

RioTinto

Rössing Uranium Limited  
Working for Namibia  
2011 Report to Stakeholders

Facing challenges head-on



# Rössing Uranium Limited

## Our history

Uranium was discovered in the Namib Desert in 1928, but it was not until intensive exploration in the late 1950s that much interest was shown in the area. After discovering numerous uranium occurrences, Rio Tinto secured the rights to the low-grade Rössing deposits in 1966. Ten years later, Rössing Uranium, Namibia's first commercial uranium mine, began operating. Today, Namibia has two significant uranium mines and provides 6.9 per cent of world uranium oxide mining output, of which 3.9 per cent is produced by us. The mine has a nameplate capacity of 4,500 tonnes (t) of uranium per year and, by the end of 2011, had supplied a total of 120,754 t of uranium oxide to the world.

## Our location

The mine is located 12 km from the town of Arandis, 70 km inland from the coastal town of Swakopmund in Namibia's Erongo Region. Walvis Bay, Namibia's only deepwater harbour, is located 30 km south of Swakopmund.

The mining operation is in a semi-desert environment. The annual mean temperature measured on the mine during 2011, namely 20.9°C, was 0.7°C lower than that recorded for 2010 (21.6°C) and 0.6°C lower than the 20-year long-term mean temperature of 21.5°C.

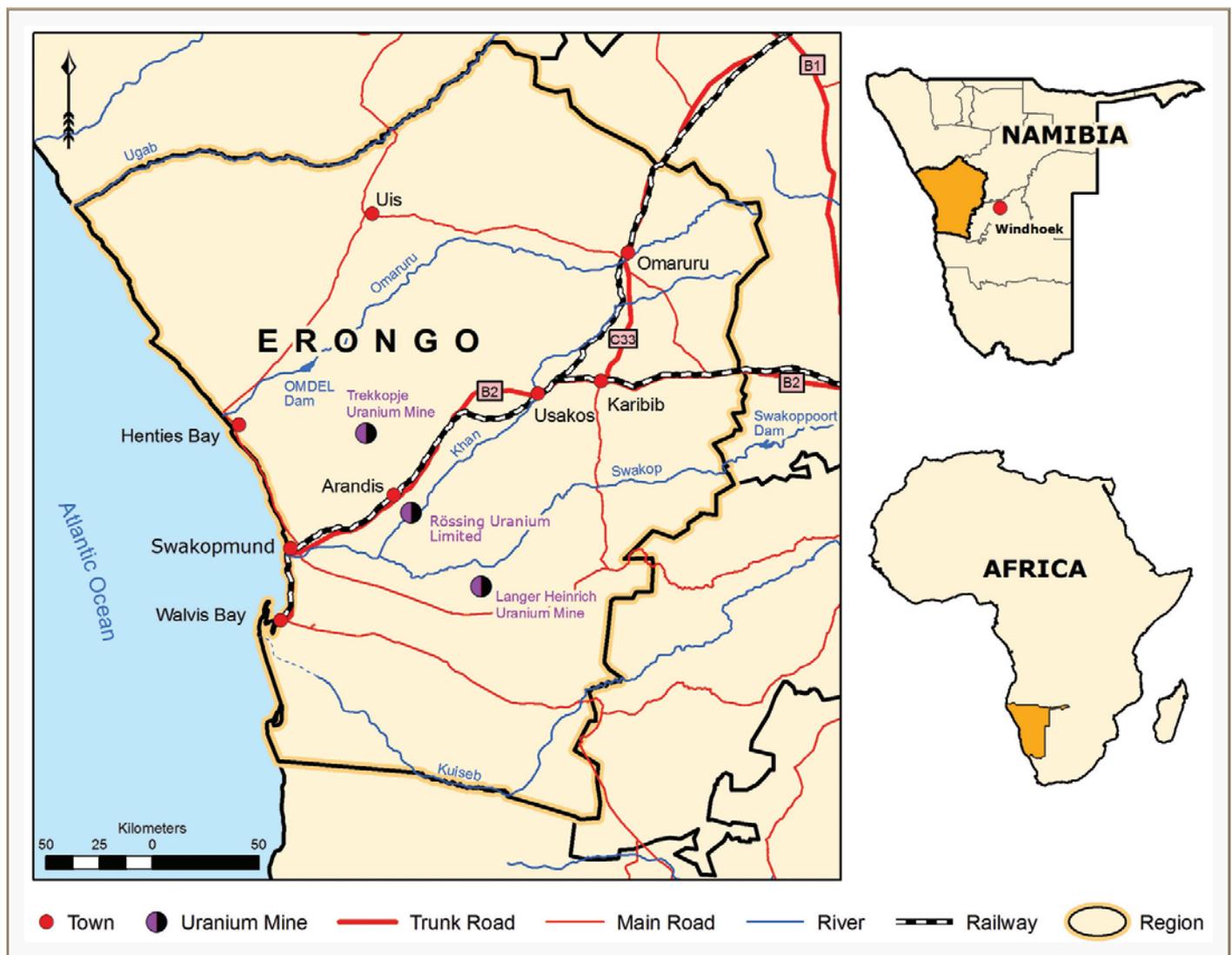
Annual total rainfall recorded for 2011 on the mine site was 98.5 mm, with the highest rainfall recorded in February (36.6 mm).

