Dr Venter have been elected to the Steering Committee of the AfLS (African Light Source initiative).
- The Radiation and Reactor Theory Section provided special client support to the Hoger Onderwijs Reactor (HOR) in the Netherlands, the High Flux Reactor (HFR) reactor in the Netherlands and a new client, the McMaster Nuclear Reactor (MNR) in Canada.

Staff Training and Capacity Building

- Human Capacity building activities were maintained at a high level with post graduate research project support to eleven staff members of which seven obtained their PhD and four their MSc.
- Special mention can be made of Mr Saymore Chifamba (intern) who was awarded the Chancellor's medal for the Best Master's student in the Faculty of Science for 2015 and Mr Tshepo Mahafa (employee) who received a poster award at the 2015 conference of the South African Institute of Physics.
- Bolade Adetula completed a one year study at the Pennsylvania State University and now proceeds with work towards achieving his Doctorate under local and international supervision.
- Ms Zeldha Sentsho completed two months IAEA sponsored fellowship training at the Bragg Institute of the Australian Nuclear Science and Technology Organisation.
- Necsa radiation scientists (mostly young professionals) again took part as presenters and/or judges at the National Science Week held from 01-08 August.
- Mr Tshepo Mahafa attended a three month orientation and training course, fully funded by CERN (European Organization for Nuclear Research) early in 2016.

Contract R&D

Necsa R&D has introduced a new Contract R&D Department, which is responsible for:

- Identifying and developing a portfolio of funding streams to:
  - Support a full value chain technology/solution driven R&D agenda to achieve market relevance in the broad application of Necsa R&D activities. These include directed basic research; technology development through all maturity levels leading to commercialisation of intellectual property;
  - Attain positive impact in the market through technology development/commercialization/ localization that supports the strategic goals of Necsa as informed by national priorities and interests;
- Supporting the growth of Necsa through funded R&D activities that enable:
  - Integration of technology solutions for the benefit of industry and the public sector;
  - A system that supports the strategic objectives of Necsa;
  - Non-grant income for Necsa R&D Division to facilitate income generation for other Necsa divisions;
  - Developing and sustaining divisional capability to convert both local and international opportunities into funded projects to support sustainability of the R&D Division and Necsa.

Safety, Health, Environment and Quality

- The two departments of the R&D division added further modules to an already well-developed Integrated Management Systems that not only include the safety, health, environment and quality system requirements prescribed by the Necsa SHEQ-INS documents but also include R&D operational functions. The systems are implemented in the Applied Chemistry Department and good progress was made to extend the implementation to other Departments in a phased approach. The Applied Chemistry Department ISO 9001 certification was successfully audited and the certification was maintained.
- The R&D division maintained the nuclear licenses of three facilities and submitted a complete set of licensing documentation after a first round of review was resubmitted to the National Nuclear Regulator for another facility.

Outputs

The table below summarises the Key Performance Indicators (KPIs) and achievements of the division.

Output KPA	Indicator KPI	2015/16 Target	2015/16 Output	Notes
Innovation value chain	Number of innovation disclosures	12	13	Target exceeded
Research publications	Number of publications in ISI journals	15	22	Target exceeded
	Number of other peer reviewed publications	5	19	Target exceeded
	Number of substantive scientific reports for contract research projects	8	16	Target exceeded

Human Capital Development

Training involvement	Number of post-graduate students
Formal lectures by Necsa staff Master's Degree in Applied Radiation Science and Technology (MARST)	14
MSONE Students that completed M.Phil.	5
Post-graduates supported with research projects at Necsa	32
Own staff enrolled as post-graduates	24
Post-graduates supported at universities and affiliated to Necsa projects	15

Dissertations and Theses

- RBM Brayshaw. "Assessment of Beryllium Depletion Modeling on SAFARI-1 Reactor Core Parameters in aid of OSCAR-4 Validation", M.Phil. Energy Studies, University of Johannesburg
- O. Oluwaleye. "Neutron transport in a complex geometry and materials arrangement", M.Phil. Energy Studies, University of Johannesburg
- S Chifamba. "A Study of the Performance of a Sparse Grid Cross Section Representation Methodology as Applied to MOX Fuel", M.Phil. Energy Studies (Cum Laude), University of Johannesburg
- TO Mahafa, "Investigating the effects of proton and deuteron beam irradiation on the microstructure of graphite and zircaloy-4", M.Phil., University of Johannesburg.
- T. Tjebane, "Characterisation of the SANS facility at Necsa and its application to the study of wool fibres", University of Pretoria
- L Jurbandam. "Evaluation of the Fission Energy Deposition in the SAFARI-1 nuclear reactor". BSc Hons in Physics (Cum Laude), WITS University
- MDS Lekgoathi, "High Purity LiPF6: Its physical properties and the synthesis of PF5 gas as a precursor for LiPF6 production", PhD, University of Pretoria
- AD Pienaar, "Niobium and tantalum beneficiation using gas-phase fluorination", PhD, University of Pretoria.

Peer Reviewed Journal Publications

- Anton S. Tremsin, Eberhard H. Lehmann, Jason B. McPhate, John V. Vallerga, Oswald H. W. Siegmund, Brian White, Paul White, W. Bruce Feller, Frikkie C. de Beer, and Winfried Kockelmann, (2015), Quantification of Cement Hydration through Neutron Radiography with Scatter Rejection, IEEE Transactions on Nuclear Science, Vol. 62, No. 3, June 2015, DOI: 10.1109/TNS.2015.2428231
- J. Braga, J-M. Loubes, D. Descouens, J. Dumoncel, J. F. Thackeray, J-L. Kahn, F. de Beer, A. Riberon, K. Hoffman, P. Balaresque, E. Gilissen Disproportionate Cochlear Length in Genus Homo Shows a High Phylogenetic Signal during Apes' Hearing Evolution, Published: June 17, 2015, DOI: 10.1371/journal.pone.0127780
- Conradie, F. J., Crouse, P. L., Courtial, X., Nelson, W. M., Van der Walt, I. J. & Ramjugernath, D. (2015). Isothermal vapour - liquid equilibrium data for the 1,1,2,3,3,3- hexafluoroprop-1-ene + 1,1,2,2,3,3,4,4,- octafluorocyclobutane binary system: measurement and modeling from (292 to 352) K and pressures up to 2.6 MPa. Journal of Chemical and Engineering Data 60: 966-969. http://dx.doi.org/10.1021/je501047e
- Stassen, E. & Suthiram, J. (2015). Initial development of an alkaline process for recovery of uranium from ^{99}Mo production process waste residue. Journal of Radioanalytical and Nuclear Chemistry 305: 41-50. http://link.springer.com/article/10.1007/s10967-015-3974-z
- Van Laar, J. H., Slabber, J. F. M., Meyer, J. P., Van der Walt, I. J., Puts, G. J. & Crouse, P. L. (2015). Microwave- plasma synthesis of nano-sized silicon carbide at atmospheric pressure. Ceramics International 41: 4326-4333. http://dx.doi.org/10.1016/j.ceramint.2014.11.121
- Vorster, M., Modiselle, M., Ebenhan, T., Wagener, C. C. P., Sello, T. S., Zeevaart, J. R., Moshokwa, E. & Sathekge, M. (2015). Fluorine-18-fluoroethylcholine PET/CT in the detection of prostate cancer: A South African experience. Hellenic Journal of Nuclear Medicine 18: 53-59. http://nuclmed.web.auth.gr/magazine/eng/jan15/10.pdf
- Benson, J. M. & Snyders, E. (2015). The need for powder characterization in the additive manufacturing industry and the establishment of a national facility. South African Journal of Industrial Engineering 26(2):104-114.http://dx.doi.org/10.7166/26-2-951
- Ebenhan, T., Vorster, M., Marjanovic-Painter, B., Wagener, J. M., Suthiram, J., Modiselle, M., Mokaleng, B., Zeevaart, J. R. & Sathekge, M. (2015). Development of a single vial kit solution for radiolabeling of ^{68}Ga-DKFZ-PSMA-11 and its performance in prostate cancer patients. Molecules 20: 14860-14878. http://dx.doi.org/10.3390/molecules200814860
- Rambanapasi, C., Barnard, N., Grobler, A., Buntting, H., Sonopo, M. S., Jansen, D. R., Jordaan, A., Steyn, H. & Zeevaart, J. R. (2015). Dual radiolabeling as a technique to track nanocarriers: The case of gold nanoparticles. Molecules 20: 12863-12879. http://dx.doi.org/10.3390/molecules200712863

- M.A.G. Andreoli, W.J. Przybylowicz, J. Kramers, G. Belyanin, J. Westraadt, M. Bamford, J. Mesjasz-Przybylowicz, A.M. Venter, PIXE micro-mapping of minor elements in Hypatia, a diamond bearing carbonaceous stone from the Libyan Desert Glass area, Egypt: Inheritance from a cold molecular cloud?, Nuclear Instruments and Methods in Physics Research B (2015). http://dx.doi.org/10.1016/j.nimb.2015.09.008
- A.M. Venter, Nondestructive characterization of materials and components with neutron and X-ray diffraction methods, The Journal of The Southern African Institute of Mining and Metallurgy (2015) 115 925-930
- Nshimirimana, R.; Radebe, M; de Beer, FC. 2015. Precision of Porosity Calculation from "Material Stopping Power" Using Neutron Radiography. Physics Procedia 69 (2015) 358-365. http://www.sciencedirect.com/science/article/pii/S1875389215006604
- M. J. Radebe, S. Korochinsky, W. J. Strydom, F. C. de Beer. 2015. Au foil activation measurement and simulation of the concrete neutron shielding ability for the proposed new SANRAD facility. Physics Procedia 69 (2015) 392 – 398. http://www.doi:10.1016/j.phpro.2015.07.055
- F.C. de Beer, M.J. Radebe, B. Schillinger, R. Nshimirimana, M.A. Ramushu, T. Modise., 2015. "Upgrading the Neutron Radiography Facility in South Africa (SANRAD): Concrete Shielding Design Characteristics", Physics Procedia 69 (2015), 115 – 123, www.doi:10.1016/j.phpro.2015.07.017
- P. Smith, J. S. Brink, J. W. Hoffman, L.C. Bam, R. Nshimirimana & F.C. de Beer (2015): The late Middle Pleistocene upper third molar from Florisbad: metrics and morphology, Transactions of the Royal Society of South Africa, http://www.DOI:10.1080/0035919X.2015.1065930
- Lekgoathi, M. D. S. & Kock, L. D. (2016). Effect of short and long range order on crystal structure interpretation: Raman and powder X-ray diffraction of LiPF6. Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 153: 651-654. http://dx.doi.org/10.1016/j.saa.2015.09.025
- Mandiwana, V., Kalombo, L., Venter, K., Sathekge, M. Grobler, A. & Zeevaart, J. R. (2015). Samarium oxide as a radiotracer to evaluate the in vivo biodistribution of PLGA nanoparticles. Journal of Nanoparticle Research 17: 375-386. http://dx.doi.org/10.1007/s11051-015-3182-3
- Van Rooyen, L. J., Karger-Kocsis, J. & Kock, L. D. (2015). Improving the helium gas barrier properties of epoxy coatings through the incorporation of graphene nanoplatelets and the influence of preparation techniques. Journal of Applied Polymer Science 132: 42584-42596. http://dx.doi.org/10.1002/app.42584
- Viljoen, J., Campbell, Q.P., Le Roux, M., Hoffman, J., The qualification of coal degradation with the aid of micro-focus computed tomography. S Afr J Sci. 2015;111(9/10), Art. #2014-0025, 10 pages. http://dx.doi.org/10.17159/sajs.2015/20140025
- Amélie Beaudet, José Braga, Frikkie de Beer, Burkhard Schillinger, Christine Steininger, Vladimira Vodopivec and Clément Zanolli., Neutron microtomography-based virtual extraction and analysis of a cercopithecoid partial cranium (STS 1039) embedded in a breccia fragment from Sterkfontein member 4 (South Africa). Article first published online: American Journal of Physical Anthropology, 12 DEC 2015, http://www.DOI:10.1002/ajpa.22916
- Du Plessis, W., Pienaar, A. D., Postma, C. J. & Crouse, P.L. (2016). Effect of the value of x in NH4F-xHF on the digestion of plasma-dissociated zircon. International Journal of Mineral Processing 147: 43-47. http://dx.doi.org/10.1016/j.minpro.2016.01.002
- Nete, M., Purcell, W. & Nel, J. T. (2016). Hydrometallurgical Separation of Niobium and Tantalum: A Fundamental Approach. The Journal of the Minerals Metals & Materials Society 68: 556-566. http://dx.doi.org/10.1007/s11837-015-1711-2
- Sepini, L. C., Jansen, D. R., Jarvis, N. V. & Zeevaart, J.R. (2016). Complexation studies of ^{177}Lu with ethylenediaminetetramethylene phosphonic acid (EDTMP) as a bone pain palliative therapeutic radiopharmaceutical. Polyhedron 106:101-105. http://dx.doi.org/10.1016/j.poly.2015.12.044
- Amélie Beaudet, José Braga, Frikkie de Beer, Burkhard Schillinger, Christine Steininger, Vladimira Vodopivec and Clément Zanolli., (2016), Neutron Micro tomography-Based Virtual Extraction and Analysis of a Cercopithecoid Partial Cranium (STS 1039) Embedded in a Breccia Fragment From Sterkfontein Member 4 (South Africa). American Journal of Physical Anthropology, Volume159:737–745 (April 2016), first published online (12 December 2015).
- Justin Bradfield, Jakobus Hoffman and Frikkie De Beer, (2016), Verifying the potential of micro-focus X-ray computed tomography in the study of ancient bone tool function, Journal of Archaeological Science Reports, Volume 5, pp. 80–84 (February 2016).
- D Marais, AM Venter and J. Markgraaff, Optimization of counting time using count statistics on a diffraction beam line, Nuclear Instruments and Methods in Physics Research, A818 (2016) 32–37.
- P M Bokov and P A Selyshchev, Propagating self-sustained annealing of radiation-induced interstitial complexes, IOP Conference Series: Materials Science and Engineering, 110(1):012055, 2016.

- E B Schlünz, P M Bokov, R H Prinsloo and J H van Vuuren, 2016, A unified methodology for single- and multiobjective in-core fuel management optimisation based on augmented Chebyshev scalarisation and a harmony search algorithm, Annals of Nuclear Energy, Volume 87, pp. 659 – 670 (January 2016).

Other peer reviewed publications

- S Chifamba, D Botes, P M Bokov, A Muronga, (2015). Representation of the few-group homogenized cross sections of a MOX fuel assembly. In: Proceedings of SAIP 2014, the 59th Annual Conference of the South African Institute of Physics, pp.163-168, ISBN: 978-0-620-65391-6. Available online at http://events.saip.org.za
- M Mashau, B Erasmus, R H Prinsloo and S H Connell (2015). Simulation of the Egyptian 2nd Testing Research Reactor (ETRR-2) experimental benchmark in aid of verification and validation of the OSCAR-4 system. In: Proceedings of SAIP 2014, the 59th Annual Conference of the South African Institute of Physics, pp. 515-522, ISBN: 978-0-620-65391-6. Available online at http://events.saip.org.za
- M Cook, M Tchonang, E Chinaka, M Bhamjee, F Bornman and S H Connell (2015) Overview of the Mineral-PET run-of-mine Diamond bearing rock sorter. In: Proceedings of SAIP 2014, the 59th Annual Conference of the South African Institute of Physics, pp. 479-485, ISBN: 978-0-620-65391-6. Available online at http://events.saip.org.za
- Leuner, G. J. (2015). Potential Clients for LEU from a proposed RSA LEU (19.75% 235U) Enrichment Plant. UBD-ENR-REP-15001
- Stassen, E. (2015). Recovery and purification of irradiated uranium using selective leaching and ion exchange in a carbonate medium. Proceedings of Global 2015: Nuclear Fuel Cycle For a Low-Carbon Future. 1047-1053. http://www.global2015papers.com/
- Bissett, H., van der Walt, I.J., Havenga, J.L. and Nel, J.T. (2015) Titanium and zirconium metal powder spheroidization by thermal plasma processes by thermal plasma processes. The Journal of the Southern African Institute of Mining and Metallurgy 115: 937-942. http://www.saimm.co.za/Journal/v115n10p937.pdf
- Lötter, S. J., Purcell, W. & Nel, J. T. (2015). Glow discharge optical emission spectroscopy: a general overview with regards to nuclear materials. The Journal of The Southern African Institute of Mining and Metallurgy 115: 967-972. http://www.saimm.co.za/Journal/v115n10p967.pdf
- Pienaar, A. D. & Vilakazi, B. M. (2015). Reaction kinetics of UO2 with the fluorinating gases HF and SF6 related to treatment of depleted uranium slag material. Proceedings of the Nuclear Materials Development Network Conference 2015. Symposium Series S87: 255-264. AC-AMI-PUB-15003
- Postma, C. J., Niemand, H. F. & Crouse, P. L. (2015). A theoretical approach to the sublimation separation of zirconium and hafnium in the tetrafluoride form. The Journal of the Southern African Institute of Mining and Metallurgy 115: 961-965. http://www.saimm.co.za/Journal/v115n10p961.pdf
- Van der Walt, I. J., Nel, J. T. & Havenga, J. L. (2015). Plasma technology for the manufacturing of nuclear materials at Necsa. The Journal of The Southern African Institute of Mining and Metallurgy 115: 943-948. http://www.saimm.co.za/Journal/v115n10p943.pdf
- Van Laar, J. H., Van der Walt, I. J., Bissett, H., Puts, G. J. & Crouse, P. L. (2015). Synthesis and deposition of silicon carbide nanopowders in a microwave-induced plasma operating at low to atmospheric pressures. The Journal of The Southern African Institute of Mining and Metallurgy 115: 949-955. http://www.saimm.co.za/Journal/v115n10p949.pdf
- De Beer, F.C., (2015), Neutron- and X-Ray Radiography/Tomography: Non-Destructive Analytical Tools for the Characterization of Nuclear Materials. Journal of the Southern African Institute of Mining and Metallurgy, Vol 115, No 10, Oct 2015, p913.
- Pienaar, A. D., Vilakazi, B. M., Wagener, J. B. & Crouse, P. (2015). Thermal decomposition of LiPF6 revisited. Brazilian Journal of Thermal Analysis 4: 7-10. http://dx.doi.org/10.18362/bjta.v4.i4.227
- Steyn, P. J., Van der Walt, I. J., Havenga, J. L., Nel, J. T. & Cilliers, A. C. (2015). The Mechanical Engineering Design of a Radio-Frequency Plasma Reactor for the Spheroidization of Zirconium and Titanium Particles. AMI - Nuclear Materials Development Network Conference 2015: 41-58.

Contract research reports

- Faanhof, A. (2015). Rhino protection programme technical and financial report July 2015. Report for PPF (Accepted by PPF on their template). RC-DevalR-REP-15001
- Faanhof, A. (2015). Rhino protection programme technical report August 2015. Report for PPF (Accepted by PPF on their template). RC-DevalR-REP-15002
- Le Roux, J. P., Schoonbee, A. G. & Malinga, E. B. (2015). Investigation into the purification of xenon difluoride. Report for Pelchem (Accepted by Hendrik Bester). AC-FEIF202-REP-15001
- Leuner, G. J. (2015). Summary information on uranium and conversion in RSA. Report for the dti (Accepted by Bernd Oellermann). UBD-NFC-REP-15001

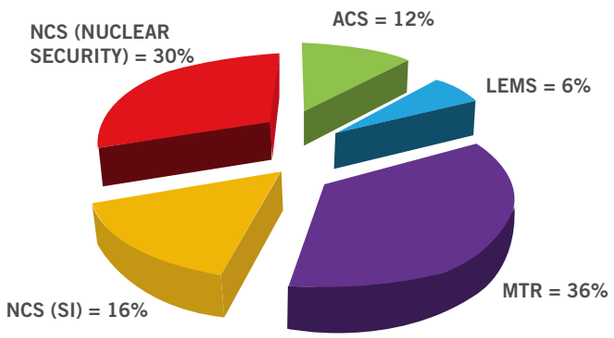
- Pienaar, A. D. (2015). Development of an adsorption system for increased Xe removal from NTP ^{99}Mo dissolver off-gas system. Phase 2: Concept development. Report for NTP (Accepted by Gavin Ball). RC-NTPMO99-REP-15001
- Pienaar, A. D. (2015). Effect of filler on polymer thermal stability. Report for OFC (Accepted by Louis van Rooyen). AC-TAS-REP-15002
- Van der Westhuizen, D. (2015). Final report on the process development to produce 30% solution of ammonium bifluoride from the NF3 plant waste. Report for Pelchem (Accepted electronically by client Eddy Valkenburgh). AC-FEIDF41-REP-15001
- Janine Suthiram, Jan Rijn Zeevaart, Helgard P Meyer (UP), Mike M Sathekge (UP),Thomas Ebenhan (UP), Danie van der Merwe (retired) Substance P radiolabeled with ^{68}Ga. RC-RPCIMBM-IVD-15001.
- JP le Roux. A fluorination reactor design with good heat transfer in reaction zone. AC-AHDF-IVD-15001.
- Driekus v d Westhuizen, J Cliff Thompson, E.L. Ngidi. New Method of initiation of the polymerization reaction of TFE. AC-EXPOFC01IVD-15001.
- Le Roux, J. P. & Malinga, E. B. (2015). Production of a small quantity of IrF_6 for FTIR analytical purposes. Client report to Pelchem's HK Bester & J H Prior. AC-FEI-REP-15003
- Meyer, W. C. M. H. & Badenhorst, J. (2015). Final CRP report on HLW encapsulation. Necsa-IAEA CONTRACT NUMBER 16869. NWR-UMo01-REP-15020
- Meyer, W. C. M. H., Badenhorst, J. J., Goede, A., Gregg, D., Stassen, E., Barry, J. C. & Vance, L. (2015). Demonstration of selected encapsulation methodologies recommended in feasibility report (Work Order 1) using surrogate material. Deliverable of US contract Work Order 2 Phase 1. NWR-UMo01-REP-15023
- Van der Westhuizen, D., Postma, J. M. & Laurens, S. (2015). The HFPO addition reaction to an acid fluoride. Accepted by Henrik Bester on behalf of Pelchem. AC-FEIDF40-REP-15001
- Jansen, A. A. (2015). A Brief Overview of Charcoal Briquetting. Accepted by A. van der Bijl. AC-BUSDEV-REP-11001
- Monnahela, O. S., Le Roux, J. P. & Malinga, E. B. (2015). Investigation into a novel method of production of nitrogen trifluoride. Report for Pelchem, accepted by Hendrik Bester. AC-NF3SYN-REP-15001
- Pienaar, A. D. (2015). Heat capacity determination for J. Pretorius. Accepted by Prof. J. Pretorius, UP. AC-TAS-REP-15004
- Faanhof, A., Kros, C. G. & Zeevaart, J. R. (2016). PPF Interim Progress report 1 September 2015 - 11 February 2016. RC-DevaIR-REP-16001

Operations

Medium-term Expenditure Framework (MTEF) Projects

For the 2015 to 2017 MTEF period, Necsa prepared and submitted a comprehensive MTEF CAPEX Funding Proposal for which the DoE and the National Treasury allocated funding specifically for critical priority investment in site infrastructure.

In 2013, Necsa highlighted the need to implement a series of projects to address ageing management of plant together with other critical infrastructure investments identified as necessary in support of Necsa's ongoing business. A comprehensive case was developed and presented to DoE where the need for funding was justified to manage the implementation of ageing and critical infrastructure. Projects were split into the Analytical and Calibration Services (ACS), Liquid Effluent Management Services (LEMS), Material Test Reactor (MTR), Site Security (SSD) and Site Infrastructure (SI) disciplines. Following approval of the DoE grant (of R190m including VAT), MTEF (2015-2017) programme of projects was born. The projects were spread over a 3 year window and the grant was made up as follows:



Project Objective

The project scope/objectives are summarised below:

Materials Test Reactor (MTR)

- Project entails the replacement and upgrading of ageing facility equipment to ensure plant safety, sustainability and compliance.
- The project addresses ageing/ redundant unit processes within the Uchem (P2700), Elprod (P2500) and Umet (P2600) facilities at Necsa. These processes relate to the existing facilities that are used to assemble SAFARI - 1 fuel as well as to recover uranium.

Liquid Effluent Management Services (LEMS)

- The Liquid Effluent Management facilities treat radiological and chemical effluent generated by all facilities on the Pelindada site.
- The objectives of the project are to ensure compliance with a fully licensed operational facility within the boundaries laid down by the National Nuclear Regulator (NNR) and Department of Water Affairs (DWA).

Analytical and Calibration Services (ACS)

- Replacement and upgrade of aged laboratory infrastructure and equipment that are considered to be critical investment in Necsa's analytical and calibration capabilities. These are required to ensure the Necsa Group's continued and sustained capability for measurement, monitoring and control of compliance with legislative requirements, research and development objectives.

Site Infrastructure Upgrading

- Project entails the assessment of site infrastrure like Switchgear and Transformers, Batteries replacement, roof replacements, and removal of asbestos material to comply with statutory requirements - all aimed at ensuring health, safety, environmental compliance.
- Projects also include the identification and assessment of piping buried underground on the site and replacing high risk and damaged pipework to ensure security of the site piping system.

Strengthening of Pelindaba Site Security Infrastructure

- This project involves the installation of new Perimeter fencing on the Necsa site boundary, installation of a thermal camera and detection system on the site boundary, installation of an improved perimeter lighting also on the site boundary - all aimed at improving nuclear site security, and security responsiveness in the event of a threat.
- This will enable critical investment in site security infrastructure and ensure that Necsa remains world class as a nuclear facility.

Project Programme/Progress

The MTEF cycle is scheduled to end with projects completed by 31 March 2017. It is forecasted that most, if not all, projects will be completed on time and the present forecast shows a strong possibility of completing the projects one month ahead of schedule. Progress per discipline is shown below:

MTEF Projects	Progress as at 31 March 2016
Overall Progress	73%
LEMS	64%
ACS	86%
MTR	58%
SI	83%
SSD	70%

In anticipation of all the projects being done by end March 2017, Necsa continues to maintain meticulous project management controls and stringent quality assessments.

NLM

DECOMMISSIONING SERVICES

Decommissioning activities during the financial year focused mainly on the following projects:

- Phase 2 decommissioning of the Conversion Facility: The revised decommissioning Strategy and Plan was approved by the NNR. Pre-decommissioning activities are currently undertaken with regard to the collection of all loose material.
- The de-heeling of UF6 cylinders in Area 27: This project was temporarily halted in order to update documentation that doesn't comply with latest regulatory requirements. The operations resumed in May 2016.
- Phase 2 decommissioning of Area 14 oil basement: Cutting of the oil pipes in smaller sections is progressing well according to schedule.
- Care and Maintenance: Various facilities, including BEVA Evaporation pans, (previously radiologically contaminated) on the Necsa site are under Care and Maintenance. These facilities (all under NNR authorization) are inspected regularly and monitored (radiologically) on a routine basis.
- Liability Assessment: The liability assessment for the operational radiological facilities is progressing well and is on schedule. It is envisaged that the liability assessment will be completed by January 2017.

DECONTAMINATION SERVICES

The Decontamination Facility consists of a Wet Decontamination Section where chemical or metallurgical decontamination techniques are used to recover nuclear materials and Dry Decontamination where nuclear materials are physically and mechanically removed from contaminated materials to recover nuclear materials.

A total of 345 batches were processed and 98% of the material that was presented for decontamination was cleared from regulatory control. Scrap sales to the value of R354 000 (VAT Excl.) were generated from the cleared material.

MANAGEMENT OF NUCLEAR WASTE

Nuclear waste from various points of origin was collected and safely stored at Necsa during the review period is as follows:

Type	Origin	Storage area	No. received 2015/16	Total at 31 March 2016
Drums	Facilities on Necsa site and external clients	Pelstore and Area 21	2 372 (received) 84 (Transport to and disposed of at Vaal-puts)	59 420 (received) 5 755 (Transport to and disposed of at Vaal-puts)
Spent fuel elements	SAFARI-1 storage pool	Thabana Pipe Store	90	957
Spent sealed radioactive sources	Clients through-out SA, specifi-cally the health care sec-tor	Area-24 Source Store	224	8 365
Smoke detectors	Clients through-out SA	Area-24 Source Store	1 633	27 729

A total of 84 concrete waste packages have been transported to and disposed of at Vaalputs. No metal waste packages were transported to and disposed of at Vaalputs. The cumulative total number of waste packages transported to and disposed of at Vaalputs at 31 March 2016 is 5 755.

Area 24 Disused Source Storage Facility is operational; sources are received around the country stored, characterized and conditioned on a continuous basis. The process of conditioning radioactive sources started in November 2015. A total of 55 Disused Sealed

Radioactive Sources were characterized and conditioned. Waste characterization is done on a continuous basis for safeguards (IAEA) and final disposal purposes. A total of 4 760 and 951 drums respectively have been measured using the IQ3 scanner and the BNFL Segmented Drum Scanner. The contents of 5 015 drums have been physically verified and registered on the Waste Tracking System.

NUCLEAR WASTE PROJECTS

The construction and installation of the Volume Reduction Facility (VRF) has been completed successfully. The cold commissioning of the facility was successfully done. The cold commissioning report, hot commissioning manual and revised safety assessment report for the VRF has been prepared and submitted to the NNR for approval. When these are approved, the hot commissioning of the facility can commence.

A test program for the 210 L metal VRF waste package, which will be used to contain the compacted drums from the VRF, was approved by the NNR. The required tests were successfully carried out. A NNR required safety case was prepared for this waste package and, submitted to the NNR for approval. Any waste package destined to Vaalputs must be approved by the NNR.

The construction and installation of the smelter facility is almost completed. The testing of the electrical equipment, which is currently in progress remains to be finalized. Once these tests are completed cold commissioning and then hot commissioning of the facility will follow.

A licensing submission has been approved by the NNR concerning modifications to be made to Building A8 to accept uranium containing effluent for evaporation from all external generators on the Necsa site. The NNR approval includes construction and cold commissioning of the upgraded facility. Civil engineering drawings of the upgrade are currently being updated and, construction will begin once a contractor has been engaged.

A comprehensive strategy for the Management of Necsa's Evaporation Pans was approved by the Necsa Executive. The strategy focused on management steps to protect the integrity of the pans and the environment, the required steps to ensure the successful application for the Site Water Use License at the Department of Water and Sanitation, and a strategy to decommission, remediate and discharge the liability of all the evaporation pans on the site.

IAEA/AFRA RELATED ACTIVITIES

The Borehole Disposal Concept (BDC) was jointly developed by NLM and the IAEA and various expert missions to implement the concept in Africa and abroad were undertaken in the past years. The purpose of the concept is to provide a facility for the disposal of disused sealed radioactive sources.

NLM was contracted by the IAEA for the integration of the Borehole Concept with the Mobile Hot Cell. All the required Mobile Hot Cell (MHC) modifications were designed and produced. The required documents were also prepared. These were reviewed and accepted by the IAEA. As soon as the IAEA has finalised the welding equipment for the sealing of the BDC disposal canister, the MHC can be used for the disposal of high and low activity disused sealed radioactive sources in the BDC. The physical demonstration of the integration of the BDC and the MHC is scheduled for end 2016.

SHARS Mobile Hot Cell

The Mobile Hot Cell (MHC) remains one of the only safe and reliable mechanisms in the world for the handling of disused high activity sealed radioactive sources. The MHC, which was developed by Necsa under contract from the IAEA, is owned and operated by Necsa, The MHC is unique and the Necsa teams which operate the unit are regarded as world experts in the handling of disused sealed radioactive sources. Necsa has already performed 5 very successful MHC operations all over the world.

Necsa has been contracted to undertake a MHC operation in Brazil. This is a major project with high activity sealed radioactive sources to be recovered from 87 Teletherapy units. The sources will be transported to the USA and to Germany for recycling. The project is funded jointly by USA and Canada and, is expected to commence by September 2016.

NUCLEAR WASTE DISPOSAL

Although the National Radioactive Waste Disposal Institute (NRWDI) was formally launched by the Minister of Energy on 31 March 2014 and the Board of Directors was appointed in January 2014, Necsa continued to manage Vaalputs and will continue to do so until the NRWDI is in a position to obtain a nuclear installation license and take over the facility.

Vaalputs disposed a total of 1 031 waste packages in 22 consignments from Koeberg and Necsa during the 2015/2016 financial year (see summary in table below).

Waste generator	Concrete waste packages	Steel waste packages	Number of consignments
Koeberg	0	947	8
Necsa	84	0	14
TOTAL	84	947	22

The National Nuclear Regulator (NNR) conducted four nuclear installation license compliance audits for the period under review. In addition, the NNR also conducted two security culture audits, as well as three nuclear installation license compliance inspections of Vaalputs. Implementation of the Nuclear Installations License (NIL-28) and the Process Based License (Necsa SHEQ-system) is progressing well.

Vaalputs maintained the ISO 9001:2008 and ISO 14001:2004 certification status during the 2015/2016 financial year. The annual SHEQ audit was conducted in September 2015 and no findings were raised. Results of personnel monitoring, radiological surveillances of facilities, disposal trenches and equipment as well as environmental monitoring results were all within regulatory limits.

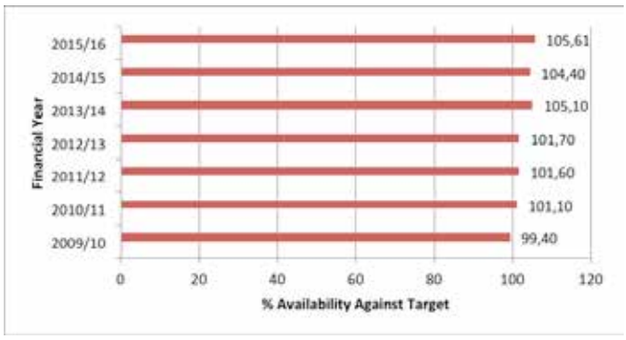
The Vaalputs Public Safety Information Forum (VPSIF) was held on a quarterly basis. Nuclear safety information sessions were presented to members of the Vaalputs communities prior to each VPSIF. The NNR also participated in this initiative.

SAFARI-1 Research Reactor

The SAFARI-1 Research Reactor achieved availability of 303.10 days versus the targeted 287.0 days, which represents 105.61% of targeted availability during the financial year, at an average reactor power of 19.89 MW. This excellent operational performance can be attributed to an effective reactor maintenance programme, trained reactor operations personnel as well as the reactor ageing management programme.

During the 2015/16 financial year, the reactor had several unscheduled reactor down times, especially during the fourth quarter relating to equipment failure and unexpected weather conditions; for this level 1 and level 2 nuclear events were registered. The registered events had no impact on nuclear safety and neither did they pose an operational safety risk during the operation of the reactor. The total downtime due to these unscheduled events was 46.33 hours, whilst 35.77 hours were gained due to late shutdown/early start-ups.

The availability of the reactor versus the targeted availability during the past 7 financial years is depicted below as follows:



In this reporting year, the reactor was utilised on a strict operational schedule and early detection of potential risks were managed efficiently. The accumulated utilisation for SAFARI-1 to date is 3 766 176 MW.h since it was commissioned in1965.

The irradiations of targets were processed successfully to meet client needs in collaboration with NTP. SAFARI-1 provided all the irradiation services requested by NTP during the financial year. SAFARI-1 continues to assist the R&D group with the utilization of the beam lines and the instrument upgrades.

The ageing management programme is progressing at a much slower pace than anticipated, however, this will be ameliorated through imminent interventions. The implementation of the projects related to the Fukushima stress test safety assessment are also receiving attention albeit at a reduced rate due to prioritisation of projects.

The SAFARI-1 Research Reactor continues with the same dedicated energy to maintaining ISO 9001 quality management system, its ISO 14001 environmental management system and its OHSAS 18001 occupational health and safety certification.

Analytical and Calibration Services

Analytical and Calibration Services (ACS) is the Laboratories Department of Necsa responsible for providing analytical, calibration and Radiation Protection consultancy services to internal (Necsa and its subsidiaries) and to external customers. ACS main function is to provide third party quality assurance with respect to products produced for markets of interest as well as verification of compliance to regularly requirements on behalf of its customers. ACS is running four state of the art laboratories namely (1) RadioAnalysis Laboratories, (2) Pelindaba Analytical Laboratories, (3) Calibration Laboratories and (4) Nuclear Forensics Laboratories using proven technologies and experienced scientist and technicians.

RadioAnalysis laboratories specialises in the measurement of natural and man-made radionuclides using laboratory techniques based on the emission of ionising radiation (alpha and beta particles and gamma rays), neutron activation and radiochemistry techniques.

Pelindaba Analytical Laboratories on the other hand specialises in analysis of the chemistry of materials using instrumental techniques such as ICP-OES and ICP-MS for elemental, trace and ultra-trace analysis, XRF for elemental analysis, GC and GC-MS for analysis of gas and organics.

Typical applications for both laboratories refer to above range from occupational monitoring, environmental monitoring and certification for products from industrial, medical radioisotopes and agriculture destined for import and export per purpose. Other applications involve determining elemental composition in LEU and HEU metal samples, screening and quantification of chemical substances in environmental samples, to analysis in support of water quality management (e.g. SANS-241) including process monitoring and final product certification of fluorine-related products for Pelchem.

The Calibration laboratories specialise in the calibration of radiation monitoring instruments ranging from dosimeters to detectors used in the nuclear industry, mining and medical facilities.

The Nuclear Forensics group is responsible for the national nuclear forensics capacity building and enhancement, and the operations of the nuclear forensics laboratories, the temporary police nuclear material evidence storage areas and the national nuclear forensics database library at Necsa, as well as the regional and the international cooperation and collaborations aimed to develop and optimize capabilities in nuclear security. The main objective of the Nuclear Forensics group is to promote the use of national nuclear science and technology for peaceful purpose through deterring and preventing malicious use and threats of nuclear terrorism.

Nuclear Forensic Programme

The year under review saw the completion in the building and enhancements of the national nuclear forensics laboratory cleanroom facilities at Necsa and intensification of processes leading to the acquiring of key instrumentation and analytical methods validation. These included the commissioning and National Nuclear Regulator (NNR) licensing of dedicated cleanrooms, the human capital development, strengthening of existing collaborative arrangements (e.g. with IAEA nuclear security, the US DOE national laboratories and JAEA). The nuclear forensic team also continued scientific ties and engagement with specialist international forums dealing in nuclear security/forensics such as the Institute of Nuclear Materials Management (INMM) and the Nuclear Forensics International Technical Working Group (ITWG) in enhancing nuclear security forensics and deterring illicit trafficking and nuclear terrorism. At the national level, we have been able to advance nuclear security forensics agenda to national levels through engagement with the DoE as the principal stakeholder and the law enforcement agencies (i.e. SAPS, SSA, NPA and SARS Customs) as key partners mainly through consultative dialogues. More importantly, the nuclear forensics laboratory rendered police needed assistance with criminal investigations involving illicit trafficking of nuclear materials

Accreditation and Licensing

Four out of five laboratories are accredited in terms of ISO 17025 requirements and a process to accredit remaining lab is under way with the view to complete its accreditation in June 2017. In addition to lab accreditation, our Laboratories have a long list of specific methods accredited by the South African National Accreditation System (SANAS) which may be viewed on the SANAS website directory of accredited laboratories. Facility accreditation number for RadioAnalysis Laboratories is T0111; for Pelindaba Analytical Laboratories is T0168 and for Calibration Laboratories is 1203. All existing accreditations were verified by SANAS during the reporting period and were found to be in good order.

The RadioAnalysis Laboratories participated in various annual international proficiency test schemes, viz. US Department of Energy's MAPEP for Determination of Radionuclides (61% in 2014, 78% in 2015); Procorad Radio-toxicological inter-comparison (82% in 2014, 81% in 2015); IAEA-ALMERA Proficiency Test on the Determination of Radionuclides (75% in 2014, waiting for results 2015) and the CTBTO Proficiency Test Exercise (B in 2014, A in 2015).

The Pelindaba Analytical Laboratories participated in SABS quarterly proficiency tests for Trace element analysis Group 1, 2 and 3 and succeeded to maintain their excellent z-scores of below 1.

Services supporting the quality control of the radionuclide and radiochemical purity of medical radioisotope products remained compliant with NTP's requirements for Good Laboratory Practice (GLP). The processes to obtain GLP compliance for the certification of raw materials for production of radioisotopes were initiated.

Internal and external audits were conducted during the reporting period. In these audits ACS registered on average compliance index of 94% in 2015/16 compared to 93% in 2014/15 financial year. Parallel to audits

referred to above, custom and satisfied surveys were also executed. On these surveys ACS surveys were also executed. On these surveys ACS recorded and average of 83% compared to 79% in 2014/15.

Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO)

South Africa is a signatory to the Comprehensive nuclear Test-Ban Treaty. Accordingly, government has conferred the mandate to Necsa to perform and handle all CTBTO matters that relate to radiological or nuclear activities. ACS is responsible for the establishment, operation and maintenance of the CTBTO Radionuclide Laboratory RL-14 for South Africa.

Preparation for the initial phases for certification of the RL-14 laboratory has been completed which included training of personnel, installation of auxiliary equipment, revising of quality documentation to address CTBTO specific requirements, and the compilation of validation reports and operational procedures. A report on the work has been submitted to the CTBTO and a schedule has been agreed upon for the final certification process.

Growth Rate

The mining and mineral processing market segment remained more dominant in that customers in this sector increased from 167 to 200. A significant increase was also recorded in Agriculture and Consulting Companies. Contrary to this a decline in growth of customers was registered in Manufacturing, Government and Health Care.

Organic Growth

ACS	Q 1	Q2	Q3	Q4	Total Year 2015-16	Total Year 2014-15
Number of Customers per Market Segment						
Mining & Mineral Processing	51	59	42	48	200	167
Manufacturing	40	49	40	30	159	189
Government	7	8	8	13	36	160
Health Care	5	6	5	9	25	45
Agriculture	54	44	37	48	183	41
Consulting Companies	34	26	23	26	109	25
Educational Institutions	1	3	1	1	6	4
Total	**192**	**195**	**156**	**175**	**718**	**631**
Total number of Samples Received						
	16 635	16 826	14 748	15 708	63917	43398

Productivity

Productivity in our labs seemed to have decreased with respect to number of samples processed and procedure developed and validated in F2015-16 compared to F2014-15. This could be traceable to a stoppage that was effected between June and July 2015 in the RA Laboratory. The operations were stopped in order to replace ventilation system in the Laboratory which was posing safety concerns. RA Laboratory is handling the highest number of samples compared to all other Laboratories.

Productivity Outlook

Benchmark	Q1	Q2	Q3	Q4	Total Year 2015-16	Total Year 2014-15
Sample Processing and Analysis						
Target	14 470	13 770	13 770	18 060	60070	-
Actual	19 923	22 865	20 347	23 035	86170	92350
Capacity	23 901	36 895	37 044	40 831	138671	-
Procedures Developed and Validation						
Target	20	22	30	24	96	-
Actual	16	18	19	6	59	78
Capacity	19	25	31	23	98	-

Improvement Projects

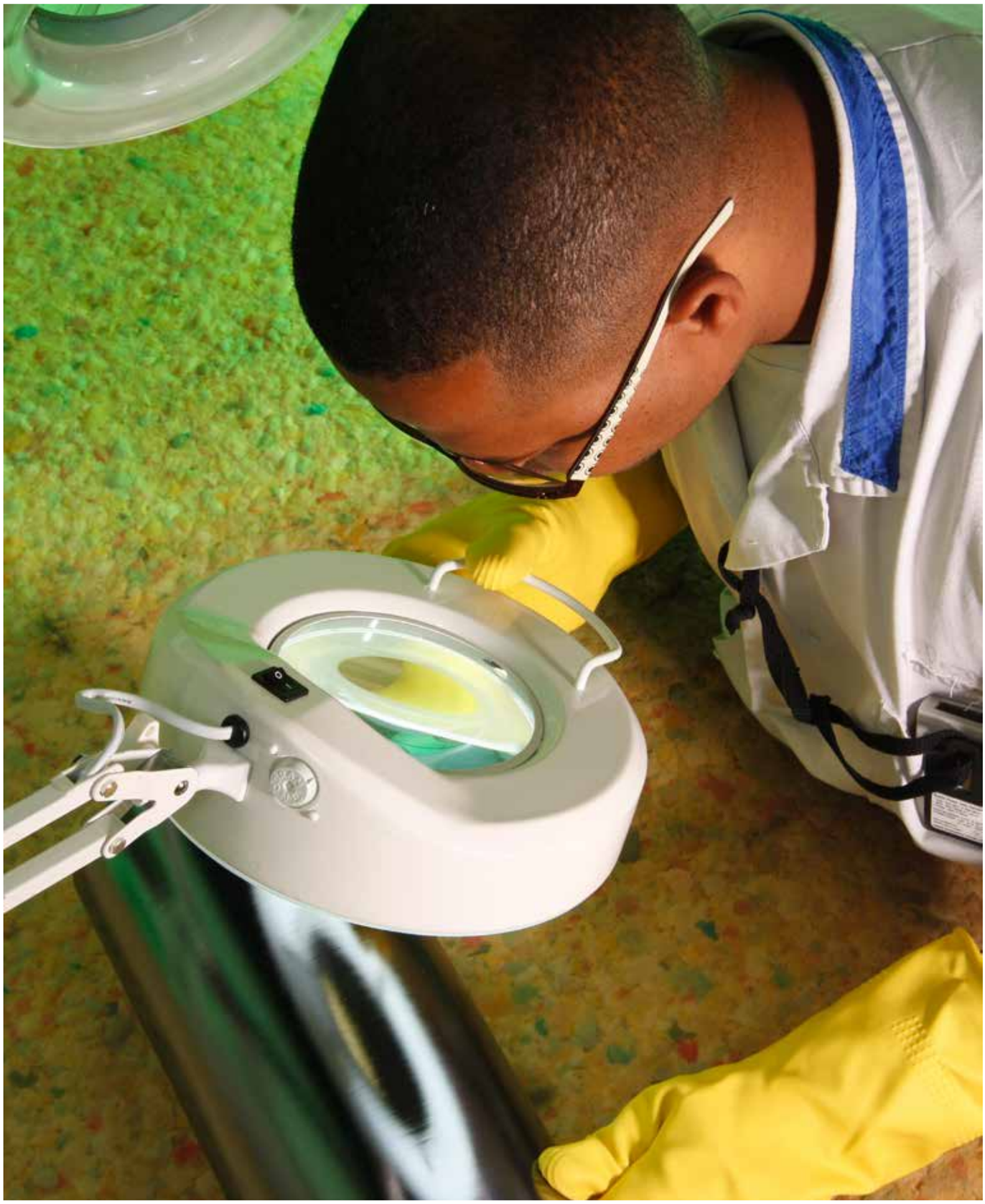
ACS has embarked on a process of increasing capacity of Necsa laboratories with the view to accommodate more samples and process them within a shorter turnaround time. Increase in capacity is also aimed at ensuring profitability of these laboratories s and also achieve required growth. Consequently, five key projects were identified and executed since Quarter 2 of this financial year. In addition to these projects feasibility studies were started in Q4 on another 5 (five) projects with the view to complete them in Q1 of 2016-17 FY.

Improvement Projects

Project Milestone	Start Date	Target Date	% Complete	Status	Estimated Value per Year
Commissioning of the Gross Alpha Beta multi detector	01 Sept 2015	March 2016	100%	Completed	R 10 200 000
Certification of the CTBTO laboratory	13 Sept 2015	Sept 2016	85%	In progress	R 2 005 255
Commissioning of the ICP MS for analysis of U isotopes in water	01 Sep 2015	May 2016(1)	90%	In progress	R 6 912 000
Neutralisation of liquid effluent from NORM waste streams	01 Sept 2015	May 2016	95%	In progress	Licensing Requirement
Development, validation & accreditation of procedures to increase scope of operation	Sep 2015	June 2016	80%	In progress(2)	R 36 480
TOTAL					**R 19 153 735**

Projects under Consideration (Feasibility Study)

Project Name	Project Description	Expected Business Improvement
Mobile Laboratory	To establish profitable mobile laboratories.	The project will substantially improve ACS revenue.
Radon Calibration Laboratory	Revamping of an existing radon laboratory to provide calibration services for radon monitors.	The estimation revenue to be generated per annum is estimated at R 321 000.
Development and accreditation of analytical methods for Organics	To develop, validate and accredit Organic methods to increase our technological ability to provide services in line with SANS 241 standard.	Possible additional work from Municipalities, Environment consultants, etc. Estimated value will be about 15%
The X-ray Machines	The project involves Necsa applying and getting SANAS accreditation to conduct X-Ray Machine verification inspections.	The project to add an estimated gross amount of R 1 900 000 per year.
Treatment of non-NORM liquid waste	Solidification of non-Norm waste for disposal.	Disposal of non-Norm liquid waste from the facility to reduce potential future liability.



09 PELINDABA ENTERPRISES

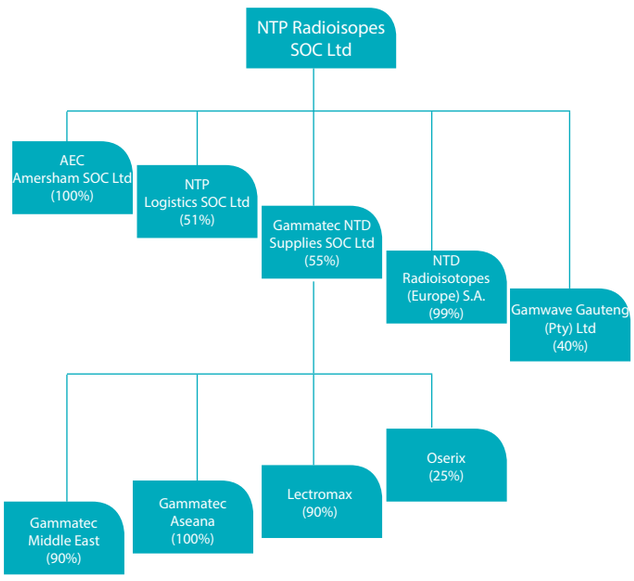
NTP Radioisotopes Group

NTP Radioisotopes SOC Ltd (NTP) is a well-respected South African brand, known locally and globally for its comprehensive range of radiation-based products and services. As an important global player, NTP, with its state-of-the-art technology and highly competent team, serves customers world-wide in over 60 countries.