This was well above the 20-year long-term annual rainfall of 32.2 mm.

The mine site encompasses a licence area of about 180 km<sup>2</sup>, of which 25 km<sup>2</sup> is used for mining, waste disposal and processing. Mining is done by blasting, loading and hauling from the main open pit, referred to as the *SJ Pit*, before the uranium-bearing rock is processed to produce uranium oxide.

The open pit currently measures 3 km by 1.5 km, and is 390 m deep.

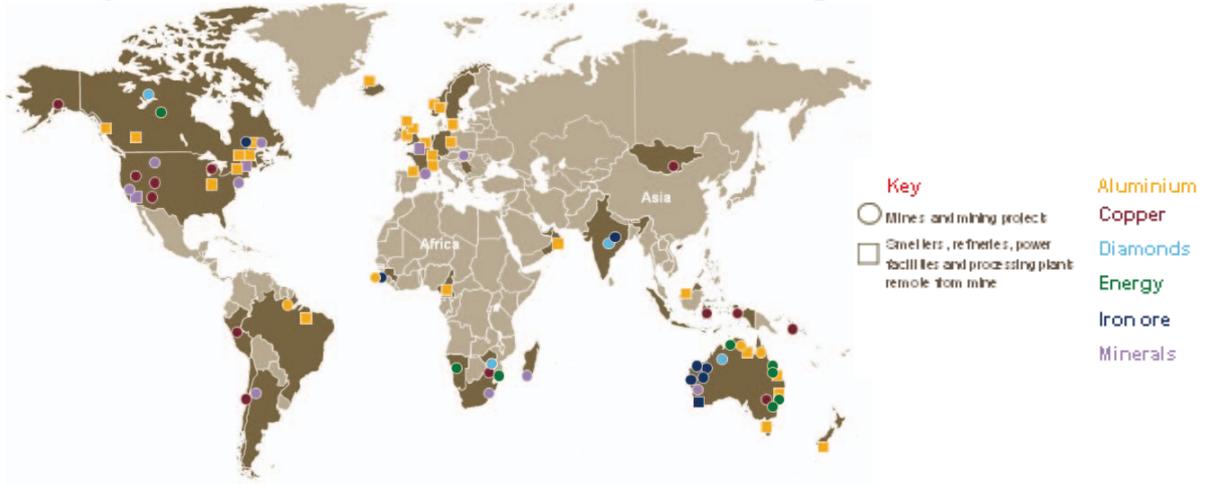
*Front page photograph: Rosdia Nel (Geological Technician) and Hambelela Anyolo (Geologist) inspecting uranium ore core rods.*