For more than 50 years, the SAFARI-1 Research Reactor in South Africa has anchored the continent's largest nuclear technology programme and NTP has been the custodian of this legacy for the past two decades. During this time of intensive transformation and redevelopment, NTP has successfully converted an isolated apartheid-era complex into a commercial nuclear technology facility that is ranked among the top producers of medical radioisotopes in the world.

Over the years the company has formed various subsidiaries and increased or decreased its holdings in other subsidiaries to strengthen its market offering and increase the group's revenue stream.

Group Structure



NTP Group Business

AEC-Amersham SOC Ltd

100% shareholding

AEC-Amersham is a wholly owned subsidiary of NTP and is the exclusive distributor in sub-Saharan Africa and the Indian Ocean islands of NTP's radiopharmaceutical products, as well as a range of healthcare, life sciences and quality and safety assurance products from leading global suppliers. The core strength of the Company is its extensive range of specialised products and services, supported by a dedicated and knowledgeable sales force.

Gammatec NDT Supplies SOC Ltd

55% shareholding

Gammatec NDT exports to over 70 countries worldwide. Its range of non-destructive testing (NDT) equipment, accessories and consumables is not only stocked, but in many cases manufactured. NDT products include acoustic emission; dye penetrant; eddy current – including systems; magnetic particle; radiography – x-ray and gamma ray (including radioisotopes); ultrasonic – flow detectors, wall thickness monitors; phased array technology and visual inspection systems, plus Iridium-192 (I-192) sources supplied by NTP.

NTP Logistics SOC Ltd

51% shareholding

NTP Logistics (NTPL) specialises in the global distribution of hazardous goods and any other time sensitive goods to anywhere on the globe with unmatched consistency and reliability.

The company is a market leader with vast experience in national and international regulatory requirements. It has an array of permits and licences to operate in its field, which are issued by the NNR, DoE, DoH and the DoT and is an active member of the World Nuclear Transport Institute.

NTP Radioisotopes (Europe) S.A.

99% shareholding

NTP Radioisotopes Europe (NTPE) is based in Fleurus, Belgium. The company produces and supplies world-class radiation-based products and services to over 40 countries, while maintaining world-class quality, safety and regulatory compliance systems.

The company serves mission-critical industries and the products are utilised for a wide range of NDT applications, ranging from the verification of the integrity of pipelines and components used in the oil and gas sector, to aircraft engines and critical components for nuclear power stations, amongst others.

NTPE produces and supplies brachytherapy sealed radioactive sources for the nuclear medicine industry, radioactive sealed sources, Selenium-75 (Se-75), Cobalt-60 (Co-60), Iridium-192 (Ir-192) and Ir-192 High Dose Rate sealed sources, used in brachytherapy application.

The company supplies portable gamma radiography equipment which is used by the NDT sector. Equipment includes the portable GammaMat TSI and SE series, GammaMat self-propelled crawlers and their associated accessories.

Gamwave Gauteng (Pty) Ltd
40% shareholding Gamwave provides a gamma sterilisation service using an NTP facility on the Pelindaba site. Gamma sterilisation is a process using highly penetrating gamma rays from high activity Co-60 sources to irradiate products thereby killing bacteria and inhibiting germination and premature ripening in fruits and vegetables without the products becoming radioactive.

Group Financial Performance

Company	Sales R 'million	Budget
Group sales	1 222	2% below
NTP	906	16% above
AEC-Amersham	136	4% above
NTP Logistics	21	25% above
Gammatec Group	183	23% below

CHANGE AND INNOVATION

The story of NTP is one of constant innovation and adaptation. Preparing to face new challenges in a highly competitive market, NTP ensures that critical knowledge and skills, maintaining uncompromising standards, growing new markets, and pioneering new radioisotope products is the underscore of its progress.

NTP pioneered the production and therapeutic use of beta-emitter Lutetium-177 (Lu-177) in South Africa in 2012, and aims to participate in global therapeutic radiopharmaceutical markets with a proprietary Lu-177 production facility.

The first medical procedure in South Africa using Lu-177 non carrier added (nca) prostate-specific membrane antigen (PSMA) was successfully conducted in 2015.

NTP A GLOBAL PLAYER

NTP's isotope production facilities have provided the South African medical community with radioisotope-based diagnostic imaging and therapy products for nearly 40 years. Over the past decade NTP has become a leading global player in the radiation technology business, with a market footprint that covers more than 60 countries worldwide.

76% of Molybdenum-99 (Mo-99) was produced from low enriched uranium (LEU) targets in December 2015 - the highest monthly level so far. Production efficiencies and volumes have steadily improved during the year and work is ongoing to bring online additional production capacity.

NTP Sales per region

5.8% South America	15.6% Europe	21.7% Far East	28.1% Rest of world (incl. South Africa)	28.8% North America

World
The largest nuclear medicine market remains the United States, which accounts for more than half of all procedures undertaken each year, followed by Europe and Japan. In 2018 Canada's National Research Universal (NRU) reactor will be decommissioned. NTP is working to increase production so that it can ensure consistent, uninterrupted global supply of Mo-99 and other radioisotopes. While it is anticipated there will be continued growth in global demand for nuclear medicine products, economic improvement is still fragile, uneven and could inhibit this in the short-term.

Africa and South Africa
Although there is a positive outlook for economic growth in the region, the prohibitive high costs of nuclear medicine and small number of nuclear physicians in Africa remain a limiting factor. South Africa has approximately 60 nuclear medicine practitioners, which is significantly higher than most sub-Saharan countries.

Local academic hospitals such as Steve Biko in Pretoria are currently participating in programmes that will see additional nuclear medicine specialists from other African countries being trained and qualified.

HEU TO LEU CONVERSION: A WORLD FIRST

South Africa was the first country in the world to successfully implement commercial scale LEU-based Mo-99 and I-131 production. More than three-quarters of Mo-99 produced by NTP currently comes from LEU targets.

2009
The SAFARI-1 Research Reactor core is fuelled entirely by LEU (low-enriched uranium) for the first time. At the same time, NTP begins to convert target plates from HEU (highly enriched uranium) to LEU.

2010
LEU targets account for <10% of NTP's production. December 2010: First large commercial-sized batch of FDA approved Mo-99 produced from LEU targets is shipped to the United States.

2011
LEU targets account for 35% of NTP's production. Routine commercial supply of LEU Mo-99 to some customers.

2015
February: 52% of NTP's Mo-99 is produced from LEU target plates, the highest monthly level so far

December: NTP achieves a record LEU production level with 76% of the Mo-99 produced coming from LEU target plates

SUSTAINABILITY

Globally the sustainable production of nuclear technology products – especially the base isotope Mo-99 – is under increasing pressure. Historically, governments heavily subsidised isotope production costs through infrastructure funding. This led to systemic undercharging, with current global pricing being substantially lower than full cost recovery. The constant infrastructure maintenance and refurbishment costs, which are no longer supported by state funding, impact on the sustainability and profitability of these facilities. As a member of the OECD High Level Group for Medical Radioisotopes (HLG-MR), NTP is ardently working to bring the supply chain back to sustainable balance.

NTP goes to extraordinary lengths to prioritise the supply of medical isotopes to the South African nuclear medicine markets. The company produces and supplies a range of reactor and accelerator (cyclotron) produced isotopes used for imaging and diagnosis as well as for some treatments of diseases. The challenge, in addition to mastering the complex technology needed to make these isotopes, is to get them reliably, safely and as quickly as possible to wherever in the world they may be used since they decay – some with short half-lives.

Nuclear technology products including nuclear medicine enable economic growth and advance health. The availability of reliable and affordable nuclear medicine is central to stimulating healthy, productive capacity, leading to sustainable economic and social development.

NEW MARKETS

Over decades, NTP has shown remarkable resilience in adapting to new markets and changing South African state-owned company environments.

NTP has unique and valuable assets which include facilities, skills, expertise, intellectual property and infrastructure.

TRANSFORMATION

In less than 25 years NTP has undergone a radical business transformation, from a local market isotope production facility with just 30 employees and operating at a loss, to a world-class operation with five subsidiary companies, over 300 employees and an annual turnover of nearly R1-billion.

In 2015, NTP has made a commitment to an extensive cultural change process and this transformation will enable us to ensure our legacy in the future.

PARTNERSHIPS

For nearly 20 years, NTP has maintained a successful consortium radioisotope supply arrangement with IRE of Belgium. Each organisation has been able to provide Mo-99 back-up supply for the other during times when either plant has been out of operation for maintenance purposes. The long-term alliance with IRE has contributed towards NTP's status as one of the world's leading suppliers of Mo-99.

NTP has an established partnership with the Australian Nuclear Science and Technology Organisation (ANSTO) which will see the construction of a large-scale Mo-99 production facility constructed by ANSTO based on NTP's technology. This partnership will ultimately ensure an uninterrupted supply of Mo-99 even after the closure of certain large Mo-99 production facilities in Canada and Europe.

RESEARCH PARTNERSHIPS

NTP maintains partnerships with select academic hospitals and institutions in South Africa, and supports clinical trials run by them. Many ground breaking trials are still run by Steve Biko Academic professionals, including NTP and Necsa's Research and Development Division.

QUALITY, SAFETY AND REGULATION

Quality

Quality, Safety and Regulatory are key to operations, therefore, NTP is vested in sound practices. Regular audits are conducted by DEKRA (ISO 9001:2008), the South African Medicines Control Council (Good Manufacturing Practice), USA Food and Drug Administration, Department of Energy, National Nuclear Regulator, Department of Health, Radiation Control, the International Atomic Energy Agency and, our valued customers. A total of 23 external audits were conducted on NTP operations during the period under review. Through these audits, NTP retained all licences and certifications, allowing for continued, safe, reliable and sustainable production of quality products.

Safety

Radiation Protection

A positive reduction in staff doses has continued steadily since 2010 – this is attributed to the continued enhancement of on-the-job Radiation Protection programme and a well-entrenched ALARA programme.

Gaseous releases from the NTP production facilities remain well within authorised levels with the total release remaining within the annual limit.

Behavioural Based Safety

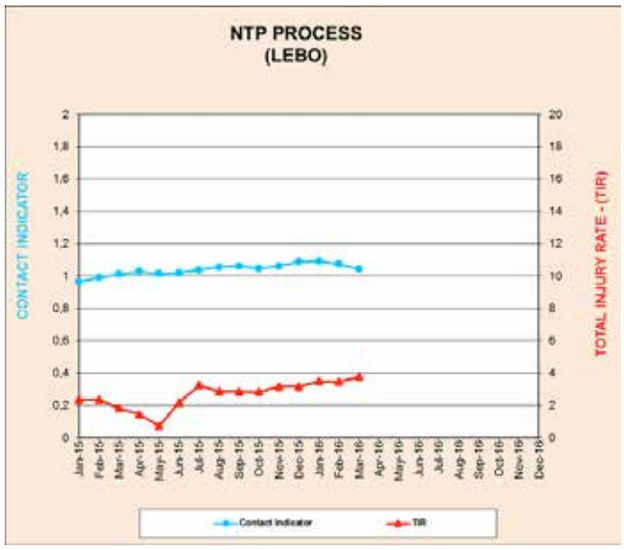
NTP has a Behavioural Based Safety (BBS) program in place to improve safety culture. In addition, a Safety Culture Audit was conducted by an internationally acclaimed supplier and the compilation of an action plan listing safety enhancement actions was completed. The Programme is gaining momentum and NTP employees are enthused about the project.

The Safety Culture Campaign continues to gain momentum as all NTP embraces high safety standards. The Safety Committee frequently runs safety slogans on the electronic email signature and holds regular safety awareness presentations.

Disabling Injury Free Hours

Two Disabling Injuries (DI) and nine injuries on duty (IOD) were registered during 2015, resulting in a TIR of 3.76 at the end of March 2016. The Disabling Injury Incident Rate (DIIR) at the end of the financial year stood at 0.68 and the total number of DI free hours worked since the last DI, registered in November 2015, was 207 779 hours.

NTP's BBS process is illustrated in the graph below:



Regulatory

As valued stakeholders to NTP, frequent interactions with all Regulatory Authorities are maintained and fostered. Through a process of mutual understanding and support, the highest levels of regulatory control and adherence are ensured.

Department of Health, Radiation Control, National Nuclear Regulator and the Department of Energy quarterly and annual reports for the 2015 calendar year were submitted with no deviations encountered.

HUMAN RESOURCES

NTP aims to be the employer of choice in the industry and among its peers, and to attract and develop the finest talent across the globe. As part of this ongoing programme, NTP will also ensure that the unique and invaluable skills, expertise, experience and passion of its many tenured employees is recorded, preserved and passed on to current and future generations.

Training Spend

Statutory training spend for the period under review was R122 000, while R2.85m was spent on soft and core skills development.

During the period under review NTP Internship Programme had placed a total of 20 interns for workplace experience. Three of the interns were retained after completion of their internships.

DEPARTMENT	OCCUPATION	African male	Coloured male	Indian male	White male	African female	Coloured Female	Indian Female	White female
Quality Control	Analytical Chemistry; Biomedical Technology	3				3			
Radiopharmaceutical		1				3			
Industrial Production		1							
Procurement & Supply Chain Management						1			
Facilities Management		1							
Sales & Marketing			1			1			
Human Resource		1							
IT		1				1			
TD Projects		1				1			

Individual Leadership Development

NTP management approved another 8-month Mentoring Program in 2015. The programme is gaining widespread momentum with opportunities extended to Necsa, Pelchem and NTP's subsidiaries to attend the programme. Mentors and mentees were identified and matched. Since the programme's inception in 2013, 28 mentors and 51 mentees have been trained and developed (some mentors have been involved in the programme for more than two years).

Change Management Programme

NTP is fully committed to building high performance teams and creating dialogues as a tool for culture change. This is based on the values of driving improvements at all levels within the company with the aim of entrenching world-class standards.

The main objectives are:

- Defining principles of transformational leadership and change
- Defining clear expectations for change
- Establishing a culture of accountability and innovation

Within this context, NTP has embarked on a comprehensive Change Management Programme in line with its Leadership and Performance Culture Transformational Framework.

SOCIAL SUSTAINABILITY

Wellness

A healthy workplace is more holistic and takes into consideration the physical, spiritual, environmental, intellectual, emotional, occupational and mental health of employees. NTP is a productive workplace that recognises health and safety concerns and assists employees in identifying solutions.

Wellness at NTP has demonstrated that investing in work-life balance initiatives:

- Reduces absenteeism
- Increases productivity
- Improves morale and working relationships
- Decreases stress
- Attracts new employees
- Helps retain current employees

NTP supports and values its employees and therefore has in place an Employee Assistance Programme which is run by an in-house Psychologist who daily consults with individuals and work teams when necessary on work-related issues, family matters including bereavement, personal issues, financial challenges and other matters raised by individuals.

An annual Wellness Day is held to encourage all employees to seek and make healthy lifestyle changes. The Wellness team holds various awareness presentations and activities throughout the year. A Healthy Living initiative was introduced during the period under review and was well-received by employees.

Voluntary Counselling and Testing (VCT)
This is held annually so that employees have a choice to make an informed decision about whether to be tested for HIV or not. During 2015, 116 employees were screened and some referred to the on-site Medical Facility for further testing.

Socio-Economic Development (SED)
NTP is committed to Socio-Economic Development and supports programmes aligned to Government's priorities, the company's strategy and business imperatives:

- NTP's vision
- Corporate values
- Brand promise
- Employee values and brand culture

The BBBEE Act states that projects must be designed such that it will meet the needs for optimising the company's points on the scorecard - SED interventions must comply with government policies of 75% or more Black South African beneficiaries and 1% net profit after tax (NPAT).

The company expanded its reach by supporting three NGOs during the period under review:

- People Living with Cancer (Pocket Support) – R810k
- CHOC Childhood Cancer Foundation (Transport and living quarters upgrade) – R500k
- Do and Learn Project – reading project driven at Ennis Thabong Primary School – R82k

People Living with Cancer (PLWC)
The Pocket Support Program, funded by NTP, is one of a kind in creating Oncology awareness, support and a counselling program. The funding augments community outreach programs - users (519 households already registered) will have access to the PLWC toll-free helpline should they need more support or advice in an emergency.

The first full cycle of education, support and counselling with current users is in progress and a full-time recruitment program of patients in primary clinics has been initiated. Funding of the project will enable PLWC to complete the cycle of support, education and counselling to users and enable the registration of another 500 patients to the program within the second quarter of the new financial year.

CHOC Childhood Cancer Foundation
Funding to CHOC towards the renovation and upgrade of CHOC houses nationally and to the CHOC transport fund – transportation for patients and families. By offering this support NTP has the opportunity to reach a wider range of beneficiaries nation-wide.

Do and Learn Reading Programme – held at Ennis Thabong Primary School
The Do and Learn Programme helps to establish a positive learning environment to encourage learners to believe in themselves to improve their reading skills. The situation at Ennis Thabong School:

- Grades 1 and 2 have a total of 81 learners in each class. Ratio 1 educator: 81 learners
- Interactive teaching in a new language is difficult
- Programme 1 will roll-out to Grade 2 to prepare them for Grade 3
- Programme 2 will roll-out to Grade 1
- Do and Learn will also help learners to acquire English vocabulary and grammar through reading with the programme
- The project has the full support of the school's principal, the foundation phase educators at the school and the Department of Education will endorse the programme
- The project was implemented in March 2016 and has seen tremendous results thus far

Mohau Centre of Hope
NTP conducted voluntary counselling and testing (VCT) which was open to all employees. Such allows for all to make an informed decision whether to be tested or not. NTP values its employees and in an effort to recognise this brave and bold step of the 116 employees who decided to test, the company undertook to make a donation of R11 600 to an HIV/Aids Charity Organisation on behalf of those who tested to expand the impact of their positive action. Mohau Centre of Hope was identified as a beneficiary.

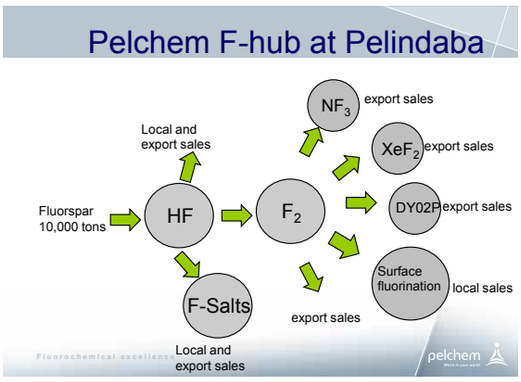
The company also undertook an outreach drive encouraging employees and subsidiary employees to donate to the needy. The Centre is in need of clothing, food, toys and any items that can be resold at their shop. Employees are inspired to support this worthy cause.

National Science Week 2015
Necsa invites learners from various schools to attend National Science week at the Necsa Visitor Centre. Each year NTP supports this initiative and partners with Necsa.

Pelchem SOC Ltd

Pelchem SOC Ltd is the only fluorochemical production, sales and distribution company in the southern hemisphere and produces 25 fluorochemicals which are exported to 27 countries on six continents. Its products include hydrogen fluoride (HF), hydrofluoric acid, selected fluoride salts, fluorine gas (F_2), various fluorine gas mixtures, nitrogen trifluoride (NF_3), xenon difluoride (XeF_2) and speciality perfluorocarbons and fluoromonomers. Pelchem is a 100% subsidiary of Necsa Ltd. The Company has a total revenue of R191 million and a staff complement of 179.
Located on the Pelindaba site, Pelchem is designed as a fluorochemical hub adding value to South African mined

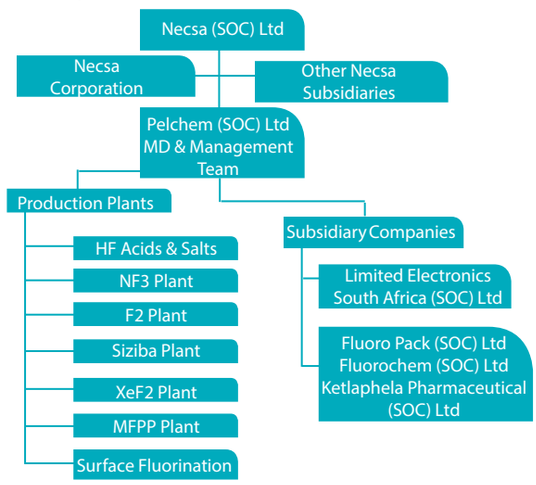
fluorspar. The Company has a proud record of more than 25 years' experience in locally produced fluorspar beneficiation, and supplies fluorochemical products to local and international markets. Pelchem, in partnership with the DST and the dti, plays a leading role in the SA Fluorochemical Expansion Initiative (FEI) which is aimed at establishing a world class fluorochemical manufacturing hub in the country. A milestone was achieved when the FEI team successfully hosted the first South African Fluorine Symposium (SAFS2016) in February 2016 which saw papers presented by world experts and created an international platform for local FEI researchers and students to showcase the high quality innovative research being done in the country.



Pelchem value chain-driven organisational design

Pelchem (SOC) Ltd Group Structure

The Pelchem Group consists of eight production plants, three dormant companies and one trading company. Limited Electronics South Africa SOC Limited (LESA), is a wholly owned subsidiary of Pelchem and used primarily for global sales of NF_3 to the semiconductor industry. The dormant subsidiary Fluoropharm, was renamed Ketlaphela Pharmaceuticals SOC Limited as part of the process to achieve the goal of a state owned pharmaceutical company. The company is expected to become operational in 2016/17.



Products and Applications

Pelchem's 25 products are versatile and important industrial chemicals used in the production of the following products critical for the social and economic welfare of billions of people globally: high octane fuel; diamonds; plastic components and specialty elastomers for automotive applications; beverage cans; stainless steel products; electronic devices such as cell phones and LCD television and high performance sports equipment.

Pelchem's growth strategy focuses on growing the turnover of its current products and customer base in addition to introducing new products and new customers into the business. A particular focus is on South America, Western and Eastern Europe and Asia.

Intellectual Property

Pelchem's manufacturing capabilities and production facilities are operated under patented processes, trade secret or trade mark protection and give Pelchem recognised and unique know-how across its product value chain. Pelchem's current intellectual property portfolio consists of four trademarks, five well managed trade secrets and 10 families of patents.

Responsible Care

Pelchem continued to deliver on its public pledge of responsible care. The outcome of this is evident from the environmental, occupational and social responsibilities reported on below:

Air Pollution Compliance

Due to the presence of HF and fluorine gas, all chemical processes at Pelchem are licensed scheduled processes. Adherence to statutory Safety, Health and Environment requirements is mandatory. There was 98% compliance with regards to atmospheric emissions during the review period.

Personnel and Transformation Responsibility

Pelchem's total staff turnover was less than 2% in the 2015/16 financial year. A great emphasis is placed on transformation especially at the senior and executive management levels and Pelchem is pleased to report the appointment of a black male production executive, a black male SHEQ manager as well as two black female production managers.

BBS

Health and safety at Pelchem is managed through the Necsa Safety Health and Environment (SHE) policies and with the aid of a BBS Programme known as PEARL (Pelchem Eliminating Accidents and Risks of Life). The group achieved an average BST Process Index Score of 88% for the reporting period. Special attention is being given to barrier removal and the number and quality of

observations. The Disabling Injury Incidence Rate (DIIR) decreased to 1.22 from 1.83 in the previous reporting period, due to concerted efforts to promote safe working. The Total Injury Rate (TIR) in the same period was 3.1 against a target of 6.0.

Pelchem was dealt a severe blow on 4 May 2015 when an incident involving HF resulted in the fatality of an employee. The incident was thoroughly investigated and all short term corrective actions have been completed to ensure that similar incidents are avoided.

Training

Although Pelchem obtained approval for DST/NRF internship posts, none was awarded due to a lack of interns in the chemical and mechanical engineering disciplines. Pelchem has however embarked on an internship program for engineers, artisans and operators to identify and develop critical skills for the company.

Community Development and Social Responsibility

Pelchem adopted the Meerhof School for disabled children as its Corporate Social Investment support project. Pelchem's mentors and mentees support and participated at the Meerhof School's Casual Day event. Pelchem staff continues to support Necsa at various learning initiatives such as the National Science Week and school visits to the Necsa Visitor Centre.

Economic Responsibility

Broad-based Black Economic Empowerment

Pelchem obtained its level four BBBEE rating, improving from 66.6% to 69.3%.

Quality

ISO 9001 certification was successfully retained for both LESA and Pelchem. A stage 1 SABS ISO14001 Environmental Management Systems audit was performed; however issues at SABS prevented the stage 2 Audit from taking place and this process will be restarted in 2016/17.

Customer Satisfaction

An overall customer satisfaction percentage of 87% was achieved with the satisfaction level of the top four customers (based on purchases) being 94%. The target of ≥ 75% of customers surveyed having a satisfaction rating of ≥ 80% was well exceeded.

Operating and Financial

The financial year ending March 2016 was in many respects a challenge for Pelchem. The contraction in the global manufacturing sector and the continuous increase in the cost of manufacturing in South Africa put Pelchem's financial performance below target and negatively impacted on the implementation of its growth plan.

Overall, Pelchem achieved external product sales of R182 million which is 17% less than budget. The loss of sales was due to a combination of international market factors and lower than design plant availability (production output) as a result of serious ageing infrastructure challenges. The net profit of R28.6m posted is largely due to the reversal of the impairment of assets that was done in previous years. Pelchem is continuing its growth strategy through smart partnerships; by developing and launching new products; and by striving to grow the market share of its existing products. Pelchem and Necsa has placed urgency in securing financial support to address critical ageing infrastructure issues and agreements with the IDC for funding in this regards are being finalized.

Pelindaba Manufacturing

Manufacturing Projects

The Pelindaba Manufacturing (PM) order book as at the begining 2015 / 2016 financial year was about R56,3m. The Table below shows the contribution of the orders by the PM sections namely Nuclear Manufacturing and Industrial Manufacturing. In addition, the Table shows that as the year progressed additional orders were not forthcoming e.g. Koeberg decided not to go ahead with SEC piping project and the decline in activities within the local mining sector. Projects carried over from the previous financial year include:

- Booster and strainer vessels for Medupi and Kusile coal fired stations;
- Sourcing and localization of the PTR tank materials for the Koeberg Power Station;
- Reaction Chambers for Russia; and
- Six 32 ton tanks for Namibia

Nuclear Manufacturing & Industrial Manufacturing Contribution

	April-2015	September-2015	March-2016
	R'000	R'000	R'000
Nuclear Manufacturing	49 402	15 391	18 958
Industrial Manufacturing	6 942	4 567	2 225
Total	**56 344**	**19 958**	**21 183**

Pelindaba Manufacturing is exploring the possibility of collaborating with other State Owned Entities which require engineer-to-order components for maintenance or for green field projects. Progress was made on PM's possible participation on the Koeberg's Steam Generator Replacement and Spent Fuel Casks projects i.e. in collaboration with local and international entities. In an effort to increase the export of manufactured components, PM had discussions with the Russian entity Tenex for the possible future supply of reaction chambers and other

nuclear and non-nuclear components.

Quality Audits
PM was successful in obtaining the re-certifications for the codes and standards shown in the Table below. These certifications are important when it comes to assuring the local and international clients that the supplied products will meet their requirements.

Type	Auditing Entity	Date
ISO 3834: Quality requirements for fusion welding of metallic materials.	South African Institute of Welding (SAIW)	May 2015
ISO 9001	South African Bureau of Standards (SABS)	September 2015
ASME VIII 'U' Stamp	American Society for Mechanical Engineers (ASME)	March 2016

NECSA LEARNING ACADEMY

Technical Skills Training
The Necsa Skills Development Centre (NSD) continues to fulfil its mandate in response to the National Skills Development Strategy. The Centre was fully utilised and continues to attract new clients. The total number of apprentices trained for the reporting year was 311 and 32 people attended short courses.

Decentralised Trade Test Centre (DTTC)
The Decentralised Trade Test Centre (DTTC) continues to grow and conducted 450 Trade Tests. Trade Test Preparation was conducted for 259 candidates, Gap Training was 24, Pre-assessment was 87.

The National Artisan Moderating Body (NAMB) has recommended the approval for accreditation of Toolmaker Trade Test after conducting a successful audit at NSD.

National Tooling Initiative Programme (NTIP)
Additional equipment worth R9.335m was received from NTIP for the expansion of the tooling workshop.

Tooling Workshop Computer Lab –The installation of the new LTE modem in the tooling computer laboratory to off-load Catia Drawing License from the NTIP main frame was completed.

Coded Welding
The last Sector Education and Skills Training Organisation (SESTO) group of 14 coded welders successfully completed training on 30 September 2015. The certificate ceremony was attended by representatives from SESTO, Royal Bafokeng Institute (RBI) and Department of Public Works (North West province).

Radiation Protection Training Centre (RPTC)
A total of 116 students were trained at the RPTC and 18 of those graduated and received certificates for the RPO2 and 25 in RPO1.

Dr Mavunda at the RPTC co-supervised Ms Rendani Ramabulana, an MSc student in Biochemistry at University of Johannesburg and co-published two papers "Plant Physiology and Biochemistry 97 (2015) 287-295 and Journal of Photochemistry & Photobiology, B: Biology 156 (2016) 79–86". The third paper is currently with the editors. These three papers are part of the thesis of Ms Ramabulana. She is also in the process of submitting her thesis.

South African Civil Nuclear Energy Training (SACNET)
The governments of China and South Africa signed the "Nuclear Energy Peaceful Use Agreement" in June 2006. The energy administration authorities of the two sides signed the "Memorandum of Energy Cooperation between the governments of the People's Republic of China and the Republic of South Africa" in August 2010. In support of the Memorandum objectives, the South African Civil Nuclear Energy Training (SACNET) agreement was negotiated by the State Nuclear Power Technology Corporation (SNPTC) on behalf of the Chinese government and Necsa on behalf of the South African government. The agreement was formalized during the State Visit of President Jacob Zuma to China through the signatures of Chairman Wang on behalf of SNPTC, and the Chief Executive Officer of Necsa, Mr Phumzile Tshelane on behalf of Necsa.

The Agreement for the SACNET Training Programme for South African Civil Nuclear Energy Projects between Necsa and SNPTC identified three implementation phases, namely:

- Phase I: Basic Training for 50 people from South Africa to be trained in China (100% implemented).
- Phase II: Specialisation Training Programme for 50 people or less in the following areas of specialty:
  - Engineering Design
  - Manufacturing Technology

- Construction Technology
- Commissioning and Start-Up Technology
- Project Management
- Procurement Technology

- Phase II is currently being implemented and the first leg of training was held at Koeberg from 11 - 22 January 2016 and attended by 50 candidates. The second leg of Phase II will be held in China from 6 June to 8 July 2016.
- Phase III: On-The-Job Training for 10 people from SA working in Chinese nuclear plants for periods ranging from 3 - 6 months. This Phase is not yet implemented.

Pelindaba Consulting Services

Pelindaba Consulting Services (PCS) provides project management and consulting services to the Necsa Group and external clients such as Eskom. Its experienced and suitably qualified project managers use the PRINCE2™ Project Management Methodology to manage the front-end and execution phases of projects within scope, cost, schedule and quality objectives.

Pelindaba Engineering Services

Pelindaba Engineering Services (PES) provides services to Necsa's existing and new facilities, at the same time ensuring that Necsa complies with the Occupational Health and Safety Act, the requirements of the NNR and other regulatory requirements as incorporated into Necsa's SHEQ System. PES defines engineering codes and standards within Necsa, providing the technical authority for all engineering design work and at the same time supporting government policies such as the NDP, IRP 2010, BEE, EE and localisation, by providing the necessary engineering know-how. PES also provides the architectural engineering capability to support government's Nuclear New Build Programme and manages the engineering function in compliance with ISO 9001:2008.

In the 2015/2016 financial year, through its various disciplines, PES was involved in a number of projects mostly within Necsa, but was also involved in projects for external clients such as ESKOM-Koeberg. Some of the major projects that PES was involved in include the following:

- Hot Cell Containment Box
- New Shield Lid Design
- Design of 40L Container-Cell 11
- SAFARI-1 Fresh Fuel Vault (NNR Fukushima Directive)
- NRAD Project
- Relocation of Calibration Laboratories

PES operates in a highly competitive environment with external engineering consultation firms. Engineering solutions are therefore provided to internal customers on a full cost recovery basis and to external customers on a profitable basis. Focus during the review period in terms of external clients has been on applying technologies that have been developed in the nuclear industry to non-nuclear industries.

Process Engineering (PRE)

PRE was involved in a number of projects mostly internal to Necsa in the 2015/2016 financial year, but also in bid preparation and technical proposals for external client such as ESKOM, Koeberg. One such a project is the TEU Evaporator Replacement project, a multidisciplinary design, construction and decontamination / decommissioning project that might lead to an order from KNPP, in the 2016/2017 financial year (KNPP aims for September 2017 for contract placement). The estimated value of the project is currently R75m and Necsa is the sole supplier.

PRE seconded personnel to SAFARI-1 to perform the SAFARI-1 safety classification and to lead some of the EEE (Extreme External Events) projects and assist in a number of other functions as required by SAFARI-1. PRE also seconded personnel to NTP to help with completion of the basic engineering packages required for changes to cell 11 and 19.

PRE proposed a project to LEMS to restart the mothballed Effluent treatment plant in Area 81 and prepared a quotation for a feasibility study on this project. The facility can neutralise fluorochemical waste currently stored in evaporation pans (8 and 9) and can potentially reduce the volume of this waste, but the facility has been severely corroded in the past due to introduction of chemicals that it was not designed for. LEMS are to decide on the future for this project (need, urgency, funding options, etc.).

PRE is also busy with one MTEF funded project; the basic design package for the UCHEM, UF4 production facility, and should finish the package in the 2016/2017 financial year. The changes to the facility involves mostly:

- safety upgrades to render HF handling in the process more safe;
- automation of a number of actions;
- replacement of inefficient existing scrubbers with new efficient scrubbers (4 wet scrubbers and 1 dry scrubber);
- evaluation of, and closing-out of, a number of outstanding engineering change proposals generated by the facility.

In addition, PRE has contributed a novel design for trapping of atmospheric moisture, and recovery via application of solar energy. This concept will be tested, with the intention to create a product or product line that can augment Flosep's Drykeep product. The conceptual name is Moisture Miner.

Industrial Isotope Technology (IIT)

A technology, which has shown significant growth, is Industrial Isotope Technology (IIT) for plant investigations. These are carried out bi-annually in South Africa and annually in Botswana for several mines.

Industrial Isotope Technology (IIT) is a commercial portfolio of Pelindaba Engineering Services at Necsa. It renders its services to various industries (mining, petrochemical, cement, sugar mills, pulp and paper, power station/ generation, etc.) in South Africa and neighbouring states.

IIT consists of three main activities which are:

- Plant Investigations
- Plant Inspections
- Industrial Radiation Protection Officer (RPO) Training Course (including Radiation Awareness Training Course)

Radioisotope-based technology has proven itself a as a unique and significant tool for investigating and solving plant and process problems, resulting in considerable economic benefits. The use of this technology allows industries to achieve goals such as:

- Increased profits
- Improved reliability
- Reduced maintenance costs
- Reduced production downtime by showing when a unit should be kept running or when to shut down for repairs.

10 SUSTAINABILITY REPORT

Economic Sustainability

Strategy and Performance

The Strategy and Performance department is responsible for the implementation of a coherent strategy to achieve Group business, social and environmental objectives and to satisfy Necsa's mandate as South Africa's primary nuclear research institution. Performance is evaluated against predetermined objectives and key indicators as agreed with the Minister of Energy. The department supports a range of Necsa Group activities including:

- Supporting integrated business planning and Corporate Performance
- Driving the achievement of strategic and operational objectives
- Ensuring effective management of Risk and Compliance
- Ensuring efficient delivery of the Necsa Project Portfolio
- Ensuring organisational competency for Quality
- Ensuring occupational Health and Safety
- Ensuring Nuclear Safety

Strategy Development and Participation in National Nuclear Initiatives

A Necsa team comprising executives and staff participated in the nuclear vendor parades in support of the DoE. The first vendor parade was held with Rosatom of Russia during October 2014 and the subsequent vendor parades with the French; the Chinese; the South Koreans; and the USA took place during November 2014. The final vendor parade with Canada and Japan took place during March 2015. The intention of these vendor parades was for the SA team (DoE, Necsa, NNR, ESKOM, Government, Academia, etc.) to learn of the possible offerings by the different vendor countries for our nuclear new build programme and serves as a pre-procurement phase of the rollout of this new build programme.

Necsa continued with prefeasibility studies in collaboration with international partners to evaluate options and models for the establishment of nuclear fuel facilities in support of the future South African power reactor fleet. An important milestone in this regard was the completion of a draft business case for the establishment of the front end of the nuclear fuel cycle (NFC) on an industrial scale in South Africa.

Regular discussions continued with key South African nuclear sector players on mechanisms for increased local content in the New Build Programme, including the localisation of fuel fabrication for the future nuclear power plant fleet.

Group Performance Management

The Group implemented performance management processes to manage and report on its performance in terms of its predetermined goals and objectives, as reflected in section twelve. All required performance reports were successfully prepared and submitted to the Accounting Authority and the Executive Authority according to compliance requirements.

Strategic Knowledge Management

A new Knowledge Management department organisational structure was approved by the Necsa EXCO. The structure is being populated with appropriately qualified personnel to ensure the effective implementation of the Knowledge Management Strategy.

The Necsa Knowledge Management Steering Committee continued its oversight role in ensuring the Knowledge Management objectives for Necsa are achieved.

Strategic Business Development Support

To further strengthen a strategic repositioning initiative that Necsa had commenced implementing during the previous reporting period, a decision was taken to consolidate Technology Commercialisation within a newly established New Business Development (NBD) department in the Office of the CEO. Under the new structure intellectual property protection, management, exploitation and strategic projects are consolidated in the same function. Key activities will include:

- Formulation of value propositions for projects of strategic relevance to the Necsa Group;
- Identification of key partners and formulation of action plans to ensure project/program goals are met;
- Raising investments on strategic projects;
- Lead multi-disciplinary teams to ensure successful delivery on strategic programs or projects; and
- Accelerate start up creation and support.

Innovation Disclosures reported for year ending 31 March 2016

Title
Addition of Engineered glass barrier around Hot cell generated waste
Addition of additional barrier around sintered glass waste
Novel method for Glow-discharge optical emission spectroscopy (GD-OED) analysis of non-vacuum compatible layers
Novel application of Substance P radiolabeled with ^{68}Ga
A fluorination reactor design with good heat transfer in reaction zone
New method for initiation of the polymerization reaction of TFE
Novel fluorination reactions using a fluidized bed reactor
Novel method for determination of % conversion of Zr to PDZ
Novel process for addition reaction of an acid fluoride
Novel process to perform neutralisation and decarboxylation of a per-fluorinated carbonyl fluoride
Radio labelled agent for treatment of prostate cancer
Novel cement matrix for encapsulation of radioactive radionuclides
Novel synthesis of ZrC

Patents granted in the 2015/16 Financial Year

Title of Invention	Country
Fluorinating Zircon to Zirconium Tetrafluoride (ABF)	Japan
Hot Cell	Korea
Recoil Radionuclei with High Specific Activity	Korea
Fluorinating Zircon to Zirconium Tetrafluoride (ABF)	Korea
Membrane Gas Separation	Korea
Ta-Nb Purification	China
Ta-Nb Purification	Canada
Total Fluoride-Plasma Route for Zr-metal	China
Ta-Nb Purification	USA
Ta-Nb Purification	Mozambique
Anticancer Agent	RSA
PDZ Pigments	France
PDZ Pigments	Germany
Membrane Gas Separation	China
Depolymerisation	Gulf CC
Total Fluoride-Plasma Route for Zr-metal	Ukraine

Financial Risk and Information Technology Management

Financial

- Developing an Integrated Financial Strategy and model;
- Assisting in the implementation of Necsa's strategy by quantifying operational intentions and interpreting the financial implications thereof;
- Providing the required analysis and information for decision-making; and
- Implementing cost control measures to ensure budget adherence, optimisation and prioritisation.

Financial Risk and Governance

- Reviewing, improving and maintaining financial controls, policies and procedures to comply with relevant regulations and guidelines;
- Producing Financial Statements in compliance with Treasury Guidelines, Generally Accepted Accounting Practice (SA GAAP), the Public Finance Management Act (PFMA), the Companies Act and other relevant legislation and practices; and
- Developing and implementing a Financial Risk Framework to prevent fruitless expenditure, inappropriate exposure to risks and reckless use or application of resources.

Systems and Controls

- Implementation of appropriate systems and controls to ensure Necsa Group compliance with all internal policies and procedures; and
- Relevant legislation and regulations with regard to the financial, IT, and property management environment.

Supply Chain Management

- Developing policies and procedures for various aspects of the supply chain management process;
- Managing compliance with all relevant legislation, internal policies and procedures and codes of good practice; and
- Providing contract management and financial advisory support.

Information Technology Indicators

IT Governance

The IT Steering Committee exercised its oversight role and deliberated on IT Governance as well as compliance to the King III code of governance.

The Auditor-General conducted the annual audit on General Computer Controls. The audit report is still outstanding.

A total of eight IT Disaster Recovery tests were conducted to assess IT's readiness to manage any IT related disasters and outages. Tests highlight problem areas that are corrected as they get reported.

IT Projects

The following IT projects were planned for rollout, but postponed to the new Financial Year due to financial constraints:

- Intranet Upgrade: The Necsa intranet, Nucleus, was developed on a version of SharePoint that is outdated and needs upgrading. The current version is no longer supported by the software vendor.
- E-Mail System Upgrade: The current E-Mail system operates on a version of Microsoft Exchange that is outdated and no longer supported by the vendor.

Information Technology Performance

The following availability, capacity and problem resolution targets were achieved for the reporting period:

Metric Measured	Description	Score Achieved
Average system availability	This metric measures the availability of applications and the supporting hardware and networking devices	99.82%
Average storage capacity	This metric measures the availability of space on the Necsa storage area network	37.80%
Average turnaround percentage	This metric measures the percentage of problems resolved within a specified period	90.70%

Business Indicators

Purchases

The top ten suppliers to the Necsa Group were as follows:

TOP TEN SUPPLIERS - NECSA "GROUP" - 2016				
	Supplier	**Product / Service Rendered**	**Rand**	**%**
1	ANSTO	MO 99 ISOTOPES	102 823 017	13.68
2	ESKOM	ELECTRICITY	67 472 460	8.98
3	NATIONAL NUCLEAR REGULATOR	NUCLEAR LICENCING	40 777 406	5.42
4	CERCA	FUEL ELEMENTS	28 423 066	3.78
5	NATIONAL NUCLEAR SECURITY ADMINISTRATION	NUCLEAR REQUIREMENTS	23 720 317	3.16
6	VERGENOEG MINING COMPANY (PTY)	RAW MATERIALS	21 181 188	2.82
7	SASOL OIL FUEL MARKETING (PTY)	FUEL	18 373 662	2.44
8	AON SOUTH AFRICA (PTY) LTD	INSURANCE BROKERS	10 897 957	1.45
9	RAND WATER	LOCAL SERVICES	10 387 701	1.38
10	PROTEA IND CHEMICALS (PTY) LTD	CHEMICALS	8 581 604	1.14
			332 638 378	**44.25**

Broad-based Black Economic Empowerment

Necsa endeavours to foster business relationships with companies that include black participation within their organisational structures, in compliance with the Broad-based Black Economic Empowerment (BBBEE) Act, No. 53 of 2003. Necsa's Policy for Preferential Procurement from BBBEE Companies is based on the dti Codes of Good Practice.

BBBEE Spend

Procurement spend on BBBEE Companies was as follows:

Procurement Spend on BBBEE Companies - 2016			
	No of Orders	No of Suppliers	Value
BBBEE Orders	8 956	741	R264.2m
% of total Orders	92.12%	83.35%	94.55%

Necsa BBBEE Ratings

The annual BBBEE evaluation process was undertaken by an independent agency, accredited by the South African National Accreditation System (SANAS). All subsidiary companies within the Group apply the Necsa Group rating, except for Gammatec, NTP Logistics and AEC-Amersham which are certified separately.

Necsa Group

The Necsa Group was recorded as a Level 3 contributor with a BBBEE procurement recognition level of 110%. Areas that require improvement in the future relate mainly to employment equity, skills development and enterprise development. The Group performed well in terms of preferential procurement and social-economic development.

Necsa

Necsa was assessed as a Level 2 contributor with a BBBEE procurement recognition level of 135%. Improvement is required in the areas of employment equity and skills development and enterprise development. Necsa performed well in preferential procurement and socio-economic development.

NTP

NTP was assessed as a Level 5 contributor. Enterprise development and employment equity were identified as areas for improvement in the future.

Other Subsidiary Companies

All other subsidiary companies apply the Necsa Group scorecard.

Safeguards and Nuclear Non-Proliferation

Safeguards Activities

Safeguards and nuclear Non-Proliferation activities were performed on behalf of the South African Government, in accordance with the DoE delegated functions under the Nuclear Energy Act, No. 46 of 1999, to meet the obligations of the Comprehensive Safeguards Agreement (CSA) and the Additional Protocol (AP) thereto, signed in 1991 and 2002 respectively between South Africa and the International Atomic Energy Agency (IAEA). This is required in terms of the provisions of the Nuclear Non-Proliferation Treaty (NPT) which South Africa acceded to in 1991.

To ensure compliance by facilities to the CSA and AP, the following activities were performed by the Safeguards Department and the IAEA:

- Verification of nuclear activities and material inventory through inspections;
- Verification of operators accounting system and design information; and
- Destructive and non-destructive analysis of nuclear material.

Three (3) Complementary Access inspections under the Additional Protocol Agreement and fifty nine (59) IAEA inspections under the Comprehensive Safeguards Agreement were conducted by the IAEA within South Africa in 2015.

A Physical Inventory Verification (PIV) was performed in August and October 2015 at facilities with significant quantities of nuclear material and resulted in a positive conclusion regarding the effectiveness of the State System of Accounting for and Control of nuclear material (SSAC) and South Africa's compliance with its international Safeguards obligations.

During the Bilateral meeting which was held on 17 March 2015 between the IAEA and the South African SSAC, an agreement was reached between both parties that pursuant to the attainment of the Broader Conclusion of 25 March 2011 the IAEA would start implementing Integrated Safeguards (IS) in the country.

In this regard, a new Integrated Safeguards (IS) inspection and verification approach was implemented with effect from 1 July 2015 at all South African facilities. Under the provisions of the Integrated Safeguards Approach (ISA), two (2) Random Interim Inspections (RII's) were conducted by the IAEA in July and August 2015.

Status of the IQ3 scanner

The characterisation and declaration of drums containing nuclear material at the Pelstore Waste Storage Facility AZJ by IQ3 scanner still continues and South Africa has already declared over 28 000 waste drums to the IAEA. However, a considerable amount of historic material still

remains uncharacterised but South Africa is committed and determined to complete the process in the best possible time.

In order to address the possible diversion of nuclear material, the Agency proposed that Necsa investigates the possibility of segregating waste drums containing 'significant' amounts of HEU material from drums which contain less material. The waste storage facility has subsequently completed the segregation process in this regard and the Agency will put these drums under dual IAEA containment and surveillance in the near future.

Remote Monitoring Surveillance (RMS) system

South Africa has IAEA Remote Monitoring Surveillance (RMS) systems implemented at key facilities since 1996. With advancements in technology, the Agency installed a new RMS system at Koeberg Nuclear Power Station (KNPS) in March 2015. The new system has superior image resolution and improved digital encryption of images.

Additional Protocol

The annual additional protocol declarations were submitted to the IAEA as required by the Protocol Additional to the Comprehensive Safeguards Agreement, in May 2015. Various uranium concentration plants and mines, and organisations related to the nuclear fuel cycle were inspected to ensure compliance with safeguards requirements during this period. Safeguards officials contributed at national workshops facilitated by the DoE, to further enhance nuclear safeguards effectiveness and implementation measures in South Africa.

During the bilateral meeting on 17 March 2015 between the IAEA and the South African SSAC, an agreement was reached that the Subsidiary Arrangements for the Additional Protocol Agreement should be considered to clarify responsibilities and required actions by both the IAEA and the State.

Non-Proliferation

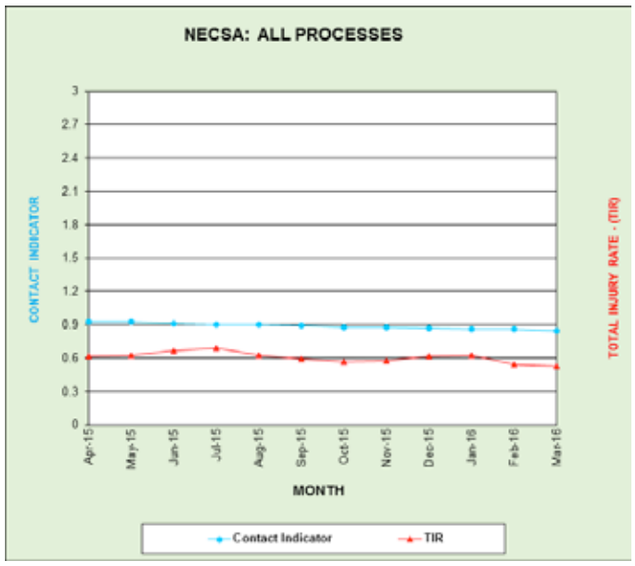
Necsa officials, appointed by the Minister of Trade and Industry, represent South Africa on the Non-Proliferation Council of Weapons of Mass Destruction and its Committees. The officials continued to provide technical input on safeguards and other non-proliferation-related matters throughout the year.

Environmental Sustainability

Nuclear Compliance & Services

SHEQ Performance

No	Description	2015/2016	% improvement (+) Deterioration (-)
1	Nuclear events INES rating =0 INES rating >0	 123 1	70(-)
2	DIIR	0.78	9.86(-)
3	TIR	4.21	5.81(+)
4	DIs	15	15.38(-)
5	Workdays lost due to DIs	651	17.94(-)
6	Maximum man-hours worked without a DI	809 611	14(-)



SHEQ Audits

Forty (40) SHEQ compliance audits were conducted by the Safety and Licensing Department during the course of the year. SHEQ-INS implementation and maintenance in the operational facilities are at an acceptable level of above 80% average compliance.

Nuclear Event Management Process

One major event related to worker exposure occurred during May 2015. An artisan doing work at Pelchem was chemically exposed and the sustained injuries led to a fatality.

Events, including non-nuclear events, are analysed for trends and analysis includes identifying risk areas on site where personnel are exposed to unsafe conditions.

The focus on slips, trips, falls and motor vehicle accidents now also includes head and hand injuries.

The alignment of the HR system and the organisation's financial sub-accounts still proves to be a challenge for the Event Management data to be confirmed as correct and accurate at any given time.

Emergency Services: Ambulance, Vehicle Accident and Fire Services to Necsa and the public

Type of call	Necsa		Public	
	Number of calls	Number of patients transported	Number of calls	Number of patients trans-ported
Fire	23	0	61	0
Vehicle Accident	2	2	87	42
Ambu-lance calls	71	60	169	89
TOTAL	96	62	317	131

Emergency Planning and Preparedness

Emergency Services embarked on a phased "Emergency Preparedness Campaign "as part of the readiness of the Necsa site in case of emergencies. There was an initiative to link emergency preparedness discussions with the monthly facility safety meeting discussions. Placards carrying the Necsa emergency actions instructions/ guide were also placed visibly around the Necsa site to aid in the awareness of the Emergency Plan; this was done in parallel with the training of Necsa Emergency Functionaries in accordance with the Functionary Training Plan. The Emergency Services, also, as part of external functionary capacity building, undertook a number of training and awareness sessions with the Madibeng Disaster Management Centre First Responder Emergency Functionaries. Awareness level Radiological Emergency Responder Training was also provided to the SANDF 7th Medical Battalion Group upon the SANDF's request (May 2015).

Necsa held the required six Emergency Exercises according to schedule in this period, including the NNR facilitated Regulatory Emergency Exercise (this took place on 09 September 2015). The corrective action plan related to addressing the non-compliances identified during the Regulatory Emergency Exercise was submitted to the NNR on 22 December 2015. Necsa, through the Emergency Services also participated successfully in a number of IAEA Convention Exercises in its capacity as the National Competent Authority on servicing the Conventions on Early Notification and Assistance during a Radiological/Nuclear Emergency.

Environmental Monitoring Programme

A comprehensive environmental monitoring programme is in place to meet the requirements of the Air Quality Act, Nuclear Energy Act, National Environmental Management Act and the National Water Act. Resource usage, waste generation, and impacts on media and ecology are monitored. These are illustrated in the following sections.

SHEQ Performance

Description	Period											% Improvement (+) Deterioration (-)
	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016 #	
* Average cumulative individual dose (mSv per person) for 12 months.	0.73	0.65	0.7	0.61	0.72	0.68	0.68	0.55	0.35	0.31	0.27	-12.90%
Number of persons who received a dose above 4 mSv	25	53	57	54	72	64	72	53	21	9	7	-22.22%

* Necsa aims to ensure that the average annual effective dose is less than the 4 mSv ALARA objective

The dose data in this report may not agree with those presented in other reports covering the same or similar periods. This is because each report reviews the data contained in the dose database as it was at a particular time, whereas in reality the database is updated more or less continuously. Depending on the date and time of the database 'snapshot', a report may include projections or updated results. Some data for the 2015/16 period are still outstanding and will be updated as soon as it has been received.

Compliance with Water Permit Requirements

Compliance is measured against the current water permit (permit no. 1874B). The following table reflects the effluent generated for the period 1 October 2014 to 30 September 2015, in accordance with the water year. Pelindaba West Pans (PW9-14 with a capacity of 14,748 m^3) and Beva pans (PW A-C; 1-8 with a capacity of 16,054 m^3) are excluded from the table as they are currently not receiving effluent.

Effluent released to	Volume (m^3)	Permit limit (m^3)	% permitted	% Change Year on Year
Crocodile River	108 103	250 000	43.24%	-43.75%
PE Pans 1-5	4 968	19 000	26.15%	-58.60%
Pan 6	38	8 500	0.45%	-20.83%
Pan 9	3 115	15 000	20.77%	-24.63%
PE Pans 7	0	4 500	0.00%	0.00%
PE Pans 8	1 280			
Total	**117 504**	**297 000**	**39.56%**	**-31.02%**

Compliance with Air Permit Requirements

The total fluoride emissions for the April 2015 to March 2016 period were 2,748 kg, which was higher (by 687 kg) than the previous year (2,061 kg). The monthly site limit was not exceeded during the year. The total fluoride emissions for the reporting period were 34% of the annual air emission license constraints (8,187 kg/year).

Compliance with Environmental Requirements of the Nuclear License

No nuclear occurrence related to environmental monitoring was reported to the NNR in the period 01 April 2015 to 31 March 2016.

The calendar year 2015 modelled dose to the public, based on actual releases, was 0.0023 mSv for the liquid pathways of authorised releases to the Crocodile River and 0.0032 mSv for gaseous releases, giving a total of 0.0055 mSv. The previous year (2014) was respectively 0.004 mSv and 0.002 mSv giving a total of 0.006 mSv. The data show there is no significant dose impact to the environment due to Necsa's activities.

The environmental monitoring programme at Vaalputs was in full compliance with sample reporting levels. No nuclear occurrences were registered.

Resource Usage (Energy)

The Pelindaba site electricity consumption for the reporting period 24 March 2015 to 23 March 2016 was 86.42 GW.h. The following table reflects the usage over the past four reporting periods.

Financial Year	Amount (GW.h)	% Change Year on Year
2015-2016	86.42	0.97%
2014-2015	85.59	-0.01%
2013-2014	85.6	-14.57%
2012-2013	100.2	-10.30%

Resource Usage (Water)

Resource	Amount (m^3)	Permitted Amount (m^3)	% of Permitted	% Change Year on Year
			Amount	
Rand Water	842 100	400 000	210.53%	4.92%
River Water	222 200	840 000	26.45%	27.50%
Borehole	0	9 490	0.00%	0.00%
Total	**1 064 300**	**1 249 490**	**85.18%**	**8.95%**

Nuclear Installation Licenses (NILs)

The NNR has issued a total of 41 Nuclear Installation Licenses (NILs) to Necsa. As required by the Regulator, the NILs have been translated into Afrikaans and Setswana for display in the facilities, together with the original English version. New revisions of NILs are translated as they are received. The status of compliance with NNR requirements, as laid out in the NILs, is checked on an annual basis and reported to the NNR.

Submissions to the NNR

The following table summarises the facilities' submissions to the NNR:

FACILITY	NUMBER OF SUBMISSIONS
SAFARI-1	89
MTR	33
NLM	206
R&D and Labs	64
LEMS	17
Vaalputs	62
NTP	238
TOTAL	**709**

There is continued effort to reduce the number of open submissions by closing obsolete/redundant submissions in cooperation with the NNR and all facilities at Necsa. The priority and commitment list, in co-operation with the NNR, continues to improve. On a running year average the NNR and Necsa have met 95% and 100% of the set response targets respectively, which renders a significant improvement.

Social Sustainability

Stakeholder Communication Matrix
Corporate Communications

The Department strives for communications excellence, liaison and facilitation by ensuring reputable stakeholder relations to maintain the highest level of customer satisfaction by constantly exceeding expectations, aligned to the organizational goals. The department manages and regulates internal and external communication through the utilisation of modern technology communication systems and methodologies to receive and to disseminate relevant information regarding issues affecting the nuclear industry.

During the year under review, the Department, through an independent media reputation analysis agency, received statistics of relevant media coverage to the Advertising Value Equivalent (AVE) of over R 205 million and a brand awareness rating of 88%.

The Advertising Value Equivalent (AVE) is an indicator that expresses media coverage in terms of the commercial value of advertising that would achieve roughly the same effect.

Advertising Value Equivalents (AVE)

QUARTER	ON-LINE (GLOBAL)	BROADCAST (LOCAL)	PRINT (LOCAL)
Q1	R 4 946 373	13 020	R 701 852
Q2	R 75 077 361	0	R 2 814 243
Q3	R 83 794 511	0	R 7 894 777
Q4	R 21 271 969	R 820 217	R 8 170 784
Q1: R 5 661 245 **Q2: R 77 891 604.80** **Q3: R 91 689 288** **Q4: R 30 262 970** **Year to date total: R 205 505 107.80**			

Necsa Brand report

Output KPA	Indicator KPI	2015/16 Target	Q1 Actual	Q2 Actual	Q3 Actual	Q4 Actual	Year to date average
Marketing and Communication programme	Awareness of Necsa brand as measured by an independent agency	64%	88%	89%	89%	88%	88%

Statistically, it has been reported that 92% of all activity and engagement with Tweets happens within the first hour of the post being made. With Facebook status updates, the interaction can go on for hours, and even days. Evidently, Necsa has recently opened its Facebook and Twitter accounts, and has seen tremendous growth in interest and, education on nuclear. Website traffic has increased significantly in the current year and the planned revamping of the site should lead to further growth.

Projects

TAKING NUCLEAR TO THE PEOPLE CAMPAIGN

The 'Taking nuclear to the people campaign' was initially anchored around direct communication with the science communities in the 9 universities in all 9 provinces. The selected universities that were identified are:

1. Nelson Mandela Metropolitan University
2. University of the Western Cape
3. University of Mpumalanga
4. Sol Plaatjie University
5. University of KwaZulu-Natal
6. University of the Free State
7. University of Johannesburg
8. University of Limpopo
9. University of the North West

The campaign started at UWC on 21 October 2015 and from the enthusiasm expressed by the attendees to the session, it was evident that the strategic decision to address educational institutes as a priority was the correct one. The project was planned to end March 2016, but, due to the then looming student protests and closure of universities, the project was put on hold.

IAEA AFRA

Necsa staff members continued to participate in IAEA and AFRA activities. These included the participation of Necsa experts in IAEA consultative meetings. Necsa staff members also benefited from the Technical Cooperation Programme by their involvement in training courses, scientific visits and workshops.

RESEARCH FUNDING

In the course of the 2015/16 financial year, in excess of R9.12 million was raised for research purposes. Of this amount 44% was for human capital development, 42% for the acquisition of research equipment, 1% for mobility, 3% for established researchers and 10% for international collaboration.

Stakeholder Management

The Stakeholder Relations (SR) Department is established to promote Necsa's direct strategic engagement with key stakeholders in the nuclear industry and broader formations within South Africa. It is responsible for the Necsa Visitor Centre (NVC) that provides the public with information on the history of nuclear, role played by energy in society and the functions of Necsa.

Learners and educators are amongst the beneficiaries of this facility. There is a dedicated team that not only leads site tours at the NVC but demonstrates live science experiments. A number of programmes and activities are hosted at the NVC, to improve public perception and to better the level of understanding of nuclear.

The NVC, in the current year, hosted international delegations, high profile guests from government, business and various members of the South African public that engage with Necsa on various business aspects. During the current financial year, 12 902 people visited the centre. The NVC is operational from Tuesday until Saturday and closed on Public Holidays.

Events Management

The Stakeholder Relations department coordinates strategic events for internal Necsa functions and also renders support to the various business units. The following events were hosted in the current financial year:

- Participated in a Career Planning Day" for learners from Grades 10, 11 & 12 who come from various orphanages in and around Midrand, on Saturday, 18 April 2015.
- Necsa supported the South African Young Nuclear Professionals (SAYNPS) in a public awareness & career exhibition at Moutse Village, Dennilton, Mpumalanga, on 24 April 2015. This initiative attracted an estimate of 584 Grade 12 leaners and out-of-school youth.
- Necsa, SAYNPS and WiN-Necsa participated in an outreach event organised by the Outlook Foundation, on behalf of SAASTA in collaboration with the Tshwane Municipality on 9 May 2015. The event took place at Philadelphia School for the Blind in Soshanguve Pretoria, where about 600 learners from Soshanguve and Hammanskraal gathered.
- Another outreach took place on 9 May 2015 at Saulridge High School Career Day with participation from sixty learners.
- Holy Trinity Mentorship hosted the Mabopane Annual Career Day at Mabopane Sports Hall on 22 May 2015. An average of 400 Grade 10 – 12 learners who are studying Commerce, Science and Tourism attended.
- SAYNPS Nuclear Lecture Day Workshop at NWU Mafikeng Campus was held on 22nd May 2015. There were about 200 learners from North West University Mafikeng Campus that attended this lecture.
- Necsa and its subsidiary, NTP hosted girl learners between the Grades 10-11 during "Cell C Take a Girl Child to Work" on 28 May 2015.
- Necsa hosted 60 learners from Clapham High School that were edutained at the NVC for the duration of the morning, as part of the 25th African Union Summit activities on 14 June, 2015. Part of the programme was exposure to the different exhibitions, i.e. DoE, Necsa, DST, SKA, CSIR, National Health Laboratories, NTP and Pelchem. Learners as well as educators agreed that it was a very informative educational excursion and a highlight in their educational programme.

- Eskom visited Necsa with eighteen students and two lecturers, who were part of their Technology Learnership Programme on 7 July 2015. The purpose of this visit was to expose these Engineering students to advanced and emerging technologies to enhance their understanding of diverse technologies and applications thereof.
- Necsa formed a partnership with an orphanage in Atteridgeville, Kingdom Life Child and Youth Centre, on 18 July 2015. This was to celebrate Mandela Day in the spirit of giving. The needs of the centre were established and Necsa made a contribution towards the Youth Centre. Staff donated clothes, books, non-perishable food and toiletries and Necsa furnished a much needed office at the Centre.
- Another group of 19 students participating in the Eskom Technology Leadership Programme, visited Necsa to broaden their nuclear knowledge, on 22 July, 2015. They did a site visit to the SAFARI-1 Research Reactor as well as NSD.
- 38 students from Durban University of Technology Environmental Health paid a visit to SAFARI-1 and Pelstore after a comprehensive presentation on Environmental Management at Necsa, on 23 July, 2015.
- 50 Maths and Science Teacher students from TUT, visited the NVC on 10 September, 2015. Students benefitted from a nuclear overview as well as career choices presented.
- National Science Week took place at NVC from the 3 and 5 August, 2015. The programme was aimed at increasing the learners' knowledge of nuclear, to give them career guidance and present a workshop on different science experiments.
- Necsa also embarked on an outreach programme to the neighbouring schools in Lotus Gardens where a similar programme was presented, on the 6 and 7 August, 2015.
- Necsa Women's Day Celebration was held on 14 August 2015. To celebrate this day as a company which not only appreciates the role women play in society, but has committed itself towards an Employment Equity strategy which aims to recruit more women in senior and scientific positions. Dr Namane Magau, Chairperson of the NTP Board was the keynote speaker of the day. The event was honoured by the presence of Miss South Africa, Ms Liesl Laurie. A dance group called Pythons, entertained the ladies with their performances. The theme for the day was "Necsa Women united in moving South Africa and the nuclear industry forward".
- A Necsa Long Service Awards Function was held at the NVC on 28 August 2015 where forty staff members were recognised.
- The staff of SAFARI-1, including retirees, celebrated the 50th Anniversary of SAFARI- 1 at Amanzingwe Country Lodge on 17 September 2015.
- Holiday Programmes were held during September and December school holidays. The children explored the NVC, making ice cream and doing several science experiments.
- A group of twelve Necsa employees took part in the basic training of nuclear physics presented by the University of the North West. They also went on a guided tour to the SAFARI-1 reactor as part of the programme, on 30 October, 2015. The NVC partnered with Visiatome (CEA's Visitor Centre in France) on a Global Warming initiative, involving high school learners from SA and France. Elandspoort High School in Pretoria West was approached to form part of this exercise/debate. Professor Bob Scholes from Wits University was identified as South Africa's expert on Global Warming to take part in this debate. Group Executive of R&D, Dr Motodi Maserumule and Senior Manager of Radiation Science, Dr Gawie Nothnagel were also approached as advisors and mentors of the project. The project ran until COP21 in December, 2015. Necsa envisaged gaining mileage out of this on its role towards mitigating carbon emissions as a leader in nuclear research.
- The "Om die Dam" Ultra Marathon took place around Hartbeespoort Dam on 12 Mar 2016. Necsa sponsored a water table and an estimated 3500 athletes ran past the Necsa table at Gate 2. Sixteen volunteers assisted Stakeholder Relations during this event to hand out refreshments to athletes, whilst cheering them on to finish the race. The area around Gate 2 was branded with banners, gazebos as well as the Nuclear Sci Express mobile van.
- Necsa took part in the Tracker Men in the Making programme. This initiative was held nationwide on 17 March 2016. The aim of the project is to help raise responsible young men through the introduction of role models, career guidance, mentoring, life skills development and moral regeneration.

Stakeholder Engagement

The key priority of the SR department is to forge meaningful relations with key stakeholders within business, government, civil society, labour and entities within the nuclear industries. The department embarked on the following initiatives in pursuit of this objective:

- Necsa hosted the Deputy Minister of Energy, Ms Thembisile Majola on 3 July 2015. The visit included the following facilities: SAFARI-1, NTP Radioisotopes and Necsa Learning Academy. EXCO joined the hosting delegation later during the day for a networking session.
- Six members of the Portfolio Committee on Energy, headed by the Chairperson Mr Fikile Majola, visited Necsa as part of their week long oversight visit to

different entities in the energy sector, on 22 July 2015. The programme included the following site visits: Necsa Learning Academy, Nuclear Manufacturing Centre, Pelchem, NTP and the SAFARI-1. The DDG: Nuclear, Mr Mbambo, as well as other support staff from DoE formed part of this delegation. The delegation found the visit to be very informative and insightful.

- Nine Coega and Eastern Cape Department of Economic Development, Trade & Tourism officials visited Necsa for a meeting with Necsa management on 16 August 2015. This was a follow up meeting after a MOU that was signed early in 2015 between the two organisations.
- DST and the dti paid a visit to Pelchem, on 10 September, 2015. The delegation included the DG Dr Phil Mjwara three DDG's from DST, three Chief Directors from DST and the dti as well as Directors and Deputy Directors. The purpose of the visit was to update senior government officials on progress made within the FEI program and prospects for expanding or developing commercialization activities in the country and plans and progress regarding the Ketlaphela Project.
- The Portfolio Committee on Science and Technology paid an oversight visit to Pelchem (Ketlaphela) and Necsa R&D (NTeMBI) on 15 September, 2015. The six committee members that were present represented the ANC, EFF and DA political parties.
- The IDC Board Strategic Committee visited Pelchem to view the Multi Fluorination Power Plant (MFPP) and discuss further funding opportunities on 17 September 2015. Both the IDC Chairperson of the Board and CEO of IDC were present.
- A very successful Stakeholder Golf Day was hosted at Pecanwood Golf Estate, on 12 November, 2015. A total number of 72 golfers participated in the event.
- The Necsa CEO engaged with Nedbank to create awareness on nuclear technology and the Nuclear New Build Programme on 30 November 2015.
- The CEO and Chairperson of Necsa engaged with several youth leaders from different organisations on 4 December, 2015. This initiative was held to brief the group on the developments and also opportunities in the nuclear field, in view of government's Nuclear New Build Programme.
- CEO met with the Black Business Forum (BBC) on 29 January 2016. The meeting let to the announcement of the establishment of a Nuclear Desk. Follow-up engagements were held with BBC on procurement opportunities envisaged within the Nuclear New Build Programme.
- Women in Oil and Energy SA (WOESA) visited Necsa to explore and find out business opportunities that are available for them in the nuclear industry, on 28 January 2016.
- Ten CHIETA staff members visited Necsa to get a better understanding of Necsa and to assure their investment is in good hands on 16 February 2016.
- The Nuclear Africa Summit was held in Midrand, from 2 to 4 March, 2016. The theme of this summit was "Celebrating over 80 years of combined nuclear excellence in South Africa through youth development". The aim was to attract over 200 individuals covering young nuclear professionals, university students, government officials, nuclear industry, private sector, emerging entrepreneurs, SMME's, research agencies and academia working in wide ranges of nuclear application fields from across the country.

Exhibitions

SR promotes Necsa capabilities and profile through strategic exhibitions. This promotes direct interaction with the public and key stakeholders within the nuclear industry, amongst others. The following exhibitions were held:

- Necsa had an exhibition stand at the Rand Easter Show from 3 to 12 April 2015. This is South Africa's biggest consumer show and the largest consumer launch-pad in the country. It presented a great platform for exhibitors to tap into a totally different market more so for the Science & Technology, Education and Careers floors which forms part of the exhibitions. More than 250 000+ kids, parents, scientists, educators and community members participated and viewed events.
- The Minister of Energy, Ms Tina Joemat-Pettersson, presented her Budget Vote Speech in Parliament on 19 May 2015. Necsa took part in the SOE exhibition at the lunch venue.
- Necsa joined professionals, institutions and suppliers in the educational industry who gathered for the 9th annual SABC Education African EduWeek at the Gallagher Convention Centre, Johannesburg from 1 to 2 July 2015.
- The MEC of Education in the Northern Cape hosted a Career Expo in Kimberly on 23 July 2015. Necsa honoured the Minister of Energy's request by having an exhibition and Dr Margaret Mkhosi did a presentation on behalf of Necsa. More than 1500 Learners were reached.
- The Minister of Science and Technology, Ms Naledi Pandor launched the National Science Week at North-West University's Mafikeng Campus on Saturday, 1 August 2015. Necsa had an exhibition stand at the launch.
- Necsa took part in Student Research and Innovation Showcase Exhibition. This innovation showcased at the Sunnyside Campus of UNISA, on the 19 and 20 August, 2015. This aimed at creating awareness of the importance of research and innovation as tools

for socio-economic development and progress. Necsa showcased the Waste-to-Energy demonstration model.

- IAEA General Conference Exhibition, Vienna was held in Vienna, from 14 to 18 September 2015. Over 1 300 delegates from the IAEA´s 151 Member States attended this annual policy-making meeting. Necsa had a 12 square metre exhibit stand on the rotunda. The main objectives were to showcase South Africa/Necsa as "Nuclear for Safety", "Nuclear for Energy", "Nuclear for Innovation" and "Nuclear for Sustainability". It attracted VIP's such as Minister Ms Tina Joemat-Pettersson, IAEA Director-General Mr Yukiya Amano, Ambassador to Vienna Mr Teboho Seokolo, Minister of Health in Lesotho Dr Molotsi Monyamane and Ambassador of Lesotho to Germany, Ms Lineo Ntoane, Minister of Science and Technology in Ethiopia Ms Demitu Hambisa and various conference delegates. Enquiries ranged from SA Nuclear New Built Programme; status of the PBMR programme; medical isotopes, Necsa business and products, amongst others. The CEO, Mr Phumzile Tshelane and GE Corporate Services, Mr Xolisa Mabhongo held a bilateral with the Minister of Health in Lesotho, Dr Monyamane and Ambassador Ntoane with regards to future collaboration on setting up a nuclear hospital unit in Lesotho and related training and development opportunities. The exhibition stand was also utilized as a hub for delegates from other South Africa, e.g. DoE, Eskom and NNR to meet with their peers from other countries. Minister Joemat-Pettersson requested for a bigger and integrated South African exhibition for the coming conference.
- The South African International Renewable Energy Conference that took place in Cape Town at the International Convention Centre from 4 to 7 October 2015. More than 3000 delegates from around the world attended the conference which was organised by the Department of Energy.
- Necsa was invited by the Premier of KZN to exhibit at the Public Service Career Exhibition from 9 to 12 February 2016. The number of youth that attended was 5000. Purpose was to provide a platform to showcase skills development services and career opportunities.
- Necsa took part in the Ministerial Energy Career Exhibition in Khayelitsha on 27 February 2016.
- Necsa exhibited at the nuclear conference hosted by the newly appointed Chairperson of the Board, Dr Kelvin Kemm, in Centurion on 16 and 17 March 2016. This was under the theme, "The Components Come Together". The Nuclear Africa Conference provided a platform to encourage partnerships needed to rapidly advance the nuclear power programme in South Africa. Prominent speakers were: the CEO of Necsa, Phumzile Tshelane, Deputy DG of the IAEA, Mikhail Chudakov and Chairperson of WNA, Helmut Engelbrecht.

International Relations and delegations hosted

SR department is also responsible for overseeing Necsa's international obligations and responsibilities it undertakes on behalf of government, since the last quarter of 2015/2016 financial year. Necsa a signatory to international regulatory nuclear frameworks and conducts business at the international level as well. The following engagements were undertaken in the current financial year:

- The NNR brought their Russian Federation counterparts from Rostechnadzor to Necsa for a site tour on 26 May, 2015. The programme covered the Necsa ECC, NVC, SAFARI-1, NTP Radioisotopes and Pelstore.
- Seventeen students from the Institute of Health Sciences from the University of Botswana visited Necsa on 30 June, 2015. Dr Eurika van Heerden from SHEQ gave an environmental management presentation to them. This was followed by a walkthrough of the NVC. The main interest of the group was to be exposed to technologies and facilities in organisations involved in environmental and public health issues.
- Nineteen SKA bursary holders from different universities visited the NVC to learn more about Necsa and nuclear on 3 July 2015.
- 115 Science Olympia Winner learners organised by SAASTA from SADC countries visited Necsa as part of their outreach programme in 25th July 2015.
- The NNR hosted an IAEA Regional Training Workshop on Safe Transport from 29 June 2015 to 3 July 2015. As part of the practical programme, a group of 42 participants undertook a site visit to Necsa on 1 July 2015. The delegation, from various African countries, visited Pelchem to view the H1 storage facility and the NLM Predisposal Solid Waste facility (Pelstore).
- Engagement with the Embassy of Algeria took place on 8 March 2016. South Africa signed a Bilateral Agreement with Algeria which included the Peaceful Uses of Nuclear Energy, amongst others on the 26 May 2010.
- President of the Republic of South Africa and People's Republic of China, Messrs Jacob Gedleyihlekisa Zuma and Xi Jinping signed a Bilateral Agreement on Project Management training of South Africans, alongside the China-Africa Summit on 2 December 2015. This was an elevation of a Memorandum of Understanding between State Nuclear Power Technology Corporation (SNPTC) and South African Nuclear Energy Corporation SOC Ltd (Necsa) into a country binding agreement. The Agreement gives

the South African government an opportunity to send Project Managers for training in China.

Public Safety Information Forum (PSIF)

The Pelindaba Public Safety Information Forum (PSIF) was established by Necsa, according to the Department of Minerals and Energy Regulation No 26112 as promulgated in the Government Gazette of 12th March 2004, as part of the National Nuclear Regulatory Act No.47 of 1999 as a holder of a nuclear license. It is required that such meetings are held on a quarterly basis with the members of the community that live within a radius of 5km from the nuclear reactor. The Chairperson and Deputy Chairperson are independently appointed by the NNR, with Necsa as license holder providing the secretariat for the meeting. The main objective of this forum is to facilitate interaction with community members and keep stakeholders informed on safety matters. These meetings are scheduled every quarter, on Saturday mornings at the Necsa Visitor Centre, in terms of the above regulation. Positive growth in the numbers of attendees continued in the past year.

The PSIF meetings were held as follows in the past financial year:

- 27 June 2015
- 29 August 2015
- 7 November 2015
- 5 March 2016

Vaalputs Public Safety Information Forum (PSIF)

The Vaalputs PSIF is still active and attended by members of Necsa on a quarterly basis. These meetings serve as information sessions where attendees receive information regarding nuclear, with a strong focus on the safety aspects. This valuable information is shared with the communities during their monthly meetings.

Human Resources

Necsa Group Staff Composition

Necsa's total staff complement inclusive of contract workers but excluding directors as at 31 March 2016 was one thousand eight hundred and thirty seven (1 837). Overall staff complement decreased by 2.67% or 49 employees from 1 886 (2014/2015) to 1 837 employees (2015/2016). Of this, one thousand six hundred and ninety six (1 696) were permanent employees while one hundred and forty one (141) were contract workers.

Necsa Group Staff Composition for the year ended 31 March 2016				
Job Category	**Total**	**Black**	**White**	**Female**
Directors	20	13	7	5
Management	146	78	68	37
Engineers	43	24	19	10
Scientists	107	58	49	31
Prof: Technologist/TO/RPO	68	18	50	9
Other Professionals	62	44	18	35
Supervisors	91	38	53	11
Operators	210	170	40	12
Artisans	99	45	54	5
Technicians	143	108	35	63
Skilled	426	253	173	201
Semi-Skilled	248	218	30	94
Unskilled	53	52	1	28
Contract Staff	141	98	43	62
Grand Total	**1857**	**1217**	**640**	**603**

Necsa Group Employment Equity Performance

The Necsa Group's employment equity performance against numerical goals as at 31 March 2016 was as follows:

Numerical targets

Numerical targets (i.e. the entire workforce profile including people with disabilities) projected to be achieved at the end of the next reporting cycle (September 2016), in terms of occupational levels. Note: A=Africans, C=Coloureds, I=Indians and W=Whites

2016 NECSA GROUP vs. NATIONAL TARGETS																					
Occupation Levels	Male								Female								Foreign National				Total
	A	%	C	%	I	%	W	%	A	%	C	%	I	%	W	%	Male	%	Female	%	
TARGETS		40.3%		5.6%		1.9%		6.2%		34.9%		5.0%		1.5%		4.6%					100.0%
Top Management	6	75.0%	0	0.0%	0	0.0%	0	0.0%	1	12.5%	0	0.0%	0	0.0%	1	12.5%	0	0.0%	0	0.0%	8
Senior Management	13	31.7%	2	4.9%	3	7.3%	17	41.5%	5	12.2%	0	0.0%	0	0.0%	1	2.4%	0	0.0%	0	0.0%	41
Professional	123	26.6%	12	2.6%	10	2.2%	167	36.1%	76	16.4%	4	0.9%	7	1.5%	51	11.0%	12	2.6%	1	0.2%	463
Skilled	285	33.6%	22	2.6%	4	0.5%	237	27.9%	177	20.9%	4	0.5%	4	0.5%	110	13.0%	3	0.4%	2	0.2%	848
Semi-skilled	261	59.0%	10	2.3%	1	0.2%	32	7.2%	104	23.5%	11	2.5%	0	0.0%	23	5.2%	0	0.0%	0	0.0%	442
Unskilled	32	53.3%	0	0.0%	0	0.0%	0	0.0%	28	46.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	60
TOTAL PERMANENT	720	38.7%	46	2.5%	18	1.0%	453	24.3%	391	21.0%	19	1.0%	11	0.6%	186	10.0%	15	0.8%	3	0.2%	1862
Temporary employees	81		8		3		80		66		0		3		15		4		0		260
GRAND TOTAL	801	0	54	0	21	0	533	0	457	0	19	0	14	0	201	0	19	0	3	0	2122
SHORTFALL / EXCESS	-30		-58		-17		338		-259		-74		-17		100						-455

Notes
*Shortfall (red figures) Necsa Group targets as at March 2016
*Calculations of Shortfall do not include temporary staff
*These figures are for Necsa Corporate, NTP and Pelchem

Necsa Study Assistance Scheme

During the 2015/2016 financial year, a total amount of R1.519m was spent on the Study Assistance Scheme (SAS) to assist Necsa staff in obtaining qualifications at various institutions of higher learning throughout South Africa. The number of employees assisted through the programme was as follows:

Category	Black		Coloured		Indian		White	
	Male	Female	Male	Female	Male	Female	Male	Female
B A Degree	4	3	0	0	0	0	1	1
B Com	2	3	0	0	0	0	0	1
B Tech Degree	5	12	1	0	0	0	1	2
BSc	0	0	0	0	1	0	0	0
D Com	0	1	0	0	0	0	0	0
Honours	0	2	0	0	0	0	0	0
LLB	1	2	0	0	0	0	0	0
Masters	4	1	0	1	0	0	1	0
MBA	1	0	0	0	0	0	0	0
MSc	1	3	0	0	0	0	1	0
National Diploma	41	23	3	0	0	0	6	5
PhD	7	1	0	0	1	0	2	1
Total SAS applications	**66**	**51**	**4**	**1**	**2**	**0**	**12**	**10**

Graduate-in-Training Scheme (GiTS)

As part of Necsa's drive to build sustainable technical human resource capacity, the Graduate-in-Training Scheme (GiTS) was developed in alignment with Necsa's strategic imperatives and to ensure a sustainable pipeline for the organisation.

Graduate in Training Programme: overall total					
Discipline	Gender		Race		
	Male	Female	African	Coloured	White
BSc Chemical Eng	2	0	2	0	0
BSc Chemistry	0	1	1	0	0
Honours in Chemistry	0	2	2	0	0
Honours in Mechanical Eng	1	0	1	0	0
Master Degree in Science	1	1	2	0	0
BSc Mechatronics Engineering	1	0	1	0	1
BEng Electrical	0	1	1	0	0
Grand Total	**5**	**5**	**10**	**0**	**1**

Undergraduate and Post-Graduate Bursars 2015/2016

In addition to the Study Assistance scheme that is available to permanent employees only, Necsa has until 2011 also been running a free bursary programme in terms of which it provided funding for students pursuing studies in designated fields relevant to its operations. The table below reflects the students who were taken on to the scheme in 2011 and were still in the pipeline for receiving funding until they complete their studies.

Undergraduate and Post-graduate Bursars					
Discipline	Gender		Race		
	Male	Female	African	Coloured	White
BSc Chemical Eng	0	1	0	0	1
BSc Metallurgical Engineering	1	0	1	0	0
BSc in Civil Engineering	1	0	1	0	0
Honours in Mechanical Eng	1	0	1	0	0
Master Degree in Chemistry	0	1	1	0	0
Grand Total	**3**	**2**	**4**	**0**	**1**

Necsa Internship Programme

Necsa embarked on training of interns funded and supported by CHIETA (Chemical Industries Education and Training Authority), DST (Department of Science and Technology), DOL (Department of Labour) and TIA (Technology Innovation Agency) as part of our contribution towards the National Human Capital Development Strategy.

Necsa Internship Programme					
Discipline	Gender		Race		
	Male	Female	African	Indian	Total
BCom Accounting	1	5	6	0	6
BCom Supply Chain Management	0	1	1	0	1
BSc Administration	0	3	3	0	3
BSc Chemistry	0	2	2	0	2
BSc Geology	0	1	1	0	1
BSc Computer Science	3	0	3	0	3
BSc Physics	3	1	4	0	4
BSc in Statistics	1	0	1	0	1
BTech Business information system	0	1	1	0	1
BTech Chemical Engineering	0	1	1	0	1
BTech in Accounting	0	1	1	0	1
BTech in Business Administration	1	0	1	0	1
BTech in Communication Science	0	1	1	0	1
Degree in Business Administration	1	2	3	0	3
Degree Public Administration	1	0	1	0	1
Honours in Physical Science	0	2	1	1	2
Honours Environmental Science	1	0	1	0	1
Degree in Logistics	1	0	1	0	1
ND Administrative Assistant	4	10	14	0	14
ND Analytical Chemistry	6	5	11	0	11
ND Business Admin	0	3	3	0	3
ND Civil Engineering	0	4	4	0	4
ND Economics	0	2	2	0	2
ND Finances	1	0	1	0	1
ND in Human Resources	1	2	3	0	3
ND Industrial Eng	1	0	1	0	1
ND Industrial Physics	2	0	2	0	2
ND Information Technology	2	3	5	0	5
ND Information Technology (Multimedia)	1	0	1	0	1
ND Labour Relations	1	0	1	0	1
ND Marketing	0	2	2	0	2
ND Media and Graphic Design	1	0	1	0	1
ND Logistics	2	0	2	0	2
ND in Supply Chain	0	1	1	0	1
ND in Safety Management	0	1	1	0	1
N6 Human Resources	1	0	1	0	1
Grand Total	**36**	**54**	**89**	**1**	**90**

Targets set for appointment of Black Technical Staff 2012–2016

	Actual		Targets			
Description	31 March 2016 Actual	31 March 2015 Actual	2012/13	2012/14	2014/15	2015/16
Technical staff as a percentage of total staff	49. 27%	50.05%	49%	50%	52%	49%
Black technical staff as a percentage of all technical staff	56.02%	53.07%	46%	47%	49%	49%

Staff Movements

Appointments and exits during the period are reflected in the following table:

	Designated Group		Total Employees	
JOB PROFILE	Appointments	Exits	Appointments	Exits
Management	12	4	13	8
Engineers	8	0	8	3
Scientists	5	3	5	8
Other Professionals	11	5	11	12
Supervisors	0	0	0	1
Operators	2	5	3	7
Artisans	0	1	0	6
Technicians	10	4	11	5
Skilled	8	5	9	16
Semi-Skilled	9	8	9	10
Unskilled	9	0	9	0
Grand Total	**74**	**35**	**78**	**76**

Workplace Climate Indicators

Staff Turnover in Critical Skills Categories (%)

Job category	2015/16 %	2014/15 %	2013/14 %	2012/13 %	2011/12 %
Management	0.12	0.42	4.93	9.2	4.9
Engineering and science	0.65	0.77	9.90	17.9	8.7
Technical	0.30	4.02	19.0	14.8	7.5

Necsa Retirement Fund

The previous standalone Necsa Retirement Fund is in the process of being deregistered following a decision to move the funds to the Momentum "FundsAtWork" umbrella fund effective 1 November 2013. The decision to move to an umbrella fund was in line with trends in the market and was mainly driven by cost considerations as belonging to an umbrella fund is by far cheaper than running a standalone private fund from investment and administration cost fees perspective. As deregistration must be done by the Financial Service Board, all the necessary documentations for deregistration of the previous Necsa Retirement Fund have been submitted to the Financial Service Board.

The new Necsa Retirement fund uses a life stage model as a default portfolio which switches form more aggressive investment portfolios for those who are still far from retirement age, to more conservative and ultimately defensive as members approach retirement age. Most of the assets of the Necsa Retirement Fund are invested in two different portfolio ranges, with small number invested in different portfolios as the fund provide for member choices. The lifestage portfolios ranges are the Necsa mapped lifestages portfolio and Momentum lifestages portfolios.

The lifestage philosophy uses term to retirement as a proxy for the risk a member is able to adopt and therefore the asset class in which a member's funds are invested would differ based on their remaining period to retirement. For Necsa mapped lifestages portfolio, a default portfolio is 7 years retirement 100% enhanced factor 5 portfolio which targets CPI + 5 investment growth.

The momentum lifestage portfolios are:

- Lifestage Accumulator aims to deliver CPI + 7% over a seven year rolling period;
- Lifestage Builder aims to deliver CPI + 6% over a six year rolling period;
- Lifestage Consolidator aims to deliver CPI + 5% over a five year rolling period; and
- Lifestage Defender aims to deliver CPI + 3% over a three year rolling period.

MARKET VALUE OF NECSA INDIVIDUAL PORTFOLIOS

Necsa Mapped Lifestage Portfolios	Market Values	% Portfolio
7 years from retirement (CPI+5%)	R 6 677953.91	0.54%
3 years to retirement (CPI+3.5%)	-	-
Momentum Lifestages Portfolios		
Momentum MoM Enhanced Factor 7 (CPI+7%)	R 876 731 514.19	70.32%
Momentum MoM Enhanced Factor 6 (CPI+6%)	R 92 296 185.90	7.40%
Momentum MoM Enhanced Factor 5 (CPI+5%)	R 167 189 937.84	13.41%
Momentum MoM Enhanced Factor 3 (CPI+3%)	R 87 890 261.99	7.05%
Necsa Individual Portfolios		
Momentum Multi Manager Local Money Market	R 5 312 909.71	0.43%
Other	R 10 697 929.51	0.86%
Total market value of the portfolios	**R 1 246 796 693.06**	**100%**

PORTFOLIOS INVESTMENT RETURN FOR ONE YEAR ENDED 31ST MARCH 2016

Necsa Mapped Lifestage Portfolios	
7 years from retirement (CPI+5%)	7.69%
3 years to retirement (CPI+3.5%)	-
Momentum Lifestages Portfolios	
Momentum MoM Enhanced Factor 7 (CPI+7%)	6.84%
Momentum MoM Enhanced Factor 6 (CPI+6%)	7.23%
Momentum MoM Enhanced Factor 5 (CPI+5%)	7.96%
Momentum MoM Enhanced Factor 3 (CPI+3%)	7.31%
Necsa Individual Portfolios	
Momentum Multi Manager Local Money Market	7.60%
Other	-
Total	-

Wellness

Medical Surveillance Programme

Continued Medical Surveillance on Occupationally exposed workers including Office Workers was performed over the reporting period to ensure compliance to the National Nuclear and Occupational Health and Safety Regulations. Necsa's high risk exposures are Radiation, Noise and Chemicals.

Necsa's high safety standards on radiation ensures that no employees are exposed to radiation. This was evident in the surveillance of radiation workers through biological monitoring for Full Blood Count and urine testing. No employee presented with abnormal blood results suggesting exposure to radiation.
There were 6 cases reported for Noise Induced Hearing Loss to the Compensation Commissioner. None have been approved thus far.
No abnormalities were detected in any biological monitoring (Blood and urine) for chemical workers.

Employee Assistance Programme

The Necsa Employee Wellness Programme is intended to support management when dealing with productivity issues and to help employees identify and resolve personal or work related problems that might adversely impact their job performance and overall well-being.
During the period under review, ICAS together with the in-house EAP practitioner provided emotional assistance and support interventions to the employees.
The main health and wellness events celebrated are:

- Corporate Wellness Day to promote health and increase awareness on lifestyle conditions (Diabetes, Hypertension and cholesterol) including HIV Counselling and Testing Campaign
- World AIDS Day
- STI, Condom awareness and reproductive health awareness week
- Mental Health Awareness Campaign

The events and activities offered proved to be a success.

Employee Safety (Occupational Hygiene)

Necsa Occupational Hygiene Inspection Body (NOHIB) met the requirements of an Accredited Approved Inspection Authority, subsequent to a SANAS assessment as per ISO/IEC 17020 requirements and an approval audit by Department of Labour. NOHIB obtained accreditation on 22 January 2016. NOHIB is accredited to perform its own monitoring of physical stressors (noise), hazardous chemical substances and asbestos.

A comprehensive occupational hygiene monitoring programme is in place to meet the requirements of the Occupational Health and Safety Act, Act 85 of 1993.

11 STATEMENT OF RESPONSIBILITY FOR PERFORMANCE INFORMATION

STATEMENT OF RESPONSIBILITY FOR PERFORMANCE INFORMATION FOR THE YEAR ENDED 31 MARCH 2016

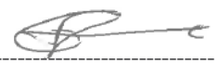
The Chief Executive Officer is responsible for the preparation of the public entity's performance information and for the judgements made in this information.

The Chief Executive Officer is responsible for establishing and implementing a system of internal control designed to provide reasonable assurance as to the integrity and reliability of performance information.

In my opinion, the performance information fairly reflects the actual achievements against planned objectives, indictors and targets as per the strategic and annual performance plan of the public entity for the financial year ended 31 March 2016.

The South African Nuclear Energy Corporation's performance information for the year ended 31 March 2016 has been examined by the external auditors and their report is presented on page 106.

The performance information of the entity set out on page 80 to page 81 was approved by the board.



Mr GP Tshelane
Chief Executive Officer
Date: 16 September 2016


5 mL

12 AUDITOR'S REPORT: PREDETERMINED OBJECTIVES

The Auditor-General of South Africa currently performs the necessary audit procedures on the performance information to provide reasonable assurance in the form of an audit conclusion. The audit conclusion on the performance against predetermined objectives is included in the report to management, with material findings being reported under the Predetermined Objectives heading in this report.

Refer to page 107 of the Independent Auditor's Report in section 13.

13 OVERVIEW OF PUBLIC ENTITY'S PERFORMANCE

Service Delivery Environment

As a PFMA Schedule 2 public entity Necsa is not directly involved in service delivery to the public.

The South African Nuclear Energy Corporation, Necsa, continues to undertake cutting edge research on nuclear energy, showcasing the many socio-economic benefits of nuclear energy. Through Necsa we are today among the top three producers in the world of critical radioisotopes that are used to diagnose and treat diseases such as cancer. Necsa also beneficiates fluorspar from our own mines which is in turn used to produce more than 20 fluorine based products, also exported to countries around the world. Our people need to be informed of these benefits of nuclear energy, in human health, in the production of electricity and in contributing to the development of technological products essential for our daily lives.

Necsa will play a pivotal role in the localisation of our nuclear build programme which is in line with our energy policy and in particular the IRP 2010-2030. Necsa has finalised a business case for the South African Nuclear Fuel Cycle which should ensure that we utilise our uranium resources to produce fuel for the envisaged nuclear power plants. Already Necsa, through its training programmes, is producing hundreds of technicians and artisans who are deployed in critical industries such as the mining and the automotive sectors. It is the only company on the African continent that possesses the ASME III certification, allowing for the production of precision nuclear components. In addition, Necsa has also attained ASME VIII U stamp certification enabling it to undertake nuclear equipment design as well.

Organisational Environment

Necsa initiated a strategic repositioning in response to the severe financial constraints facing the organisation primarily due to its fixed cost base growing at a higher rate than the increase in income. Implementation of this initiative commenced during the previous reporting period with the creation of contract R&D and technology commercialisation functions within the R&D division. During the current reporting period a New Business Development department was established in the Office of the CEO. The technology commercialisation function was consolidated into this New Business Development department. This clearly signals Necsa's intention to further leverage its intellectual property portfolio.

In reflecting on Necsa Group performance for the year, the following salient points are worth noting:

- Necsa achieved, and in some instances exceeded, the targets of 10 of the 13 key performance indicators. Most noteworthy of these are the following: NTP Group net profit after tax; Pelchem Group net profit after tax; SAFARI-1 operational availability of 303 days (against a target of 287 days) was achieved; exceeding the peer reviewed and other scientific publications target; exceeding the annual new innovation disclosures target; and the public dose impact from liquid and gaseous releases was well below target. This improvement of Necsa's performance should be lauded and it is acknowledged that there is further room for improvement particularly with regards to the Necsa external sales.
- There are some exciting new developments with regards to radiopharmaceuticals, some of which have moved beyond the development phase to commercialisation and others which are at advanced stages of development. As reported previously the Beam Line Facilities Upgrade Program which was made possible through a once-off allocation of R33 million by the DoE is unfortunately running behind the original schedule but has shown good conformance to the revised schedule. On a positive note, the neutron strain scanner diffraction instrument was 100% utilised and productive research with local universities is under way. This facility ranks amongst the top ten neutron strain scanning facilities world-wide.
- Financial performance was less than satisfactory with the Necsa corporate external sales, recorded at R381.96m, 22.1% worse than budget.

Key Policy Developments and Legislative Changes

Whilst there were no new significant policy developments or legislation changes, it is recognised that Necsa will play an integral role in the nuclear new build programme envisaged in the Integrated Resource Plan (IRP 2010-2030); in alignment with the Nuclear Energy Policy of 2008.

Strategic Outcome Oriented Goals

Necsa executes its mandate through three strategic clusters (groups of activities), a description of which follows:

Nuclear Power Cluster

This cluster refers to Necsa's nuclear fuel development and production programmes as well as projects to support the South African nuclear power programme. The key strategic objectives for this cluster are:

- To assess the viability of a future nuclear fuel cycle (front end) services industry in South Africa and to progress towards the development or demonstration of required processes and technologies;
- To prove the viability of Pelindaba Enterprises (Pelindaba Manufacturing; Pelindaba Engineering Services; Pelindaba Consulting Services; and Necsa Learning Academy);
- To ensure the retention of the fluorine capability through securing Pelchem's strategy for growth and sustainability.

In addition to positioning for opportunities presented by the planned South African nuclear energy expansion programme, Necsa continues to explore opportunities for future partnerships and access to the relevant markets.

Radiation Science and Applications Cluster

This cluster includes radiation sciences research and services as well as products based on the SAFARI-1 reactor and Necsa's other radiation infrastructure and expertise. The key strategic objectives for this cluster include:

- To maintain full operational capability of SAFARI-1 and implement the reactor's ageing management programme;
- To expand SAFARI-1 based R&D facilities and outputs;
- To develop and implement the project for Security of supply of LEU, LEU fuel and LEU target plates;
- To secure core strategic capability through the replacement of SAFARI-1 by a multipurpose research reactor before it reaches the end of its operational lifetime;
- To grow NTP Group net profit from (R14.0m) (2014/15 forecast) to R160.5m by 2017/18.

Necsa as Host of Nuclear Programmes Cluster

This cluster refers to Necsa's capacity to house nuclear programmes due to its unique integrated SHEQ system, licensed nuclear infrastructure and specialized supporting capabilities. The key strategic objectives for this cluster include:

- To increase Necsa's research, development and innovation outputs.
- To constantly improve SHEQ management performance.
- To maintain infrastructure at a suitable level.

14 PERFORMANCE INFORMATION BY PROGRAMME

Changes to Planned Targets

During the year under review there were no amendments to planned targets. It must however be noted that Necsa suspended project development work relating to the predetermined objective (PDO) associated with the SAFARI-2/ Multipurpose Research Reactor project because a decision was taken that the procurement of the Multipurpose Reactor had been incorporated into South Africa's nuclear new build procurement process.

Nuclear Power Cluster

Strategic Objectives, Performance Indicators, Planned Targets and Actual Achievements

OUTPUT KPA	INDICATOR KPI	Actual Achievement 2014/15	Planned Target 2015/16	Actual Achievement 2015/16	Deviation from Planned Target 2015/16	Comments on Deviation
Pelchem Group financials	Net profit after tax	(R18.3m)	R2.60m	R28.65m	R26.05m	Target exceeded mainly due to exchange rate gains and reversal of asset impairments.