## The purpose of this report

This report aims to give readers an overview of the activities of Rössing Uranium Limited from January to December 2011, as well as of our interaction with society, the economy and the environment. Although the Rio Tinto Group is the majority shareholder of Rössing Uranium Limited, it is not the only stakeholder who has invested in the business. All individuals and institutions that influence and are affected by the company are stakeholders, including the mine's employees and contractors; the communities of Arandis, Swakopmund and Walvis Bay; Government institutions; service providers; and the mine's customers. With this report we aim to provide locally relevant information about our business and issues raised during the year. Together with practising our philosophy of open communication, we are simultaneously instilling a culture of sustainable development that touches every part of our company. Due to space constraints, this report is limited in the information provided on Rössing Uranium's significant occupational health, safety, environment and community issues and related continual improvement initiatives.

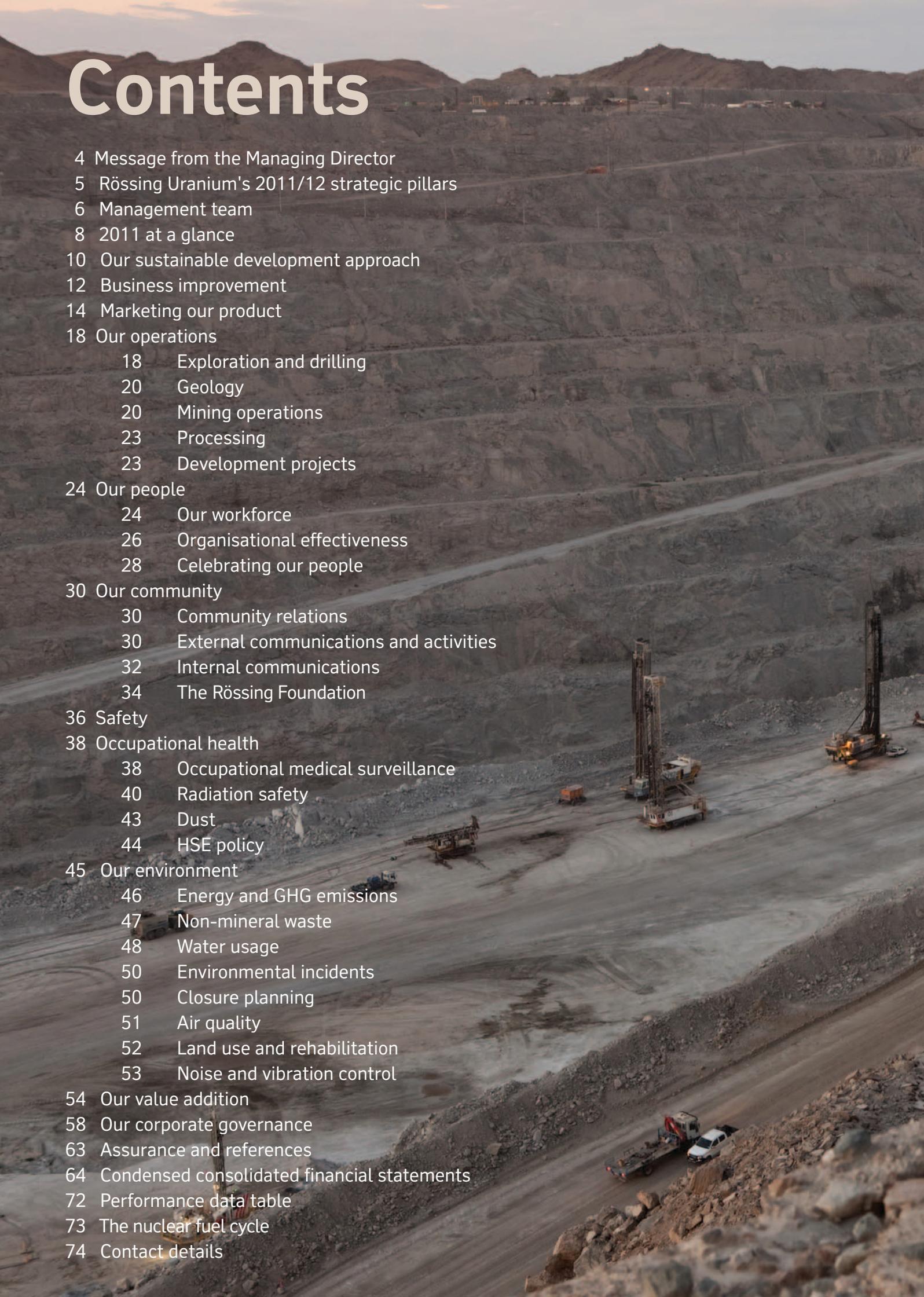
# Rössing within Rio Tinto's operations



## Rössing within Rio Tinto's Africa operations



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The open pit, referred to as the SJ Pit, currently measures 3 km by 1.5 km, and is 390 m deep.



# Message from the Managing Director

## Facing challenges head-on



The year 2011 was a difficult year for Rössing, and the next few years will continue to be challenging. Rössing did not make its 2011 production target, which impacted on our financial performance resulting in a significant loss. However, as we work through our operation and production challenges, we remain confident that profitability will return.

Costs and efficiency will continue to be areas of focus. We continue to implement business improvement strategies to ensure the continued viability of our business.

Above all, safety will always be our top priority.

We have come to the end of Year 5 of our seven-year waste-stripping programme, aimed at improving our production output by 2014. With two years left, the waste-stripping activity is set to reduce in 2012, including the completion of the work done by contractor Basil Read. I would like to thank Basil Read for their efforts over the past five years.

Production of uranium will steadily improve, as higher-grade ore is accessed from the new mining area in the current open pit.

The 2011 tsunami in Japan and its impact on the Fukushima plant had a negative effect on the short- to medium-term outlook for uranium. We are seeing some countries reassessing their plans for nuclear power and global prices have fallen. This, coupled with our current situation, is challenging Rössing's margin, earnings and cash flow.