Radiation Science and Applications Cluster

Strategic Objectives, Performance Indicators, Planned Targets and Actual Achievements

OUTPUT KPA	INDICATOR KPI	Actual Achievement 2014/15	Planned Target 2015/16	Actual Achievement 2015/16	Deviation from Planned Target 2015/16	Comments on Deviation
NTP Group financials	Net profit after tax	R20.9m	R46.3m	R183.0m	R136.7m	Target exceeded. Target exceeded due to increased sales and exchange rate gains.
SAFARI-1 operation	SAFARI-1 operational availability (reactor days available per year)	299.7 days	287 days	303 days	16 days	Target exceeded. Hours were gained due to early start-ups after scheduled shutdowns.
Establish sustainable supply of LEU fuel and target plates	Achievement of project objectives	Appropriate services procured.	Finalisation of business case for sustainable supply of LEU fuel and target plates.	Finalisation of business case for sustainable supply of LEU fuel and target plates underway.		Target met.
SAFARI-2	Achievement of project objectives		Development of the RFP and sourcing the appropriate technical support services.	The project has been closed out as it is now part of the new nuclear build programme procurement led by the Department of Energy (DoE).		The project has been closed out as it is now part of the new nuclear build programme procurement led by the Department of Energy (DoE).

Necsa as a Host of Nuclear Programmes Cluster

Strategic Objectives, Performance Indicators, Planned Targets and Actual Achievements

OUTPUT KPA	INDICATOR KPI	Actual Achievement 2014/15	Planned Target 2015/16	Actual Achievement 2015/16	Deviation from Planned Target 2015/16	Comments on Deviation
D&D programme execution	Execution of Annual Plan of Action as approved by DoE	106%	100%	90%	10%	Target not achieved. Delays experienced in licensing by NNR.
Compliance to SHEQ, license and other regulatory requirements	Disabling Injury Incidence Rate (DIIR)	0.71	0.7	0.78	11%	Target not achieved.
	Public dose impact (expressed as % of allowable limit)	2.45%	<20%	2.18%		Target exceeded. Actual performance well below annual allowable limit due to good management of gaseous and liquid releases.

Cross-Cutting Priorities

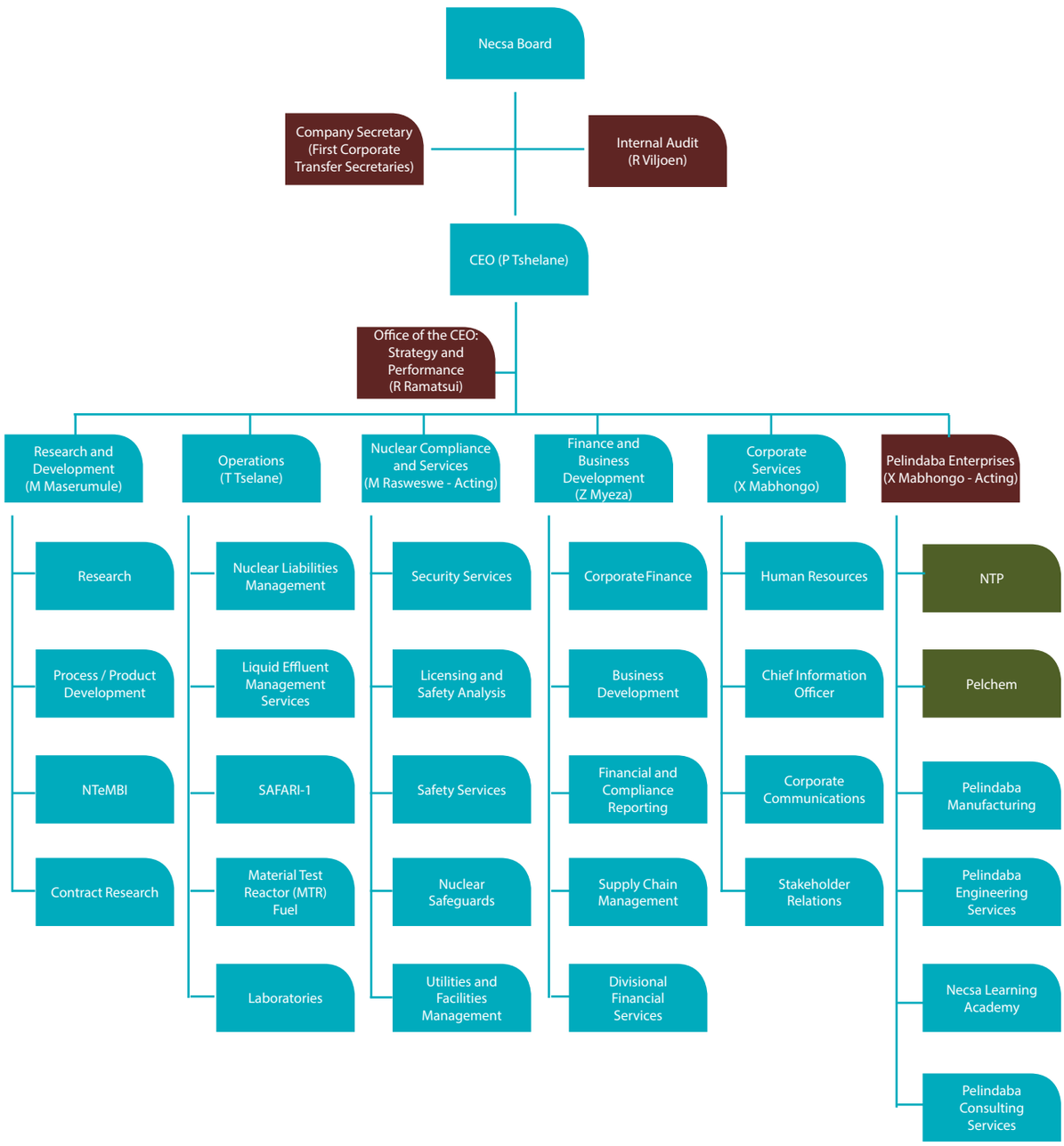
Strategic Objectives, Performance Indicators, Planned Targets and Actual Achievements

OUTPUT KPA	INDICATOR KPI	Actual Achievement 2014/15	Planned Target 2015/16	Actual Achievement 2015/16	Deviation from Planned Target 2015/16	Comments on Deviation
Necsa Corporate financials	External Sales (incl. Intra Group Sales)	R352.5m	R491.3m	R381.96m	(R109.34m)	Target not met. Mainly due to Pelindaba Enterprises not reaching sales target.
Innovation value chain	Number of innovation disclosures	18	12	13	1	Target exceeded. Greater awareness leading to increased disclosures.
Refereed Outputs	Number of refereed research publications	34	28	55	27	Target exceeded.
Staff composition	Technical staff as % of total staff	50.05%	49%	49.27%	0.27%	Target met.
	Black technical staff as % of all technical staff	53.07%	49%	56.02%	7.02%	Target exceeded.


(NBu3)

15 CORPORATE GOVERNANCE

Necsa Structure



Necsa as an Organisation

Necsa is a wholly-owned state entity, established in terms of the Nuclear Energy Act, No. 46 of 1999, and the Companies Act, No. 61 of 1973. It is governed by a Board of Directors appointed by the Minister of Energy, with the Chief Executive Officer being the only Executive Director.

The Nuclear Energy Act outlines Necsa's main and ancillary objects, including the Corporation's financial accountability. In addition to these functions, Necsa is responsible for the implementation of certain mandated activities which include the implementation and application of the Safeguards Agreement and any additional protocols entered into by the Republic of South Africa and the International Atomic Energy Agency in support of the Nuclear Non-Proliferation Treaty, acceded to by South Africa.

The Nuclear Energy Act further regulates the acquisition and possession of nuclear fuel, certain nuclear and related material and equipment, as well as the importation and exportation thereof, and other acts and activities relating to fuel material and equipment, in order to comply with the international obligations of the Republic. The Nuclear Energy Act also prescribes measures regarding the management of radioactive waste and the storage of irradiated nuclear fuel.

Code of Practice and Conduct

Corporate Governance is formally concerned with the organisational arrangements that have been put in place to provide an appropriate set of checks and balances within which the stewards of the organisation operate. The objective is to ensure that those to whom the stakeholders have entrusted the direction and success of the organisation act in the best interests of these stakeholders. It encourages leadership with integrity, responsibility and transparency.

The Necsa Group endorses the principles of the South African Code of Corporate Practices and Conduct as recommended in the King III Report. As such, the Group is committed to principles and practices that provide stakeholders with the assurance that the organisation is managed soundly and ethically.

The Board of Directors believes that the organisation has, as appropriate, applied and complied with the principles incorporated in the Code of Corporate Practices and Conduct, as set out in the King III Report.

The Board regularly reviews the Group's governance structures and processes. Issues of governance will continue to receive the consideration and attention of the Board and its committees during the year ahead and, where appropriate, will be reviewed and adapted to accommodate internal corporate developments and to reflect best practice.

Board of Directors

Necsa's Board of Directors is appointed by the Minister of Energy (the Shareholder) in terms of Section 16 of the Nuclear Energy Act. Due regard is given to the ratio between independent and non-independent members. The Board is the Accounting Authority as defined in terms of the Public Finance Management Act, No. 1 of 1999 (PFMA). The Board is appointed for a renewable period of three years and undergoes a Necsa-specific induction process within six months of appointment.

Board Members

Dr KR Kemm
Chairperson of Necsa Board

Mr GP Tshelane
Chief Executive Officer

Dr NT Magau
Non-Executive Member of Necsa Board and Chairperson of NTP Board

Ms RP Mosia
Non-Executive Director

Mr ENN Ngcobo
Non-Executive Director

Ms P Bosman
Non-Executive Director

Mr XH Mkhwanazi
Non-Executive Director

Mr ZC Ngidi
Non-Executive Director

Mr MPK Tshivhase
Non-Executive Director

Details of Board Members for the Period 1 April 2015 to 23 March 2016

Executive Members						
Name	**Age**	**Directorship on other boards**	**Date of appointment**	**Term**	**Date of resignation/ Expiry of term**	**Qualifications**
Mr GP Tshelane Necsa CEO	54	NIASA	Appointed as CEO with effect from 1 September 2012	1	31 July 2015 (renewed month to month)	BSc Honours (Nuclear Physics) – University of Witwatersrand; BSc (Maths and Physics) – University of Witwatersrand; Executive Development Programme; Certificate in Project Management; Finance for Non-financial Managers – University of Witwatersrand

Independent Non-Executive Members						
Name	**Age**	**Directorship on other boards**	**Date of appointment**	**Term**	**Date of resignation/ Expiry of term**	**Qualifications**
Ambassador MJ Seekoe Chairperson of the Necsa Board of Directors	77	Necsa Afrisec System (Pty) Ltd Kongwa Ngwenya Dev. Entity Veterans Family Trust Thusang Trust	1 August 2012	1	31 July 2015 (renewed month to month) until 23 March 2016	MSc (Chemistry) and Microbiology and Vertebrae Physiology – Missouri University, St Louis, USA; PhD Chemistry (Kinetics and Catalysis) – Moscow State University; MSc Chemistry – Moscow State University; Diploma – Kiev State University, USSR.
Ambassador NJ Mxakato-Diseko Deputy Chairperson of the Necsa Board of Directors	60	None	1 February 2013	1	31 October 2015 Term ended	Politics Oxford University – UK.
Adv. N Shaik-Peremanov Board Member	44	None	1 November 2009	1	Resigned 4 August 2015	LLD (International Human rights Law) – Unisa; LLM (International and Human Rights Law) – Notre Dame, USA; LLM (Constitutional and Labour Law) – University of Natal; LLB – University of Natal; BSocSc (Industrial Psychology and Law) – University of Natal

Ms MM Mokuena Chairperson of the Necsa Investment and Finance Committee	57	Malibongwe Women Development Trust Leepile Consulting Tate Tiisetso Kgosietsile Mining Competition Tribunal Phoenix	1 November 2012	1	31 October 2015 Term ended	Attorney of the High Court of South Africa; Partial completion (LLM) – University of Pretoria; LLM (Labour) – New York University; Diploma in Trial Advocacy – University of California, Los Angeles; LLB – University of Bophuthatswana; Dip. Juris – University of Bophuthatswana
Mr Jeetesh Keshaw	39		30 January 2015	1	Removed 28 July 2015, Z Mbambo reappointed effective 28 July 2015	M.Sc. in Nuclear Engineering - University of the North-West M.Sc. in Nuclear Physics - University of Witwatersrand B.Sc. (Hons.) - University of Cape Town B.Sc. in Physics and Chemistry - University of Cape Town
Mr ZS Mbambo Deputy Director-General, Department of Energy	50	Masande mining and projects (Pty) Ltd	1 November 2012	1	Re-appointed with effect 28 July 2015.	BSc Geology; BSc (Honours) Environmental Geology; Post-graduate Diploma in European Radiation Protection
Mr Zukile Zibi (alternate Board member to Mr Jeetesh Keshaw and Mr Zizamele Mbambo during the respective terms)	37	None	30 January 2015	1	23 March 2016 Term ended	BSc (Applied Maths and Physics); BSc Hons (Physics) – Port Elizabeth University MSc. (Nuclear Science in Nuclear Engineering) – North West University
Mr J Kellerman (Alternate Board member to Amb. Mxakato-Diseko)	55	None	1 August 2012	1	31 July 2015 Term ended	LLM (Public International Law) – University of Pretoria

Details of Board Members Effective 24 March 2016

With effect from 24 March 2016, new directors have been appointed to the Board of Necsa for a period of three (3) years.

Executive Members						
Name	**Age**	**Directorship on other boards**	**Date of appointment**	**Term**	**Date of resignation/ Expiry of term**	**Qualifications**
Mr GP Tshelane Necsa CEO	54	NIASA	Appointed as CEO with effect from 1 September 2012	1	31 July 2015 (renewed month to month)	BSc Honours (Nuclear Physics) – University of Witwatersrand; BSc (Maths and Physics) – University of Witwatersrand; Executive Development Programme; Certificate in Project Management; Finance for Non-financial Managers – University of Witwatersrand

Independent Non-Executive Members						
Name	**Age**	**Directorship on other boards**	**Date of appointment**	**Term**	**Date of resignation/Expiry of term**	**Qualifications**
Dr Kelvin Richard Kemm	66	Supreme Chess Trust Stratek Business Strategy Consultants	24 March 2016	1	Appointed for three year term to expire 2018	BSc (Physics and Mathematics), University of KwaZulu-Natal BSc (Hons Physics), University of KwaZulu-Natal MSc (Nuclear Physics), University of KwaZulu-Natal PhD (Nuclear Physics), University of KwaZulu-Natal
Dr Namane Tiny Magau	64		24 March 2016	1	Appointed for three year term to expire 2018	D. Ed, Harvard University M. Ed, Rand Afrikaans University B. Ed, University of South Africa BA, University of the North
Dr Xolani Humphrey Mkhwanazi	61	South 32 Murray & Roberts Central Energy Fund Comverge South Africa Odgers & Berndtson	24 March 2016	1	Appointed for three year term to expire 2018	BSc (Maths and Physics), University of Botswana and Swaziland MSc (Applied Physics), University of Lancaster; UK PhD (Applied Physics), University of Lancaster; UK EDP (Executive Development Programme), University of Witwatersrand
Mr Midiavhathu Prince Kennedy Tshivhase	54		24 March 2016	1	Appointed for three year term to expire 2018	B Juris Diploma, University of Zululand BA Law, LLB, University of Limpopo
Mr Zibuse Comfort Ngidi	55		24 March 2016	1	Appointed for three year term to expire 2018	BA Law, LLB, University of Durban Westville Various courses on the following: Tax Competency, MBA, Financial Management, Marketing, Business law, Economics, Human Resources Management

Mr Eugene Nhlanhla Nqaba Ngcobo	60		24 March 2016	1	Appointed for three year term to expire 2018	MSc (Eng.), Technical University of Sofia, Bulgaria BSc (Science), University of Zululand, RSA PhD (Doctor of Philosophy), Cambridge University, UK
Ms Rosemary Phindile Mosia	49		24 March 2016	1	Appointed for three year term to expire 2018	BCom Accounting, University of the North Business Administration, Wits Graduate School of Business Criminal Justice in Auditing, Rand Afrikaans University BCTA (Bridging Certified Theory in Accounting), Rand Afrikaans University Master in Business Leadership (MBL), PG Higher Dip In Tax Law, University of Cape Town
Ms Pamela Bosman	43		24 March 2016	1	Appointed for three year term to expire 2018	Bachelor of Commerce, University of Natal BCompt Honours, University of South Africa Postgraduate Diploma in Auditing, University of South Africa

Board Charter

The Nuclear Energy Act serves as the Necsa Board Charter. The Act outlines the functions and mandate of the Corporation, deals with the appointment of the Board, sets out the powers of the Board and the Minister's responsibilities concerning South Africa's international obligations with regard to nuclear non-proliferation as well as source material, special nuclear material, and radioactive waste.

The Board is responsible for ensuring the establishment of various policies to enhance and provide assurance in terms of transparency, inclusiveness, reliability, accuracy, relevance, completeness, clarity and timeliness to ensure sustainability.

Remuneration of Board Members

The remuneration of Non-executive Directors is determined and reviewed annually by the Minister of Energy, in consultation with the National Treasury.

Meetings of the Board

The Nuclear Energy Act requires that the Board meet at least four times per annum to discuss and review the Strategy and Business Plan. Special Board Meetings are convened, when necessary, to deliberate on issues that require Board resolutions between scheduled meetings. Members of Management are periodically invited to make presentations on issues of particular interest to the Board.

The Board held 6 (six) meetings during the review period as follows:

	Meeting Dates					
Name of Board Members	**15 April 2015 Special**	**29 May 2015**	**23 July 2015 Special**	**31 July 2015**	**26 November 2015**	**26 February 2016**
Amb. M.J Seekoe	Present	Present	Present	Present	Present	Present
Amb. N.J Mxakato-Diseko	Apology	Apology	Apology	-	-	-
Mr GP Tshelane	Apology	Present	Present	Present	Present	Present
Ms MM Mokuena	Present	Present	Present	Apology	-	-
Adv. N Shaik-Peremanov	Present	Present	Present	Apology	-	-
Mr J Keshaw	Telecon	Present	Present	-	-	-
Mr J Kellerman	Present	Present	Present			
Mr Z Zibi	Present	Apology	Present	Present	Present	Present
Mr Z Mbambo Re-appointed effective 28 July 2015				Present	Apology	Apology

Committees of the Board

In terms of Section 19 of the Nuclear Energy Act, the Board is advised and assisted by advisory committees, whose mandate is to assist the Board in discharging its responsibilities. These committees play an important role in enhancing high standards of governance and improving effectiveness within the Necsa Group. External advisors are invited to attend Board and/or committee meetings on an ad hoc basis, as or when the need arises.

Audit and Risk Committee

The Audit and Risk Committee comprises three Non-executive Directors. A Non-executive Director, who is not the Chairman of the Board, chairs the Committee.

The Audit Committee assists the Board in overseeing:

- The quality and integrity of the Group's financial statements and the disclosure thereof;
- The scope and effectiveness of the external audit function; and
- The effectiveness of the Company's internal controls and internal audit function.

The Committee convened four times during the year with membership and meeting attendance being as follows:

Name of Director	**Meeting dates**			
Board Members	**27 May 2016**	**28 May 2015 Special**	**28 July 2015**	**29 July 2015 Special**
Adv. N Shaik-Peremanov	Present	Present	Present	Present
Mr GP Tshelane	Present	-	-	-
Ms MM Mokuena	Present	Present	Present	Apology
Mr J Keshaw		Present	Present	-
Mr N Mhlongo Co-opted member	Present	-	-	-

The Committee has adopted formal Terms of Reference and is satisfied that it has complied with its responsibilities as set out therein.

Social and Ethics Committee

This Committee was formally constituted in line with the provisions of regulation 43(5) read with section 72(4)-(10) of the Companies Act, Act 71 of 2008. The Committee has adopted formal Terms of Reference in line with the aforementioned regulation.

The Committee's responsibilities include:

1. Monitoring the Company's activities, having regard to any relevant legislation, other legal requirements or prevailing codes of good practice, with regard to matters relating to:
   a. Social and economic development, including the Company's standing in terms of the goals and purposes of:
      I. The ten principles set out in the United Nations Global Compact Principles;
      II. OECD recommendations regarding corruption;
      III. Employment Equity Act; and
      IV. Broad-based black economic empowerment.
   b. Good corporate citizenship including:
      I. Promotion of equality, prevention of unfair discrimination, and reduction of corruption;
      II. Contribution to the development of the communities in which its activities are predominantly conducted or within which its products or services are predominantly marketed; and
      III. Record of sponsorship, donations and charitable giving;
   c. The environment, health and public safely, including the impact of the company's activities and of its products and services;
   d. Consumer relationships, including the company's advertising, public relations and compliance with consumer protection laws; and
   e. Labour and employment, including:
      I. The Company's standing in terms of the International Labour Organisation Protocol on decent work and working conditions; and
      II. The Company's employment relationships and its contribution toward the educational development of its employees;
2. To draw matters within the Committee's mandate to the attention of the Board as the occasion requires;
3. To report, through one of its members, to the shareholders at the Company's annual general meeting on matters falling within its mandate.

The Committee holds sufficient scheduled meetings to discharge its duties as set out in its Terms of Reference, but subject to a minimum of three meetings per year. The Committee convened three times during the period under review with meeting attendance being as follows:

Name of Director	Meeting dates		
	22 May 2015	24 July 2015	18 February 2016
Adv. N Shaik-Peremanov	Present	Present	Present
Amb. Mxakato-Diseko	Apology	Apology	-
Mr J Kellerman	Present	Present	Present
Mr J Keshaw	Present	Present	Apology
Mr Z Zibi	Apology	Apology	Apology
Mr GP Tshelane	Present	Apology	Present
Amb. MJ Seekoe Chairperson of the Board	-	-	Present
Ms ZS Mbambo	-	-	Apology

Research and Development Committee

The objective of this Committee is to provide assurance to the Shareholder and/or stakeholders of Necsa that research, development, and technology matters of the Company are strategic, innovative, and supported at the highest level. The Committee provides guidance on the implications of the above matters to the Board and also monitors the following specifics:

- The implementation and management of research, development and nuclear technology related issues;
- Compliance with the Nuclear Energy Act and other relevant legislation;
- Progress on collaboration with other institutions and relevant organisations.

The Committee reviews and makes recommendations to the Board for consideration and/or approval pertaining to the following:

- R&D initiatives, as proposed by Management, to ensure innovation and strategic direction to align with stakeholder requirements;
- Implementation of best practice and the latest trends from both national and international sources as applicable to the Company;
- Management's views on identified and potential opportunities for nuclear research and development, as applicable to the Company;
- External collaboration on nuclear-related research and development;
- Strategic management of intellectual property.

The Committee met four times during the period under review with meeting attendance being as follows:

Name of Director	Meeting dates			
	22 May 2015	24 July 2015	20 November 2015	20 February 2015
Adv. N Shaik-Peremanov	Present	Present	Present	-
Mr GP Tshelane	Present	Present	Apology	Present
Mr J Keshaw	Present	Present		
Mr Z Zibi	Apology	Apology		Apology
Prof M Sathekge Co-opted Member	Apology	Apology	Apology	Apology
Dr Z Vilakazi Co-opted member	Present	Apology	Apology	Present
Amb. MJ Seekoe Chairperson of the Board	-	-	-	Present
Mr ZS Mbambo	-	-	Apology	Apology

Investment and Finance Committee

The objective of this Committee is to provide guidance and assistance with the administrative procedures required for the completion of investment projects. The Committee met two times during the period under review as follows:

Name of Director	Meeting dates	
	27 May 2015	19 February 2016
Ms MM Mokuena Chairperson	Present	Present
Adv. N Shaik-Peremanov	Present	-
Mr GP Tshelane	Present	Present
Amb. MJ Seekoe Chairperson of the Board	-	Present

Executive Management Committee

In terms of Sections 22 and 23 of the Nuclear Energy Act, the CEO has the power and authority to, among other things, implement approved business plans, annual budgets and all other issues and matters relating to the achievement of Necsa's goals, and prepare, review and recommend to the Board the annual budgets and any amendments thereto.

The CEO, in carrying out the powers set out above, is assisted by the Executive Management Committee (EXCO). The CEO is the Chairperson of the Committee. The Committee's main functions include alignment of Necsa's business with the Group mission, vision, strategies, targets and policies and consideration of material business, strategic, financial and functional issues.

EXCO Members

Mr GP Tshelane
Chief Executive Officer

Mr MU Ramatsui
Executive Manager-Strategy and Perfomance

Mr TJ Tselane
Divisional Executive: Operations

Mr ZG Myeza
Group Executive-Finance and Business Development

Dr MS Maserumule
Divisional Executive-Research and Development

Ms MA Rasweswe
Acting Group Executive-Nuclear Compliance and Services

Mr U Natha
Chief Advisor-Strategy and Performance

Mr BM Mphahlele
Executive Manager-Business Development

Mr AB Myoli
Chief Information Officer

Mr HJ Viljoen
Head of Internal Audit

Mr VMG Malebana
Chief Legal Advisor

Ms KM Kgomotso
Chief Information Security

Ms MP Sindane
Chief Risk Officer

Mr AL Visagie
Chief Advisor-Safety Compliance

Mr X Mabhongo
Group Executive: Corporate Services

Mr AC Mabunda
Chief Legal Advisor and Company Secretariat

Details of EXCO Members for the Financial Year

Name	Capacity	Appointed to the Committee
Mr GP Tshelane	CEO	September 2012 – date
Mr ZG Myeza	Group Executive: Finance and Business Development	April 2014 – date
Mr X Mabhongo	Group Executive: Corporate Services	April 2014 – February 2016
Dr MS Maserumule	Divisional Executive: Research and Development	April 2014 – date
Mr TJ Tselane	Divisional Executive: Operations	April 2014 – date
Mr R Ramatsui	Executive Manager: Strategy and Performance (Co-opted member)	August 2013 – date
Mr AC Mabunda	Chief Legal Advisor and Company Secretariat (Co-opted member)	November 2003 – February 2016
Mr V Malebana	Chief Legal Advisor (Co-opted member)	April 2013 – date
Mr AB Myoli	Chief Information Officer (Co-opted member)	August 2013 – date
Ms K Sekgaphane	Chief Information Security (Co-opted member)	October 2013 – date
Ms M Sindane	Chief Risk Officer (Co-opted member)	January 2015 – date
Ms M Rasweswe	Acting GE: Nuclear Compliance and Services	September 2013 – date
Mr R Viljoen	Head of Internal Audit (Co-opted member)	October 2013 – date
Mr U Natha	Chief Advisor: Strategy and Performance (Co-opted member)	September 2014 – date
Mr B Mphahlele	Executive Manager: Business Development	November 2015 – date
Mr AL Visagie	Chief Advisor-Safety (Co-opted member)	October 2015 - date

Risk Management

The Board is responsible for governing risk management processes in accordance with corporate governance requirements. The enterprise-wide Risk Management Process has the following principal objectives:

- Providing the Board with assurance that significant business risks are systematically identified, assessed and reduced to acceptable levels in order to achieve an optimal risk reward balance;
- Making risk identification and risk management an integral part of the daily activities of everyone in the organisation; and
- Creating and protecting value by ensuring increased likelihood of achieving Necsa's objectives and continuous improvement of its performance.

Necsa's enterprise risk management process is guided by the following key principles:

- A clear assignment of responsibilities and accountabilities;
- A common Risk Management Framework;
- The identification of uncertain future events that may influence the achievement of business plans and strategic objectives; and
- The integration of risk management activities within the organisation and across its value chains.

The Group has established an Internal Risk Management Committee (IRMC) which seeks to:

- Assist the Executive Management Committee (EXCO) and the Board with the development and implementation of the Risk Management Strategy and Policies;
- Develop a risk management process to identify Company risks and ensure all risks are identified and addressed through internal control mechanisms;
- Assist the EXCO and the Board to review and monitor the risk management process, as well as the various possible risks Necsa is exposed to;
- Assist the EXCO and Board with ensuring that risk responses are effective and efficient in both design and operation; and
- Provide necessary information to the EXCO, the Audit Committee and any other Board Committees as may be required from time to time.

The IRMC meets on a quarterly basis to assess risk management progress and initiatives. Group risk management is guided by a Risk Management Policy and Strategy which was adopted by the EXCO and approved by the Board; and which has defined risk tolerance and acceptable risk appetite levels. In addition to this, Internal Audit conducts a risk-based audit and assesses the effectiveness of the risk management processes for assurance to both EXCO and the Board.

Necsa's integrated risk management implementation approach entails, among others, the development of strategic, functional and process risk profiles. Strategic risks are typically defined as those risks that may influence the achievement of strategic business objectives. Similarly, functional and process risks are defined as risks that may influence the achievement of functional and process objectives respectively.

Strategic Group Risks

The Necsa Group risk management process considers sustainability risks as well as current, imminent and envisaged risks that may threaten the long-term sustainability of the Group. The significant risks currently faced by the Group are discussed below.

Financial Resource Constraints

In recent years Necsa's fixed cost base has increased at a higher rate than its government grant funding. Furthermore, the achievement of sales targets as a key Necsa revenue stream has come under pressure from the local and international economic downturn. As a public entity of the DoE, Necsa is mandated to undertake specific policy implementation, legislated and ministerially delegated functions. To this extent, Necsa is dependent on government grant funding which has not kept up with inflation and the growing cost base over the past three Medium-term Expenditure Framework (MTEF) periods, thereby placing the organisation under significant financial strain.

The prolonged effort to turn around Pelchem has had a further impact on Necsa's ability to realise income noting that Necsa had to continually support the struggling subsidiary financially. The unavailability of production facilities continues to pose a threat to continued production.

In response to the financial constraints, Management implemented multiple reprioritisation exercises, a turnaround strategy within one of its divisions, and severe austerity measures to reduce expenditure and meet financial obligations. Management also established a Project Management Centre of Excellence (PMCoE).

Ageing Necsa Group Production Plants and Equipment

This is a cross-cutting risk that relates primarily to the Necsa site being 'operable' and complying with all nuclear licence and regulatory requirements. The site was developed many years ago and activities were progressively scaled down, especially during the 1990s as a result of South Africa's signing of the Nuclear Non-proliferation Treaty. However, nuclear R&D and commercial activities associated with Pelchem and NTP have continued, with the latter placing growing demand on production infrastructure and capacity.

Recent preparations for the envisaged South African Nuclear Expansion Programme and related activities require appropriate site infrastructure. However, Necsa has not received sufficient government funding to make this possible. A preventative maintenance programme has been implemented, prioritising expenditure in line with growing constraints. In certain operations requests for additional MTEF allocation for repairs and /or replacements is sought but can never be guaranteed.

Market and Production Risks Associated with the Business Operations of Pelchem

Given that both subsidiary companies and several departments are production-based and subject to fluctuating market conditions, their risks vary with time and market volatility. Risks relating to these establishments are continuously dealt with through their respective risk management processes within their governance structures. These risks are reported to the Necsa Board to ensure that a Necsa Group perspective is maintained.

Non-compliance with laws and regulations

The risk of non-compliance refers to compliance mainly with the internal policies, financial reporting requirement, performance information and all legislation pertaining to the Finance functions i.e. Income Tax Act, VAT Act, Companies Act, King III, PFMA and IFRS, which may lead to unfavourable audit results.

The risk is managed throughout the respective divisions and departments to ensure compliance with the relevant requirements. Internal Audit also provides assurance on this risk continuously.

Security of LEU

The inability to secure LEU metal, target plates, fuel plates and control rods means that Necsa may not be able to execute its mandate of operating the SAFARI-1 research reactor. This will undermine Necsa's ability to contribute to peaceful use of nuclear technology, it will further lead to one of its subsidiary i.e. NTP Radioisotopes not being able to produce radioisotopes for medicinal use which will have a direct impact on Necsa's income generation.

These risks are reported to the Necsa Board and at the respective subsidiary's boards to ensure that a Necsa Group perspective is maintained. The responsibility for monitoring the management of each of these risks is assigned to an EXCO Member.

Risk Methodology

Group Risk Management follows the Risk Management Framework of ISO 31000; Committee of Sponsoring Organisations (COSO) of the Treadway Commission, the National Treasury Risk Management Framework and King III, to ensure alignment with best practice. The Necsa Group Risk Management Strategy was reviewed and approved by the Board in March 2015. The Strategy outlines roles and responsibilities for risk identification, assessment and management as well as the overall risk management process.

As a nuclear organisation operating a nuclear research reactor, sustainability risks relating to safety, security, regulatory compliance and commercial success of subsidiaries define Necsa's risk tolerance at a risk rating level of ≥16 (i.e. those risks with high impact and high likelihood of occurrence). Necsa's risk appetite has been defined as "No risk may remain in the very high (unacceptable) category (15< rating ≤25) for longer than two consecutive quarters (six months) before being managed into a more acceptable (lower) risk category (rating ≤15)".

Risk Management Assurance

Assurance for the Risk Management Process is provided through a series of interrelated processes which include the Internal Risk Management Committee, Internal Audit, the Audit Committee and ultimately the Board. A matured combined assurance process is envisaged for Necsa where assurance for all relevant functions will be integrated. Disaster Recovery Plans are continually reviewed for critical information management systems that could have a material impact on the Group's continuing operations.

Fraud Prevention

In addition to the Risk Management Plan, Necsa annually prepares a Fraud Prevention Plan for approval by the Audit Committee. The plan outlines and prioritises Fraud Prevention activities to be undertaken for the year. In this regard a fraud prevention hotline is in place, as a response mechanism aiming to prevent and/or reduce fraud and corruption. Continuous awareness on fraud prevention is undertaken as a combined effort throughout the organisation.

16 REMUNERATION REPORT

Remuneration Approach

The principle of 'performance-based remuneration' is one of the cornerstones of the reward philosophy, which is underpinned by sound remuneration management and governance and promoted throughout the organisation to ensure consistent application. This approach is designed to:

- Attract, motivate and retain the right employees who will deliver business success;
- Offer a holistic employee value proposition;
- Ensure that the sum total of the rewards offering is competitive, well defined, branded and communicated in such a way that employees value it;
- Optimise the return on investment of remuneration and benefits by balancing the reward offering in terms of financial and nonfinancial rewards; and
- Ensure that the Company complies with corporate governance guidelines in the way that remuneration is managed.

Remuneration Principles

To ensure the integrity and legitimacy of the total reward approach, the development and application of reward-related policies, programmes and practices as well as reward decisions are directed by core guiding principles contained in the reward philosophy. The reward philosophy is underpinned by sound remuneration management and governance principles which are promoted throughout Necsa to ensure consistent application. Principles include:

- All reward policies and practices should be free of inequitable distinctions;
- Investment in human capital on the basis of affordability and return on investment using all elements of the total reward which include:
  - Fixed remuneration;
  - Benefits;
  - Work-life balance;
  - Performance management;
  - Development and career opportunities;
- The reward and recognition of high performance;
- An effective, workable performance management system which allows for the differentiation of pay for individuals and teams that are performing and delivering value for the business;
- A tightly managed salary bill in order for the business to fund the various aspects of the total reward environment; and
- Clear principles around pay practices, levels, performance management and cost management.

Necsa undertakes to remunerate executive employees in line with market benchmarks, taking into account:

- The size of the company;
- Budget;
- Economic indicators; and
- The type of company.

A number of variables will, from time to time, influence the remuneration of Executives, such as:

- The maturity of Necsa;
- Trends in remuneration practices; and
- The financial status of the organisation.

Base Salary

Executive employees are paid a guaranteed package, based on the 'total cost to company' principle.

Remuneration of Non-executive Directors

The remuneration of Necsa's Non-executive Directors is determined by the Minister of Energy in terms of the Nuclear Energy Act, No. 46 of 1999. In making her determination in this respect, the Minister also takes into account the relevant National Treasury Regulations and/or Framework on Remuneration of Non-executive Directors of state-owned entities.

Board Members Remunerated During the Financial Year

	Fees	Running Cost	Travel Cost	Company Contribution SDL	Company Contribution COIDA	Total
Adv. N Shaik-Peremanov						
Apr-15	6 464.00	760.24	-	135.36	134.14	7 493.74
May-15	21 760.00	667.42	-	222.94	219.79	22 870.15
Jun-15	10 816.00	1 000.00	-	116.16	115.80	12 047.96
Jul-15	33 024.00	1 255.28	-	340.28	290.53	34 910.09
Aug-15	-	-	-	-	-	0.00
Sep-15	-	-	-	-	-	0.00
Oct-15	-	-	-	-	-	0.00
Nov-15	-	-	-	-	-	0.00
Dec-15	-	-	-	-	-	0.00
Jan-16	-	-	-	-	-	0.00
Feb-16	-	-	-	-	-	0.00
Mar-16	-	-	-	-	-	0.00
	72 064.00	**3 682.94**	**0.00**	**814.74**	**760.26**	**77 321.94**

Dr MJ Seekoe						
Apr-15	8 688.00	-	-	86.88	85.14	8 860.02
May-15	52 128.00	-	-	521.28	290.53	52 939.81
Jun-15	-	-	-	-	-	0.00
Jul-15	8 688.00	-	-	86.88	85.14	8 860.02
Aug-15	95 568.00	-	-	955.68	290.53	96 814.21
Sep-15	8 688.00	-	-	86.88	85.14	8 860.02
Oct-15	60 816.00	-	-	608.16	290.53	61 714.69
Nov-15	43 440.00	-		434.40	290.53	44 164.93
Dec-15						0.00
Jan-16	34 752.00			347.52	340.56	35 440.08
Feb-16	43 440.00			434.40	290.53	44 164.93
Mar-16	80 800.00			373.60	290.53	81 464.13
	437 008.00	**0.00**	**0.00**	**3 935.68**	**2 339.16**	**443 282.84**

	Fees	Running Cost	Travel Cost	Company Contribution SDL	Company Contribution COIDA	Total
Ms MM Mokuena						
Apr-15	6 464.00	-	-	129.28	126.69	6 719.97
May-15	13 056.00	-	-	130.56	127.95	13 314.51
Jun-15	4 352.00	-	-	43.52	42.65	4 438.17
Jul-15	22 336.00	-	-	223.36	218.89	22 778.25
Aug-15	-	-	-	-	-	0.00
Sep-15	15 168.00	-	-	151.68	148.65	15 468.33
Oct-15	-	-	-	-	-	0.00
Nov-15	-	-	-	-	-	0.00
Dec-15	-	-	-	-	-	0.00
Jan-16	-	-	-	-	-	0.00
Feb-16	-	-	-	-	-	0.00
Mar-16	-	-	-	-	-	0.00
	61 376.00	**0.00**	**0.00**	**678.40**	**664.83**	**62 719.23**

Mr AN Mhlongo						
Apr-15	-	-	-	-	-	0.00
May-15	-	-	-	-	-	0.00
Jun-15	8 704.00	-	-	-	-	8 704.00
Jul-15	-	-	-	-	-	0.00
Aug-15	-	-	-	-	-	0.00
Sep-15	4 352.00	-	-	-	-	4 352.00
Oct-15	-	-	-	-	-	0.00
Nov-15	-	-	-	-	-	0.00
Dec-15	-	-	-	-	-	0.00
Jan-16	-	-	-	-	-	0.00
Feb-16	-	-	-	-	-	0.00
Mar-16	4 342.00	-	-	43.42	42.55	4 427.97
	17 484.00	**0.00**	**0.00**	**43.42**	**42.55**	**17 484 .00**

	Fees	Running Cost	Travel Cost	Company Contribution SDL	Company Contribution COIDA	Total
Mr J Kellerman						
Apr-15	-	-	-	-	-	0.00
May-15	1 414.40	-	-	11.32	13.86	1 439.58
Jun-15	786.76	-	-	6.29	7.71	800.76
Jul-15	-	-	-	-	-	0.00
Aug-15	-	-	-	-	-	0.00
Sep-15	-	-	-	-	-	0.00
Oct-15	-	-	-	-	-	0.00
Nov-15	-	-	-	-	-	0.00
Dec-15	-	-	-	-	-	0.00
Jan-16	-	-	-	-	-	0.00
Feb-16	-	-	-	-	-	0.00
Mar-16	-	-	-	-	-	0.00
	2 201.16	**0.00**	**0.00**	**17.61**	**21.57**	**2 240.34**

Remuneration of Executive Directors and Top Earning Employees

Remuneration of Executive Directors

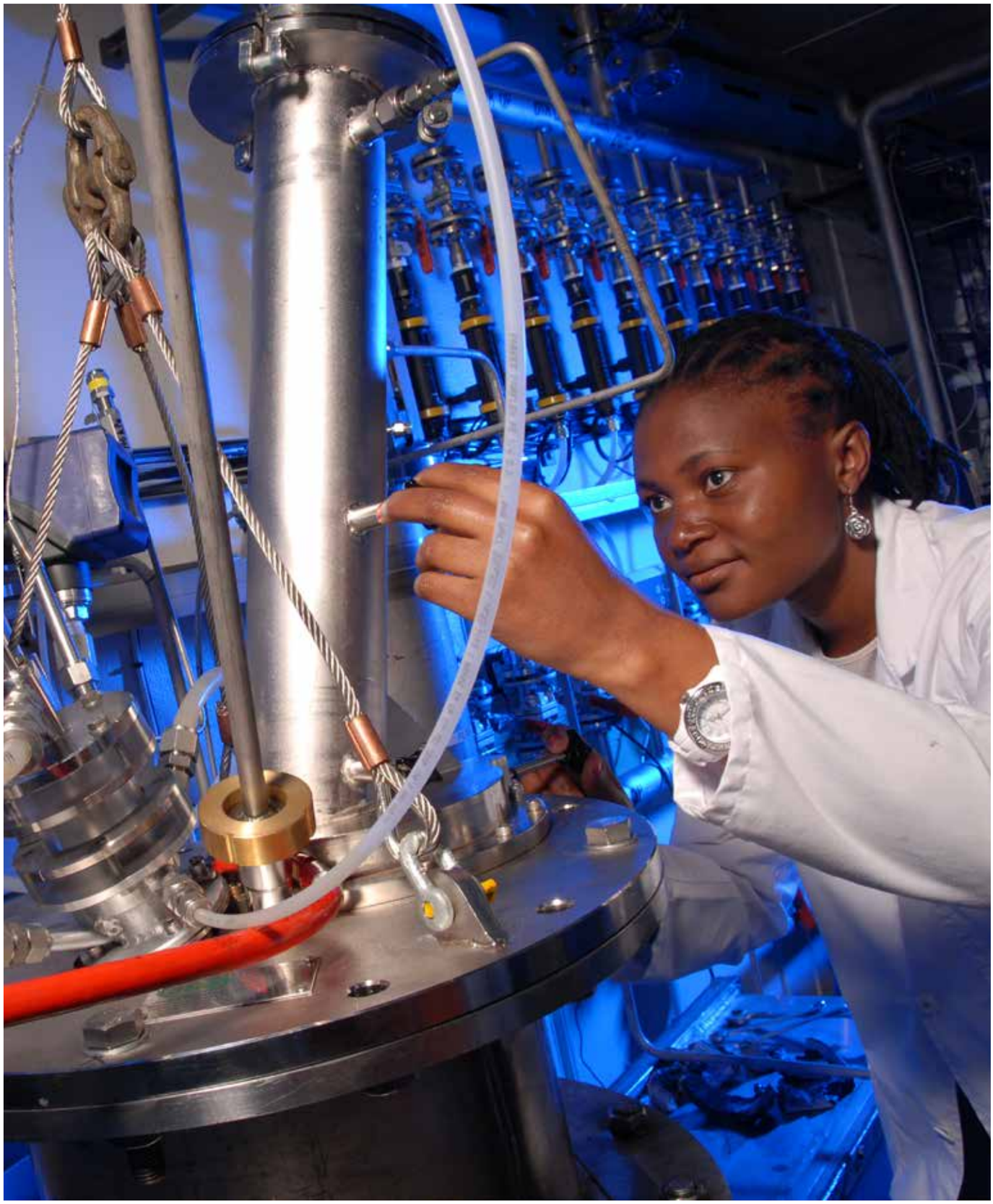
The Necsa Board's Social and Ethics Committee, details of which are reported in the Corporate Governance Report, oversees the principles for remuneration of executive employees. Implementation is managed through the Human Resources Department and the Finance and Business Development Division.

Adjustments to the remuneration of Executive Directors are recommended by the Social and Ethics Committee and are approved by the Board of Directors. Remuneration of Executive Directors is disclosed under Note 41 in the Financial Statements.

Three Most Higly Remunerated Non-Executive Employees

Name	Organisation	Remuneration
HG Wortmann	NTP	R 1 805 532
GJ Selome	NTP	R 1 771 408
MR Selome	NTP	R 1 726 384


TAMPO
necsa



17 FINANCIAL REPORT

Level of assurance
These Annual Financial Statements have been audited in compliance with the applicable requirements of the Companies Act 71 of 2008.

Preparer
Mororiseng Nyathi
Manager: Financial Compliance

Supervised by
Zakes Myeza
Chief Financial Officer
Published

16 September 2016

Directors' Responsibilities and Approval

The Directors are required in terms of the Companies Act 71 of 2008 and the Public Finance Management Act No. 1 of 1999 (PFMA) to maintain adequate accounting records and are responsible for the content and integrity of the Annual Financial Statements (AFS) and related financial information included in this report. It is their responsibility to ensure that the Annual Financial Statements fairly present the state of affairs of the Group as at the end of the financial year and the results of its operations and cash flows for the period then ended, in conformity with South African Statements of Generally Accepted Accounting Practice. The external auditors are engaged to express an independent opinion on the Annual Financial Statements.

The Annual Financial Statements are prepared in accordance with South African Statements of Generally Accepted Accounting Practice and are based upon appropriate accounting policies consistently applied and supported by reasonable and prudent judgements and estimates.

The Directors acknowledge that they are ultimately responsible for the system of internal financial control established by the Group and place considerable importance on maintaining a strong control environment. To enable the Directors to meet these responsibilities, the Board of Directors sets standards for internal control aimed at reducing the risk of error or loss in a cost effective manner. The standards include the proper delegation of responsibilities within a clearly defined framework, effective accounting procedures and adequate segregation of duties to ensure an acceptable level of risk. These controls are monitored throughout the Group and all employees are required to maintain the highest ethical standards in ensuring the Group's business is conducted in a manner that in all reasonable circumstances is above reproach. The focus of risk management in the Group is on identifying, assessing, managing and monitoring all known forms of risk across the Group. While operating risk cannot be fully eliminated, the Group endeavours to minimise it by ensuring that appropriate infrastructure, controls, systems and ethical behaviour are applied and managed within predetermined procedures and constraints.

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

The Directors have reviewed the Group's cash flow forecast for the year to 31 March 2017 and, in the light of this review and the current financial position, they are satisfied that the Group has or has access to adequate resources to continue in operational existence for the foreseeable future. The Group is largely dependent on the receipt of grant funding from the Government of R 599.3 million for the continued funding of operations for the 2016/2017 financial year. This funding has been approved. The Medium Term Expenditure Framework (MTEF) of the National Government has also allocated funding for the succeeding two financial years. Nothing has come to the attention of the directors to indicate that the Group will not remain a going concern for the foreseeable future.

The Directors wish to note, as a matter of emphasis, that in 2014/15 and 2015/16 financial years, significant liabilities regarding decommissioning and decontamination of past strategic nuclear facilities were raised in the books of Necsa, resulting in a negative impact on Necsa's financial position. The background to these transactions and their specific impact is as follows:

In March 2016 Senior Counsel's opinion was obtained by the Department of Energy and it concluded that Necsa, and not the Department of Energy, is liable to Decommission and Decontaminate (D&D) strategic nuclear facilities currently in operation (Stage 2). In terms of Accounting Standards, Necsa has had to recognise this liability in its financial statements, although the D&D process (and the resulting cash flows) may only commence in 2030 or later. Although Senior Counsel also opined that the State has an obligation to fund these liabilities, Accounting Standards dictate that such obligation cannot yet be recognised as an asset without Cabinet approval that will confirm certainty of funding. The process to obtain such approval for these operational facilities, similarly to Stage 1 Cabinet approval obtained in November 2005 for disused facilities, is well underway.

The recognition of this liability has negatively impacted the Equity of the Company and the Group in the amount of R209 million in the 2014/15 financial year and a further charge of R255 million in 2015/16.

Refer to note 47 for further discussion on the company's D&D obligations.

Despite this significant negative impact to Equity, the Group and the Company are still solvent; and once Cabinet approves funding, solvency will be enhanced.

The external auditors are responsible for independently reviewing and reporting on the Group's Annual Financial Statements. The Annual Financial Statements have been examined by the Group's external auditors and their report is presented in the annual financial statements on page 106.

The Annual Financial Statements as indexed on page 103, which have been prepared on the going concern basis, was approved by the directors on 16 September 2016 and was signed on its behalf by:

Dr KR Kemm (Chairperson) **Mr GP Tshelane (Necsa CEO)**

Pelindaba

16 September 2016

Independent Auditors' Report

Report of the Auditor-General to Parliament on the South African Nuclear Energy Corporation SOC Limited

Report on the Consolidated and Separate Financial Statements

Introduction

1. I have audited the consolidated and separate financial statements of the South African Nuclear Energy Corporation SOC Limited (NECSA) and its subsidiaries set out on pages 118 to 209, which comprise the consolidated and separate statement of financial position as at 31 March 2016, the consolidated and separate statement of comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, as well as the notes, comprising a summary of significant accounting policies and other explanatory information.

Accounting Authority's Responsibility for The Separate and Consolidated Financial Statements

2. The board of directors, which constitutes the accounting authority, is responsible for the preparation and fair presentation of these consolidated and separate financial statements in accordance with the South African Statements of Generally Accepted Accounting Practice (SA Statements of GAAP) and the requirements of the Public Finance Management Act of South Africa, 1999 (Act No. 1 of 1999) (PFMA) and the Companies Act of South Africa, 2008 (Act No. 71 of 2008), and for such internal control as the accounting authority determines is necessary to enable the preparation of consolidated and separate financial statements that are free from material misstatement, whether due to fraud or error.

Auditor-General's Responsibility

3. My responsibility is to express an opinion on these consolidated and separate financial statements based on my audit. I conducted my audit in accordance with International Standards on Auditing. Those standards require that I comply with ethical requirements, and plan and perform the audit to obtain reasonable assurance about whether the consolidated and separate financial statements are free from material misstatement.

4. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated and separate financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the consolidated and separate financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the consolidated and separate financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the consolidated and separate financial statements.

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

Opinion

6. In my opinion, the consolidated and separate financial statements present fairly, in all material respects, the financial position of the NECSA and its subsidiaries as at 31 March 2016 and their financial performance and cash flows for the year then ended, in accordance with SA Statements of GAAP and the requirements of the PFMA and Companies Act of South Africa.

Emphasis of Matter Paragraphs

7. I draw attention to the matters below. My opinion is not modified in respect of these matters.

Financial Sustainability

8. The accounting authority's report on page 120 to the financial statements indicates that the NECSA SOC Limited company incurred a net operating loss of R 86 203 000 during the year ended 31 March 2016. This, along with other matters as set forth in note 44, indicate the existence of an uncertainty that may cast doubt on the public entity's ability to operate as a going concern.

Irregular Expenditure

9. As disclosed in note 45 to the financial statements, the public entity incurred irregular expenditure of R33 334 385 during the year ended 31 March 2016. This was as a result of non-compliance with the Preferential Procurement Regulations and the PFMA. The full extent for year ended 31 March 2015 was only quantified by 31 March 2016 and disclosed as a prior year restatement, and irregular expenditure of R 128 328 552 for the year ended 31 March 2015 has been disclosed.

Additional Matter Paragraphs

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

Other Reports Required By the Companies Act

11. As part of our audit of the financial statements for the year ended 31 March 2016, I have read the Directors' Report, the Audit and Risk Committee's Report and the Company Secretary's Certification for the purpose of identifying whether there are material inconsistencies between the reports and the audited financial statements. These reports are the responsibility of the respective preparers. I have not audited these reports and accordingly do not express an opinion on them.

Report on Other Legal and Regulatory Requirements

12. In accordance with the Public Audit Act of South Africa, 2004 (Act No. 25 of 2004) (PAA) and the general notice issued in terms thereof, I have a responsibility to report findings on the reported performance information against predetermined objectives for selected objectives presented in the annual performance report, non-compliance with legislation and internal control. The objective of my tests was to identify reportable findings as described under each subheading but not to gather evidence to express assurance on these matters. Accordingly, I do not express an opinion or conclusion on these matters.

Independent Auditors' Report

Predetermined Objectives

13. I performed procedures to obtain evidence about the usefulness and reliability of the reported performance information for the following selected objectives presented in the annual performance report of the public entity for the year ended 31 March 2016:

- Objective 1: Pelchem Group financials: Net profit after tax Targets on page 80.
- Objective 2: NTP Group financials: Net profit after tax Targets on page 80.
- Objective 3: SAFARI-1 Operation: SAFARI-1 operational availability (reactor days available per year) Targets on page 80.
- Objective 4: D&D programme execution: Execution of Annual Plan of Action as approved by DoE Targets on page 81.
- Objective 5: Compliance to SHEQ, license and other regulatory requirements: Disabling Injury Incidence Rate (DIIR) Targets on page 81.
- Objective 6: Compliance to SHEQ, license and other regulatory requirements: Public dose impact (expressed as % of allowable limit) Targets on page 81.
- Objective 7: NECSA Corporate financials: External Sales (incl Intra Group Sales) Targets on page 81.

14. I evaluated the usefulness of the reported performance information to determine whether it was presented in accordance with the National Treasury's annual reporting principles and whether the reported performance was consistent with the planned objectives. I further performed tests to determine whether indicators and targets were well defined, verifiable, specific, measurable, time bound and relevant, as required by the National Treasury's Framework for managing programme performance information (FMPPI).

15. I assessed the reliability of the reported performance information to determine whether it was valid, accurate and complete.

16. I did not identify any material findings on the usefulness and reliability of the reported performance information for the following objectives:

- Objective 1: Pelchem Group financials: Net profit after tax Targets on page 80.
- Objective 2: NTP Group financials: Net profit after tax Targets on page 80.
- Objective 3: SAFARI-1 Operation: SAFARI-1 operational availability (reactor days available per year) Targets on page 80.
- Objective 4: D&D programme execution: Execution of Annual Plan of Action as approved by DoE Targets on page 81.
- Objective 5: Compliance to SHEQ, license and other regulatory requirements: Disabling Injury Incidence Rate (DIIR) Targets on page 81.
- Objective 6: Compliance to SHEQ, license and other regulatory requirements: Public dose impact (expressed as % of allowable limit) Targets on page 81.
- Objective 7: NECSA Corporate financials: External Sales (incl Intra Group Sales) Targets on page 81.

Additional Matters

17. I draw attention to the following matter:

Achievement of Planned Targets

18. Refer to the annual performance report on pages 80-81 for information on the achievement of the planned targets for the year.

Compliance with Legislation

19. I performed procedures to obtain evidence that the public entity had complied with applicable legislation regarding financial matters, financial management and other related matters. My findings on material non-compliance with specific matters in key legislation, as set out in the general notice issued in terms of the PAA, are as follows:

Strategic Planning and Performance Management

20. A shareholder's compact was not concluded with the Minister of Energy as required by Treasury Regulation 29.2.1.

Financial Statements, Performance and Annual Reports

21. The accounting authority did not submit the financial statements for auditing within two months after the end of financial year, as required by section 55(1)(c)(i) of the Public Finance Management Act.

22. The financial statements submitted for auditing were not prepared in accordance with the prescribed financial reporting framework and supported by full and proper records as required by section 55(1) (a) of the Public Finance Management Act and section 29(1)(a) of the Companies Act (Registered Companies). Material misstatements were identified by the auditors in the submitted financial statement were subsequently corrected and the supporting records were provided subsequently, resulting in the financial statements receiving an unqualified audit opinion.

Expenditure Management

23. Effective steps were not taken to prevent irregular expenditure, amounting to R33 334 385 as disclosed in note 45 of the AFS, as required by section 51(1)(b)(ii) of the PFMA and Treasury Regulation 9.1.1.

Procurement and Contract Management

24. Contracts and quotations were awarded to bidders based on points given for criteria that were not clearly stipulated in the original invitation for bidding and quotations, in contravention of the Preferential Procurement Regulations.

Enabling Legislation

25. The Board of Directors was not constituted as required by Section 16 of the Nuclear Energy Act 1999 (Act No 46 of 1999).

Internal Control

26. I considered internal control relevant to my audit of the financial statements, the annual performance report and compliance with legislation. The matters reported below are limited to the significant internal control deficiencies that resulted in the findings on non-compliance with legislation included in this report.

Independent Auditors' Report

Leadership

27. Numerous directors resigned in the current financial year, resulting in the board acting with diminished capacity and as a result could not effectively monitor reporting, compliance with laws and regulations and internal control as material adjustments were made to the financial statements subsequent to submission.

Financial and Performance Management

28.The entity did not prepare regular, accurate and complete financial reports that are supported and evidenced by reliable information.

29.Non-compliance with laws and regulations could have been prevented had compliance been properly reviewed and monitored. Re-alignment of policies and procedures is needed to adequately address the control environment to ensure that preventative actions are taken to avoid non-compliance with key legislation.

Auditor-General

Pretoria
20 September 2016

AUDITOR-GENERAL
SOUTH AFRICA

Auditing to build public confidence

Report of the Audit and Risk Committee

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

We are pleased to present our report for the financial year ended 31 March 2016.

1. Audit and Risk Committee Terms of Reference

The Audit and Risk Committee reports that it has adopted formal terms of reference that have been approved by the Board of Directors. The Committee has conducted its affairs in compliance with its terms of reference and has discharged its responsibilities contained therein. The terms of reference are available on request.

2. Audit and Risk Committee Members, Meeting Attendance and Qualifications

The Committee is independent and consists of four independent, Non-Executives Directors. It meets at least four times per year as per its terms of reference. Attendance of meetings, dates of appointments as well as qualifications of the members are included in the governance report.

3. Roles and Responsibilities

3.1 Statutory Duties

The Committee's role and responsibilities include statutory duties as per the Companies Act, PFMA and further responsibilities assigned to it by the Board of Directors.

3.2 External Auditor Appointments and Independence

The Committee has satisfied itself that the external auditor was independent of the Group, as set out in the Companies Act, which includes consideration of conflicts of interest as prescribed by the Public Auditors Act (PAA). Requisite assurance was sought and provided by the external auditor that internal governance processes within the audit firm support and demonstrate its claims to independence.

The Committee, in consultation with executive management, agreed to the engagement letter, audit plan and budgeted audit fees for the 2016 financial year.

3.3 Financial Statements and the Accounting Practices

The Committee has evaluated the Annual Financial Statements of the company and the Group for the year ended 31 March 2016 and based on the information provided to the Committee, considers that the Annual Financial Statements comply, in all material respects with the requirements of the Companies Act and the PFMA, and South African Statements of the Generally Accepted Accounting Practice. The Committee concurs that the adoption of the going concern premise in the preparation of the Annual Financial Statements is appropriate. The Committee has recommended the adoption of the Annual Financial Statements and the integrated annual report by the Board of Directors.

The Audit and Risk Committee has:

- Reviewed and discussed with the Auditor General and Accounting Authority the audited Annual Financial Statements;
- Reviewed the Auditor General's management letter and management response;
- Reviewed changes in accounting policies and practices;
- Reviewed significant adjustments resulting from the audit; and
- Reviewed and discussed with the Accounting Authority, Performance Information submitted to the Auditor General.

3.4 Internal Finacial Controls

The Committee is satisfied that internal controls and systems have been put in place and that these controls have functioned effectively during the period under review. The Committee has overseen a process by which internal audit has performed audits according to a risk based audit plan where the effectiveness of the risk management and internal controls were evaluated. The findings of these evaluations formed the basis for the Committee's recommendations in this regard to the Board of Directors, in order for the Board of Directors to report thereon.The Audit an Risk Committee is satisfied, based on the information and explanations given by management and the internal audit department as well as through discussion with the Auditor General on the result of their audits that an adequate system of internal control is being maintained to:

- Reduce the entity's risk to an acceptable level;
- Meet the business objectives of the organization;
- Review changes in accounting policies and practices;
- Ensure the organisation's assets are adequately safeguarded; and
- Ensure that the transactions undertaken are recorded in the organisation's records accurately and timely.

3.5 Going Concern

The Committee has reviewed management's assessment of the going concern status of the Group and has made recommendation to the Board of Directors that the Group is a going concern.

3.6 Internal Audit

The Committee is responsible for ensuring that the Group's Internal Audit is independent and has the necessary resources, standing and authority within the Group to enable it to discharge its duties. Furthermore, the Committee oversees cooperation between the internal and external auditors and serves as a link between the Board of Directors and these functions. The Committee considered and approved the internal audit charter. The internal audit function's annual audit plan and three year strategic plan were approved by the Committee.

The internal audit function reports administratively to the Chief Executive Officer and functionally to this Committee and is responsible for reviewing and providing assurance on the adequacy of the internal control environment across all of the Group's operations. The Internal Audit Manager has direct access to the Committee, primarily through its Chairperson.

From the various reports of the internal auditors, it was noted that no matters were reported that indicate any material deficiencies in the systems of internal control. Risks that have been identified through various processes are being addressed.

3.7 Expertise and Experience of Chief Financial Officer and Finance Function

The Committee has satisfied itself that the Chief Financial Officer has appropriate expertise and experience. The Committee has considered, and has satisfied itself of the appropriateness of the expertise and the adequacy of resources of the finance function and experience of the senior members of management responsible for the financial function.

3.8 Governance of Risk

The Committee oversees the implementation of the policy and plan for risk management taking place by means of risk management systems and processes. The Committee is satisfied that appropriate and effective systems are in place for risk management.

3.9 Submission of Annual Report and Financial Statements

Necsa did not comply with the requirements of Section 55 of the Public Finance Management Act (PFMA) in terms of submitting the Draft Annual Financial Statements for 2015/16 to the shareholder; Department of Energy, Auditor General of South Africa (AGSA) and National Treasury by 31 May 2016, but only submitted the Draft on 25 July 2016.

Necsa requested an extension to submit Draft AFS from 31 May 2016 to 30 June 2016. The non-submission of the 2015/16 AFS was delayed by the re-opening of the 2014/15 audit and the complexities of the accounting treatment of both the Stage 1 and Stage 2 Decommissioning and Decontamination (D&D) liabilities The 30 June 2016 deadline was also not adhered to mainly due unanticipated delays in resolving these complex accounting issues..

Necsa, together with the AGSA sought to obtain Senior Counsel opinion and technical expertise in order to obtain the correct accounting treatment of these liabilities. Due to the unique nature of Necsa being the only nuclear entity in the country and few in the world, the requisite skills were not easily available.

3.10 Auditor General

The Committee accepts the audit opinion of the Auditor General on the Annual Financial Statements and recommends that the audited Annual Financial Statements be accepted and read together with the report of the Auditor General

On behalf of the audit committee

Ms P Bosman

Chairperson Audit Committee

Pelindaba

16 September 2016

Group Secretary's Certification

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Declaration by the Group secretary in respect of Section 88(2)(e) of the Companies Act

In terms of Section 88(2)(e) of the Companies Act, No 71 of 2008, as amended, I certify that the Group has lodged with the Commissioner all such returns as are required of a stated owned company in terms of the Companies Act and that all such returns are true, correct and up to date.

First Corporate Transfer Secretaries (Pty) Ltd

Company Secretary

Pelindaba

16 September 2016

Directors' Report

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

The Directors have pleasure in submitting their report on the Annual Financial Statements of The South African Nuclear Energy Corporation SOC Limited and its Group Companies for the year ended 31 March 2016.

1. Incorporation

The Company was incorporated on 24 February 2000 as a schedule 2 public entity in terms of the PFMA and obtained its certificate to commence business on the same day.

2. Review of financial results and activities

Necsa derives its mandate from the Act and the Minister of Energy (the Minister) to manage and operate certain of the Republic's nuclear and related objectives.

Necsa has been assigned the responsibility for managing certain institutional obligations of the Republic as defined in the Act.The main functions of the Company are:

- To undertake and promote research and development in the field of nuclear energy and radiation sciences and technology and subjected to the Safeguards agreement, to make these generally available;
- To process source material, special nuclear material and restricted material and to process and enrich source material and nuclear material; and
- To co-operate with any person or institution in matters falling within these functions subject to the approval of the minister.

Ancillary powers and functions may be granted to the Group:

-In connection with its main functions;
-In order to create and utilise viable business opportunities in commerce and industry; and
-In order to undertake the development and/or exploitation of nuclear technology or nuclear related technology.

With regard to its nuclear related activities Necsa is governed by Nuclear Installations Licences (NIL's) issued by the National Nuclear Regulator (NNR) in terms of the Nuclear Regulator Act 47 of 1999.

The subsidiaries in turn, have a mandate from Necsa to operate the companies in a self-sustainable manner and to remain competitive in the industries within which they operate. Full details of the financial position, results of operations and cash flows of the Group are set out in these Consolidated Annual Financial Statements.

3. Dividends

No dividends were declared or paid to the shareholder during the period under review.

Directors' Report

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

4. Directorate

The Directors in office at the date of this report are as follows:

Directors	Designation	Changes
Dr Ambassador MJ Seekoe (Chairperson)	Non-executive	Resigned 23 March 2016
Ms Ambassador NJ Mxakato-Diseko (Deputy Chairperson)	Non-executive	Resigned 31 July 2015
Adv N Shaik-Peremanov	Non-executive	Resigned 04 August 2015
Dr KR Kemm (Chairperson)	Non-executive	Appointed 23 March 2016
Ms MM Mokuena	Non-executive	Resigned 31 October 2015
Mr Z Zibi (alternate to Mr J Keshaw)	Non-executive	Resigned 24 July 2015
Mr J Kellerman (Alternate to NJ Mxakato-Diseko)	Non-executive	Resigned 31 July 2015
Mr GP Tshelane	Executive	
Dr X Mkhwanazi	Non-executive	Appointed 23 March 2016
Dr N Magau	Non-executive	Appointed 23 March 2016
Ms R Mosia	Non-executive	Appointed 23 March 2016
Mr N Ngcobo	Non-executive	Appointed 23 March 2016
Ms P Bosman	Non-executive	Appointed 23 March 2016
Mr Z Ngidi	Non-executive	Appointed 23 March 2016
Prince K Tshivhase	Non-executive	Appointed 23 March 2016

From 01 August 2015 to 23 March 2016 the Necsa Board did not meet the required number of directors as stipulated under the Nuclear Energy Act and Articles as the process to appoint new directors to the Board was underway. Before the 31 March 2016 Financial year-end the Necsa Board was fully capacitated following appointment of new directors by the Shareholder.

5. Directors' interests in contracts

During the financial year, no contracts were entered into which Directors or officers of the Group had an interest and which significantly affected the business of the Group.

Directors' Report

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

6. Interests in Subsidiaries

Name of Company	Nature of Business	Issued Share Capital		Effective percentage		Number of Shares		Profit/(Loss) after taxation	
		2016	2015	2016	2015	2016	2015	2016	2015
		R	R	%	%			R'000	R'000
ARECSA Human Capital SOC Ltd [6]	Training in nuclear & related industries	1,000	1,000	51	51	510	510	80	54
Cyclofil SOC Ltd [6]	Dormant	1	1	100	100	1	1	-	-
NTP Radioisotopes SOC Ltd	Marketing and distribution of radiopharma-ceuticals	220	220	100	100	220	220	121,873	28,438
NTP Logistics SOC Ltd [1]	Logistics	100	100	51	51	51	51	7,487	6,882
NTP Radioisotopes Europe SA [1]	Supply isotopes and accessories for the radiographic non-destructive testing market.	726,137	726,137	100	100	4,734	1,000	(30,000)	(39,647)
AEC Amersham SOC Ltd [1]	Marketing of radiopharma-ceutical products	4,000	4,000	100	100	4,000	4,000	4,816	6,699
Pharmatopes SOC Ltd [3]	Dormant	1,000	1,000	100	100	1,000	1,000	-	-
Gammatec NDT Supplies SOC Ltd [1]	Non destructive testing equipment and accessories	300	300	55	55	165	165	3,400	(15,509)
Gammatec Aseana NDT Supplies SDN.BHD [4]	Non-destructive testing equipment, accessories and consumables	860,074	860,074	55	55	275,000	275,000	1,560	(362)
Gamma Film Industries SOC Ltd [4]	Dormant	100	100	55	55	55	55	-	-
Gammatec Middle East General Trading Liability Co [4]	Non-destructive testing equipment, accessories and consumables	414,270	414,270	41.81	41.81	125	125	(738)	(3, 578)
Lectromax Australia Pty Ltd [4]	Non-destructive testing equipment	91	91	49,5	49,5	10	10	(2,944)	(3,525)
Lectromax New Zealand Pty Ltd [5]	Dormant	-	-	-	-	-	-	-	-
Pelchem SOC Ltd [6]	Fluorochemical products	770,310	770,310	100	100	770,310	77,0310	28,648	(18,127)
Fluoro Pack SOC Ltd [2]	Dormant	100	100	100	100	100	100	-	-
Fluorochem SOC Ltd [2]	Dormant	100	100	100	100	100	100	-	-
Fluoropharm SOC Ltd [2]	Dormant	4,000	4,000	100	100	4,000	4,000	-	-
Limited Electronics South Africa SOC Ltd [2]	Manufacturing and distribution of Nitrogen Tri-Fluoride	1,000	1,000	100	100	1,000	1,000	3,123	(219)

[1] Subsidiary of NTP Radioisotopes SOC Ltd
[2] Subsidiary of Pelchem SOC Ltd
[3] Subsidiary of AEC Amersham SOC Ltd
[4] Subsidiary of Gammatec NDT Supplies SOC Ltd
[5] Subsidiary of Lectromax Australia (Pty) Ltd
[6] Subsidiary of Necsa SOC Limited

Details of the Group's investment in subsidiaries are set out in note 7.

Directors' Report

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

7. Interest in Associates

Name of Company	Nature of Business	Issued Share Capital		Effective Percentage		Number of Shares	
		2016	2015	2016	2015	2016	2015
		R	R	%	%		
Business Venture Exploration Investments No. 33 (Pty) Ltd [2]	Dormant	3,840	3,840	41.61	41.61	1,598	1,598
Gamwave (Pty) Ltd (formerly Cyclotope) [3]	Radiation of food sources	100	100	40	40	40	40
Oserix [1]	Supply isotopes and accessories for the radiographic non-destructive testing market	582	582	13.75	13.75	80	80
Element 42 [3]	Dormant	-	-	50	50	-	-

[1] Associate of Gammatec NDT Supplies SOC Ltd
[2] Associate of Necsa SOC Limited
[3] Associate of NTP Radioisotopes SOC Ltd

Details of the Group's investment in associates are set out in note 8.

8. Holding Entity

The Company's sole shareholder is the State, represented by the Minister of Energy.

9. Events after the reporting period

The Directors are not aware of any material event which occurred after the reporting date and up to the date of this report, which would require adjustment to or disclosure in the financial statements.

Directors' Report

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

10. Going concern

The Annual Financial Statements have been prepared on the basis of accounting policies applicable to a going concern. According to the Conceptual Framework of Financial Reporting, the financial statements are prepared using the underlying assumption that funds will be available to finance future operations and that the realisation of assets and settlement of liabilities, contingent obligations and commitments will occur in the ordinary course of business.

The ability of the Group to continue as a going concern is dependent on grant funding from the Government. Funding for the 2016/17 financial year has been approved; and as per the Medium Term Expenditure Framework (MTEF) of the National Government funding has also been allocated for the 2017/18 and 2018/19 financial years.

In considering whether the Group and the Company are going concerns the following is noted:

Necsa is established in terms of the Nuclear Energy Act (the Act) and is the successor in title to the Atomic Energy Corporation which has been in existence since 1950. Its main functions and ancillary powers and functions are prescribed by the Act. The Act prescribes how Necsa will be funded; it specifically states that, amongst other sources of funding, Necsa's will be funded and provided with capital from money appropriated by Parliament and income derived from the sale or other commercial exploitation of its products. Further, the Act requires that Necsa must in respect of each financial year submit a statement of estimated income and expenditure for approval to the Minister of Energy (the Minister) and the Minister may approve the statement with the agreement of the Minister of Finance. The Act also states that Necsa may not be placed under judicial management or in liquidation except if authorised by an Act of Parliament. The group's intellectual property and its main operations are considered strategic to the Republic, hence the direct involvement of Government to ensure its continued existence.

Since its establishment and to date the Group's statement of estimated income and expenditure has been approved by the Minister of Energy with the concurrence of the Minister of Finance and the approved funding has been received by the Group. Grant funding for the current year amounted to R 580 million and funding for the 2016/17 year of R 599 million has been approved; and the Medium Term Expenditure Framework tabled in Parliament during September 2015 has allocated R 671 million for 2017/18 and R 710 million for 2018/19.

The Group exports a substantial portion of its commercial products and as result of the deteriorating global economic environment in recent years it has not been achieving its revenue targets. Consequently expenditure and cash flows have been managed prudently. Although the Group has adequate cash resources, Necsa, the Company, has experienced short term cash shortages. This is so because the Company's operations (commercial, research and development and State mandated obligations) are integrated resulting in interdependencies and cross subsidisation. The Minister, and the National Treasury are aware of these constraints and discussions are ongoing. These short term shortage are funded from an overdraft facility of R60 million. It is also noted that a subsidiary NTP has significant available/uncommitted cash resources of R 435 million.

In March 2016 Senior Counsel confirmed that Necsa, and not the Department of Energy, is liable to Decommission and Decontaminate (D&D) strategic nuclear facilities currently in operation (Stage 2) and, in terms of Accounting Standards, Necsa has had to recognise this liability in its financial statements, although the D&D process (and the resulting cash flows) may only commence in 2030 or later. Although Senior Counsel also opined that the State has an obligation to fund these liabilities, Accounting Standards dictate that such obligation cannot yet be recognised as an asset without Cabinet approval and discussions are underway to obtain such approval. The recognition of this liability has negatively impacted the Equity of the Company and the Group in the amount of R 209 million in the 2014/15 financial year and a further charge of R 255 million in the current financial year. The recognition of this liability will have no impact on the Company's and the Group's current and future cash flows until 2030. Refer to note 47 for further discussion on the Company's D&D obligations.

Directors' Report

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Despite this significant negative impact to Equity, the Group and the Company are still solvent; and once Cabinet approves funding, solvency will be enhanced.

On the basis of the Group's current financial position, the forecasted financial performance and cash flows for the foreseeable future, the grant funding approved for the 2016/17 financial year, the funding allocated for the 2017/18 and 2018/19 financial years, the State's obligations in terms of the Act and the ongoing discussions with the State, it is considered that the Group has access to adequate resources to continue in operational existence for the foreseeable future.

11. Irregular Expenditure

The irregular expenditure arose mainly from the AGSA's assessment of the invitations to bidders where the functionality criteria specified on the Request for tender template was "not clear and specific". However, all suppliers were treated consistently using the same template such that no bidder was prejudiced by using this template. The same template had been used consistently by the organisation over the previous periods which were audited and not found to be irregular. With emphasis on the consistent and equal application of the template to all bids, it is concluded that the tender process was fair, equitable, transparent and consistent in line with s217 of the South African Constitution.

Although the purchases constitute irregular expenditure in terms of the Preferential Procurement Regulations' interpretation by the AGSA, there was no financial misconduct and no losses were incurred as a result of such expenditures. Further, Necsa Management obtained an opinion from the National Treasury regarding the Auditors view. In their response, the National Treasury, inter alia, indicated that the section 4(3)c of the Preferential Procurement Regulations (PPR) was ambiguous. As a result, in the revised draft, the National Treasury has removed section 4 (3) c of the evaluation criteria from the PPR.

In conclusion, Necsa Management has adapted its functionality evaluation criteria template as per AGSA's advice to ensure that it is more clearer. Effective steps were thus taken to prevent recurrence of such irregular expenditure.

12. Auditors

Auditor-General of South Africa continued in office as auditors for the company and its subsidiaries for 2016.

13. Secretary

The company secretary is First Corporate Transfer Secretaries (Pty) Ltd.

Postal address	PO Box 216 Gallo Manor 2052
Business address	1 Canterbury Crescent Gallo Manor Sandton 2025

14. Compliance with Legislation

The Directors believe the Group has complied, in all material respects, with the provisions of the Companies Act, PFMA and the Nuclear Energy Act and other applicable legislation during the year under review.

Consolidated Statement of Financial Position as at 31 March 2016

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

		Group		Company	
		2016	2015	2016	2015
	Note(s)	R '000	R '000	R '000	R '000
Assets					
Non-Current Assets					
Investment property	3	17 190	15 467	61 377	64 313
Property, plant and equipment	4	1 298 751	1 042 143	1 004 001	820 768
Goodwill	5	11 357	11 357	-	-
Intangible assets	6	10 860	10 946	-	-
Investments in subsidiaries	7	-	-	262 702	220 702
Investments in associates	8	2 405	2 405	2	2
Other financial assets	10	317 523	264 889	311 988	264 851
Deferred tax	11	26 565	13 898	-	-
Decommissioning & Decontamination Stage 1	47	2 789 448	-	2 789 448	-
Decommissioning & Decontamination Stage 2	47	195 312	191 104	195 312	191 104
Vaalputs After Care	48	4 519	4 896	4 519	4 896
		4 673 930	**1 557 105**	**4 629 349**	**1 566 636**
Current Assets					
Inventories	12	231 886	264 017	39 491	60 308
Loans to group companies	9	3 310	3 310	3 879	3 389
Other financial assets	10	14 987	14 140	14 987	14 140
Current tax receivable		10 005	3 329	-	-
Trade and other receivables	13	309 091	286 922	186 241	195 866
Prepayments	46	121 109	24 154	55 808	10 609
Cash and cash equivalents	14	781 511	671 828	263 066	247 849
		1 471 899	**1 267 700**	**563 472**	**532 161**
Non-current assets held for sale and assets of disposal groups	15	307	-	-	-
Total Assets		**6 146 136**	**2 824 805**	**5 192 821**	**2 098 797**
Equity and Liabilities					
Equity					
Equity Attributable to Equity Holders of Parent					
Share capital	16	2 205	2 205	2 205	2 205
Reserves		493 691	328 382	454 804	298 264
Accumulated Earnings/(loss)		509 265	349 023	(287 717)	(211 575)
		1 005 161	679 610	**169 292**	88 894
Non-controlling interest		49 833	42 140	-	-
		1 054 994	**721 750**	**169 292**	**88 894**

Consolidated Statement of Financial Position as at 31 March 2016 (continued)

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

		Group		Company	
		2016	2015	2016	2015
	Note(s)	R '000	R '000	R '000	R '000
Non-Current Liabilities					
Other financial liabilities	17	14 486	23 487	-	-
Finance lease obligation	18	5 543	5 034	3 126	3 419
Retirement benefit obligation	19	386 972	398 105	361 156	372 139
Deferred income	20	479 387	429 347	479 387	429 347
Deferred tax	11	-	15	-	-
Provisions	21	205 769	131 177	313 888	269 800
Decommissioning & Decontamination Stage 1	47	2 789 448	-	2 789 448	-
Decommissioning & Decontamination Stage 2	47	450 308	400 409	450 308	400 409
Vaalputs After Care liabilities	48	75 080	69 198	75 080	69 198
Investment contributions for future liabilities	51	33 049	30 695	33 049	30 695
		4 440 042	**1 487 467**	**4 505 442**	**1 575 007**
Current Liabilities					
Loans from shareholders	22	-	501	-	-
Other financial liabilities	17	24 777	17 223	-	-
Current tax payable		2 529	188	-	-
Finance lease obligation	18	2 659	3 181	1 961	2 483
Operating lease liability		16	-	-	-
Trade and other payables	23	272 170	229 850	139 612	90 790
Retirement benefit obligation	19	22 234	21 695	21 972	21 433
Deferred income	20	110 593	188 080	110 593	188 080
Provisions	21	98 420	82 286	44 200	42 562
Amounts received in advance		31 036	6 381	139 749	49 532
Deposits received		2 669	485	-	-
Bank overdraft	14	82 734	65 718	60 000	40 016
		649 837	**615 588**	**518 087**	**434 896**
Liabilities of disposal groups	15	1 263	-	-	-
Total Liabilities		**5 091 142**	**2 103 055**	**5 023 529**	**2 009 903**
Total Equity and Liabilities		**6 146 136**	**2 824 805**	**5 192 821**	**2 098 797**

Consolidated Statement of Comprehensive Income

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

		Group		Company	
		2016	2015	2016	2015
	Note(s)	R '000	R '000	R '000	R '000
Continuing operations					
Revenue	28	2 065 384	1 854 630	924 350	885 308
Cost of sales	12	(723 683)	(853 584)	(146 739)	(206 042)
Gross Profit		**1 341 701**	**1 001 046**	**777 611**	**679 266**
Other income		184 382	152 656	50 045	98 199
Operating expenses		(1 143 211)	(1 010 234)	(796 067)	(768 908)
Government Grant Income (Decommissioning & Decontamination Stage 1)		2 570 919	-	2 570 919	-
Acceptance of Decommissioning & Decontamination Stage 1 liability expenses		(2 570 919)	-	(2 570 919)	-
Administrative expenses		(154 492)	(139 613)	(120 108)	(96 959)
Operating Profit (Loss)	29	**228 380**	**3 855**	**(88 519)**	**(88 402)**
Investment revenue	30	321 834	75 129	270 396	72 018
Fair value adjustments	31	1 187	(95)	(1 580)	(22)
Finance costs	32	(292 992)	(64 654)	(266 500)	(39 541)
Profit (Loss) Before Taxation		**258 409**	**14 235**	**(86 203)**	**(55 947)**
Taxation	33	(81 799)	(36 218)	-	-
Profit (loss) from continuing operations		**176 610**	**(21 983)**	**(86 203)**	**(55 947)**
Discontinued operations					
(Loss) profit from discontinued operations	15	(2 944)	1 367	-	-
Profit (Loss) for the Year		**173 666**	**(20 616)**	**(86 203)**	**(55 947)**
Other comprehensive income:					
Exchange differences on translating foreign operations		8 368	8 399	-	-
Available-for-sale financial assets adjustments		(10 051)	1 696	(10 046)	1 686
Re-measurements on net defined benefit liability/asset		(11 765)	(32 210)	10 061	(28 306)
Gains and losses on property revaluation		166 992	228	166 586	-
Other Comprehensive Income (Loss) for the Year Net of Taxation	35	**153 544**	**(21 887)**	**166 601**	**(26 620)**
Total Comprehensive Income (Loss) for the Year		**327 210**	**(42 503)**	**80 398**	**(82 567)**
Total comprehensive Income (Loss) for the Year attributable to:					
Owners of the parent		319 517	(48 963)	80 398	(82 567)
Non-controlling interest		7 693	6 460	-	-
		327 210	**(42 503)**	**80 398**	**(82 567)**

Statement of Changes in Equity

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

	Share capital R '000	Foreign currency translation reserve R '000	Revaluation reserve R '000	Fair value adjustment assets-available-for-sale reserve R '000	Total reserves R '000	Retained Earnings/ (loss) R '000	Total attributable to equity holders of the group / company R '000	Non-controlling interest R '000	Total equity R '000
Group									
Opening balance as previously reported	2 205	(7 083)	312 498	12 797	318 212	554 343	874 760	35 680	910 440
Adjustments									
Change in accounting policy (Note 49)	-	-	-	-	-	1 189	1 189	-	1 189
Prior year adjustments (Note 50)	-	-	-	-	-	(146 110)	(146 110)	-	(146 110)
Balance at 01 April 2014 as restated	**2 205**	**(7 083)**	**312 498**	**12 797**	**318 212**	**409 422**	**729 839**	**35 680**	**765 519**
Changes in equity									
Total comprehensive income for the year	-	8 399	228	1 696	10 323	(59 286)	(48 963)	6 460	(42 503)
Transfer between reserves	-	-	(153)	-	(153)	-	(153)	-	(153)
Dividends	-	-	-	-	-	(1 113)	(1 113)	-	(1 113)
Total changes	-	8 399	75	1 696	10 170	(60 399)	(50 229)	6 460	(43 769)
Balance at 01 April 2015	**2 205**	**1 316**	**312 573**	**14 493**	**328 382**	**349 023**	**679 610**	**42 140**	**721 750**
Changes in equity									
Total comprehensive income for the year	-	8 368	166 992	(10 051)	165 309	154 208	319 517	7 693	327 210
Earnings adjustments	-	-	-	-	-	6 803	6 803	-	6 803
Dividends	-	-	-	-	-	(769)	(769)	-	(769)
Total changes	-	8 368	166 992	(10 051)	165 309	160 242	325 551	7 693	333 244
Balance at 31 March 2016	**2 205**	**9 684**	**479 565**	**4 442**	**493 691**	**509 265**	**1 005 161**	**49 833**	**1 054 994**
Note(s)	16	35	26&35	27&35					

Statement of Changes in Equity

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

	Share capital R '000	Foreign currency translation reserve R '000	Revaluation reserve R '000	Fair value adjustment assets-available-for-sale reserve R '000	Total reserves R '000	Retained Earnings/ (loss) R '000	Total attributable to equity holders of the group / company R '000	Non-controlling interest R '000	Total equity R '000
Company									
Opening balance as previously reported	2 205	-	283 799	12 779	296 578	79 509	378 292	-	378 292
Adjustments									
Change in accounting policy (Note 49)	-	-	-	-	-	1 150	1 150	-	1 150
Prior year adjustments (Note 50)	-	-	-	-	-	(208 022)	(208 022)	-	(208 022)
Balance at 01 April 2014 as restated	**2 205**	**-**	**283 799**	**12 779**	**296 578**	**(127 324)**	**171 459**	**-**	**171 459**
Changes in equity									
Total comprehensive income for the year	-	-	-	1 686	1 686	(84 251)	(82 565)	-	(82 565)
Total changes	-	-	-	1 686	1 686	(84 251)	(82 565)	-	(82 565)
Balance at 01 April 2015 as restated	**2 205**	**-**	**283 799**	**14 465**	**298 264**	**(211 575)**	**88 894**	**-**	**88 894**
Changes in equity									
Total comprehensive income for the year	-	-	166 586	(10 046)	156 540	(76 142)	80 398	-	80 398
Total changes	-	-	166 586	(10 046)	156 540	(76 142)	80 398	-	80 398
Balance at 31 March 2016	**2 205**	**-**	**450 385**	**4 419**	**454 804**	**(287 717)**	**169 292**	**-**	**169 292**
Note(s)	16	35	26&35	27&35					

Consolidated Statement of Cash Flows

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

		Group		Company	
		2016	2015	2016	2015
	Note(s)	R '000	R '000	R '000	R '000
Cash Flows from Operating Activities					
Cash receipts from customers		2 226 432	2 054 953	984 020	954 425
Cash paid to suppliers and employees		(1 718 831)	(1 912 082)	(710 960)	(979 230)
Cash generated from operations	36	507 601	142 871	273 060	(24 805)
Interest received		89 554	73 974	41 759	37 272
Interest paid		(31 413)	(28 441)	(3 828)	(2 752)
Tax paid	37	(98 801)	(43 615)	-	-
Dividends paid	30	(769)	(1 113)	-	-
Net Cash From Operating Activities		**466 172**	**143 676**	**310 991**	**9 715**
Cash Flows from Investing Activities					
Purchase of property, plant and equipment	4	(143 595)	(124 117)	(76 749)	(99 778)
Proceeds from sale of other financial assets	4	-	7 126	-	-
Purchase of intangible assets	6	(307)	(10 766)	-	-
Payments of related party loans		-	-	(490)	(2 715)
Proceeds from loans from group companies		-	96	-	-
Purchase of financial assets		(255 555)	(87 805)	(250 057)	(88 879)
Proceeds from sale of financial assets		13 963	4 807	13 963	4 807
Proceeds on sale of assets		10 690	-	-	-
Dividends received		13 732	1 155	10 008	34 746
Net Cash from Investing Activities		**(361 072)**	**(209 504)**	**(303 325)**	**(151 819)**
Cash Flows from Financing Activities					
Operating Leases		(16)	-	-	-
Repayment of shareholders loan		151	-	-	-
Government Grant reciepts / (payments)		(27 447)	189 921	(27 447)	189 921
Government Grant stage 2 reciepts		15 014	14 140	15 014	14 140
Net Cash from Financing Activities		**(12 433)**	**204 061**	**(12 433)**	**204 061**
Total Cash Movement for the Year		**92 667**	**138 233**	**(4 767)**	**61 957**
Cash at the beginning of the year		606 110	467 877	207 833	145 876
Total Cash at End of the Year	14	**698 777**	**606 110**	**203 066**	**207 833**

Accounting Policies

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

1. BASIS OF PREPARATION

The Annual Financial Statements have been prepared in accordance with South African Statements of Generally Accepted Accounting Practice and the Companies Act, Act 71 of 2008. The financial statements have been prepared on the historical cost basis except for certain properties and financial instruments that are measured at revalued amounts or fair values, as explained in the accounting policies below. Historical cost is generally based on the fair value of the consideration given in exchange for assets. These accounting policies are consistent with the previous period.

The principal accounting policies are set out below.

1.1 Consolidation

Basis of consolidation

The consolidated Annual Financial Statements incorporate the Annual Financial Statements of the Company and all entities which are controlled by the Company.

Control is achieved where the Company has the power to govern the financial and operating policies of an entity so as to obtain benefits from its activities. Assets and liabilities of subsidiaries acquired or disposed of during the year are included in the consolidated statement of financial position from the effective date of acquisition and up to the effective date of disposal, as appropriate.

Income and expenses of subsidiaries acquired or disposed of during the year are included in the consolidated statement of comprehensive income from the effective date of acquisition and up to the effective date of disposal, as appropriate.

Total comprehensive income of subsidiaries is attributed to the owners of the Company and to the non-controlling interests even if this results in the non-controlling interests having a deficit balance. Where necessary, adjustments are made to the Annual Financial Statements of subsidiaries to bring their accounting policies in line with those of the Group. All interGroup balances, income and expenses are eliminated in full on consolidation.

Non-controlling interests in the net assets of consolidated subsidiaries are identified and recognised separately from the Group's interest therein, and are recognised within equity.

Changes in the Group's ownership interests in subsidiaries that do not result in the Group losing control over the subsidiaries are accounted for as equity transactions. The carrying amounts of the Group's interests and the non-controlling interests are adjusted to reflect the changes in their relative interests in the subsidiaries. Any difference between the amount by which the non-controlling interests are adjusted and the fair value of the consideration paid or received is recognised directly in equity and attributed to owners of the Company.

When the Group loses control of a subsidiary, the profit or loss on disposal is calculated as the difference between (i) the aggregate of the fair value of the consideration received and the fair value of any retained interest and (ii) the previous carrying amount of the assets (including goodwill), and liabilities of the subsidiary and any non-controlling interests. When assets of the subsidiary are carried at revalued amounts or fair values and the related cumulative gain or loss has been recognised in other comprehensive income and accumulated in equity, the amounts previously recognised in other comprehensive income and accumulated in equity are accounted for as if the Company had directly disposed of the relevant assets (i.e. reclassified to profit or loss or transferred directly to retained earnings as specified by applicable IFRSs). The fair value of any investment retained in the former subsidiary at the date when control is lost is regarded as the fair value on initial recognition for subsequent accounting under IAS 39 Financial Instruments: Recognition and Measurement or, when applicable, the cost on initial recognition of an investment in an associate or a jointly controlled entity. Where a subsidiary is disposed of and a non-controlling shareholding is retained, the remaining investment is measured to fair value with the adjustment to fair value recognised in profit or loss as part of the gain or loss on disposal of the controlling interest.

Accounting Policies

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Business combinations

Acquisitions of businesses are accounted for using the acquisition method. The consideration transferred in a business combination is measured at fair value, which is calculated as the sum of the acquisition-date fair values of the assets transferred by the Group, liabilities incurred by the Group to the former owners of the acquiree and the equity interests issued by the Group in exchange for control of the acquiree. Acquisition-related costs are generally recognised in profit or loss as incurred.

At the acquisition date, the identifiable assets acquired and the liabilities assumed, including acquired contingent liabilities are recognised at their fair value at the acquisition date, except that:

- deferred tax assets or liabilities and liabilities or assets related to employee benefit arrangements are recognised and measured in accordance with IAS 12 Income Taxes and IAS 19 Employee Benefits respectively;
- liabilities or equity instruments related to share-based payment arrangements of the acquiree or share-based payment arrangements of the Group entered into to replace share-based payment arrangements of the acquiree are measured in accordance with IFRS 2 Share-based Payment at the acquisition date; and
- assets (or disposal Groups) that are classified as held for sale in accordance with IFRS 5 Non-current Assets Held for Sale and Discontinued Operations are measured in accordance with that Standard.

Goodwill is measured as the excess of the sum of the consideration transferred, the amount of any non-controlling interests in the acquiree, and the fair value of the acquirer's previously held equity interest in the acquiree (if any) over the net of the acquisition-date amounts of the identifiable assets acquired and the liabilities assumed. If, after reassessment, the net of the acquisition-date amounts of the identifiable assets acquired and liabilities assumed exceeds the sum of the consideration transferred, the amount of any non-controlling interests in the acquiree and the fair value of the acquirer's previously held interest in the acquiree (if any), the excess is recognised immediately in profit or loss as a bargain purchase gain.

Non-controlling interests that are present ownership interests and entitle their holders to a proportionate share of the entity's net assets in the event of liquidation may be initially measured either at fair value or at the non-controlling interests' proportionate share of the recognised amounts of the acquiree's identifiable net assets. The choice of measurement basis is made on a transaction-by-transaction basis. Other types of non-controlling interests are measured at fair value.

When the consideration transferred by the Group in a business combination includes assets or liabilities resulting from a contingent consideration arrangement, the contingent consideration is measured at its acquisition-date fair value and included as part of the consideration transferred in a business combination. Changes in the fair value of the contingent consideration that qualify as measurement period adjustments are adjusted retrospectively, with corresponding adjustments against goodwill. Measurement period adjustments are adjustments that arise from additional information obtained during the 'measurement period' (which cannot exceed one year from the acquisition date) about facts and circumstances that existed at the acquisition date.

The subsequent accounting for changes in the fair value of the contingent consideration that do not qualify as measurement period adjustments depends on how the contingent consideration is classified. Contingent consideration that is classified as equity is not re-measured at subsequent reporting dates and its subsequent settlement is accounted for within equity. Contingent consideration that is classified as an asset or a liability is re-measured at subsequent reporting dates in accordance with IAS 39, or IAS 37 Provisions, Contingent Liabilities and Contingent Assets, as appropriate, with the corresponding gain or loss being recognised in profit or loss.

When a business combination is achieved in stages, the Group's previously held equity interest in the acquiree is re-measured to fair value at the acquisition date (i.e. the date when the Group obtains control) and the resulting gain or loss, if any, is recognised in profit or loss. Amounts arising from interests in the acquiree prior to the acquisition date that have previously been recognised in other comprehensive income are reclassified to profit or loss where such treatment would be appropriate if that interest were disposed of.

Accounting Policies

If the initial accounting for a business combination is incomplete by the end of the reporting period in which the combination occurs, the Group reports provisional amounts for the items for which the accounting is incomplete. Those provisional amounts are adjusted during the measurement period (see above), or additional assets or liabilities are recognised, to reflect new information obtained about facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognised at that date.

Investment in associates

An associate is an entity over which the Group has significant influence and which is neither a subsidiary nor a joint venture. Significant influence is the power to participate in the financial and operating policy decisions of the investee but is not control or joint control over those policies.

The results and assets and liabilities of associates are incorporated in these consolidated financial statements using the equity method of accounting, except when the investment is classified as held for sale, in which case it is accounted for in accordance with IFRS 5 Non-current Assets Held for Sale and Discontinued Operations. Under the equity method, an investment in an associate is initially recognised in the consolidated statement of financial position at cost and adjusted thereafter to recognise the Group's share of the profit or loss and other comprehensive income of the associate. When the Group's share of losses of an associate exceeds the Group's interest in that associate (which includes any long-term interests that, in substance, form part of the Group's net investment in the associate), the Group discontinues recognising its share of further losses. Additional losses are classified as liabilities when recognised, only to the extent that the Group has incurred legal or constructive obligations or made payments on behalf of the associate.

Any excess of the cost of acquisition over the Group's share of the net fair value of the identifiable assets, liabilities and contingent liabilities of an associate recognised at the date of acquisition is recognised as goodwill, which is included within the carrying amount of the investment. Any excess of the Group's share of the net fair value of the identifiable assets, liabilities and contingent liabilities over the cost of acquisition, after reassessment, is recognised immediately in profit or loss.

The requirements of IAS 39 are applied to determine whether it is necessary to recognise any impairment loss with respect to the Group's investment in an associate. When necessary, the entire carrying amount of the investment (including goodwill) is tested for impairment in accordance with IAS 36 Impairment of Assets as a single asset by comparing its recoverable amount (higher of value in use and fair value less costs to sell) with its carrying amount. Any impairment loss recognised forms part of the carrying amount of the investment. Any reversal of that impairment loss is recognised in accordance with IAS 36 to the extent that the recoverable amount of the investment subsequently increases.

When a Group entity transacts with its associate, profits and losses resulting from the transactions with the associate are recognised in the Group' consolidated financial statements only to the extent of interests in the associate that are not related to the Group.

When the Group reduces its level of significant influence or loses significant influence, the Group proportionately reclassifies the related items which were previously accumulated in equity through other comprehensive income to profit or loss as a reclassification adjustment. In such cases, if an investment remains, that investment is measured to fair value, with the fair value adjustment being recognised in profit or loss as part of the gain or loss on disposal.

1.2 Significant judgements and sources of estimation uncertainty

In preparing the Annual Financial Statements, management is required to make estimates and assumptions that affect the amounts presented in the Annual Financial Statements and related disclosures. Use of available information and the application of judgement is inherent in the formation of estimates. Actual results in the future could differ from these estimates which may be material to the Annual Financial Statements. The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period, or in the period of the revision and future periods if the revision affects both current and future periods. Significant judgements include:

Accounting Policies

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Trade receivables, Held to maturity investments and Loans and receivables

The Group assesses its trade receivables, held to maturity investments and loans and receivables for impairment at the end of each reporting period. In determining whether an impairment loss should be recorded in profit or loss, the Group makes judgements as to whether there is observable data indicating a measurable decrease in the estimated future cash flows from a financial asset.

The impairment for trade receivables, held-to-maturity investments and loans and receivables is calculated on a portfolio basis, based on historical loss ratios, adjusted for national and industry-specific economic conditions and other indicators present at the reporting date that correlate with defaults on the portfolio. These annual loss ratios are applied to loan balances in the portfolio and scaled to the estimated loss emergence period.

Available-for-sale financial assets

The Group follows the guidance of IAS 39 to determine when an available-for-sale financial asset is impaired. This determination requires significant judgment. In making this judgment, the Group evaluates, among other factors, the duration and extent to which the fair value of an investment is less than its cost; and the financial health of and near-term business outlook for the investee, including factors such as industry and sector performance, changes in technology and operational and financing cash flow.

Allowance for slow moving, damaged and obsolete inventory

An allowance is made to write inventory down to the lower of cost or net realisable value. Management have made estimates of the selling price and direct cost to sell on certain inventory items. The write down is included in the operating profit note.