However, in the longer term, I see a bright future ahead. Nuclear energy will continue to grow as a viable means of carbon-free base load power. Despite the short-term revision of prices, we see the longer-term demand continuing strongly, particular in China, which more than offsets the revisions in other nations.

We remain focused on the possibilities to both expand our operations, and also to extend the mine life beyond 2023. We continue to focus on our operational efficiency and exploration, as well as on developing innovative opportunities to expand and extend our operation.

In the past two years, the company has recorded losses ascribed to a combination of lower prices, input price increases, and higher operating costs. Cost-saving and productivity initiatives, which started late in 2010, continued in 2011, and will have renewed focus in 2012 and beyond. The focus on improving our efficiency, productivity and

operating costs is to ensure Rössing is well positioned to withstand short-term pressures and position the company for further growth.

As the world's longest-running open-pit uranium mine and one of the largest producers of uranium oxide globally, Rössing has the resources, infrastructure and know-how in our favour. We also have a number of growth options that are being actively pursued.

The skills and resilience of our people are Rössing's biggest strength. In 2012, we will continue to work hard to ensure that everyone at Rössing has the opportunity to contribute to our improvement journey.

Rössing faces a tough few years ahead, but I firmly believe the team at Rössing is more than capable of working through the challenges and setting the business up for growth and an even longer mine life.

We have a number of great growth opportunities ahead of us – not only in exploration and organic expansion options, but also in business development opportunities. One such opportunity is the potential joint development of the neighbouring Husab project. Rössing believes that combining Husab's mineral resources with Rössing's existing mineral resources, infrastructure, and skilled workforce is the most sustainable way of developing the project.

Rössing remains committed to best practice in our health, safety and environmental performance, and we will continue on our Zero Harm safety journey and other improvement initiatives in 2012.

As we have demonstrated through our track record, we are committed to our shareholders, our employees, the communities in which we operate, and to Namibia in general.

I thank you for your support in 2011, and look forward to the challenges of 2012. The employee and contractor team at Rössing are committed to ensuring that our business remains one of the most significant suppliers of uranium to the world energy market.

Chris Salisbury  
Managing Director  
30 April 2012

# 2011/12 Rössing Uranium's strategic pillars

Our 2011/12 strategic pillars summarise the key drivers that have enabled us to stay focused, and on which we now report.