Fair value estimation

The fair value of financial instruments traded in active markets (such as trading and available-for-sale securities) is based on quoted market prices at the end of the reporting period. The quoted market price used for financial assets held by the Group is the current bid price.

The fair value of financial instruments that are not traded in an active market is determined by using valuation techniques. The Group uses a variety of methods and makes assumptions that are based on market conditions existing at the end of each reporting period. Other techniques, such as estimated discounted cash flows, are used to determine fair value for the remaining financial instruments. The fair value of forward foreign exchange contracts is determined using quoted forward exchange rates at the end of the reporting period.

The carrying value less impairment provision of trade receivables and payables are assumed to approximate their fair values. The fair value of financial liabilities for disclosure purposes is estimated by discounting the future contractual cash flows at the current market interest rate that is available to the Group for similar financial instruments. The assumption is based on the management expectation that outstanding balances will be collected or paid within twelve months, therefore the time value of money will not have an impact as it is considered to be immaterial.

Accounting Policies

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Impairment testing

The recoverable amounts of cash-generating units and individual assets have been determined based on the higher of value-in-use calculations and fair values less costs to sell. These calculations require the use of estimates and assumptions. It is reasonably possible that an assumption may change which may then impact estimations and may then require a material adjustment to the carrying value of goodwill and tangible assets.

The Group reviews and tests the carrying value of assets when events or changes in circumstances suggest that the carrying amount may not be recoverable. In addition, goodwill is tested on an annual basis for impairment. Assets are grouped at the lowest level for which identifiable cash flows are largely independent of cash flows of other assets and liabilities. If there are indications that impairment may have occurred, estimates are prepared of expected future cash flows for each Group of assets. Expected future cash flows used to determine the value in use of goodwill and tangible assets are inherently uncertain and could materially change over time.

Provisions

Provisions are estimated by management based on the available information. Additional disclosure of these estimates are included in note 21 - Provisions.

Taxation

Judgement is required in determining the provision for income taxes due to the complexity of legislation. There are many transactions and calculations for which the ultimate tax determination is uncertain during the ordinary course of business. The Group recognises liabilities for anticipated tax audit issues based on estimates of whether additional taxes will be due. Where the final tax outcome of these matters is different from the amounts that were initially recorded, such differences will impact the income tax and deferred tax provisions in the period in which such determination is made.

The Group recognises the net future tax benefit related to deferred income tax assets to the extent that it is probable that the deductible temporary differences will reverse in the foreseeable future. Assessing the recoverability of deferred income tax assets requires the Group to make significant estimates related to expectations of future taxable income. Estimates of future taxable income are based on forecast cash flows from operations and the application of existing tax laws in each jurisdiction. To the extent that future cash flows and taxable income differ significantly from estimates, the ability of the Group to realise the net deferred tax assets recorded at the end of the reporting period could be impacted.

Property, Plant and Equipment

The useful lives of assets are based on management's estimation. Management considers the following factors to determine the optimum useful life expectation for each of the individual items of property, plant and equipment.

- Expected usage of the asset. Usage is assessed by reference to the assets expected capacity or physical output.
- Expected physical wear and tear, which depends on operational factors such as the number of shifts for which the asset is to be used and the repair and maintenance programme, and the care and maintenance of the asset while idle.
- Technical or commercial obsolescence arising from changes or improvement in production or from a change in the market demand for the product or service output of the asset.
- Exit policy of the Company.

The estimation of residual value of assets is also based on management's judgement that the assets will be sold and what its condition will be like at the end of its useful life. For assets that incorporate both a tangible and intangible

Accounting Policies

portion, management uses judgement to assess which element is more significant to determine whether it should be treated as property, plant and equipment or intangible assets.

Post retirement benefit obligation

Judgement is required when recognizing and measuring the retirement benefit obligation of the Group and the Company. The obligation is valued by an independent actuary at each reporting date. The actuarial valuation method is used to value the obligation and the projected unit credit method is used. Future benefit values are projected using specific actuarial assumptions and the liability to in-service members is accrued over the expected working lifetime.

1.3 Investment property

Investment properties are properties held to earn rentals and/or for capital appreciation (including property under construction for such purposes).

Investment property is recognised as an asset when, and only when, it is probable that the future economic benefits that are associated with the investment property will flow to the enterprise, and the cost of the investment property can be measured reliably.

Investment property is initially recognised at cost. Transaction costs are included in the initial measurement.
Costs include costs incurred initially and costs incurred subsequently to add to, or to replace a part of, or service a property. If a replacement part is recognised in the carrying amount of the investment property, the carrying amount of the replaced part is derecognised.

Fair value
Subsequent to initial measurement investment property is measured at fair value.

A gain or loss arising from a change in fair value is included in net profit or loss of the period in which it arises.

An investment property is derecognised upon disposal or when the investment property is permanently withdrawn from use and no future economic benefits are expected from the disposal. Any gain or loss arising on derecognition of the property (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in profit or loss in the period in which the property is derecognised.

1.4 Property, plant and equipment

The cost of an item of property, plant and equipment is recognised as an asset when:
- it is probable that future economic benefits associated with the item will flow to the Company; and
- the cost of the item can be measured reliably.

Property, plant and equipment is initially measured at cost.

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

The initial estimate of the costs of dismantling and removing the item and restoring the site on which it is loicated is also included in the cost of property, plant and equipment, where the entity is obliged to incur such expenditure, and where the obligation arises as a result of acquiring the asset or using it for purposes other than the production of inventories.
Plant and equipment is stated at cost less accumulated depreciation and any impariment losses.

Accounting Policies

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Land and buildings is carried at revalued amount, being the fair value at the date of revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses.

Revaluations are performed with sufficient regularity such that the carrying amount does not differ materially from that which would be determined using fair value as the end of the reporting period.

The frequency of revaluations depends upon the changes in fair values of the items of property, plant and equipment being revalued. Some items of property, plant and equipment experience significant and volatile changes in fair value, thus necessitating annual revaluation. Such frequent revaluations are unnecessary for items of property, plant and equipment with only insiginifcant changes in fair value. Instead, it may be necessary to revalue the item every three to five years.

When an item of property, plant and equipment is revalued, any accumulated depreciation at the date of the revaluation is eliminated against the gross carrying amount of the asset and the net amount restated to the revalued amount of the asset.

Any increase in an asset's carrying amount, as a result of a revaluation, is recognised to other comprehensive income and accumulated in the revaluation surplus in equity. The increase is recognised in profit or loss to the extent that it reverses a revaluation decrease of the same asset previously recognised in profit or loss.

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

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

Property, plant and equipment is depreciated on the straight line basis over their expected useful lives to their estimated residual value.

Accounting Policies

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

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

Item	Range of useful lives
Land	indefinite
Buildings	10 - 50 years
Plant	5 - 50 years
Furniture and fixtures	2 - 22 years
Motor vehicles	2 - 26 years
Office equipment	2 - 22 years
IT equipment	2 - 22 years
Research facilities	2 - 22 years
Leasehold improvements	2 - 10 years
Machinery and equipment	2 - 22 years
Component spares	2 - 10 years

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

The depreciation charge for each period is recognised in profit or loss unless it is included in the carrying amount of another asset.

An item of property, plant and equipment is derecognised upon disposal or when no future economic benefits are expected to arise from the continued use of the asset.

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

1.5 Intangible assets

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

Intangible assets are initially recognised at cost.

Internally generated intangible assets - research and development expenditure

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

An intangible asset arising from development (or from the development phase of an internal project) is recognised when all of the following have been demonstrated:
- the technical feasibility of completing the intangible asset so that it will be available for use or sale.
- the intention to complete the intangible asset and use or sell it.
- the ability to use or sell the intangible asset.
- it will generate probable future economic benefits.
- how the intangible asset will generate probable future economic benefits.

Accounting Policies

- the availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset.
- the ability to measure reliably the expenditure attributable to the intangible asset during its development.

The amount initially recognised for internally-generated intangible assets is the sum of the expenditure incurred from the date when the intangible asset first meets the recognition criteria listed above. Where no internally-generated intangible asset can be recognised, development expenditure is recognised in profit or loss in the period in which it is incurred.

Subsequent to initial recognition, internally-generated intangible assets are reported at cost less accumulated amortisation and accumulated impairment losses, on the same basis as intangible assets that are acquired separately.
An intangible asset is regarded as having an indefinite useful life when, based on all relevant factors, there is no foreseeable limit to the period over which the asset is expected to generate net cash inflows. Amortisation is not provided for these intangible assets, but they are tested for impairment annually and whenever there is an indication that the asset may be impaired. For all other intangible assets amortisation is provided on a straight-line basis over their useful life.

The amortisation period and the amortisation method for intangible assets are reviewed at the end of each reporting period.

Re-assessing the useful life of an intangible asset with a finite useful life after it was classified as indefinite is an indicator that the asset may be impaired. As a result the asset is tested for impairment and the remaining carrying amount is amortised over its useful life.

Internally generated brands, mastheads, publishing titles, customer lists and items similar in substance are not recognised as intangible assets.

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

Item	Useful lives
Patents, trademarks and other rights	2-8 years
Computer software	3 years

1.6 Investments in subsidiaries

Company financial statements
In the Company's separate Annual Financial Statements, investments in subsidiaries are carried at cost less any accumulated impairment.

The cost of an investment in a subsidiary is the aggregate of:
- the fair value, at the date of exchange, of assets given, liabilities incurred or assumed, and equity instruments issued by the Company; plus
- any costs directly attributable to the purchase of the subsidiary.

1.7 Investments in associates

Company Annual Financial Statements

An investment in an associate is carried at cost less any accumulated impairment.

Accounting Policies

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

1.8 Financial instruments

Classification

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

- Financial assets at fair value through profit or loss - held for trading
- Held-to-maturity investments
- Loans and receivables
- Available-for-sale financial assets
- Financial liabilities at fair value through profit or loss - held for trading
- Financial liabilities measured at amortised cost

Classification depends on the purpose for which the financial instruments were obtained / incurred and takes place at initial recognition. Classification is re-assessed on an annual basis, except for derivatives and financial assets designated as at fair value through profit or loss, which may not be classified out of the fair value through profit or loss category.

Initial recognition and measurement

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

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

Financial instruments are measured initially at fair value, except for equity investments for which a fair value is not determinable, which are measured at cost and are classified as available-for-sale financial assets.

For financial instruments which are not at fair value through profit or loss, transaction costs are included in the initial measurement of the instrument.

Transaction costs on financial instruments at fair value through profit or loss are recognised in profit or loss.

Regular purchases and sales of investments are recognised on trade-date, i.e. the date on which the Group commits to purchase or sell the asset.

Subsequent measurement

Financial instruments at fair value through profit or loss are subsequently measured at fair value, with gains and losses arising from changes in fair value being included in profit or loss for the period.

Net gains or losses on the financial instruments at fair value through profit or loss exclude dividends and interest.
Dividend income is recognised in profit or loss as part of other income when the Group's right to receive payment is established.

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

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

Available-for-sale financial assets are subsequently measured at fair value. This excludes equity investments for which a fair value is not determinable, which are measured at cost less accumulated impairment losses.

Accounting Policies

Gains and losses arising from changes in fair value are recognised in other comprehensive income and accumulated in equity until the asset is disposed of or determined to be impaired. Interest on available-for-sale financial assets calculated using the effective interest method is recognised in profit or loss as part of other income. Dividends received on available-for-sale equity instruments are recognised in profit or loss as part of other income when the Group's right to receive payment is established.

Changes in fair value of available-for-sale financial assets denominated in a foreign currency are analysed between translation differences resulting from changes in amortised cost and other changes in the carrying amount. Translation differences on monetary items are recognised in profit or loss, while translation differences on non-monetary items are recognised in other comprehensive income and accumulated in equity.

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

Fair value determination

The fair values of quoted investments are based on current bid prices. If the market for a financial asset is not active (and for unlisted securities), the Group establishes fair value by using valuation techniques. These include the use of recent arm's length transactions, reference to other instruments that are substantially the same, discounted cash flow analysis, and option pricing models making maximum use of market inputs and relying as little as possible on entity-specific inputs.

Impairment of financial assets

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

Financial assets are considered to be impaired when there is objective evidence that, as a result of one or more events that occurred after the initial recognition of the financial asset, the estimated future cash flows of the investment have been affected.

For amounts due to the Group, significant financial difficulties of the debtor, probability that the debtor will enter bankruptcy and default of payments are all considered indicators of impairment. In the case of equity securities classified as available-for-sale, a significant or prolonged decline in the fair value of the security below its cost is considered an indicator of impairment.

For all other financial assets, objective evidence of impairment could include:

- significant financial difficulty of the issuer or counterparty; or
- breach of contract, such as a default or delinquency in interest or principal payments; or
- it becoming probable that the borrower will enter bankruptcy or financial re-organisation; or
- the disappearance of an active market for that financial asset because of financial difficulties.

For financial assets carried at amortised cost, the amount of the impairment loss recognised is the difference between the asset's carrying amount and the present value of estimated future cash flows, discounted at the financial asset's original effective interest rate.

For financial assets carried at cost, the amount of the impairment loss is measured as the difference between the

Accounting Policies

asset's carrying amount and the present value of the estimated future cash flows discounted at the current market rate of return for a similar financial asset. Such impairment loss may not be reversed in subsequent periods.

The carrying amount of the financial asset is reduced by the impairment loss directly for all financial assets with the exception of trade receivables, where the carrying amount is reduced through the use of an allowance account. When a trade receivable is considered uncollectible, it is written off against the allowance account. Subsequent recoveries of amounts previously written off are credited against the allowance account. Changes in the carrying amount of the allowance account are recognised in profit or loss.

When an available-for-sale financial asset is considered to be impaired, cumulative gains or losses previously recognised in other comprehensive income are reclassified to profit or loss in the period.

For financial assets measured at amortised cost, if, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognised, the previously recognised impairment loss is reversed through profit or loss to the extent that the carrying amount of the investment at the date the impairment is reversed does not exceed what the amortised cost would have been had the impairment not been recognised.

In respect of available-for-sale equity securities, impairment losses previously recognised in profit or loss are not reversed through profit or loss. Any increase in fair value subsequent to an impairment loss is recognised in other comprehensive income and accumulated under the heading of investments revaluation reserve. In respect of available-for-sale debt securities, impairment losses are subsequently reversed through profit or loss if an increase in the fair value of the investment can be objectively related to an event occurring after the recognition of the impairment loss.
The group derecognises a financial asset only when the contractual rights to the cash flows from the asset expire, or when it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another entity. If the group neither transfers nor retains substantially all the risks and rewards of ownership and continues to control the transferred asset, the group recognises its retained interest in the asset and an associated liability for amounts it may have to pay. If the group retains substantially all the risks and rewards of ownership of a transferred financial asset, the group continues to recognise the financial asset and also recognises a collateralised borrowing for the proceeds received.

On derecognition of a financial asset in its entirety, the difference between the asset's carrying amount and the sum of the consideration received and receivable and the cumulative gain or loss that had been recognised in other comprehensive income and accumulated in equity is recognised in profit or loss.

On derecognition of a financial asset other than in its entirety (e.g. when the group retains an option to repurchase part of a transferred asset or retains a residual interest that does not result in the retention of substantially all the risks and rewards of ownership and the group retains control), the group allocates the previous carrying amount of the financial asset between the part it continues to recognise under continuing involvement, and the part it no longer recognises on the basis of the relative fair values of those parts on the date of the transfer. The difference between the carrying amount allocated to the part that is no longer recognised and the sum of the consideration received for the part no longer recognised and any cumulative gain or loss allocated to it that had been recognised in other comprehensive income is recognised in profit or loss. A cumulative gain or loss that had been recognised in other comprehensive income is allocated between the part that continues to be recognised and the part that is no longer recognised on the basis of the relative fair values of those parts.

Accounting Policies

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Financial instruments designated as at fair value through profit or loss

These are financial assets held for trading. A financial asset is classified in this category if acquired principally for the purpose of selling in the short term. Assets in this category are classified as current assets if they are either held for trading or are expected to be realised within 12 months of the statement of financial position date.
Gains or losses arising from changes in the fair value of the 'financial assets at fair value through profit or loss' category, are presented in the statement of comprehensive income in the period in which they arise. Dividend income from financial assets at fair value through profit or loss is recognised in the statement of comprehensive income as part of other income when the Group's right to receive payment is established.

Financial instruments designated as available-for-sale

Available-for-sale financial assets are non-derivatives that are either designated in this category or not classified in any of the other categories. They are included in non-current assets unless management intends to dispose of the investment within 12 months of the statement of financial position date.

Changes in the fair value of monetary securities classified as available-for-sale and non-monetary securities classified as available-for-sale are recognised in comprehensive income.

When securities classified as available-for-sale are sold or impaired, the accumulated fair value adjustments recognised in other comprehensive income are included in the statement of comprehensive income as 'gains and losses from investment securities'. Interest on available-for-sale securities calculated using the effective interest method is recognised in the statement of comprehensive income. Dividends on available-for-sale equity instruments are recognised in the statement of comprehensive income when the company's right to receive payments is established.

Loans to (from) group companies

These include loans to and from holding companies, fellow subsidiaries, subsidiaries, joint ventures and associates and are recognised initially at fair value plus direct transaction costs.

Loans to Group companies are classified as loans and receivables.

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

Loans to shareholders, directors, managers and employees

These financial assets are classified as loans and receivables.

Trade and other receivables
Trade receivables are measured at initial recognition at fair value, and are subsequently measured at amortised cost using the effective interest rate method. Appropriate allowances for estimated irrecoverable amounts are recognised in profit or loss when there is objective evidence that the asset is impaired. Significant financial difficulties of the debtor, probability that the debtor will enter bankruptcy or financial reorganisation, and default or delinquency in payments (more than 30 days overdue) are considered indicators that the trade receivable is impaired. The allowance recognised is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the effective interest rate computed at initial recognition.

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

Trade and other receivables (excluding prepayments, deposits and VAT receivable) are classified as loans and re-

Accounting Policies

ceivables.

Trade and other payables

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

Cash and cash equivalents

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

Bank overdraft and borrowings

Bank overdrafts and borrowings are initially measured at fair value, and are subsequently measured at amortised cost, using the effective interest rate method. Any difference between the proceeds (net of transaction costs) and the settlement or redemption of borrowings is recognised over the term of the borrowings in accordance with the Group's accounting policy for borrowing costs.

Derivatives

Derivative financial instruments, which are not designated as hedging instruments, consisting of foreign exchange contracts and interest rate swaps, are initially measured at fair value on the contract date, and are re-measured to fair value at subsequent reporting dates.

Derivatives embedded in other financial instruments or other non-financial host contracts are treated as separate derivatives when their risks and characteristics are not closely related to those of the host contract and the host contract is not carried at fair value with unrealised gains or losses reported in profit or loss.

Changes in the fair value of derivative financial instruments are recognised in profit or loss as they arise.

Derivatives are classified as financial assets at fair value through profit or loss - held for trading.

1.9 Tax

Current tax assets and liabilities

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

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

The tax currently payable is based on taxable profit for the year. Taxable profit differs from profit as reported in the consolidated statement of comprehensive income because of items of income or expense that are taxable or deductible in other years and items that are never taxable or deductible. The Group's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the end of the reporting period.

Accounting Policies

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Deferred tax assets and liabilities

A deferred tax liability is recognised for all taxable temporary differences, except to the extent that the deferred tax liability arises from:
the initial recognition of goodwill; or
the initial recognition of an asset or liability in a transaction which:
- is not a business combination; and
- at the time of the transaction, affects neither accounting profit nor taxable profit (tax loss).

A deferred tax liability is recognised for all taxable temporary differences associated with investments in subsidiaries, branches and associates, and interests in joint ventures, except to the extent that both of the following conditions are satisfied:
- the parent, investor or venturer is able to control the timing of the reversal of the temporary difference; and
- it is probable that the temporary difference will not reverse in the foreseeable future.

A deferred tax asset is recognised for all deductible temporary differences to the extent that it is probable that taxable profit will be available against which the deductible temporary difference can be utilised, unless the deferred tax asset arises from the initial recognition of an asset or liability in a transaction that:
- is not a business combination; and
- at the time of the transaction, affects neither accounting profit nor taxable profit (tax loss).

A deferred tax asset is recognised for all deductible temporary differences arising from investments in subsidiaries, branches and associates, and interests in joint ventures, to the extent that it is probable that:
- the temporary difference will reverse in the foreseeable future; and
- taxable profit will be available against which the temporary difference can be utilised.

A deferred tax asset is recognised for the carry forward of unused tax losses and unused Dividends Withholding Tax credits to the extent that it is probable that future taxable profit will be available against which the unused tax losses and unused Dividends Withholding Tax credits can be utilised.

The carrying amount of deferred tax assets is reviewed at the end of each reporting period and reduced to the extent that it is no longer probable that sufficient taxable profits will be available to allow all or part of the asset to be recovered.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply to the period when the asset is realised or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period.

The measurement of deferred tax liabilities and assets reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities.

1.10 Leases

Leases are classified as finance leases whenever the terms of the lease transfer substantially all the risks and rewards of ownership to the lessee. All other leases are classified as operating leases.

Finance leases - lessor
The Group recognises finance lease receivables in the consolidated statement of financial position.

Finance income is recognised based on a pattern reflecting a constant periodic rate of return on the Group's net investment in the finance lease.

Accounting Policies

Finance leases – lessee
Finance leases are recognised as assets and liabilities in the consolidated statement of financial position at amounts equal to the fair value of the leased property or, if lower, the present value of the minimum lease payments. The corresponding liability to the lessor is included in the consolidated statement of financial position as a finance lease obligation.

The assets are depreciated over the useful life on a straight line basis consistent with the property, plant and equipment within the group.

The discount rate used in calculating the present value of the minimum lease payments is the interest rate implicit in the lease.

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

Operating leases - lessor

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

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

Income for leases is disclosed under revenue in profit or loss.

Operating leases – lessee

Operating lease payments are recognised as an expense on a straight-line basis over the lease term except when another systematic basis is more representative of the time pattern in which economic benefits from the leased asset are consumed. The difference between the amounts recognised as an expense and the contractual payments are recognised as an operating lease asset. This liability is not discounted.

In the event that lease incentives are received to enter into operating leases, such incentives are recognised as a liability. The aggregate benefit of incentives is recognised as a reduction of rental expense on a straight-line basis, except where another systematic basis is more representative of the time pattern in which economic benefits from the leased asset are consumed.

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

1.11 Inventories

Inventories are measured at the lower of cost and net realisable value.

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

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

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

The cost of inventories is assigned using the weighted average cost formula. The same cost formula is used for all inventories having a similar nature and use to the entity.

Accounting Policies

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

1.12 Non-current assets held for sale

Non-current assets and disposal Groups are classified as held for sale if their carrying amount will be recovered through a sale transaction rather than through continuing use. This condition is regarded as met only when the sale is highly probable and the asset (or disposal Group) is available for immediate sale in its present condition. Management must be committed to the sale, which should be expected to qualify for recognition as a completed sale within one year from the date of classification.

In the statement of comprehensive income, income and expenses from discontinued operations are reported separately from income and expenses from continuing operations, down to the level of profit after taxes, even when the Group retains a non-controlling interest in the subsidiary after the sale. The resulting profit or loss (after taxes) is reported separately in the statement of comprehensive income as part of comprehensive income.
Non-current assets held for sale (or disposal Group) are measured at the lower of its previous carrying amount and fair value less costs to sell.

A non-current asset is not depreciated (or amortised) while it is classified as held for sale, or while it is part of a disposal Group classified as held for sale.

Interest and other expenses attributable to the liabilities of a disposal Group classified as held for sale are recognised in profit or loss.

Any gain or loss on the re-measurement on a non-current asset classified as held for sale that does not meet the definition of a discontinued operation is included in profit or loss from continuing operations.

Any impairment loss is recognised for any initial or subsequent write-down of the asset to fair value less cost to sell.

A gain shall be recognised for any subsequent increase in fair value less costs to sell of the asset, but not in excess of the cumulative impairment loss that has been recognised previously.

1.13 Impairment of tangible and intangible assets other than goodwill

The Group assesses at each end of the reporting period whether there is any indication that an asset may be impaired. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any).

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

- tests intangible assets with an indefinite useful life or intangible assets not yet available for use annually for impairment by comparing its carrying amount with its recoverable amount. This impairment test is performed during the annual period and at the same time every period.
- tests goodwill acquired in a business combination annually for impairment.
- If it is not possible to estimate the recoverable amount of the individual asset, the recoverable amount of the cash-generating unit to which the asset belongs is determined.

The recoverable amount of an asset or a cash-generating unit is the higher of its fair value less costs to sell and its

Accounting Policies

value in use.

In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset for which the estimates of future cash flows have not been adjusted.

If the recoverable amount of an asset is less than its carrying amount, the carrying amount of the asset is reduced to its recoverable amount.

An impairment loss of assets carried at cost less any accumulated depreciation or amortisation is recognised immediately in profit or loss. Any impairment loss of a revalued asset is treated as a revaluation decrease.

Goodwill acquired in a business combination is, from the acquisition date, allocated to each of the cash-generating units, or Groups of cash-generating units, that are expected to benefit from the synergies of the combination.
An impairment loss is recognised for cash-generating units if the recoverable amount of the unit is less than the carrying amount of the units. The impairment loss is allocated to reduce the carrying amount of the assets of the unit in the following order:

- first, to reduce the carrying amount of any goodwill allocated to the cash-generating unit and
- then, to the other assets of the unit, pro rata on the basis of the carrying amount of each asset in the unit.

The carrying amount of an asset included in a cash generating unit may not be reduced below the highest of (1) Its fair value less cost to sell; (2) Its value in use or (3) zero.

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

The increased carrying amount of an asset other than goodwill attributable to a reversal of an impairment loss does not exceed the carrying amount that would have been determined had no impairment loss been recognised for the asset in prior periods.

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

1.14 Share capital and equity

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

Ordinary shares are classified as equity and measured at cost.

1.15 Employee benefits

Short-term employee benefits
The cost of short-term employee benefits, those payable within 12 months after the service is rendered, such as paid vacation leave and sick leave, bonuses, and non-monetary benefits such as medical care, are recognised in the period in which the service is rendered and are not discounted.

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

The expected cost of profit sharing and bonus payments is recognised as an expense when there is a legal or constructive obligation to make such payments as a result of past performance.

Accounting Policies

Defined contribution plans

The companies operate a provident fund on behalf of its employees. The schemes are generally funded through payments to insurance companies or trustee-administered funds, determined by periodic actuarial calculations. A defined contribution plan is a plan under which the company pays fixed contributions into a separate entity. The company has no legal or constructive obligations to pay further contributions if the fund does not hold sufficient assets to pay all employees the benefit relating to employee service in the current and prior periods.

Payments to defined contribution retirement benefit plans are charged as an expense as they fall due. Prepaid contributions are recognised as an asset to the extent that a cash refund or a reduction in the future payments is available.

Defined benefit plans

Some Group companies provide post-retirement healthcare benefits to their retirees. The entitlement to these benefits is usually conditional on the employee remaining in service up to retirement age and the completion of a minimum service period. For defined benefit plans the cost of providing the benefits is determined using the projected unit credit method.

Actuarial valuations are conducted on an annual basis by independent actuaries.

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

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

Actuarial gains and losses are recognised in the year in which they arise, in other comprehensive income.
Gains or losses on the curtailment or settlement of a defined benefit plan is recognised when the Group is demonstrably committed to curtailment or settlement.

When it is virtually certain that another party will reimburse some or all of the expenditure required to settle a defined benefit obligation, the right to reimbursement is recognised as a separate asset. The asset is measured at fair value. In all other respects, the asset is treated in the same way as plan assets. In profit or loss, the expense relating to a defined benefit plan is presented as the net of the amount recognised for a reimbursement.

The amount recognised in the consolidated statement of financial position represents the present value of the defined benefit obligation as adjusted for unrecognised actuarial gains and losses and unrecognised past service costs, and reduces by the fair value of plan assets.

Any asset is limited to unrecognised actuarial losses and past service costs, plus the present value of available refunds and reduction in future contributions to the plan.

1.16 Provisions and contingencies

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

The amount recognised as a provision is the best estimate of the consideration required to settle the present obligation at the end of the reporting period, taking into account the risks and uncertainties surrounding the obligation.

Accounting Policies

When a provision is measured using the cash flows estimated to settle the present obligation, its carrying amount is the present value of those cash flows (where the effect of the time value of money is material).

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

Provisions are not recognised for future operating losses.

Onerous contracts

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

An onerous contract is considered to exist where the Group has a contract under which the unavoidable costs of meeting the obligations under the contract exceed the economic benefits expected to be received from the contract.

Restructurings

A constructive obligation to restructure arises only when an entity:
- has a detailed formal plan for the restructuring, identifying at least:
  - the business or part of a business concerned;
  - the principal locations affected;
  - the location, function, and approximate number of employees who will be compensated for terminating their services;
  - the expenditures that will be undertaken; and
  - when the plan will be implemented; and
- has raised a valid expectation in those affected that it will carry out the restructuring by starting to implement that plan or announcing its main features to those affected by it.

The measurement of a restructuring provision includes only the direct expenditures arising from the restructuring, which are those amounts that are both necessarily entailed by the restructuring and not associated with the ongoing activities of the entity. The effect of the time value of money is only considered if material.

Contingent assets and liabilities

After their initial recognition contingent liabilities recognised in business combinations that are recognised separately are subsequently measured at the higher of:
- the amount that would be recognised as a provision; and
- the amount initially recognised less cumulative amortisation.

Contingent assets and contingent liabilities are not recognised. Contingencies are disclosed in note 39.

1.17 Government grants and deferred grant income

Government grants are recognised when there is reasonable assurance that:
- the Group will comply with the conditions attaching to them; and
- the grants will be received.

Government grants are recognised as income over the periods necessary to match them with the related costs that

Accounting Policies

they are intended to compensate.

Specifically, government grants whose primary condition is that the Group should purchase, construct or otherwise acquire non-current assets are recognised as deferred revenue in the consolidated statement of financial position and transferred to profit or loss on a systematic and rational basis over the useful lives of the related assets.

A government grant that becomes receivable as compensation for expenses or losses already incurred or for the purpose of giving immediate financial support to the entity with no future related costs is recognised as income of the period in which it becomes receivable.
Government grants related to assets, including non-monetary grants at fair value, are presented in the consolidated statement of financial position by setting up the grant as deferred income.

Grants related to income are presented as a credit in the profit or loss (separately).

Repayment of a grant related to income is applied first against any un-amortised deferred credit set up in respect of the grant. To the extent that the repayment exceeds any such deferred credit, or where no deferred credit exists, the repayment is recognised immediately as an expense.

Repayment of a grant related to an asset is recorded by reducing the deferred income balance by the amount repayable. The cumulative additional depreciation that would have been recognised to date as an expense in the absence of the grant is recognised immediately as an expense.

1.18 Revenue

Revenue is measured at the fair value of the consideration received or receivable. Revenue is reduced for estimated customer returns, rebates and other similar allowances.

Revenue from the sale of goods is recognised when all the following conditions have been satisfied:
- the Group has transferred to the buyer the significant risks and rewards of ownership of the goods;
- the Group retains neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods sold;
- the amount of revenue can be measured reliably;
- it is probable that the economic benefits associated with the transaction will flow to the Group; and
- the costs incurred or to be incurred in respect of the transaction can be measured reliably.

When the outcome of a transaction involving the rendering of services can be estimated reliably, revenue associate tranaction is recognised by reference to the stage of completion of the transaction at the end of the reporting period. The outcome of a transaction can be estimated reliably when all the following conditions are satisfied:

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

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

Service revenue is recognised by reference to the stage of completion of the transaction at the end of the reporting period. Stage of completion is determined by services performed to date as a percentage of total services to be performed.

Accounting Policies

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Contract revenue comprises:
- the initial amount of revenue agreed in the contract; and
- variations in contract work, claims and incentive payments:
  - to the extent that it is probable that they will result in revenue; and
  - they are capable of being reliably measured.

Interest income from a financial asset is recognised when it is probable that the economic benefits will flow to the Group and the amount of income can be measured reliably. Interest income is accrued on a time basis, by reference to the principal outstanding and at the effective interest rate applicable, which is the rate that exactly discounts estimated future cash receipts through the expected life of the financial asset to that asset's net carrying amount on initial recognition.

Royalties are recognised on the accrual basis in accordance with the substance of the relevant agreements.
Dividends are recognised, in profit or loss, when the Company's right to receive payment has been established.

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

The company has applied the principles stipulated in Circular 09/2006.The application of this Circular is to consider the impact in accounting for extended payment terms to trade debtors and creditors.Where extended payment terms are granted,whether explicitly or implicitly, the effect of the time value of money should be taken into account wherever this is material, irrespective of other factors such as the cash selling prices of the goods.

1.19 Turnover

Turnover comprises of sales to customers and service rendered to customers. Turnover is stated at the invoice amount and is exclusive of value added taxation.

1.20 Cost of sales

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

The related cost of providing services recognised as revenue in the current period is included in cost of sales.
Contract costs comprise:
- costs that relate directly to the specific contract;
- costs that are attributable to contract activity in general and can be allocated to the contract; and
- such other costs as are specifically chargeable to the customer under the terms of the contract.

1.21 Translation of foreign currencies

Functional and presentation currency

Items included in the Annual Financial Statements of each of the Group entities are measured using the currency of the primary economic environment in which the entity operates (functional currency).

Accounting Policies

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

The consolidated Annual Financial Statements are presented in Rand which is the Group functional and presentation currency.

Foreign currency transactions

In preparing the financial statements of each individual Group entity, transactions in currencies other than the entity's functional currency (foreign currencies) are recognised at the rates of exchange prevailing at the dates of the transactions. At the end of each reporting period, monetary items denominated in foreign currencies are retranslated at the rates prevailing at that date. Non-monetary items carried at fair value that are denominated in foreign currencies are retranslated at the rates prevailing at the date when the fair value was determined. Non-monetary items that are measured in terms of historical cost in a foreign currency are not retranslated.

Exchange differences on monetary items are recognised in profit or loss in the period in which they arise except for:

- exchange differences on foreign currency borrowings relating to assets under construction for future productive use, which are included in the cost of those assets when they are regarded as an adjustment to interest costs on those foreign currency borrowings;
- exchange differences on transactions entered into in order to hedge certain foreign currency risks; and
- exchange differences on monetary items receivable from or payable to a foreign operation for which settlement is neither planned nor likely to occur (therefore forming part of the net investment in the foreign operation), which are recognised initially in other comprehensive income and reclassified from equity to profit or loss on repayment of the monetary items.

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

When a gain or loss on a non-monetary item is recognised to other comprehensive income and accumulated in equity, any exchange component of that gain or loss is recognised to other comprehensive income and accumulated in equity. When a gain or loss on a non-monetary item is recognised in profit or loss, any exchange component of that gain or loss is recognised in profit or loss.

Investments in subsidiaries, joint ventures and associates

For the purposes of presenting consolidated financial statements, the assets and liabilities of the Group's foreign operations are translated into Currency Units using exchange rates prevailing at the end of each reporting period. Income and expense items are translated at the average exchange rates for the period, unless exchange rates fluctuate significantly during that period, in which case the exchange rates at the dates of the transactions are used. Exchange differences arising, if any, are recognised in other comprehensive income and accumulated in equity (attributed to non-controlling interests as appropriate).

On the disposal of a foreign operation (i.e. a disposal of the Group's entire interest in a foreign operation, or a disposal involving loss of control over a subsidiary that includes a foreign operation, a disposal involving loss of joint control over a jointly controlled entity that includes a foreign operation, or a disposal involving loss of significant influence over an associate that includes a foreign operation), all of the exchange differences accumulated in equity in respect of that operation attributable to the owners of the Company are reclassified to profit or loss.

In the case of a partial disposal that does not result in the Group losing control over a subsidiary that includes a foreign operation, the proportionate share of accumulated exchange differences are re-attributed to non-controlling interests and are not recognised in profit or loss. For all other partial disposals (i.e. reductions in the Group's ownership interest in associates or jointly controlled entities that do not result in the Group losing significant influence

Accounting Policies

or joint control), the proportionate share of the accumulated exchange differences is reclassified to profit or loss. Goodwill and fair value adjustments on identifiable assets and liabilities acquired arising on the acquisition of a foreign operation are treated as assets and liabilities of the foreign operation and translated at the rate of exchange prevailing at the end of each reporting period. Exchange differences arising are recognised in equity.

1.22 Related Parties

The Group operates in an economic environment currently dominated by entities directly or indirectly owned by the South African Government. As a result of the constitutional independence of all three spheres of government in South Africa, only parties within the national sphere of government are considered to be related parties.

Key management is defined as being individuals with the authority and responsibility for planning, directing and controlling the activities of the entity. All individuals from the level of Chief Executive Officer up to the Board of Directors are regarded as key management.

Close family members of key management personnel are considered to be those family members who may be expected to influence or be influenced by key management individuals or other parties related to the entity.

1.23 Fruitless and wasteful, irregular and unauthorised expenditure

Fruitless and wasteful expenditure in terms of the Public Finance Management Act means expenditure which was made in vain and would have been avoided had reasonable care been exercised are recorded in the notes to the financial statements.

Irregular expenditure are recorded in the notes to the financial statements. The amount recorded in the notes are equal to the value of the irregular expenditure incurred unless it is impracticable to determine the value thereof.

Unauthorised expenditure, when confirmed, must be recorded in the Statement of Financial Position. The amount recorded must be equal to the overspending within the division or the expenditure incurred that was not in accordance with the purpose of the division.

1.24 Investment Contribution for future liability

Where some or all of the expenditure required to settle a future liability is expected to be reimbursed by another party or ring fenced by the company itself, the amount shall be recognised when it will be received or ring-fenced. The reimbursement shall be treated as a separate asset and liability.

1.25 Rounding

Unless otherwise stated all financial figures have been rounded off to the nearest one thousand rands (R'000).

2. NEW STANDARDS AND INTERPRETATIONS

2.1 Standards and interpretations not yet effective

Since the withdrawal of Statements of GAAP in 2012, the Accounting Standards Board (ASB) has been deliberating on what the most appropriate reporting framework should be for entities that applied Statements of GAAP. During this time, the Board agreed as an interim measure, after consultation with its constituents, that Government Business Enterprises (GBEs) should retain the status quo regarding the reporting frameworks applied in preparing their financial statements. This meant that those GBEs that applied Statements of GAAP in previous reporting periods would continue to do so, while those that applied IFRSs in previous reporting periods, would continue to apply IFRSs.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

The Board approved Exposure Draft (ED) 130 as a final Directive at its meeting in July 2015. This Directive on The Selection of an Appropriate Reporting Framework by Public Entities (Directive 12) outlines a set of criteria that entities are required to consider in determining what reporting framework they should apply.

The Directive provides that entities are only allowed to apply IFRSs if they meet one of the following criteria:

(a) The entity is a financial institution, as defined in the Financial Services Board Act, Act No. 97 of 1990, or undertakes activities similar to a financial institution, including the provision of loans and credit in accordance with the National Credit Act, Act No. 34 of 2005.

(b) The entity has ordinary shares or potential ordinary shares that are publicly traded on capital markets.

(c) Its operations are such that they are:

  (i) commercial in nature; and

  (ii) only an insignificant portion of the entity's funding is acquired through government grants or other forms of financial assistance from government. Entities assess, holistically, the nature of the funding received, how it is used, and its level of dependency on that funding.

If entities do not meet any of these criteria, then they should apply Standards of GRAP.

The Directive is effective for financial years commencing on or after 1 April 2018 so as to provide entities sufficient time to prepare for any change in reporting framework, with earlier application permitted.

Necsa and its subsidiaries has commenced work in compiling joint motivation to request for permission to use IFRS as it would be more beneficial to the group as opposed to GRAP.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

3. Investment property

Group	2016			2015		
	Valuation R'000	**Accumulated depreciation R'000**	**Carrying value R'000**	**Valuation R'000**	**Accumulated depreciation R'000**	**Carrying value R'000**
Investment property	17 190	0	17 190	15 467	0	15 467
Company	2016			2015		
	Valuation R'000	Accumulated depreciation R'000	Carrying value R'000	Valuation R'000	Accumulated depreciation R'000	Carrying value R'000
Investment property	61 377	0	61 377	64 313	0	64 313

Reconciliation of investment property - Group - 2016

	Opening balance R'000	Transfers from Property, plant and equipment R'000	Other changes, movements R'000	Fair value adjustments R'000	Total R'000
Investment property	15 467	1 801	(1 265)	1 187	17 190

Reconciliation of investment property - Group - 2015

	Opening balance R'000	Additions R'000	Transfers to land and buildings R'000	Fair value adjustments R'000	Total R'000
Investment property	17 179	24	(1 641)	(95)	15 467

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Reconciliation of investment property - Company - 2016

	Opening balance R'000	Transfers from land and buildings R'000	Other changes, movements R'000	Fair value adjustments R'000	Total R'000
Investment property	64 313	1 801	(3 157)	(1 580)	61 377

Reconciliation of investment property - Company - 2015

	Opening balance R'000	Additions R'000	Transfers to land and buildings R'000	Fair value adjustments R'000	Total R'000
Investment property	66 360	3 091	(5 116)	(22)	64 313

	Group		Company	
	2016 R'000	**2015 R'000**	**2016 R'000**	**2015 R'000**
Fair value of investment properties	17 190	15 467	61 377	64 313

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

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Details of valuation

The effective date of the revaluation is 31 March 2016. Valuations were performed by an independent valuer, Mr M Fitchet from Knight Frank. Mr M Fitchet is a registered Professional Valuer in terms of section 19 of the Property Valuers Act, 2000. Knight Frank is not a related party to the Group and is independent.

The Investment (or Income) Approach to Valuation has been applied in terms of IFRS13. The valuation is made on the basis that the property's Highest and Best Use would be for a mixed use industrial park providing facilities management for security, fire & safety as well as existing steam and compressed air services to tenants, including NECSA.

Gross rentals range from R12/m^2 for yard area to between R25-R32/m^2 for workshop/warehouse and R38-R40/m^2 for offices.

Special assumptions used is that the property is not a National Key Point and is therefore capable of occupation and lease to 3rd parties

		Group		Company	
	Note(s)	2016 R '000	2015 R '000	2016 R '000	2015 R '000
Amounts recognised in profit and loss for the year					
Rental income from investment property		8 215	2 110	17 385	6 249
Direct operating expenses from rental generating property		(4 091)	(1 257)	(10 174)	(3 061)
		4 124	**853**	**7 211**	**3 188**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

4. Property, plant and equipment

Group	2016			2015		
	Cost / Valuation R'000	Accumulated depreciation R'000	Carrying value R'000	Cost / Valuation R'000	Accumulated depreciation R'000	Carrying value R'000
Component spares	25 489	(17 710)	7 779	26 958	(26 958)	0
Finance lease assets	27 348	(21 380)	5 968	25 853	(18 518)	7 335
Furniture and fixtures	19 362	(11 206)	8 156	18 915	(9 656)	9 259
IT equipment	80 731	(61 672)	19 059	76 651	(55 519)	21 132
Land and buildings	768 459	(34 803)	733 656	639 867	(64 734)	575 133
Leasehold improvements	195	(78)	117	137	(78)	59
Machinery and equipment	379 636	(219 408)	160 228	343 274	(194 778)	148 496
Motor vehicles and transport containers	57 607	(32 073)	25 534	51 371	(29 019)	22 352
Office equipment	17 323	(14 106)	3 217	21 182	(16 431)	4 751
Plant	497 029	(181 984)	315 045	445 804	(207 482)	238 322
Research facilities	25 781	(5 789)	19 992	20 382	(5 078)	15 304
Total	**1 898 960**	**(600 209)**	**1 298 751**	**1 670 394**	**(628 251)**	**1 042 143**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Company	2016			2015		
	Cost / Valuation R'000	**Accumulated depreciation R'000**	**Carrying value R'000**	**Cost / Valuation R'000**	**Accumulated depreciation R'000**	**Carrying value R'000**
Finance lease assets	27 348	(21 380)	5 968	25 853	(18 518)	7 335
Furniture and fixtures	14 006	(7 846)	6 160	13 794	(6 678)	7 116
IT equipment	63 393	(48 763)	14 630	61 825	(43 314)	18 511
Land and buildings	689 630	(28 625)	661 005	560 112	(59 228)	500 884
Machinery and equipment	295 612	(172 937)	122 675	262 357	(154 471)	107 886
Motor vehicles and transport containers	24 076	(15 462)	8 614	22 349	(13 508)	8 841
Office equipment	10 116	(7 202)	2 914	9 991	(6 326)	3 665
Plant	193 060	(31 017)	162 043	179 951	(28 725)	151 226
Research facilities	25 781	(5 789)	19 992	20 382	(5 078)	15 304
Total	**1 343 022**	**(339 021)**	**1 004 001**	**1 156 614**	**(335 846)**	**820 768**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Reconciliation of property, plant and equipment - Group - 2016

	Opening balance R'000	Additions R'000	Disposals R'000	Transfers to Investment Property R'000	Revaluations R'000	Foreign exchange movements R'000	Other changes, movements R'000	Depreciation R'000	Impairment reversal R'000	Total R'000
Component spares	0	0	0	0	0	0	0	0	7 779	7 779
Finance lease assets	7 335	1 495	0	0	0	0	0	(2 862)	0	5 968
Furniture and fixtures	9 259	2 935	(1 368)	0	0	6	0	(2 700)	24	8 156
IT equipment	21 132	3 625	(12)	0	0	8	0	(6 098)	404	19 059
Land and buildings	575 133	23 630	(4 762)	(1 801)	167 086	0	3 156	(28 844)	58	733 656
Leasehold improvements	59	58	0	0	0	0	0	0	0	117
Machinery and equipment	148 496	33 263	(3 337)	0	0	0	0	(18 754)	560	160 228
Motor vehicles and transport containers	22 352	5 016	(152)	0	0	18	0	(5 179)	3 479	25 534
Office equipment	4 751	347	(905)	0	0	0	0	(1 010)	34	3 217
Plant	238 322	68 822	(154)	0	0	52	(2 044)	(19 331)	29 378	315 045
Research facilities	15 304	5 399	0	0	0	0	0	(711)	0	19 992
	1 042 143	**144 590**	**(10 690)**	**(1 801)**	**167 086**	**84**	**1 112**	**(85 489)**	**41 716**	**1 298 751**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Reconciliation of property, plant and equipment - Group - 2015

	Opening balance R'000	Additions R'000	Disposals R'000	Transfers from Investment Property	Revaluations R'000	Foreign exchange movements R'000	Other changes, movements R'000	Depreciation R'000	Impairment loss R'000	Total R'000
Finance lease assets	5 009	3 901	0	0	0	0	0	(1 575)	0	7 335
Furniture and fixtures	9 670	2 648	(23)	0	0	(3)	0	(2 966)	(67)	9 259
IT equipment	22 918	5 653	(730)	0	0	(2)	0	(6 535)	(172)	21 132
Land and buildings	542 919	49 975	(2 184)	1 641	300	0	90	(16 608)	(1 000)	575 133
Leasehold improvements	58	1	0	0	0	0	0	0	0	59
Machinery and equipment	153 760	16 772	(3 728)	0	0	0	0	(18 308)	0	148 496
Motor vehicles and transport containers	22 451	2 935	(115)	0	0	7	0	(2 926)	0	22 352
Office equipment	5 168	822	(304)	0	0	0	0	(931)	(4)	4 751
Plant	207 084	44 216	(156)	0	0	21	(2 928)	(12 853)	2 938	238 322
Research facilities	14 871	1 071	0	0	0	0	0	(638)	0	15 304
	983 908	**127 994**	**(7 240)**	**1 641**	**300**	**23**	**(2 838)**	**(63 340)**	**1 695**	**1 042 143**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Reconciliation of property, plant and equipment - Company - 2016

	Opening balance R'000	Additions R'000	Disposals R'000	Revaluations R'000	Transfers to Investment Property R'000	Other changes, movements R'000	Depreciation R'000	Total R'000
Finance lease assets	7 335	1 495	0	0	0	0	(2 862)	5 968
Furniture and fixtures	7 116	212	0	0	0	0	(1 168)	6 160
IT equipment	18 511	1 833	(12)	0	0	0	(5 702)	14 630
Land and buildings	500 884	20 805	0	166 586	(1 801)	3 156	(28 625)	661 005
Machinery and equipment	107 886	33 263	0	0	0	0	(18 474)	122 675
Motor vehicles and transport containers	8 841	1 726	0	0	0	0	(1 953)	8 614
Office equipment	3 665	133	(5)	0	0	0	(879)	2 914
Plant	151 226	13 109	0	0	0	0	(2 292)	162 043
Research facilities	15 304	5 399	0	0	0	0	(711)	19 992
	820 768	**77 975**	**(17)**	**166 586**	**(1 801)**	**3 156**	**(62 666)**	**1 004 001**

Reconciliation of property, plant and equipment - Company - 2015

	Opening balance R'000	Additions R'000	Additions through business combinations	Transfers R'000	Revaluations	Other changes, movements	Depreciation R'000	Total R'000
Finance lease assets	5 009	3 901	0	0	0	0	(1 575)	7 335
Furniture and fixtures	7 557	756	(4)	0	0	0	(1 193)	7 116
IT equipment	19 591	5 174	(51)	0	0	0	(6 203)	18 511
Land and buildings	465 802	47 210	0	5 116	(710)	73	(16 607)	500 884
Machinery and equipment	109 425	16 772	(3)	0	0	0	(18 308)	107 886
Motor vehicles and transport containers	7 801	2 586	0	0	0	0	(1 546)	8 841

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Office equipment	3 868	685	0	0	0	0	(888)	3 665
Plant	130 379	23 143	0	0	0	0	(2 296)	151 226
Research facilities	14 871	1 071	0	0	0	0	(638)	15 304
	764 303	**101 298**	**(58)**	**5 116**	**(710)**	**73**	**(49 254)**	**820 768**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Pledged as security

Vehicles and electronic office equipment held under finance leases have been pledged as security (refer to Note 18).