**Core purpose**

Maximising the value delivered to our shareholders by being a safe, significant and growing long-term supplier of uranium to the world nuclear power industry.

**Strategy**

Enabling Rössing's capability to deliver operations and reputational excellence through safety, productivity and cost improvement.

Strategic pillars	Health, safety and environment	Financial and operations excellence	Value adding growth, innovation and technology	People	Licence to operate	Customers and markets
<b>Our inspiration</b>	Zero Harm	Value adding operations	Value adding growth	Employer of choice	<ul style="list-style-type: none"> <li>• Developer of choice</li> <li>• Number one corporate citizen in Namibia</li> </ul>	Supplier of choice
<b>Key drivers</b>	<ul style="list-style-type: none"> <li>• Behavioural safety</li> <li>• Effective leadership</li> <li>• Accountability</li> <li>• Efficient and effective systems and procedures</li> <li>• Exemplary management of critical risk</li> <li>• Process safety management</li> <li>• Revitalise Occupational Health, Safety and Environment Committees</li> </ul>	<ul style="list-style-type: none"> <li>• Top quartile margins</li> <li>• Continuous net present value growth</li> <li>• Optimally using existing assets</li> <li>• A major contributor to Namibia's gross domestic product</li> <li>• Rigorous cost and financial management</li> <li>• Top-performing heavy mining equipment and fixed plant in Rio Tinto by 2013</li> </ul>	<ul style="list-style-type: none"> <li>• Extensive proven reserves</li> <li>• Proactive collaboration</li> <li>• Unlock additional value from reserves and resources</li> <li>• Leverage technology</li> <li>• Intellectual property and knowledge management</li> <li>• Improvement projects</li> </ul>	<ul style="list-style-type: none"> <li>• A great working environment</li> <li>• Deployment of trained and returnee bursary holders</li> <li>• Creative and innovative employees</li> <li>• Effective communication</li> <li>• Performance management and rewards</li> <li>• Development of leaders</li> </ul>	<ul style="list-style-type: none"> <li>• Strong Government relations</li> <li>• Stakeholder engagement</li> <li>• Recognised for quality and commitment to sustainable development</li> <li>• Climate change and energy strategy</li> <li>• Transformational Economic and Social Empowerment Framework (TESEF)</li> <li>• The Rössing Foundation: valued corporate social responsibility delivery pathway</li> <li>• Play an active role in the Uranium Institute and the Strategic Environmental Management Plan (SEMP)</li> </ul>	<ul style="list-style-type: none"> <li>• Long-term contracts underpinning life of mine</li> <li>• High standards of operation and reliability</li> <li>• Contribute to policy debate</li> <li>• World-class, fact-based marketing strategy and tactics</li> </ul>

<b>Rio Tinto values</b>	Teamwork	Respect	Accountability	Integrity
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Executive committee members, as at 30 April 2012. (Back row) André Genis (General Manager: Projects, Planning and Support); Lamar Nichols (General Manager: Business Improvement); (front row) Bernard Morwe (General Manager: Processing); Melissa Shanjengange (General Manager: Human Resources); Chris Salisbury (Managing Director); Mpho Mothoa (Chief Operating Officer).

## Managers



Managers, as at 30 April 2012. (Back row) Stoffel Swartz (Manager: Commercial Services); Jomo Appolus (Manager: Technical Support); Carlo van Heerden (Manager: Projects); Jerome Mutumba (Manager: External Affairs); (second back row) Martin Hirsch (Manager: Mine Technical); Wilhencia Uiras (Manager: Organisational Effectiveness); (third back row) Rayyan Fani (Manager: Human Resources); Paul Rooi (Manager: Support Services); Shambweka Cikwililwa (Manager: Engineering); Edmund Roberts (Manager: Procurement); Frances Anderson (Manager: Environment and Communities); (Front row) Dave Garrard (Manager: Long-Term Planning); Glynis Labuschagne (Manager: Compliance and Legal Services); Du Preez Calitz (Manager: Mining Maintenance); Ralf Schommarz (Manager: Mining Production).

# 2011 at a glance

The year under review was certainly challenging, especially in terms of our safety and production performances. However, Rössing is a resilient company that has encountered many challenges over the past 34 years, and we are well positioned to meet these head-on.

## Safety:

All Injury Frequency Rate (AIFR) achieved in 2011:

**0.81**

Our safety performance was on track in the first six months of 2011, but deteriorated in the second half of the year. Our AIFR achieved for the year was 0.81 overall, against a target of 0.74. The 2012 target is 0.65.

## Expansion and growth:

We **concluded** the fifth of our seven-year waste-stripping programme.

We are well advanced in our Life-of-Mine extension pre-strip programme in the open pit, which aims at accessing higher-grade ore and improving our production output by 2014. Thus, we remained focused both on expanding our operations and on extending the mine's life beyond 2023.

## Production:

**2,148** tonnes of uranium oxide produced; 31 per cent below 2011 target and 41 per cent below 2010 production.

We had serious challenges in every section of the production value chain – from mining to metal drummed. The challenges included above-average seasonal rainfall at the beginning of the year; the closure of the open pit's Trolley 10; lower ore grades, low Crushing Plant availability; the planned two-week maintenance shut-down; and industrial action during the second half of the year.

## Human resources:

## Fit-for-purpose

organisational structure redesign was completed.

A major fit-for-purpose organisational structure redesign was completed during 2011, streamlining our company to better address some of our operational challenges head-on. We are confident that our team is more than capable of leading the mine into the future.

We will continue to focus on our strengths, which are our people, our reputation and heritage, our resources and infrastructure, our growth options, and Rio Tinto's support. Together, we will face challenges and come out stronger.

## Market conditions:

Short-term challenges, but global nuclear power is still showing long-term growth.

While the tsunami in 2011 and its impact on the Fukushima nuclear plant had an immediate negative effect on the uranium market, the longer-term outlook for nuclear power remains positive. This is true not only in China but also around the world, as climate change concerns and energy security continue to be two of the most important drivers of global energy planning. Uranium mining will still need to expand significantly in the coming years to meet global energy demand.

## Business improvement programme on track

We invested heavily in time and resources to improve our efficiency, productivity and cost base to become a top-performing uranium producer and to earn the right to secure financial support to execute our growth plans. As part of our Sustainable Performance Acceleration at Rössing (SPAR) initiative, three workshops were conducted to train about 60 employees in the process that will bring sustainable business improvement to the company.

## Financial performance:

Loss of

**N\$471 million.**

Our poor production performance impacted on our financial performance. Moving from a profit of N\$1.23 billion in 2008 and N\$290 million in 2009, we recorded losses in both of the past two reporting years. In 2010, our loss amounted to N\$43 million, but increased substantially to N\$471 million in 2011. While we planned for a loss due to our expansion programme, it was much more severe than expected. We expect to return to profitability in 2014.

## Employee relations: We made good headway

in reviewing key collective agreements.

While industrial action during the second half of 2011 severely impacted on our production, it had many positive spin-offs. To settle the dispute, the company and the Mineworkers Union of Namibia (MUN) signed a memorandum of understanding which aimed at starting a new relationship. The agreement dealt with the central issues in dispute as well as other matters that would benefit both parties.

# Our sustainable development approach

Sustainable development is the distinctive, significant and characteristic centre of our overall approach to business. Everything that we do, we do in line with the generally accepted definition of *sustainable development* as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. This suggests that meeting the needs of future generations depends on how well we balance social, economic and environmental needs when making decisions today.

## People

Our workforce is central to our business. This means ensuring a safe and healthy workplace geared for human resource development, in order to attract and retain employees while maximising our contribution to their well-being.



## Communities

By understanding the diversity of the communities within which we operate and through continuous interaction with them, we are able to respond to their concerns and needs. Moreover, the communities who host us should realise a net benefit and long-lasting positive effect from our activities.