Details of properties

Land and buildings consist of the following properties:
Necsa: Farm 567, Weldaba; Erf 1150, 1153, 1155 and 1156 Albertinia; Erf 4473 and 4474 Riverdale; Erf 1115, 1224, 1916, 1917, 1919, 1921, 1922, 1924, 1926, 1928 and 1929 Springbok; Farm 369 and 380 Vaalputs. The properties was revalued as at 31 March 2016 by an independent valuer.

Gammatec NDT: Portion 91 of Farm 601 Klipplaatdrif, Vereeniging. The property is encumbered as disclosed in note 17 of Gammatec NDT AFS. The property was revalued as at 17 April 2015 by an independent valuer.

AEC Amersham: Erf 176, 100 Indianapolis Street, Kyalami. The property was revalued as at 16 March 2016 by an independent valuer.

The estimation of the useful lives of property, plant and equipment is based on historic performance as well as expectations about future use and therefore requires a significant degree of judgement to be applied by management. These depreciation rates represent management's current best estimate of the useful lives of the assets.
There are no idle assets held. There are assets fully depreciated but still in use to the value of R9,377 (2015: R9,415) on the Company's asset register.

Transfer of property, plant and equipment not only relates to investment property, but also include transfers to other asset classes.

The revaluation reserve may not be distributed to shareholders.

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

Revaluations

The effective date of the revaluation on Properties is 31 March 2016. Valuations were performed by an independent valuer, Mr M Fitchet from Knight Frank. Mr M Fitchet is a registered Professional Valuer in terms of section 19 of the Property Valuers Act, 2000. Knight Frank is not a related party to the Group and is independent.

The Investment (or Income) Approach to Valuation has been applied in terms of IFRS13. The valuation is made on the basis that the property's Highest and Best Use would be for a mixed use industrial park providing facilities management for security, fire & safety as well as existing steam and compressed air services to tenants, including NECSA.

Gross rentals range from R12/m^2 for yard area to between R25-R32/m^2 for workshop/warehouse and R38-R40/m^2 for offices.

Special assumptions used is that the property is not a National Key Point and is therefore capable of occupation and lease to 3rd parties

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

The carrying value of the revalued assets under the cost model would have been:

	2016	2015	2016	2015
Buidlings	511 959	510 935	501 908	500 884

Reversal of impairments of assets

Pelchem SOC Ltd (100% owned subsidiary of Necsa) appointed an evaluator Process Projects to determine the fair value of the plant and equipment at 31 March 2016. The method of valuating plants, is the method used by the International Society of Apparaiers. The approach is based on the assumption that a purchaser would pay no more for the asset than the cost of creating a substitute with the identical utility of the asset being valued. Once the cost is established the condition needs to be accounted for by accrued depreciation. The result of the process was that the recovery amount of the plant and equipment exceeded the current impairment. The impairment could therefore be reversed. Upon reassessment of impairment in the current year, it is deemed that the fair value is more favourable than value in use.

The impairment reconciliation for financial year 2015/16:

Impairment Reversed	41 716
Less Depreciation	(8 913)
Net Reversal of Impairments	32 803

5. Goodwill

Group	2016			2015		
	Cost R'000	Accumulated impairment R'000	Carrying value R'000	Cost R'000	Accumulated impairment R'000	Carrying value R'000
Goodwill	14 587	(3 230)	11 357	14 587	(3 230)	11 357

Reconciliation of goodwill - Group - 2016

	Opening balance R'000	Total R'000
Goodwill	11 357	11 357

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Reconciliation of goodwill - Group - 2015

	Opening balance R'000	Total R'000
Goodwill	11 357	11 357

Goodwill is initially measured at cost, which represents the excess of the purchase price over the net fair value of the identifiable assets, liabilities and contingent liabilities when the subsidiary was acquired.

Goodwill arose on the acquisition of the following subsidiaries:

A 55% shareholding in Gammatec NDT Supplies SOC Limited was acquired on 1 October 2009 by NTP Radioisotopes SOC Limited. The Gammatec Group of companies consists of six companies located in South Africa, Malaysia, the Middle East, Australia and New Zealand.

A 100% shareholding in Pharmatopes SOC Limited was acquired on 1 January 2009 by AEC Amersham SOC Limited.

6. Intangible assets

Group	2016			2015		
	Cost R'000	Accumulated amortisation R'000	Carrying value R'000	Cost R'000	Accumulated amortisation R'000	Carrying value R'000
Computer software	1 998	(990)	1 008	2 115	(938)	1 177
Intangible assets under development	8 847	0	8 847	8 847	0	8 847
Patents, trademarks and other rights	2 396	(1 391)	1 005	1 518	(596)	922
Total	**13 241**	**(2 381)**	**10 860**	**12 480**	**(1 534)**	**10 946**

Reconciliation of intangible assets - Group - 2016

	Opening balance R'000	Additions R'000	Disposals R'000	Transfers R'000	Foreign exchange movements R'000	Amortisation R'000	Total R'000
Computer software	1 177	46	(16)	(2)	5	(202)	1 008
Intangible assets under development	8 847	0	0	0	0	0	8 847
Patents, trademarks and other rights	922	261	0	0	0	(178)	1 005
	10 946	**307**	**(16)**	**(2)**	**5**	**(380)**	**10 860**

Reconciliation of intangible assets - Group - 2015

	Opening balance R'000	Additions R'000	Disposals	Foreign exchange movements	Amortisation R'000	Total R'000
Computer software	1 396	10 040	(9 624)	0	(635)	1 177

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Intangible assets under development	8 121	726	0	0	0	8 847
Patents, trademarks and other rights	878	0	0	74	(30)	922
	10 395	**10 766**	**(9 624)**	**74**	**(665)**	**10 946**

Other information

There are no significant intangible assets controlled by the entity but not recognised as assets because they did not meet the recognition criteria in this Standard or because they were acquired or generated before the version of IAS 38 Intangible Assets issued in 1998 was effective.

Intangible assets comprise computer software and intellectual property generated internally by a subsidiary of the Company, which is used in the purification of Fluorine.

7. Investments in subsidiaries

Name of company	Held by	% holding 2016	% holding 2015	Carrying amount 2016 R'000	Carrying amount 2015 R'000
Pelchem SOC Limited	Necsa	100%	100%	42 001	1
NTP Radioisotopes SOC Limited	Necsa	100%	100%	220 700	220 700
Cyclofil SOC Limited	Necsa	100%	100%	0	0
Arecsa SOC Limited	Necsa	51%	51%	1	1
				262 702	220 702

The carrying amounts of subsidiaries are shown net of impairment losses.

The directors' value of the investment in subsidiaries is equal to its carrying value.

8. Investments in associates

Name of company	Listed / Unlisted	% holding 2016	% holding 2015	Carrying amount 2016	Carrying amount 2015	Fair value 2016	Fair value 2015
Business Venture International No.33 (Pty) Ltd		41,67%	41,67%	2	2	2	2
Gamwave (formerly Cyclotope, a subsidiary)		40,00%	40,00%	0	0	0	0
Oserix		13,75%	13,75%	2 403	2 403	2 403	2 403
Element 42		50,00%	50,00%	0	0	0	0
				2 405	2 405	2 405	2 405

The carrying amounts of Associates are shown net of impairment losses.

The directors' value of the investment in associates is equal to its carrying value.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Summary of the group's interest in associate

	2016 R'000	2015 R'000
Total assets	46 986	33 254
Total liabilities	42 133	30 315
Revenue	57 595	52 554
Profit or loss	(1 621)	(2 039)

9. Loans to (from) group companies

	Group		Company	
	2016 R '000	2015 R '000	2016 R '000	2015 R '000
Subsidiaries				
NTP Radioisotopes SOC Limited The loan is unsecured, bears no interest and has no fixed terms of repayment.	0	0	3 879	3 389
Associates				
Gamwave The loan is unsecured, bears no interest and has no fixed terms of repayment	3 310	3 310	0	0

Credit quality of loans to group companies

The credit quality of loans to Group companies that are neither past due nor impaired can be assessed by reference to historical information about counterparty default rates, as external credit ratings are not available. Loans to Associates are considered medium-high quality as no defaults occurred in the past. The loan to NTP Radioisotopes SOC Limited is considered high quality as no defaults occurred in the past, and NTP Radioisotopes SOC Limited has a strong financial position. The credit-quality of the loan to Pelchem SOC Limited is considered medium to low due to the fact that Pelchem SOC Limited has an accumulated loss at year-end and predicts a loss for the ensuing financial year

Fair value of loans to and from group companies

	Group		Company	
	2016 R '000	2015 R '000	2016 R '000	2015 R '000
Loans to group companies	3 310	3 310	3 879	3 389

The maximum exposure to credit risk at the reporting date is the fair value of each class of loan mentioned above. The Group does not hold any collateral as security.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

10. Other financial assets

	Group		Company	
	2016	2015	2016	2015
	R '000	R '000	R '000	R '000
At fair value through profit or loss - designated				
Foreign-exchange contract asset	10 520	3 007	5 018	3 007
	10 520	**3 007**	**5 018**	**3 007**
Available-for-sale				
Listed shares	1 568	1 555	1 535	1 517
Unit trusts	275 196	218 674	275 196	218 674
	276 764	**220 229**	**276 731**	**220 191**
Retention fees receivable	16 660	15 981	16 660	15 981
Gov Grant receivables Stage 2	28 567	39 812	28 567	39 812
	45 227	**55 793**	**45 227**	**55 793**
Total other financial assets	**332 510**	**279 029**	**326 975**	**278 991**
Non-current assets				
At fair value through profit or loss - designated	10 520	3 007	5 018	3 007
Available-for-sale	276 763	220 229	276 730	220 191
Loans and receivables	30 240	41 653	30 240	41 653
	317 523	**264 889**	**311 988**	**264 851**
Current assets				
Loans and receivables	14 987	14 140	14 987	14 140
	332 510	**279 029**	**326 975**	**278 991**

Fair value information

Financial assets at fair value through profit or loss are recognised at fair value, which is therefore equal to their carrying amounts.

The following classes of financial assets at fair value through profit or loss are measured to fair value using quoted market prices:

- Listed shares
- Unit trusts

Fair values are determined annually as at the end of the reporting period.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Fair value hierarchy of financial assets at fair value through profit or loss

For financial assets recognised at fair value, disclosure is required of a fair value hierarchy which reflects the significance of the inputs used to make the measurements.

	Group		Company	
	2016 R '000	2015 R '000	2016 R '000	2015 R '000
Level 1				
Sanlam - Ordinary shares	88	100	54	62
Old Mutual - Ordinary shares	1 480	1 455	1 480	1 455
Unit Trusts - Collective Investment Schemes	275 195	218 674	275 196	218 674
	276 763	**220 229**	**276 730**	**220 191**

11. Deferred tax

Deferred tax asset	Group		Company	
	2016 R '000	2015 R '000	2016 R '000	2015 R '000
Property, plant and equipment	(18 075)	(16 435)	0	0
Provisions, allowances and PRML liability	41 219	29 824	0	0
Fair value and IFRS adjustments	3 514	614	0	0
Prepayments	(93)	(105)	0	0
	26 565	**13 898**	**0**	**0**
Reconciliation of deferred tax asset				
At beginning of the year	13 898	386	0	0
Charged to the income statement	12 667	13 209	0	0
Originating (reversing) temporary difference on fair value and IFRS adjustments	0	303	0	0
	26 565	**13 898**	**0**	**0**
Deferred tax liability				
Property, plant and equipment	0	(133)	0	0
Provisions, allowances and PRML liability	0	107	0	0
Fair value and IFRS adjustments	0	12	0	0
Prepayment	0	(1)	0	0
	0	**(15)**	**0**	**0**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Reconciliation of deferred tax (liability)				
At beginning of the year	(15)	(83)	0	0
Charged to the income statement	15	68	0	0
	0	**(15)**	**0**	**0**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

	Group		Company	
	2016 R '000	2015 R '000	2016 R '000	2015 R '000
12. Inventories				
Raw materials	27 229	21 502	-	-
Work in progress	19 989	46 658	10 089	36 622
Finished goods	20 158	24 970	1 915	2 352
Life science products and equipment	7 339	6 750	-	-
Production supplies	21 203	18 898	-	-
Goods in transit	32 673	31 628	-	-
Consumables	124 098	128 802	28 918	22 397
	252 689	279 208	40 922	61 371
Impairment of inventories	(20 803)	(15 191)	(1 431)	(1 063)
	231 886	**264 017**	**39 491**	**60 308**
Carrying value of inventories carried at fair value less costs to sell	231 886	264 017	39 491	60 308

During the financial year end 31 March 2016 R146 739 (2015: R206,042) was recognised as an expense for the Company and R724 718 (2015: R852,730) for the Group.

Impaired amount of categories of inventory				
Raw materials	3 014	2 770	-	-
Finished goods	8 379	5 299	1 431	1 063
Production supplies	5 965	4 672	-	-
Consumables	3 445	2 450	-	-
	20 803	**15 191**	**1 431**	**1 063**
13. Trade and other receivables				
Financial Instruments				
Trade receivables	240 176	207 028	65 576	76 350
Other receivable	46 284	55 158	120 665	115 197
Non-financial instruments				
VAT	22 631	24 736	-	4 319
	309 091	**286 922**	**186 241**	**195 866**

Trade and other receivables pledged as security

No trade and other receivables have been pledged as security

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Credit quality of trade and other receivables

Customer credit risk is managed by each business unit subject to the Group's established policy, procedures and control relating to customer credit risk management. Credit quality of a customer is assessed based on an extensive credit rating scorecard and individual credit limits are defined in accordance with this assessment. Outstanding customer receivables are regularly monitored and any shipments to major customers are generally covered by letters of credit or other forms of credit insurance.

At 31 March 2016, the Company had 242 customers (2015: 209 customers) that owed the Company R112 957 (2015: R92 898) and the Group had 529 customers (2015: 589 customers) that owed the Group R212 853 (2015: R152 908). There were 7 customers (2015: 8 customers) that owed the Company and 24 customers (2015: 25 customers) that owed the Group more than R1 million each. These customers comprise 87% (2015: 91%) of total trade receivables for the Company and 69.7% (2015: 52.9%) for the Group.

Fair value of trade and other receivables

	Group		Company	
	2016	2015	2016	2015
	R '000	R '000	R '000	R '000
Trade and other receivables	309 091	286 922	186 241	195 866

Fair value of trade and other receivables has been determined using unobservable inputs (level 3).

Debtors have been reviewed on an individual basis and where extended payment terms were granted the effect of the time value of money have been taken into account. This was done to determine the finance portion granted. The carrying value of Trade and other receivables is reduced by an interest charge of R1,445 (2015: R1,033) to discount the carrying value to amortised cost for the Company and an interest charge of R5,892 (2015: R3,982) for the Group.

Trade and other receivables past due but not impaired

Trade and other receivables which are past due are assessed for impairment on an ongoing basis. At 31 March 2016, R21,406 (2015: R29,394) were past due but not impaired for the Company and R147,689 (2015: R139,038) were past due but not impaired for the Group. The ageing of these amounts are less than 1 year outstanding.

Trade and other receivables impaired

As of 31 March 2016, trade and other receivables of R46,167 (2015: R15,604) were past due and provided for possible impairment by the Company and R21,297 (2015: R20,444) were past due and provided for possible impairment by the Group. These amounts were fully provided for due to the uncertainty of its recoverability.

Reconciliation of provision for impairment of trade receivables

	Group		Company	
	2016	2015	2016	2015
	R '000	R '000	R '000	R '000
Opening balance	20 444	12 161	15 604	7 308
Provision for impairment	18 096	18 741	46 167	15 604
Amounts written off as uncollectable	(858)	(3 553)	-	(2 732)
Unused amounts reversed	(16 385)	(6 905)	(15 604)	(4 576)
	21 297	**20 444**	**46 167**	**15 604**

The creation and release of provision for impaired receivables have been included in operating expenses in profit or loss.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

The maximum exposure to credit risk at the reporting date is the fair value of each class of loan mentioned above. The Group does not hold any collateral as security.

The credit period on sales of goods is 30 days from date of statement. Interest on overdue accounts is charged based on management discretion. It is the policy of the Group to provide fully for receivables that are identified on an individual basis as unrecoverable. The other classes within trade and other receivables do not contain impaired assets.

14. Cash and cash equivalents

Cash and cash equivalents consist of:

	Group		Company	
	2016	**2015**	**2016**	**2015**
	R '000	**R '000**	**R '000**	**R '000**
Cash on hand	10 106	10 051	62	19
Bank balances	213 555	115 219	130 783	45 317
Short-term deposits	556 604	542 582	130 978	197 120
Other cash and cash equivalents	1 243	5 393	1 243	5 393
Bank overdraft	(82 734)	(65 718)	(60 000)	(40 016)
	698 777	**607 527**	**203 066**	**207 833**
Current assets	781 511	671 828	263 066	247 849
Current liabilities	(82 734)	(65 718)	(60 000)	(40 016)
	698 777	**606 110**	**203 066**	**207 833**

Of the R203,066 cash in Necsa as per 2016, R17,301 relates to general Necsa activities, R227,937 to ring-fenced activities and R17,829 are cash held on behalf of third parties.

The Government of South Africa is irrevocably bound as surety and co-principal debtor to Absa Bank (2015: Absa) with regard to the repayment of capital and payment of interest and any other charges in terms of the general short term banking facility of Necsa to the amount of R20 million.

The R20 million undrawn facility is available for future operating activities and to settle capital commitments, with no restriction to this.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Details of facilities

	Group		Company	
	2016	**2015**	**2016**	**2015**
	R '000	**R '000**	**R '000**	**R '000**
Overnight Loan Facility	60 000	40 000	60 000	40 000
Asset based financing	8 000	8 000	8 000	8 000
Bills of Exchange	100	100	-	-
CFC	1 500	1 500	-	-
Commitments regarding guarantees (foreign)	73	70	-	-
Commitments regarding guarantees (local)	12 300	1 900	-	-
Corporate Credit Card	300	300	-	-
FEC's	85 235	85 235	30 000	30 000
	145	145	-	-
Forex cancellation limit	750	750	-	-
Forex settlement limit	7 000	7 000	-	-
General short term banking facility	37 200	35 000	15 000	15 000
Guarantees by bank	11 300	11 300	-	-
Letter of credit	450	450	-	-
Medium Term Loan	1 100	1 733	-	-
Overdraft	13 600	14 600	-	-
Vehicle and asset finance	6 890	6 890	-	-

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

15. Discontinued operations or disposal groups or non-current assets held for sale

Gammatec NDT Supplies (Pty) Ltd Board approved a decision to cease the operations of Lectromax Australia (Pty) Ltd on the 4th September 2015.

The decision was made by the Board of Directors due to the current market conditions globally that continued to indicate a threat to the survival of the entity.

	Group		Company	
	2016 R '000	2015 R '000	2016 R '000	2015 R '000
Profit and loss				
Revenue	15 080	28 264	-	-
Cost of Sales	(15 124)	(18 864)	-	-
Gross profit	(44)	9 400	-	-
Operating Expenses	(1 552)	(6 727)	-	-
Operating profit/(Loss)	(1 596)	2 673	-	-
Other Income/ (Expenses)	(596)	(736)	-	-
Finance costs	(752)	(570)	-	-
Profit/(Loss) from discontinued operations	**(2 944)**	**1 367**	**-**	**-**

Prior period restating

The prior year Statement of Comprehensive Income has been restated to facilitate more accurate disclosure. The net effect on Profit or Loss for the prior year is zero. All Statement of Comprehensive Income notes for the prior year have been restated to only reflect amounts relating to continuing operations.

Assets and liabilities				
Assets of disposal groups				
Trade and other receivables	307	-	-	-
Liabilities of disposal groups				
Loans from group companies	652	-	-	-
Other liabilities	611	-	-	-
	1 263	**-**	**-**	**-**

16. Share capital

Authorised				
500,000,000 Ordinary shares of R1 each	500 000	500 000	500 000	500 000

There were no changes in authorised share capital.

Reconciliation of number of shares issued:				
Reported as at 1 April 2016	2 205	2 205	2 205	2 205
Issued				
Ordinary	2 205	2 205	2 205	2 205

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

	Group		Company	
	2016	2015	2016	2015
	R '000	R '000	R '000	R '000
17. Other financial liabilities				
At fair value through profit or loss				
Cash Flow Hedge	15 058	7 565	-	-
Held at amortised cost				
Standard Bank - Australia Investment The loan is unsecured, bears a fixed interest rate of 11.50% and is repayable in equal monthly instalments of R42,000. The amount is restricted to R2,500.	1 033	1 433	-	-
First National Bank - Mortgage The loan is secured by a first mortgage bond registered over land and buildings Portion 91 of Farm 601, Klipplaatdrif, Vereeniging (Note 4). Interest is charged at prime rate minus 1%. The bond is repayable in equal monthly instalments of R146.	10 391	11 370	-	-
Less: Short term portion	(2 219)	(2 158)	-	-
IDC Loan Pelchem have obtained from the IDC in the prior financial year, a R30 000 000 loan in terms of their job fund program.The Minister of Energy approved the borrowing from IDC on the 12 April 2013.The loan was fully utilized by 31 March 2014.These funds were used as working capital. The R30 000 0000 is repayable over 4 years starting 1 April 2014 at an interest rate of 5%. NTP Radioisotopes SOC Ltd have signed suretyship for the R30 000 000 should Pelchem not be in a position repay the loan	15 000	22 500	-	-
	24 205	**33 145**	**-**	**-**
	39 263	**40 710**	**-**	**-**
Non-current liabilities				
At amortised cost	14 486	23 487	-	-
Current liabilities				
Fair value through profit /or loss	15 058	7 565	-	-
At amortised cost	9 719	9 658	-	-
	24 777	**17 223**	**-**	**-**
	39 263	**40 710**	**-**	**-**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

	Group		Company	
	2016	2015	2016	2015
	R '000	R '000	R '000	R '000
18. Finance lease obligation				
Minimum lease payments due				
- within one year	5 073	3 980	3 283	2 996
- in second to fifth year inclusive	4 176	5 451	2 503	3 848
	9 249	9 431	5 786	6 844
less: future finance charges	(1 047)	(1 216)	(699)	(942)
Present value of minimum lease payments	**8 202**	**8 215**	**5 087**	**5 902**
Present value of minimum lease payments due				
- within one year	2 659	3 181	1 961	2 483
- in second to fifth year inclusive	5 543	5 034	3 126	3 419
	8 202	**8 215**	**5 087**	**5 902**
Non-current liabilities	5 543	5 034	3 126	3 419
Current liabilities	2 659	3 181	1 961	2 483
	8 202	**8 215**	**5 087**	**5 902**

The average lease term was 2 to 5 years (2015: 2 to 5 years) and the average effective borrowing rate was 10,5% (2015: 9%)

Interest rates are linked to prime at the contract date. All leases have fixed repayments and no arrangements have been entered into for contingent rent.

The Group's obligations under finance leases are secured by the lessor's charge over the leased assets (refer to Note 4). The Lessor will at all times remain the owner of the vehicle and the vehicle may only be utilised for the rental period or any extended period. The pledging agreement does not impede the use or control over the assets.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

19. Retirement benefits

Provident fund benefits

The Company and its two major subsidiaries, NTP Radioisotopes and Pelchem, operates a provident fund scheme which is governed by the Pensions Fund Act No. 24 of 1956. The scheme is generally funded through payments to insurance companies or trustee-administered funds, determined by periodic actuarial calculations. The Company has defined contribution plans established in 1994. These contribution plans are compulsory for every permanent employee employed in accordance with the conditions of employment, primarily by means of monthly contributions to the Necsa Retirement Fund. A defined contribution plan is a provident fund under which the Company pays fixed contributions into a separate entity. The Company has no legal or constructive obligations to pay further contributions if the fund does not hold sufficient assets to pay all employees the benefits relating to employee services in the current and prior periods. The contributions are recognised as an expense when they are due. Prepaid contributions are recognised as an asset to the extent that a cash refund or a reduction in the future payments is available.

The Necsa Retirement Fund is revalued by an independent Actuary on an annual basis. The last actuarial valuation was performed in April 2016 for the period ending 31 March 2016. The conclusion made in the latest actuarial valuation was that the Fund is currently in a good financial position and should remain so, based on the contribution rates payable in terms of the rules of the Fund, until the next actuarial valuation.

Post-retirement medical aid

The Company provides post-retirement health-care benefits to employees who were employed on or before 30 September 2004. The entitlement to post-retirement health-care benefits is further based on the employee remaining in service up to retirement age and completing a minimum service period. The expected costs of these benefits are accrued over the period of employment, using an accounting methodology similar to that for defined benefit pension plans. Independent qualified actuaries carry out valuations of these obligations. All actuarial gains and losses are recognised immediately in the statement of comprehensive income. The actuarial valuation method used to value the obligations is the projected unit credit method. Future benefit values are projected using specific actuarial assumptions and the liability to in-service members is accrued over the expected working lifetime. These obligations are funded over a 25 year period. The valuation is done every year. Management has embarked on a strategy to effectively manage its future commitments by initiating a plan that consists of settling the present value of the future commitments of a small targeted employee base and purchasing an inflation linked annuity for the remainder.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

	Group		Company	
	2016	2015	2016	2015
	R '000	R '000	R '000	R '000
Carrying value				
Present value of the defined benefit obligation	412 026	416 476	366 364	371 324
Fair value of plan assets	(35 163)	(32 823)	(15 579)	(13 899)
Past service cost not recognised	32 343	36 147	32 343	36 147
	409 206	**419 800**	**383 128**	**393 572**
Non-current liabilities	386 972	398 105	361 156	372 139
Current liabilities	22 234	21 695	21 972	21 433
	409 206	**419 800**	**383 128**	**393 572**
Reconciliation of net liability recognised in the statement of financial position				
Opening balance	419 800	385 714	393 572	365 672
Current service cost	5 489	4 581	3 941	3 353
Expected return on plan asset	(3 986)	(3 303)	(2 414)	(1 925)
Interest cost	34 015	32 945	30 254	29 704
Actuarial (gains) / losses recognised in profit and loss	(13 062)	32 212	(10 061)	28 306
Expected employer benefit payments	(22 726)	(22 308)	(22 315)	(21 707)
Benefit payments from Plan Assets	23 063	22 006	22 315	21 707
Past service cost recognised	(3 804)	(3 804)	(3 804)	(3 804)
Employer prefunding contributions	(29 583)	(28 243)	(28 360)	(27 734)
Total non-current portion of net liability recognised	**409 206**	**419 800**	**383 128**	**393 572**
Reconciliation of present value of obligations in excess of plan assets				
Opening balance	384 257	346 217	357 425	325 721
Prior year correction	0	(454)	0	0
Current service cost	5 489	4 581	3 941	3 353
Interest cost	34 015	32 945	30 254	29 704
Expected return on plan assets	(3 986)	(3 303)	(2 414)	(1 925)
Actuarial (gains) / losses	(13 062)	32 212	(10 061)	28 307
Expected employer benefit payments	(23 063)	(22 006)	(22 315)	(21 707)
Expected benefit payments from plan assets	22 726	22 308	22 315	21 707
Employer prefunding contributions	(28 909)	(28 243)	(28 360)	(27 735)
	377 467	**384 257**	**350 785**	**357 425**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

	Group		Company	
	2016	2015	2016	2015
	R '000	R '000	R '000	R '000
Expense recognised in the statement of comprehensive income				
Current service cost	5 489	4 580	3 941	3 353
Interest cost	34 015	32 945	30 254	29 704
Past service cost	(3 804)	(3 804)	(3 804)	(3 804)
Actuarial (gains) losses	(13 062)	32 212	(10 061)	28 306
	22 638	**65 933**	**20 330**	**57 559**
Reconciliation of plan assets				
Opening balance	33 331	21 558	13 899	6 261
Return on plan assets	3 986	3 303	2 414	1 925
Employer benefit payments	(23 063)	(22 006)	(22 315)	(21 707)
Employer prefunding contributions	28 909	28 243	28 360	27 735
Experience adjustment	(6 779)	1 725	(6 779)	(315)
Contribution from account assets	-	508	-	-
	36 384	**32 823**	**15 579**	**13 899**
Key assumptions used				
Assumptions used on the last valuation on 31 March 2016.				
CPI Inflation	8,10%	6,50%	8,10%	6,50%
Discount rates per annum	10,10%	8,40%	10,10%	8,40%
Expected retirement age	65	65	65	65
Expected Return on Plan Assets	10,10%	8,40%	10,10%	8,40%
Membership discontinued at retirement or death-in-service	0%	0%	0%	0%
Withdrawal assumption	0% - 15% (Males) 0% - 15% (Females)	0% - 15% (Males) 0% - 15% (Females)	0% - 15% (Males) 0% - 15% (Females)	0% - 15% (Males) 0% - 15% (Females)
Post-retirement assumption	PA (90) ultimate rated down 2 years	PA (90) ultimate rated down 2 years	PA (90) ultimate rated down 2 years	PA (90) ultimate rated down 2 years

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

The expected rate of return on plan assets of 10.10% (2015: 8.40%) per annum is based on the expected return on cash (discount rate 10.10%).

An estimated R28,996 (2015: R28,360) will be contributed to the retirement fund in the next financial year.

Any actuarial gains and losses are recognised immediately in profit and loss.

The plan assets consist of an annuity insurance policy with the following components:

	Group		Company	
	2016	**2015**	**2016**	**2015**
	R '000	**R '000**	**R '000**	**R '000**
Market value growth account	12 851	12 687	389	521
Value of guaranteed account	20 690	24 614	12 690	17 141
Cash account	323	86	274	73
	33 864	**37 387**	**13 353**	**17 735**

20. Deferred income

Government grants for future expenditure:				
Non-current liabilities	479 387	429 347	479 387	429 347
Current liabilities	110 593	188 080	110 593	188 080
	589 980	**617 427**	**589 980**	**617 427**
At 1 April	617 427	427 506	617 427	427 506
Received during the year	580 097	667 261	580 097	667 261
Released to the statement of comprehensive income	(542 815)	(487 295)	(542 815)	(487 295)
Other movements	(64 729)	9 955	(64 729)	9 955
At 31 March	**589 980**	**617 427**	**589 980**	**617 427**

(Note 1) Other movements - represent the utilisation of other grants that were received in the previous year, but utilised in the current year. These other grants mainly from the government and relate to capital expenditures.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

21. Provisions

Reconciliation of provisions - Group - 2016

	Opening balance R'000	Additions R'000	Utilised during the year R'000	Change in discount factor R'000	Total R'000
Decontamination and waste disposal	130 508	100 887	(24 251)	(2 044)	205 100
Employee benefit accruals	74 550	74 624	(52 878)	0	96 296
Provision for loss on contracts	281	416	0	0	697
Provision for gratuities	669	0	0	0	669
After-reactor management cycle	7 455	74	(6 102)	0	1 427
	213 463	**176 001**	**(83 231)**	**(2 044)**	**304 189**

Reconciliation of provisions - Group - 2015

	Opening balance R'000	Additions R'000	Utilised during the year R'000	Reclassified during the year R'000	Change in discount factor R'000	Total R'000
Decontamination and waste disposal	71 647	76 205	(13 178)	(1 238)	(2 928)	130 508
Employee benefit accruals	60 936	45 830	(32 216)	0	0	74 550
Provision for loss on contracts	0	281	0	0	0	281
Provision for gratuities	669	0	0	0	0	669
After-reactor management cycle	0	8 414	0	0	(959)	7 455
	133 252	**130 730**	**(45 394)**	**(1 238)**	**(3 887)**	**213 463**

Reconciliation of provisions - Company - 2016

	Opening balance R'000	Additions R'000	Utilised during the year R'000	Total R'000
Decontamination and waste disposal	269 800	44 088	0	313 888
Employee benefit accruals	42 281	33 168	(31 946)	43 503
Provision for loss on contracts	281	416	0	697
	312 362	**77 672**	**(31 946)**	**358 088**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Reconciliation of provisions - Company - 2015

	Opening balance R'000	Additions R'000	Utilised during the year R'000	Reclassified during the year R'000	Total R'000
Decontamination and waste disposal	204 503	69 962	(7 207)	2 542	269 800
Employee benefit accruals	36 897	28 088	(22 704)	0	42 281
Provision for loss on contracts	0	281	0	0	281
After-reactor management cycle	0	1 200	0	(1 200)	0
	241 400	**99 531**	**(29 911)**	**1 342**	**312 362**

Non-current liabilities	205 769	131 177	313 888	269 800
Current liabilities	98 420	82 286	44 200	42 562
	304 189	**213 463**	**358 088**	**312 362**

Provision for decontamination and waste disposal:

Provision is made for the decontamination of purely commercial plants and disposal of the resulting waste. The annual transfer is based on the latest available cost information. The Company was awarded a license from the National Nuclear Regulator to transport the waste to Vaalputs on 15 March 2011. The assessment methodology provides an estimate of the total cost associated with the decommissioning of commercial plants currently existing at Necsa to the point where they can be reused or released from regulatory control, and the total cost to manage (treat, condition, store and/or dispose) all the existing and future waste created by these activities. In order to estimate the cost and scheduling of the various decommissioning and waste management activities the following assumptions were made:

i) In view of the fact that the Necsa site will remain a licensed site for the foreseeable future, the decommissioning of facilities to the point of release from regulatory control is not necessarily regarded as the required endpoint, as that may depend on the potential future re-use of the nuclear facility.

ii) Only liabilities associated with existing facilities identified during the assessment cycle, and future facilities identified as essential for the discharge of these liabilities are included in the assessment.

iii) The following costs are included in the assessment:

The cost to decommission all facilities to the point where they can be released from regulatory control (The cost exclude future demolishing cost of buildings). Rehabilitation of the site was not included in the assessment, except in cases where this was considered to be the most viable option to achieve release from regulatory control.

A potential benefit (cost decrease) may be achieved as a result of technological progress in the fields of decommissioning and waste management. There are, however, many uncertainties that may impact the accuracy of cost estimates for discharging nuclear liabilities, mainly due to the long time periods over which the cost estimates must be done. Some of these uncertainties are listed below:

Non-technical aspects, such as socio-political factors and changes in laws or regulations in nuclear safety and waste management, are difficult to quantify in terms of impact on cost estimates.

Decommissioning cost for many projects occur some years in the future. The life time of some processes may also be

Notes to the Annual Financial Statements

extended resulting in the postponement of decommissioning activities and cost.

Future developments in the nuclear industry (up scaling or down scaling) may result in the reuse of contaminated or previously decommissioned facilities.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Accrual for employee benefits:

The cost of leave days due to employees as well as thirteenth cheques payable has been accrued for. The accrual will be realised during the following year.

General:

It is envisaged that, based on the current information available, any additional liability in excess of the amounts provided will not have a material adverse effect on the Group's financial position, liquidity or cash flow.

The effect of time value of money has been omitted when calculating provisions where the effect was immaterial.

Investment contributions for future liabilities were previously included in provisions, these have been reclassified to Investment contributions for future liabilities, on the face of the balance sheet and therefore prior year provision figures have changed.

	Group		Company	
	2016	2015	2016	2015
	R '000	R '000	R '000	R '000
22. Loans to (from) shareholders				
Paul Rainier-Pope	0	(501)	0	0

These loans are unsecured, have no fixed repayment terms.

23. Trade and other payables				
Financial Instruments				
Trade payables	120 889	83 179	49 821	33 702
Funds held on behalf of NRWDI	11 186	17 787	11 155	17 787
Accrued expenses	83 702	98 142	41 696	22 166
Other payables	38 968	17 904	36 672	17 135
Non-financial liabilities				
VAT	17 425	12 838	268	0
	272 170	**229 850**	**139 612**	**90 790**
Fair value of trade and other payables				
Trade payables	272 170	229 850	139 612	90 790

Trade creditors have been reviewed on an individual basis and where extended payment terms were applicable the effect of the time value of money have been taken into account. This was done to determine the finance portion included. The carrying value of Trade and other payables is increased by an interest income of R407 (2015: R687) to discount the carrying value to amortised cost for the Company and an interest charge of R6 694 (2015: R6 408) for the Group.

The average credit period on purchases is between 30 and 60 days from date of statement. The Company and Group settle payments to creditors on average 30 days from receipt of the statements. Interest is sometimes charged on trade payables based on the payment policy of the Group. The Company and Group has financial risk management policies in place to ensure that all payables are paid within the credit timeframe.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

24. Financial assets by category

The accounting policies for financial instruments have been applied to the line items below:

Group - 2016

	Loans and receivables R'000	Fair value through profit or loss - held for trading R'000	Fair value through profit or loss - designated R'000	Available-for-sale R'000	Total R'000
Loans to group companies	3 310	-	-	-	3 310
Other financial assets	45 227	-	10 520	276 763	332 510
Cash and cash equivalents	781 551	-	-	-	781 551
Trade and other receivables (excl. prepayments, deposits and VAT receivable)	-	286 460	-	-	286 460
	830 088	**286 460**	**10 520**	**276 763**	**1 403 831**

Group - 2015

	Loans and receivables R'000	Fair value through profit or loss - held for trading R'000	Fair value through profit or loss - designated R'000	Available-for-sale R'000	Total R'000
Loans to group companies	3 310	0	0	0	3 310
Other financial assets	55 703	0	3 007	220 229	279 029
Trade and other receivables (excl. prepayments, deposits and VAT receivable)	0	262 186	0	0	262 186
Cash and cash equivalents	671 828	0	0	0	671 828
	730 931	**262 186**	**3 007**	**220 229**	**1 216 353**

Company - 2016

	Loans and receivables R'000	Fair value through profit or loss - held for trading R'000	Fair value through profit or loss - designated R'000	Available-for-sale R'000	Total R'000
Loans to group companies	3 879	0	0	0	3 879
Other financial assets	45 227	0	5 018	276 730	326 975
Trade and other receivables (excl. prepayments, deposits and VAT receivable)	0	186 241	0	0	186 241
Cash and cash equivalents	263 066	0	0	0	263 066
	312 172	**186 241**	**5 018**	**276 730**	**780 161**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Company - 2015

	Loans and receivables R'000	Fair value through profit or loss - held for trading R'000	Fair value through profit or loss - designated R'000	Available-for-sale R'000	Total R'000
Loans to group companies	3 389	0	0	0	3 389
Other financial assets	55 793	0	3 007	220 191	278 991
Cash and cash equivalents	247 849	0	0	0	247 849
Trade and other receivables (excl. prepayments, deposits and VAT receivable)	0	191 547	0	0	191 547
	307 031	**191 547**	**3 007**	**220 191**	**721 776**

25. Financial liabilities by category

The accounting policies for financial instruments have been applied to the line items below:

Group - 2016

	Financial Liabilities at Amortised Cost R'000	Total R'000
Other financial liabilities	39 263	39 263
Trade and other payables (excl. amounts received in advance, deferred grants and VAT payable)	254 745	254 745
Bank overdraft	82 734	82 734
	376 742	**376 742**

Group - 2015

	Financial Liabilities at Amortised Cost R'000	Total R'000
Loans from minority shareholders	501	501
Other financial liabilities	40 710	40 710
Trade and other payables (excl. amounts received in advance, deferred grants and VAT payable)	217 012	217 012
Bank overdraft	65 718	65 718
	323 941	**323 941**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Company - 2016

	Financial Liabilities at Amortised Cost R'000	Total R'000
Trade and other payables (excl. amounts received in advance, deferred grants and VAT payable)	139 344	139 344
Bank overdraft	60 000	60 000
	199 344	**199 344**

Company - 2015

	Financial Liabilities at Amortised Cost R'000	Total R'000
Trade and other payables (excl. amounts received in advance, deferred grants and VAT payable)	90 790	90 790
Bank overdraft	40 016	40 016
	130 806	**130 806**

26. Revaluation reserve

The revaluation reserve consists of fair value adjustments to the land and buildings of the Company and Group.

	Group		Company	
	2016	**2015**	**2016**	**2015**
	R '000	**R '000**	**R '000**	**R '000**
Fair value adjustment to land and buildings	479 565	312 573	450 385	283 799

27. Fair value adjustment assets-available-for-sale reserve

The fair value adjustment assets-available-for-sale-reserve comprises all fair value adjustments on available for sale financial instruments. When an asset or liability is derecognised, the fair value adjustment relating to that asset or liability is transferred to profit or loss.

Available-for-sale financial instruments	4 442	14 493	4 419	14 465

28. Revenue

Sale of goods	1510 008	1 308 986	381 956	352 456
Construction contracts	(21 349)	25 568	(21 349)	25 568
Government grants	542 815	487 295	542 815	487 295
Other grants	33 910	32 781	20 928	19 989
	2 065 384	**1 854 630**	**924 350**	**885 308**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

	Group		Company	
	2016	2015	2016	2015
	R '000	R '000	R '000	R '000
The amount included in revenue arising from government grants is as follows:				
Operating activities	436 479	417 421	436 479	417 421
Decommissioning of strategic plants	58 609	57 997	58 609	57 997
LEU Fuel and conversion	1 087	0	1 087	0
Security	8 113	8 206	8 113	8 206
Deferred R&D Safari Grant USED	3 900	0	3 900	0
SAFARI-1	116	3 671	116	3 671
Deferred MTEF Grant utilised for Activities	34 511	0	34 511	0
	542 815	**487 295**	**542 815**	**487 295**

The government grant relating to operating activities is primarily utilised to fund research and development expenses, non-commercial overheads and supplementary activities as required by the Nuclear Energy Act, costs for discarding radioactive waste and for storage of irradiated nuclear fuel.

The South African Government has an obligation to discharge nuclear liabilities resulting from previous strategic nuclear programmes which includes decommissioning and decontamination of disused historic facilities. The Minister of Department of Energy is charged with this responsibility on behalf of government. A Nuclear Liabilities Management Plan (NLMP) was approved by cabinet in February 2007.

Necsa, as a statutory body created in terms of the Nuclear Energy Act (Act 46 of 1999) has been delegated with certain responsibilities in this regard. It annually receives funds to apply to the decommissioning and decontamination process in terms of the NLMP. Funds received by Necsa for this purpose and not utilised at year end are accounted for as deferred grants.

29. Operating Profit (Loss)

Operating Profit (Loss) for the year is stated after accounting for the following:

Income from subsidiaries				
Dividends	0	0	10 088	34 746
Interest	0	0	0	67
	0	**0**	**10 088**	**34 813**
Operating lease charges				
Premises				
• Contractual amounts	1 600	1 752	0	0
Equipment				
• Contractual amounts	3 507	3 439	3 409	3 064
Lease rentals on operating lease				
• Contractual amounts	914	751	0	0
	6 021	**5 942**	**3 409**	**3 064**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

	R '000	R '000	R '000	R '000
(Loss) profit on sale of property, plant and equipment	(633)	102	(17)	(58)
Profit on sale of other financial assets	13 963	4 175	13 963	4 175
Reversal of impairment on property, plant and equipment	12 823	434	0	0
Impairment of subsidiary	64 796	7 193	(42 000)	0
Impairment on loans to group companies	1 201	0	0	0
Impairment of trade and other receivables	0	(51)	0	0
Reversal of impairment on trade and other receivables	0	43	0	0
Profit (loss) on exchange differences	(79 732)	(3 040)	(6 880)	(361)
Depreciation on property, plant and equipment	77 965	65 770	62 664	49 253
Employee costs	803 457	717 481	639 168	578 639
Consulting and professional fees	39 467	46 436	27 791	24 251
Impairment of inventory	20 078	15 191	1 431	1 063

30. Investment revenue

Dividend revenue				
Subsidiaries - Local	12 963	0	10 088	34 746
Listed financial assets - Local	1	468	0	0
Unit trusts - Local	768	687	0	0
	13 732	**1 155**	**10 088**	**34 746**
Interest revenue				
Associates	705	401	0	0
Bank	65 728	52 976	35 905	32 017
Fair value adjustments	23 141	20 363	5 875	5 188
Interest charged on trade and other receivables	0	232	0	0
Interest received from SARS	0	2	0	0
Other interest	218 528	0	218 528	0
Subsidiaries	0	0	0	67
	308 102	**73 974**	**260 308**	**37 272**
	321 834	**75 129**	**270 396**	**72 018**

31. Fair value adjustments

Investment property	1 187	(95)	(1 580)	(22)

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

	Group		Company	
	2016	2015	2016	2015
	R '000	R '000	R '000	R '000
32. Finance costs				
Amortisation of held to maturity liabilities	1 019	1 106	0	0
Bank	3 936	3 884	0	0
Fair value adjustments	14 907	9 641	2 018	2 145
Finance leases	810	810	628	591
Group companies	(829)	32	0	0
Interest paid	272 137	49 133	262 651	36 789
Non-current borrowings	(191)	(4)	0	0
Shareholders	0	36	0	0
Trade and other payables	1 203	16	1 203	16
	292 992	**64 654**	**266 500**	**39 541**
33. Taxation				
Major components of the tax expense				
Current				
Local income tax - current period	88 611	42 979	0	0
Local income tax - recognised in current tax for prior periods	560	8 515	0	0
Deferred tax current	(7 606)	(15 276)	0	0
Foreign income tax for current period	234	0	0	0
	81 799	**36 218**	**0**	**0**
Reconciliation of the tax expense				
Reconciliation between accounting profit and tax expense.				
Accounting profit (loss)	258 409	14 235	(86 023)	(55 947)
Tax at the applicable tax rate of 28% (2015: 28%)	72 355	3 986	(24 137)	(15 665)
Tax effect of adjustments on taxable income				
Permanent differences due to non-taxable income and non-deductible expenses	17 461	442	-	-
Tax losses carried forward	(8 022)	23 956	-	-
Permanent difference due to tax status	-	1 684	24 137	15 665
CGT	1	-	-	-

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Prior year	4	6 150	-	-
	81 799	**36 218**	**-**	**-**

The South African Revenue Services has approved an exemption in respect of The South African Nuclear Energy Corporation SOC Limited under section 10(1)(cA)(i) of the Income Tax Act subject to certain conditions. No provision is therefore made for tax for Necsa Company.

	Group		Company	
	2016	**2015**	**2016**	**2015**
	R '000	**R '000**	**R '000**	**R '000**
34. Auditors' remuneration				
Fees	11 563	9 571	7 073	4 531

35. Other comprehensive income

Components of other comprehensive income - Group - 2016	**Gross R'000**	**Tax R'000**	**Net R'000**
Exchange differences on translating foreign operations			
Exchange differences arising during the year	8 368	0	8 368
Available-for-sale financial assets adjustments			
Gains and losses arising during the year	(10 051)	0	(10 051)
Movements on revaluation			
Gains (losses) on property revaluation	166 992	0	166 992
Re-measurements on net defined benefit liability/asset	(11 765)	0	(11 765)
Total	**153 544**	**0**	**153 544**

Components of other comprehensive income - Group - 2015			
Exchange differences on translating foreign operations			
Exchange differences arising during the year	8 399	0	8 399
Available-for-sale financial assets adjustments			
Gains and losses arising during the year	1 696	0	1 696
Movements on revaluation			
Gains (losses) on property revaluation	228	0	228
Re-measurements on net defined benefit liability/asset	(32 210)	0	(32 210)
Total	**(21 887)**	**-**	**(21 887)**

Components of other comprehensive income - Company - 2016			
Available-for-sale financial assets adjustments			
Gains and losses arising during the year	(10 046)	0	(10 046)
Movements on revaluation			
Gains (losses) on property revaluation	166 586	0	166 586
Re-measurements on net defined benefit liability/asset	10 061	0	10 061
Total	**166 601**	**0**	**166 601**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

	Gross R'000	Tax R'000	Net R'000
Components of other comprehensive income - Company - 2015			
Available-for-sale financial assets adjustments			
Gains and losses arising during the year	1 686	0	1 686
Re-measurements on net defined benefit liability/asset	(28 306)	0	(28 306)
Total	**(26 620)**	**0**	**(26 620)**

	Group		Company	
	2016 R '000	2015 R '000	2016 R '000	2015 R '000
36. Cash generated from operations				
Profit (loss) before taxation	258 409	14 253	(86 203)	(55 947)
Adjustments for:				
Discontinued operations PBT	0	1 367	0	0
Amortisation	380	665	0	0
Bad debts written off	858	3 553	0	2 732
Depreciation D&D	13 247	12 678	13 247	12 678
Depreciation	85 489	63 340	62 664	49 253
Fair value adjustments to investment property	(1 187)	95	1 580	22
Imputed interest - debtors	(5 927)	(3 982)	(1 445)	(1 033)
Imputed interest - creditors	6 694	6 408	407	687
Finance costs	294 064	65 230	266 500	39 541
Provision for impairment of debts	18 096	18 741	46 167	15 064
Stage 2 Grant recievables	10 398	(53952)	10 398	(53 952)
Impairment loss	61 794	16 886	47 598	0
Investment revenue - dividends	(13 732)	(1 155)	(10 088)	(34 746)
Investment revenue - interest	(308 102)	(73 974)	(260 308)	(37 272)
Loss /(profit) on foreign exchange	79 732	3 040	6 880	361
(Profit)/Loss on sale of other financial assets	(13 963)	4 175	(13 963)	(4 175)
Profit/(Loss) on sale of assets	633	114	17	690
Movements in provisions	90 726	80 211	(45 726)	70 962
Movements in retirement benefit assets and liabilities	3 008	1 874	(383)	(406)
Impairment of subsidiary	(64 796)	(7 193)	42 000	0
Other D&D non-cash movements	8 714	7 401	57 211	19 585
Fair value adjustments on other financial assets	10 046	(1 487)	10 046	(1 487)
Other movements in fixed assets	1 265	2 838	0	(73)
Movements in investment contributions for future liabilities	2 354	2 218	2 354	2 218
Changes in working capital:				
Inventories	32 131	(34 167)	20 817	(29 268)
Trade and other receivables	(22 476)	22 695	9 625	(18 100)
Prepayments	(96 955)	20 241	(45 199)	504

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

	Group		Company	
	2016	2015	2016	2015
	R '000	R '000	R '000	R '000
Amounts received in advance	24 655	(118 655)	90 218	(11 740)
Change in other financial liabilities	(1 447)	(1 308)	0	0
Trade and other payables	42 931	90 937	48 646	9 097
Deposits received	2 184	(198)	0	0
	507 601	**142 871**	**273 060**	**(24 805)**

37. Tax paid

Balance at beginning of the year	3 141	9 256	0	0
Current tax for the year recognised in profit or loss	(81 799)	(36 218)	0	0
Movement in deferred tax	(12 667)	(13 512)	0	0
Balance at end of the year	(7 476)	(3 141)	0	0
	(98 801)	**(43 615)**	**0**	**0**

38. Commitments

Authorised capital expenditure

Already contracted for but not provided for

• Property, plant and equipment	39 511	34 093	19 408	19 559

This committed expenditure relates to plant and equipment and will be financed through ordinary trading operations.

Operating leases – as lessee (expense)

Minimum lease payments due

- within one year	6 974	1 979	1 301	1 351
- in second to fifth year inclusive	23 277	1 443	855	1 443
	30 251	**3 422**	**2 156**	**2 794**

Operating lease payments represent rentals payable by the Group for certain of its motor vehicles and office equipment. Leases are negotiated for an average term of 3.0 years (2015: 4.0 years).

39. Contingencies

By their nature, contingencies will only be resolved when one or more future events occur or fail to occur. The assessment of such contingencies inherently involves the exercise of significant judgement and estimates of the outcome of future events.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Litigation and other judicial proceedings as a rule raise difficult and complex legal issues and are subject to uncertainties and complexities including, but not limited to, the facts and circumstances of each particular case, issues regarding the jurisdiction in which each suit is brought and differences in applicable law. Upon resolution of any pending legal matter, the Company may be forced to incur charges in excess of the presently established provisions and related insurance coverage. It is possible that the financial position, results of operations or cash flows of the Company could be materially affected by the unfavourable outcome of litigation.

Guarantees:
Guarantees of R866 (2015: R630) were issued to financial institutions as collateral security for housing loans granted by financial institutions to employees. Performance guarantees of R0 (2015: R0) were issued to ABSA Bank for a customer.

Legal claims:
Possible quantifiable legal obligations exists for the Group totaling approximately R1 500 (2015: R26 081) in connection with disputes with delivery of goods, arrear rentals receivable, unfair labour practice, CCMA disputes and services rendered. These cases are currently being investigated by the Necsa Legal division.

Suretyship:
A limited deed of suretyship for an amount of up to R20 000 (2015: R20 000) has been given to Pelchem SOC Limited for a ABSA facility. R14 000 (2015: R14 000) relates to an overnight facility and R6 000 (2015: R6 000) to an asset based finance

Lectromax Australia Proprietary Limited

A material uncertainty exists on whether a subsidiary, Lectromax Australia Proprietary Limited, would be able to meet its obligations as they fall due, as this subsidiary's liabilities exceed its fairly valued assets at the end of the reporting period and is in the process of being wound up. Gammatec NDT Supplies SOC Limited is a 90% shareholder of Lectromax Australia Proprietary Limited. The Lectromax Australia Proprietary Limited liabilities exceeds its assets with R25 519 at 31 March 2016.

During the current financial year, Gammatec NDT Supplies SOC Limited has impaired its loan to Lectromax Australia Proprietary Limited. The loan carrying amount at 31 March 2016 was R18 350 and the impairment on the loan receivable in Gammatec SOC Limited's books was R18 350. During the current financial year, Gammatec NDt Supplies SOC Limited has also provided against its trade receivable from Lectromax Australia Proprietary Limited. The carrying amount of the trade receivable on 31 March 2016 was R6 108 and the provision for bad debts against this trade receivable was R6 108.

The individual annual financial statements of Lectromax Australia has a disclaimer of opinion in the independent auditor's report based on concerns over the going concern assumption used to prepare the financial statements.

Gammatec Middle East General Trading (LLC)

A material uncertainty exists on whether a subsidiary, Gammatec Middle East General Trading LLC, would be able to meet its obligations as they fall due, as this subsidiary's liabilities exceed its fairly valued assets at the end of the reporting period. Gammatec NDT Supplies SOC Limited as a 76% shareholder of Gammatec Middle East General Trading LLC, has given a letter of support to the management and auditors of Gammatec Middle East General Trading LLC that it will provide an appropriate level of financial support to ensure that Gammatec Middle East general trading LLC is in a position to meet its financial liabilities and obligations as and when they fall due for at least a period of 18 months. The Gammatec Middle East General Trading LLC liabilities exceeded its assets with R6 920 at 31 March 2016.

NTP Radioisotopes SOC Limited

In June 2013, NTP Radioisotopes SOC Limited , a 100% owned subsidiary of Necsa, signed a suretyship agreement for the amount of R30 000 for the IDC loan granted to Pelchem SOC Limited for bridging finance. Pelchem is a 100% owned subsidiary of Necsa SOC Limited. In July 2015, NTP Radioisotopes provided letter of support to NTP Radioisotopes Europe SA that it will provide an appropirate level of financial support to ensure that NTP Europe SA is in a position to meet its financial liabilities and obligations as and when they fall due for at least a period of 12 months.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

40. Related parties

Relationships

Holding entity	Department of Energy
Subsidiaries	Refer to note 7
Associates	Refer to note 8
National government	All national government departments are regarded to be related parties in accordance with circular 4 of 2005: Guidance on the term "State controlled entities" in the context of IAS 24 - Related Parties, issued by the South African Institute of Chartered Accountants. No transactions are implied simply by the nature of existence of the relationship between entities. All directors have given general declarations of interest in terms of the Companies Act.
Directors and members of key management	Details of directors and key management remuneration paid are disclosed in note 41

	Group		Company	
	2016 R '000	2015 R '000	2016 R '000	2015 R '000
The following is a summary of transactions with related parties during the year and balances due at year end				
National public entities				
Services rendered	2 115	0	0	0
Services received	(40 777)	(36 408)	(40 777)	(36 408)
Trade amount due (to)/ from	(12 953)	0	0	0
National Government Departments				
Services rendered	509 086	1	1	1
Services received	0	(1)	(1)	(1)
Trade amount due (to)/ from	21	0	0	0
Subsidiaries				
Services rendered	0	0	307 982	293 863
Services recieved	0	0	(3 155)	(14 390)
Dividends income	0	0	10 088	34 716
Loans to (from) subsidiaries	0	0	3 879	3 389
Trade amount due (to)/ from	0	0	102 417	95 807
Associates				
Services rendered	5 800	0	0	0
Services received	(3 856)	0	0	0
Loans to/from associates	3 310	3 310	0	0
Trade amount due (to)/ from	4 001	0	0	0

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

	Group		Company	
	2016 R '000	2015 R '000	2016 R '000	2015 R '000
Minority shareholders				
Loans to (from) shareholders	3 702	(501)	0	0
Compensation to Directors and other key management				
Short-term employee benefits	38 533	26 943	0	0

41. Directors and Executives' emoluments

The following tables set out the directors' emoluments and emoluments paid to general managers of Necsa Company.

Non-executive

2016	Directors fees R '000
Mokuena MM	63
Kellerman J	2
Seekoe MJ	443
Shaik-Peremanov N	77
Mhlongo AN	18
	603

2015	Directors fees R '000
Khoathane MMEG	271
Majozi T	96
Mokuena MM	198
Seekoe MJ	471
Mhlongo AN	5
Shaik-Peremanov N	213
Kellerman J	6
Zwane PZR	62
	1 322

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Executive

	Taxable allowance R'000	Retirement Fund Contribution R'000	Other company contributions R'000	Salary R'000	Total R'000
Tshelane GP - 2016	637	338	498	1 609	3 082
Tshelane GP - 2015	630	334	28	1 723	2 714

Group Executives

2016	Taxable allowance R'000	Leave Pay R'000	Retirement fund contributions R'000	Other company contribution R'000	Salary R'000	Acting allowance R'000	Total R'000
Mabhongo XM	391	100	212	122	1 008	0	1 833
Maserumule MS	728	0	255	143	1 216	0	2 342
Myeza ZG	208	0	298	144	1 417	0	2 067
Rasweswe MA	189	0	153	84	727	138	1 291
Tselane TJ	436	0	236	119	1 124	0	1 915
	1 952	**100**	**1 154**	**612**	**5 492**	**138**	**9 448**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

2015	Taxable allowance R'000	Separation Package R'000	Leave Pay R'000	Retirement fund contributions R'000	Other company contribution R'000	Salary R'000	Acting allowance R'000	Total R'000
Mabhongo XM	420	0	0	227	20	1 170	0	1 838
Maserumule MS	523	0	0	277	24	1 430	0	2 254
Mfeka M	0	0	0	0	0	0	75	75
Myeza ZG	265	0	0	263	20	1 356	0	1 903
Moagi DM	150	0	167	78	9	403	0	808
Tselane TJ	419	0	0	227	20	1 166	0	1 832
Shayi LJ	16	937	154	297	31	1 481	0	2 915
Rasweswe MA	0	0	0	0	0	0	6	6
	1 793	**937**	**321**	**1 369**	**124**	**7 006**	**81**	**11 631**

Details of service contracts

No director has a notice period in excess of one year and no director's contract makes provision for predetermined compensation on termination exceeding one year's salary and benefits in kind. No directors are proposed for election or re-election at the forthcoming annual general meeting. All the directors have a service contract.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

42. Prior period errors

Certain items have been reclassified to facilitate more accurate disclosure. It relates to: Grant received from the US DoE now accounted for as a subsidy received on purchases of inventory. This reclassification was done for the prior year and the years before that.

The errors have been corrected retrospectively and resulted in adjustments as follows:

		2015	Pre - 2015	
	R '000	R '000	R '000	R '000
Consolidated Statement of Financial Position				
Inventory decreased	-	18 985	19 717	-
Inventory increased	-	733	-	-
Trade payables decreased	-	56 761	63 080	-
Provisions decreased	-	37 616	37 678	-
Reserves increased	-	7 565	-	-
Tax asset increased	-	2 163	1 591	-
Statement of comprehensive income				
Cost of sales increased	-	2 042	5 684	-
Tax expense increased	-	572	1 591	-

43. Risk management

Capital risk management

The Group's objectives when managing capital are to safeguard the Group's ability to continue as a going concern in order to provide returns for Shareholder and benefits for other stakeholders and to maintain an optimal capital structure to reduce the cost of capital.

In order to maintain or adjust the capital structure, the Group may adjust the amount of dividends paid to Shareholder, return capital to Shareholder, issue new shares or sell assets to reduce debt.

There are no externally imposed capital requirements.

There have been no changes to what the entity manages as capital, the strategy for capital maintenance or externally imposed capital requirements from the previous year.

Financial risk management

The Group's principal financial liabilities comprise loans and borrowings and trade and other payables. The main purpose of these financial liabilities is to finance the Group's operations. The Group has loan and other receivables, trade and other receivables, cash and short term deposits that arrive directly from its operations. The Group also holds available for sale investments.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

The Group's activities expose it to a variety of financial risks: market risk (including currency risk, interest rate risk and price risk), credit risk and liquidity risk.

Market risk is the risk that the fair value of future cash flows of a financial instrument will fluctuate because of changes in market prices. Market prices comprise four types of risk: interest rate risk, currency risk, commodity price risk and other price risk, such as equity price risk. Financial instruments affected by market risk include loans and borrowings, deposits, available-for-sale investments and derivative financial instruments.

The Group's overall risk management program focuses on the unpredictability of financial markets and seeks to minimise potential adverse effects on the Group's financial performance. Risk management is carried out by a central department under policies approved by the Board of Directors. This department identifies and evaluates financial risks in close co-operation with the Group's operating units. The Board of Directors provides written principles for overall risk management, as well as written policies covering specific areas, such as foreign exchange risk, interest rate risk, credit risk and investment of excess liquidity.

Liquidity risk

Liquidity risk is the risk that the Group will not have sufficient financial resources to meet its obligations when they fall due, or will have to do so at excessive cost. The risk can arise from mismatches in the timing of cash flows from revenue and capital and operational outflows.

Prudent liquidity risk management implies maintaining sufficient cash, the availability of funding through an adequate amount of committed credit facilities.

The Group's risk to liquidity is a result of the funds available to cover future commitments. The Group manages liquidity risk through an ongoing review of future commitments and available credit facilities.

The objective of the Group's liquidity and funding management is to ensure that all foreseeable operational, capital expansion and loan commitment expenditure can be met under both normal and stressed conditions. The Group has adopted an overall statement of financial position approach, which consolidates all sources and uses of liquidity, while aiming to maintain a balance between liquidity, profitability and interest rate considerations.

The Group's liquidity and funding management process includes:

- Strict control on recovering of outstanding debtors;
- Monthly cash flow forecasts; and
- Investment of excess funds in low risk, available-on-request investments.

Cash flow forecasts are prepared and adequate utilised borrowing facilities are monitored.

The table below analyses the Group's financial liabilities into relevant maturity Groupings based on the remaining period from the end of the reporting period to the contractual maturity date. The amounts disclosed in the table are the contractual undiscounted cash flows. Balances due within 12 months equal their carrying balances as the impact of discounting is not significant.

The outstanding balance has been allocated into different categories as per the prior year to provide more comprehensive information.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Group

At 31 March 2016	Less than 1 month R'000	Between 1 and 3 months R'000	Between 3 months and 1 year R'000	Between 1 and 5 years R'000
Borrowings	315	2 515	20 271	15 972
Trade and other payables	107 685	91 480	56 793	1 735
Bank overdraft	60 006	2	-	-
At 31 March 2015	Less than 1 month R'000	Between 1 and 3 months R'000	Between 3 months and 1 year R'000	Between 1 and 5 years R'000
Borrowings	248	2 372	18 951	24 511
Trade and other payables	99 309	111 904	16 123	-
Bank overdraft	40 016	-	-	-

Company

At 31 March 2016	Less than 1 month R'000	Between 1 and 3 months R'000	Between 3 months and 1 year R'000	Between 1 and 5 years R'000
Trade and other payables	95 010	13 485	29 382	1 735
Bank overdraft	60 000	-	-	-
At 31 March 2015				
Trade and other payables	41 210	22 810	24 175	2 595
Bank overdraft	40 016			

The table below analyses the Group's derivative financial instruments which will be settled on a gross basis into relevant maturity Groupings based on the remaining period from the end of the reporting period to the contractual maturity date. The amount disclosed in the table are the contractual undiscounted cash flows. Balances due within 12 months equal their carrying balances as the impact of discounting is not significant.

Group

At 31 March 2016	Less than 1 month R'000	Between 1 and 3 months R'000	Between 3 and 1 year R'000
Forward foreign exchange contracts			
• Outflow	(28 553)	(1 337)	(40 211)
• Inflow	150 101	40 878	572
• Net	121 548	39 541	(39 639)
At 31 March 2015			
Forward foreign exchange contracts			
• Outflow	(37 957)	(37 302)	(17 807)
• Inflow	118 356	43 517	289
• Net	80 399	6 215	(1 751)

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Company

At 31 March 2016	Less than 1 month R'000	Between 3 months and 1 year R'000
Forward foreign exchange contracts		
• Outflow	(3 314)	(40 149)
• Inflow	5 827	-
• Net	2 513	(40 149)

At 31 March 2015	Less than 1 month R'000	Between 1 and 3 months R'000	Between 3 and 1 year R'000
Forward foreign exchange contracts			
• Outflow	(6 913)	(34 277)	(16 165)
• Inflow	9 090	-	-
• Net	2 177	(34 277)	(16 165)

Interest rate risk

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates. The Group's exposure to the risk of changes in market interest rates relates primarily to the Group's long-term debt obligations with floating interest rates.

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

The Group's interest rate risk arises from long-term borrowings and commitments. Borrowings issued at fixed rates expose the Group to fair value interest rate risk. During 2016 and 2015, the Group's borrowings at variable rate were denominated in Rand.

Interest rate sensitivity

At 31 March 2016, if interest rates on Rand-denominated borrowings and commitments had been 1% higher/lower with all other variables held constant, post-tax profit for the year would have been R 5 839 (2015: R 4 460) lower/higher, mainly as a result of higher/lower interest expense on floating rate borrowings and commitments.

The sensitivity analysis for interest rate risk assumes that all other variables, in particular foreign exchange rates, remain constant.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Credit risk

Credit risk is the risk of financial loss to the Group if a customer or other counterparty to a financial instrument fails to meet its contractual obligations.

The Group is exposed to credit risk from its operating activities (primarily for trade receivables) and from its financing activities, including deposits with banks and financial institutions, foreign exchange transactions and other financial instruments.

Credit risk consists mainly of cash deposits, cash equivalents and trade debtors. The Company only deposits cash with major banks with high quality credit standing and limits exposure to any one counter party.

Trade receivables comprise a widespread customer base. Management evaluated credit risk relating to customers on an ongoing basis. Risk control assesses the credit quality of the customer, taking into account its financial position, past experience and other factors. The utilisation of credit limits is regularly monitored.

The requirement for an impairment is analysed at each reporting period on an individual basis. The calculation is based on actually incurred historical data. The maximum exposure to credit risk at the reporting date is the carrying value of each class of financial asset.

The Group does not hold collateral as security. The Group evaluates the concentration of risk with respect to trade receivables as low, as its customers are located in several jurisdictions and industries and operate in largely independent markets.

Financial assets exposed to credit risk at year end were as follows:

	Group		Company	
Financial instrument	**2016 R'000**	**2015 R'000**	**2016 R'000**	**2015 R'000**
ABSA A-	6 999	4 785	1 111	720
Allan Gray	-	96 232	-	96 232
Coronation Fund	119 141	175 358	-	87 832
FNB BBB	854	484	-	-
Investec BBB-	203 831	149 686	90 006	67 239
Momentum	115 595	84 594	-	-
Nedbank BBB	112 823	142 016	982	17 728
Old Mutual	-	18 018	-	18 018
Rand Merchant Bank BBB+	121 135	127 468	110 827	121 971
Sanlam AA-	54	62	54	62
Standard Bank BBB	26 139	19 843	78	156

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Foreign exchange risk

Foreign currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in the foreign exchange currency. The Group's exposure to the risk of changes in foreign exchange rates relates primarily to the Group's operating activities, Foreign exchange risk arises when future commercial transactions or recognised assets or liabilities are denominated in a currency that is not the entity's functional currency.

The Group operates internationally and is exposed to foreign exchange risk arising from various currency exposures, primarily with respect to the US dollar and the Euro. Foreign exchange risk arises from future commercial transactions, recognised assets and liabilities and net investments in foreign operations.

Management has set up a policy to require Group companies to manage their foreign exchange risk against their functional currency. The Group manages its foreign currency risk by entering into forward exchange contracts for foreign currency denominated transactions. To manage their foreign exchange risk arising from future commercial transactions and recognised assets and liabilities, entities in the Group use forward contracts, transacted with Group treasury. Although the forward exchange contracts have not been designated in a hedge relationship, they act as a commercial hedge and will offset the underlying transactions when they occur.

The Group has certain investments in foreign operations, whose net assets are exposed to foreign currency translation risk. Currency exposure arising from the net assets of the Group's foreign operations is managed primarily through borrowings denominated in the relevant foreign currencies.

Foreign currency sensitivity
The following paragraphs demonstrate the sensitivity to a reasonable change in the foreign currency rate, with all other variables held constant.

Trade receivables and payables
At 31 March 2016, if the currency had weakened by 10% against the US dollar with all other variables held constant, post-tax profit for the year would have been R 51 365 (2015: R 41 567) higher, mainly as a result of foreign exchange gains on translation of US dollar denominated trade receivables.

At 31 March 2016, if the currency had weakened by 10% against the Euro with all other variables held constant, post-tax profit for the year would have been R18,536 (2014: R8,110) higher, mainly as a result of foreign exchange gains on translation of Euro denominated trade receivables and loans receivable.

The Group's exposure to foreign currency changes for all other currencies is not material.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

	Group		Company	
	2016	2015	2016	2015
	R '000	R '000	R '000	R '000
Foreign currency exposure at the end of the reporting period:				
Current assets				
US Dollar	185 932	163 133	5 507	5 731
Euro	91 029	63 032	722	4 461
GBP	4 242	2 553	-	-
Other	7 965	8 927	-	8
Liabilities				
US Dollar	62 848	70 120	1 797	-
Euro	13 963	18 739	317	120
GBP	3 467	3 809	26	-
Other	4 298	12 427	-	-
Exchange rates used for conversion of foreign items were:				
USD	14.76	12.23	14.76	12.23
EURO	16.81	13.13	16.81	13.13
GBP	21.20	18.09	21.20	18.09

The Group reviews its foreign currency exposure, including commitments on an ongoing basis. Although the foreign exchange contracts have not been designated in a hedge relationship, they act as a commercial hedge and will offset the underlying transactions when they occur.

Price risk

The Group is exposed to equity securities price risk because of investments held by the Group and classified on the consolidated statement of financial position as available-for-sale. To manage its price risk arising from investments in equity securities, the Group diversifies its portfolio. Diversification of the portfolio is done in accordance with the limits set by the Group.

The table below summarises the impact of increases/decreases in unit prices on the Group's equity. The analysis is based on the assumption that the equity price has increased/decreased by 5% with all other variables held constant.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

The Group reviews its foreign currency exposure, including commitments on an ongoing basis. Although the foreign exchange contracts have not been designated in a hedge relationship, they act as a commercial hedge and will offset the underlying transactions when they occur.

Price risk

The Group is exposed to equity securities price risk because of investments held by the Group and classified on the consolidated statement of financial position as available-for-sale. To manage its price risk arising from investments in equity securities, the Group diversifies its portfolio. Diversification of the portfolio is done in accordance with the limits set by the Group.

The table below summarises the impact of increases/decreases in unit prices on the Group's equity. The analysis is based on the assumption that the equity price has increased/decreased by 5% with all other variables held constant.

Group

	Impact on post tax profit in Rand		Impact on other components of equity in Rand	
Financial instrument	**2016 R'000**	**2015 R'000**	**2016 R'000**	**2015 R'000**
Coronation Unit Trusts	-	-	2 116	1 173

44. Going concern

The Annual Financial Statements have been prepared on the basis of accounting policies applicable to a going concern. This basis presumes that funds will be available to finance future operations and that the realisation of assets and settlement of liabilities, contingent obligations and commitments will occur in the ordinary course of business.

The ability of the Group to continue as a going concern is dependent on grant funding from the Government. Funding for the 2016/17 financial year has been approved; and as per the Medium Term Expenditure Framework (MTEF) of the National Government funding has also been allocated for the 2017/18 and 2018/19 financial years.

In considering whether the Group and the Company are going concerns the following is noted:

Necsa is established in terms of the Nuclear Energy Act (the Act) and is the successor in title to the Atomic Energy Corportion which has been in existence since 1950. Its main functions and ancillary powers and functions are prescribed by the Act. The Act prescribes how Necsa will be funded; it specifically states that, amongst other sources of funding, Necsa's will be funded and provided with capital from money appropriated by Parliament and income derived from the sale or other commercial exploitation of its products. Further, the Act requires that Necsa must in respect of each financial year submit a statement of estimated income and expenditure for approval to the Minister of Energy (the Minister) and the Minister may approve the statement with the agreement of the Minister of Finance. The Act also states that Necsa may not be placed under judicial management or in liquidation except if authorised by an Act of Parliament. The group's intellectual property and its main operations are considered strategic to the Republic, hence the direct involvement of Government to ensure its continued existence.

Since its establishment and to date the Group's statement of estimated income and expenditure has been approved by the Minister of Energy with the concurrence of the Minister of Finance and the approved funding has been received by the Group. Grant funding for the current year amounted to R 580million and funding for the 2016/17 year of R 599million has been approved; and the Medium Term Expenditure Framework tabled in Parliament during September 2015 has allocated R 671million for 2017/18 and R 710million for 2018/19.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

The Group exports a substantial portion of its commercial products and as result of the deteriorating global economic environment in recent years it has not been achieving its revenue targets. Consequently expenditure and cash flows have been managed prudently. Although the Group has adequate cash resources, Necsa, the Company, has experienced short term cash shortages. This is so because the Company's operations (commercial, research and development and State mandated obligations) are integrated resulting in interdependencies and cross subsidisation.

The Minister, and the National Treasury are aware of these constraints and discussions are ongoing. These short term shortage are funded from an overdraft facility of R60 million. It is also noted that a subsidiary NTP has significant available/ uncommitted cash resources of R 435 million.

In March 2016 Senior Counsel confirmed that Necsa, and not the Department of Energy, is liable to Decommission and Decontaminate (D&D) strategic nuclear facilities currently in operation (Stage 2) and, in terms of Accounting Standards, Necsa has had to recognise this liability in its financial statements, although the D&D process (and the resulting cash flows) may only commence in 2030 or later. Although Senior Counsel also opined that the State has an obligation to fund these liabilities, Accounting Standards dictate that such obligation cannot yet be recognised as an asset without Cabinet approval and discussions are underway to obtain such approval. The recognition of this liability has negatively impacted the Equity of the Company and the Group in the amount of R 209 million in the 2014/15 financial year and a further charge of R 255 million in the current financial year. The recognition of this liability will have no impact on the Company's and the Group's current and future cash flows until 2030. Refer to note 47 for further discussion on the Company's D&D obligations.

Despite this significant negative impact to Equity, the Group and the Company are still solvent; and once Cabinet approves funding, solvency will be enhanced.

On the basis of the Group's current financial position, the forecasted financial performance and cash flows for the foreseeable future, the grant funding approved for the 2016/17 financial year, the funding allocated for the 207/18 and 2018/19 financial years, the State's obligations in terms of the Act and the ongoing discussions with the State, it is considered that the Group has access to adequate resources to continue in operational existence for the foreseeable future.

45. Public Finance Management Act

Fruitless and wasteful expenditure:

	Group		Company	
	2016	2015	2016	2015
	R '000	R '000	R '000	R '000
Opening balance	273	273	215	212
Overpayments not recoverable[1]	639	165	5	155
Recoveries made	(1)	(75)	(1)	(70)
Internal losses[2]	384	0	384	-
Written off to the statement of comprehensive income	0	(90)	0	(82)
Fruitless and wasteful expenditure unresolved	**1 295**	**273**	**603**	**215**

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

omments (including actions taken with regard to matters)

1 Disciplinary steps have been taken against staff to address the shortcoming.
2 This matter is under investigation in order to identify the root cause and persons involved.
3 All fines are recovered from responsible employees where possible.

Criminal or disciplinary steps:

There were no material losses through criminal conduct, unauthorised expenditure or irregular expenditure. Therefore criminal steps are not applicable. Disciplinary steps have been taken were applicable.

Gifts, donations or sponsorships received:

Employees are allowed to receive gifts and courtesies. Gifts and courtesies received above R300 are recorded in a register and approved by the relevant manager. Gifts and courtesies received above R3,000 needs written permission from the Group Executive or CEO as appropriate.

Remissions or payments made as an act of grace:

There were no remissions or payments made as an act of grace.

Irregular expenditure:

	Group		Company	
	2016	2015	2016	2015
	R'000	R'000	R'000	R'000
Opening	-	-	-	-
Add: Irregular expenditure -current year:	-	-	-	-
	-	-	-	-
Functionality criteria specified in Request for tender ""not clear and specific"" However all suppliers were treated consistently using the same template. Therefore the tender process was fair, equitable, transparent and consistent in line with s217 of the South African Constitution.	40 452	165 338	30 345	124 522
a. No evidence could be obtained that a request for a quotation was sent to potential suppliers and request for quotations sent were not clear and specific. b. B-BBEE points not awarded in accordance with PPR 4(3)	-	3 714	-	3 714

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Note 1: The irregular expenditure has been condoned as follows:
R33,334 (2015 R128,329) approved by Board of Directors of Necsa
R7,068 (2015 R30,327) approved by Board of Directors of NTP
R3,236 (2015 R11,218) approved by Board of Directors of Pelchem

Although the above purchases constitutes irregular expenditure as per the Public Finance Management Act, no losses were incurred due to the financial misconduct.

Effective steps have been taken by management to prevent recurrence of irregular expenditure.

46. Prepayments

Payments in advance are not encouraged, although are sometimes necessary in the normal running of the business.

47. Decommissioning & Decontamination Stage 1

South Africa announced its intention to abandon the Nuclear Weapons Program in 1989. Stemming from this announcement, Necsa started in 1995 with the shutdown of the various strategic nuclear facilities directly linked to the Nuclear Weapons Program while the other strategically related operating nuclear facilities were excluded to continue the maintenance of the Necsa site license and to support some of the current operating facilities to date.

These shut-down facilities (some have been Decommissioned & Decontaminated (D&D) while others are scheduled to be D&D) are currently known as past disused strategic nuclear facilities. All the other ancillary nuclear facilities that were strategically used for the Nuclear Weapons Program have been kept operational for the new Non-Weapons (peaceful application of nuclear energy) mandate and are currently known as the past operational strategic nuclear facilities.

According to the Nuclear Energy Act (No. 46 of 1999), all institutional nuclear obligations vest in Minister of Mineral and Energy (now Energy). Section 1 (xii) (a) states that "The decommissioning and decontamination (D&D) of past strategic nuclear facilities" is an institutional nuclear obligation

The South African Nuclear Energy Corporation Ltd (NECSA) has been established for the Republic in terms of the Nuclear Energy Act 46 of 1999 (the Act)) to manage and operate the Republic's nuclear and related objectives. NECSA derives its mandate (powers and functions) solely from the Act and the Minister of Energy via the Department of Energy (DoE), and is subjected to the Policies and Procedures designed by the DoE.

Decommissioning & Decontamination Stage 1 (continued)

It is considered that this D&D responsibility has now been assigned to NECSA by the Minister.

The National Nuclear Regulator (NNR), an organ of the State, was established in terms of the National Nuclear Regulator Act 47 of 1999. Section 1 (xiv) of the NNR Act makes provision for the granting of nuclear authorisations, also known as Nuclear Installations Licenses (NILs). Section 20 (1) of the Act states that "No person may site, construct, operate, decontaminate or decommission a nuclear installation, except under the authority of a nuclear installation licence"

Section 21 (1) requires that any person wishing to site, construct, operate, decontaminate or decommission a nuclear installation may apply in the prescribed format to the Chief Executive Officer of the NNR for a nuclear installation licence and must furnish such information as the NNR Board of Directors requires. Necsa is currently the license holder of forty one (41) NILs that was issued by the NNR. The NNR approved NILs issued to Necsa, govern all nuclear activities undertaken in the disused and operational nuclear facilities.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

In 2000 Necsa was requested by the then Department of Minerals and Energy (DME) to quantify the total nuclear and related liability on the Pelindaba site arising from the nuclear weapons/strategic program. Necsa then submitted to Cabinet, in April 2004, through the DoE, a Nuclear Liabilities Management Plan (NLMP). The NLMP differentiated between three stages of D&D, namely:

- Stage 1- Disused Facilities;
- Stage 2- Strategic Operational Nuclear Facilities (currently in use); and
- Stage 3- HEU Spent Fuel.

In November 2005 Cabinet approved :

Funding of approximately R1.8 billion (2004/5 Rand values) as reflected below:

- The D&D of disused historical nuclear facilities (Stage 1) of the Nuclear Liabilities Management Plan (R1 526 million) and
- Decommissioning and remediation of Thabana waste trenches & waste storage facilities, which were excluded from the NLMP, R270 million.

- The consolidation of nuclear liabilities management funding into a single ring-fenced budget;
- That the DoE and the National Treasury work out a programme for the funding of R1.8billion (in 2004/5 Rand values) estimated to discharge the liability over a 28 years period.

In order to provide a monitoring mechanism for effective oversight of the implementation of the approved 2005 Cabinet resolutions, DoE issued a Policy Procedure on the Management of Nuclear Liabilities arising from Past Strategic Nuclear Facilities in May 2008. According to the policy procedure, Necsa must submit to DoE a formal reassessment of the liabilities every five years or at a shorter frequency if so required by the Minister. The initial methodology for reassessing the liabilities and any changes to the methodology thereafter must be agreed with the DoE prior to implementation.

The re-assessment takes in account the following and is subjected to international experts benchmarking and validation:

- Review of variables and values used in the assessment model (e.g. interest rates, inflation rates, waste inventories, processing cost, etc.)
- Review assumptions made in the model.
- Appropriateness of model used.
- Adjustments due to liabilities discharged in previous years.

The assessed amount is adjusted for inflation annually until the next re-assessment. Since 2007/08 NECSA has been receiving annually ring-fenced grants from the State to discharge this liability on behalf of the DoE.

Stage 1 Liabilities

Until the 2013/14 financial year all the parties considered that the D&D liability vested in the Minister and was recognised in the financial statements of the DoE; and NECSA was acting as an agent of the Minister with regard to D&D. A Senior Counsel opinion, obtained in March 2016, confirmed that the liability to D&D past strategic nuclear facilities rests with NECSA with regard to both disused and currently in use facilities; and that the State is obligated to fund these liabilities. The Minister has accepted this opinion and has transferred this liability as well as Cabinet's approval to fund the Stage 1 liability to NECSA; to be recognised in NECSA"s financial statements as from the 2014/15 financial year.

An independent international expert, Crossland Consulting Ltd, has confirmed that the assessment methodology used to determine the liability was in line with international best practice and that the amount was sound and reasonable.

After adjusting for inflation and the costs already incurred this liability has been determined to be R2.8 billion as at 31 March 2016 and in terms of IAS 37 this liability is recognised as a provision (liability) and the State's funding obligation, approved by Cabinet is recognised as an asset.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

Stage 2 Liabilities

The Stage 2 facilities are currently in operation and these facilities will only be D&D once operations cease. On the basis of the current capacities of these facilities it is estimated that they will be in use for at least the next 30 years, where after they will be D&D. However, based on international experience, it is considered that these facilities could be refurbished when needed to be used indefinitely.

The Stage 2 facilities include the SAFARI-1 Reactor which NTP Radioisotopes SOC Ltd (NTP), a subsidiary of NECSA, is contracted to manage and operate. In terms of the manage and operate agreement NTP and NECSA will share the D&D costs of SAFARI-1; and NTP will be charged based on the commercial utilisation of the SAFARI-1 by NTP. NTP's contribution is ring-fenced and invested to be utilised when D&D commences.

The Stage 2 Liability has been assessed on the basis of the same methodology as for Stage 1. The re-assessment will be done every 3 years and the assessed amount will be adjusted for inflation until the next re-assessment.

Senior Counsel's opinion is that the State is obligated to fund these liabilities. The Minster has accepted this opinion; and has committed to request Cabinet to approve funding for this liability. In terms of accounting standards the State's funding obligation cannot yet be recognised as an asset without Cabinet approving the funding.

In the meantime the National Treasury has allocated funding in terms of the Medium Term Expenditure Framework (MTEF) as follows (Inclusive of VAT):
2015/16: R 16. 120 million (received)
2016/17: R 17.086 million (received)
2017/18: R 18.112 million (committed)
2018/19: R 19,162 million (committed)

These funds will be ring-fenced and invested to be utilised when D&D commences.

Assuming the current MTEF contributions committed by the National Treasury (vat exclusive), escalated at average 6% CPI rate, and the investments earning interest at the current long term Government Bond rate of 9.4% as at July 2016, the full liability will be settled by 2037 after the last MTEF contribution of R48 001, with future value of investment at R1 500 855 .

48. Vaalputs After Care

Vaalputs institutional control
In terms of Section 50 of the Nuclear Energy Act, the responsibility for the Republic's institutional nuclear obligations vests in the Minister of Minerals and Energy (now Energy). The management of nuclear waste disposal on a national basis is one of these obligations as defined in Section 1(xii) of the Act.

The management of radioactive waste disposal on a national basis is assigned to the National Radioactive Waste Disposal Institute. The Institute is an independent entity established by statute under the provision of section 55(2) of the Nuclear Energy Act to fulfil the institutional obligation of the Minister of Energy. Although the institute was established through the statutes and that Board of Directors were appointed, it is still not fully operational.

In terms of section 30(8) of the Disposal Institute Act, DoE subsequently appointed Necsa on 7 March 2010 to maintain the Nuclear Installation License for Vaalputs (NIL28) until such time as the NRWDI is in a position to take over these functions to the satisfaction of the NNR.

The liability associated with the "after care" was previously treated as a contingent liability due to the various uncertainties regarding the reasonableness and plausibility of the cost estimate as well as the uncertainty regarding the radiological end-state of these facilities.

It is envisaged that an assessment of the long-term safety of the site will be conducted at the end of the operational period to determine whether the remaining facilities and the environmental pathways should continue to be monitored after site closure, taking into account the total nuclide inventory as well as updated safety assumptions and conditions at the time. This safety assessment will form the basis according to which post-closure residual risks (engineering and environmental) will be managed in the institutional control period.

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

The "after care" liability assessment should follow the same methodology and adhere to the agreed governance processes that were applicable for the past strategic disused facilities to ensure the reasonableness and accuracy of the liability estimate. Such process will have to follow the required Governance processes and expert review and verification process to pass the test of being "measured with sufficient reliability".

49. Change in accounting policy - Construction Contracts

Necsa changed its accounting policy on contract to construct an asset from Work in Progress per Inventory Standards to Construction Contracts per GAAP FRS-14.

The effect of this is where revenue was previously recognised at the end of construction of the contracts (therefore creating mismatch between when costs are recognised in the Income Statement and when revenue is recognised), revenue will now be recognised based on the percentage of completion of the construction contract.
The effect to Profit/(Loss) is as per below:

Construction contracts	2016	2015	Total
Revenue	(21 349)	27 078	5 729
Cost of sales	18 301	(23 529)	(5 228)
Loss on Projects	(415)	(281)	(696)
	(3 463)	3 268	(195)

50. Prior Period Adjustments

Decommissioning and Decontamination (D&D) liabilities

As a result of the legal opinion obtained by Department of Energy regarding the responsibility of Decommissioning and Decontamination liabilities (Refer to Note 47) - The effect on the Profit/(Loss) is as follows:

D&D Stage 2	**2016**	**2015**	**Total**
Depreciation (Cumulative)	(12 871)	(177 936)	(190 807)
Interest charge (Cumulative)	(32 820)	(31 368)	(64 188)
	(45 691)	(209 304)	(254 995)

Vaalputs After care liabilities

The effect on the Profit/(Loss) of recognising the Vaalputs After care liabilities (Refer to Note 48) is as follows:

After Care Liabilities			
Depreciation (Cumulative)	(376)	(11 675)	(12 051)
Interest charge (Cumulative)	(5 882)	(63 926)	(69 808)
	(6 258)	(75 601)	(81 859)
Net Effect	(51 949)	(284 905)	(336 854)

Notes to the Annual Financial Statements

ANNUAL FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 MARCH 2016

51. Investment contributions for future liabilities

This represents contributions invested / ring fenced for the future decommissioning of facilities.

	2015	Movement	2016
NTP - Commercial facilities	18 153	1 126	19 274
SAFARI-1	12 542	1 228	13 770
	30 695	2 354	33 049


NEC

ACRONYMS AND ABBREVIATIONS

ABF	Ammonium Bifluoride
ACS	Analytical and Calibration Services
Adv.	Advocate
AfLS	African Light Source initiative
AFRA	African Regional Cooperative Agreement for Research, Development and Training Related to Nuclear Science and Technology
AFS	Annual Financial Statements
AGSA	Auditor-General of South Africa
AIDC	Automotive Industry Development Centre
AIDS	Acquired Immune Deficiency Syndrome
ALARA	As Low As Reasonably Achievable
ALMERA	Analytical Laboratories for the Measurement of Environmental Radioactivity
AMI	Advanced Metals Initiative
ANL	Argonne National Laboratory
ANSTO	Australian Nuclear Science and Technology Organisation
ASME	American Society for Mechanical Engineers
ATLAS	A Toroidal LHC ApparatuS
AVE	Advertising Value Equivalent
BBBEE	Broad-Based Black Economic Empowerment
BBC	Black Business Forum
BBS	Behavioural Based Safety
BDC	Borehole Disposal Concept
BEE	Black Economic Empowerment
BEVA	Brandstofelementvervaardigingsaanleg
BNFL	British Nuclear Fuels Limited
BoD	Board of Directors
BST	Behavioural Science Technology, Inc.
CA	Complementary Access
CAPEX	Capital Expenditure
CEA	French Alternative Energies and Atomic Energy Commission
CEO	Chief Executive Officer
CERCA	Company for the Study of Atomic Fuel Creation
CERN	European Organization for Nuclear Research
CHIETA	Chemical Industries Education and Training Authority
CHOC	Children's Haematology Oncology Clinics
Co	Cobalt
COIDA	Compensation for Occupational Injuries and Diseases
COP	Conference of the Parties
COSO	Committee of Sponsoring Organisations of the Treadway Commission

CPI	Consumer Price Index
CRO	Clinical Research Organisation
CT	Computed Tomography
CTBTO	Comprehensive Nuclear-Test-Ban Treaty Organisation
D&D	Decommissioning and Decontamination
DDG	Deputy Director General
DE	Divisional Executive
DG	Director General
DI	Disabling Injuries
DIIR	Disabling Injury Incident Rate
DoE	Department of Energy
DoH	Department of Health
DoL	Department of Labour
DoT	Department of Transport
DST	Department of Science and Technology
dti	Department of Trade and Industry
DTTC	Decentralised Trade Test Centre
DWA	Department of Water Affairs
EAP	Employee Assistance Programme
ECC	Emergency Control Centre
EDTMP	Ethylenediaminetetramethylene Phosphonic Acid
EE	Employment Equity
EEE	Extreme External Events
ETRR-2	Egyptian 2nd Testing Research Reactor
EU	Enriched Uranium
EXCO	Executive Committee
F	Fluorine
FDA	Federal Drug Administration
FEI	Fluorochemical Expansion Initiative
FTIR	Fourier Transform Infrared Spectroscopy
FY	Fiscal Year
GC-MS	Gas Chromatography–Mass Spectrometry
GD-OED	Glow-Discharge Optical Emission Spectroscopy
GDP	Gross Domestic Product
GE	Group Executive
GiTS	Graduate-in-Training Scheme
GLP	Good Laboratory Practice
GRI	Global Reporting Initiative
Gulf CC	Gulf Cooperation Council
GW.h	Gigawatt hour
HF	Hydrofluoric Acid
HFPO	Hexafluoropropylene Oxide

HFR	High Flux Reactor
HIV	Human Immunodeficiency Virus
HLG-MR	High Level Group for Medical Radioisotopes
HLW	High Level Waste
HOR	Hoger Onderwijs Reactor
IAEA	International Atomic Energy Agency
ICAS	Independent Counselling and Advisory Services
ICP-MS	Inductively Coupled Plasma Mass Spectrometry
ICP-OES	Inductively Coupled Plasma Optical Emission Spectrometry
IDC	Industrial Development Corporation of South Africa
IFRS	International Financial Reporting Standards
IIT	Industrial Isotope Technology
INES	International Nuclear Events Scale
INFCIRC	Information Circular
INMM	Institute of Nuclear Materials Management
INS	Instruction
Ir	Iridium
IRE	Institute for Radioelements
IrF6	Interferon Regulatory Factor 6
IRMC	Internal Risk Management Committee
IRP	Integrated Resource Plan
IS	Integrated Safeguards
ISA	Integrated Safeguards Approach
ISBN	International Standard Book Number
ISI	International Scientific Indexing
ISO	International Organization for Standardization
IT	Information Technology
ITWG	International Technical Working Group
JAEA	Japan Atomic Energy Agency
KNPP	Koeberg Nuclear Power Plant
KPI	Key Performance Indicator
LCD	Liquid Crystal Display
LEMS	Liquid Effluent Management Services
LESA	Limited Electronics South Africa SOC Limited
LEU	Low Enriched Uranium
Li	Lithium
LTE	Long-Term Evolution
Lu	Lutetium
MAPEP	Mixed-Analyte Performance Evaluation Program
MARST	Masters Degree in Applied Radiation Science and Technology
MD	Managing Director
MEC	Member of the Executive Council

MeV	Mega-electronvolt
MFPP	Multi-Purpose Fluorination Pilot Plant
MHC	Mobile Hot Cell
MNR	McMaster Nuclear Reactor
Mo	Molybdenum
MOU	Memorandum of Understanding
MOX	Mixed Oxide
MPa	Megapascal
MPISI	Materials Probe for Internal Strain Investigations
MSONE	Masters Degree in Nuclear Energy
mSv	Millisievert
MTEF	Medium-term Expenditure Framework
MTR	Material Test Reactor
MW	Megawatt
MW.h	Megawatt hour
NAMB	National Artisan Moderating Body
Nb	Niobium
NBD	New Business Development
ND	National Diploma
NDP	National Development Plan
NDT	Non-Destructive Testing
Necsa	South African Nuclear Energy Corporation SOC Limited
NEP	National Equipment Programme
NF_3	Nitrogen Trifluoride
NFC	Nuclear Fuel Cycle
NGO	Non-governmental Organization
NIASA	Nuclear Industry Association of South Africa
NICD	National Institute for Communicable Diseases
NIL	Nuclear Installation License
NLM	Nuclear Liability Management
NMDN	Nuclear Materials Development Network
NNR	National Nuclear Regulator
NOHIB	Necsa Occupational Hygiene Inspection Body
NORM	Naturally Occurring Radioactive Materials
NPA	National Prosecuting Authority
NPAT	Net Profit After Tax
NPT	Non-Proliferation Treaty
NRAD	Neutron Radiography
NRF	National Research Foundation
NRU	Canada's National Research Universal reactor
NRWDI	National Radioactive Waste Disposal Institute
NSD	Nuclear Skills Development

NSI	National System of Innovation
NSTF	National Science and Technology Forum
NTeMBI	Nuclear Technologies in Medicine and the Biosciences Initiative
NTIP	National Tooling Initiative Programme
NTPE	NTP Radioisotopes Europe
NTPL	NTP Logistics
NVC	Necsa Visitor Centre
NWU	North-West University
OECD	Organisation for Economic Co-operation and Development
OHSAS	Occupation Health and Safety Assessment Series
OSCAR	Overall System for the Calculation of Reactors
PAA	Public Auditors Act
PBMR	Pebble Bed Modular Reactor
PCS	Pelindaba Consulting Services
PDO	Predetermined Objective
PDZ	Plasma Dissociated Zircon
PEARL	Pelchem Eliminating Accidents and Risks of Life
PES	Pelindaba Engineering Services
PET	Positron Emission Tomography
PFMA	Public Finance Management Act
PIV	Physical Inventory Verification
PIXE	Particle-induced X-ray Emission / Proton-induced X-ray Emission
PLGA	Poly Lactic-co-Glycolic Acid
PLWC	People Living with Cancer
PM	Pelindaba Manufacturing
PMCoE	Project Management Centre of Excellence
PPF	Peace Parks Foundation
PRE	Process Engineering
PRINCE2	Projects in a Controlled Environment
PSIF	Public Safety Information Forum
PSMA	Prostate-Specific Membrane Antigen
Pt	Platinum
R&D	Research and Development
RA	Radio Analysis
RBI	Royal Bafokeng Institute
RFP	Request for Proposal
RII	Random Interim Inspection
RMS	Remote Monitoring Surveillance
RPO	Radiation Protection Officer
RPTC	Radiation Protection Training Centre
RSA	Republic of South Africa
SA GAAP	South African Statements of Generally Accepted Accounting Practice

SAASTA	South African Agency for Science and Technology Advancement
SABC	South African Broadcasting Corporation
SABS	South African Bureau of Standards
SACNET	South African Civil Nuclear Energy Training Program
SAFARI-1	South African Fundamental Atomic Research Installation
SAFS	South African Fluorine Symposium
SAIP	South African Institute of Physics
SAIW	South African Institute of Welding
SANAS	South African National Accreditation System
SANDF	South African National Defence Force
SANRAD	Neutron Radiography Facility in South Africa
SANS	Small-angle Neutron Scattering
SANS	South African National Standard
SAPS	South African Police Service
SARIR	South African Research Infrastructure Roadmap
SARS	South African Revenue Service
SAS	Study Assistance Scheme
SAYNPS	South African Young Nuclear Professionals
SDL	Skills Development Levy
Se	Selenium
SED	Socio-economic Development
SESTO	Sector Education and Skills Training Organisation
SF_6	Sulphur Hexafluoride
SHE	Safety Health and Environment
SHEQ	Safety, Health, Environment and Quality
Si	Silicon
SI	Site Infrastructure
SIT	Sterile Insect Technique
SKA	Square Kilometre Array Radio Telescope
SMME	Small, Medium and Micro-sized Enterprises
SNPTC	State Nuclear Power Technology Corporation
SOC	State-owned Company
SOE	State-owned Enterprise
SR	Stakeholder Relations
SSA	State Security Agency
SSAC	State System of Accounting for and Control of Nuclear Material
SSD	Site Security Department
STI	Sexually Transmitted Infection
Ta	Tantalum
TD	Technology Development
TFE	Tetrafluoroethylene
Ti	Titanium

TIA	Technology Innovation Agency
TIR	Total Injury Rate
TO	Technical Officer
TUT	Tshwane University of Technology
U	Uranium
U_3Si_2	Uranium Silicide
UF_6	Uranium Hexafluoride
UJ	University of Johannesburg
UNISA	University of South Africa
UO_2	Uranium Dioxide
UP	University of Pretoria
US	United States
US DOE	United States Department of Energy
USA	United States of America
UWC	University of Western Cape
VAT	Value Added Tax
VCT	Voluntary Counselling and Testing
VPSIF	Vaalputs Public Safety Information Forum
VRF	Volume Reduction Facility
WiN-Necsa	Women in Nuclear – Necsa
WNA	World Nuclear Association
WO	Work Order
WOESA	Women in Oil and Energy SA
XeF_2	Xenon Difluoride
XRF	X-ray Fluorescence
Zr	Zirconium
ZrC	Zirconium Carbide


VIR ALGEMENE
FOR GENERAL

RP RP279/2016
ISBN 978-0-620-71824-0

necsa
We're in your world

P.O Box 582
Pretoria
0001
South Africa

+27 12 305 4911
+27 12 305 3111