## Product stewardship

This theme focuses on expanding our understanding of the impact of our product on society by working with all interested and affected parties.



This suggests that meeting the needs of future generations depends on how well we balance social, economic and environmental needs when making decisions today.

The aim of sustainable development is, therefore, to seek out win-win situations that can achieve environmental quality and increase economic wealth and social well-being – today and tomorrow.

Our vision remains focused on being able to –

- create long-lasting positive effects for the people of the Erongo Region and Namibia;
- build capacity to ensure that we contribute to the future well-being of our employees;
- minimise negative impacts and optimise positive ones; and
- maintain our reputation as a responsible corporate citizen of Namibia.

When conducting our business we ensure that we maintain a balance in the way we –

- utilise our assets (both our own resources and environmental resources);
- contribute positively to our societal needs through the provision of support to our communities without creating dependency; and
- generate economic wealth.

Driving the integration of sustainable development at Rössing Uranium are six themes, as highlighted below. These six pillars form the backbone of our business, taking it from strength to strength.

## Environmental and asset resource stewardship

We aim to be the leader in environmental stewardship and to maintain our reputation as a responsible corporate citizen. This can be achieved by understanding and appreciating our natural resources, both biotic and abiotic, utilising them in a sustainable manner, and creating a net positive impact.



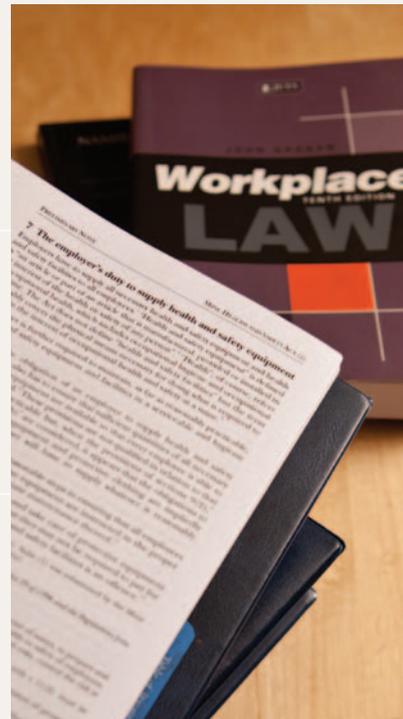
## Economic viability

With the aim of providing the best returns on investment for our shareholders, we need to understand the long-term demand for our product, as well as the cost, resource availability and value creation associated with such demand. Economic viability also ensures that we continue to make significant contributions to the country's economy and its people in various ways.



## Corporate governance and compliance

We strive to be transparent and proactive in all our business operations. Thus, we have business systems in place which are auditable, and these form the backbone of good corporate governance.



# Business improvement

Within the context of global energy planning activities, 'business as unusual' will be the mantra for the nuclear fuel industry during the next decade – and no less so for Rössing.

Towards the end of 2010, Rössing introduced a sustainable performance acceleration programme at the mine as part of its initiative to improve safety and production, as well as bring down operation costs. The programme aims to position our company so that the projected short- to medium-term, dull macroeconomic market outlook and steep inflation pressures can be withstood.

A key goal of the performance acceleration programme has been to drive the sustainability of improvements through increased ownership and involvement by all Rössing employees.

To this end, more than 60 Rössing employees attended three separate capacity-building workshops that covered an array of topics designed to develop both 'soft' (leadership and people) and 'hard' (technical and analytical) skills. The workshops are a fundamental step in a process that will bring about sustainable change to the company.

To further aid sustainability of the performance acceleration programme and to drive its successful implementation, all elements of this programme were progressively reassigned to all departments during 2011.

However, to ensure progress is maintained, a new *Business Improvement* function was created that supports the various projects by providing appropriate oversight, and helps to identify additional areas for improvement.



## 2011

In 2011, progress in the business improvement programme continued by way of several mini-transformation projects (Mini-Ts). These projects follow a structured and prescriptive approach that aims to bring about change by focusing on a defined part of the business. To date, a number of key areas within mining, processing, human resources and procurement have been targeted.



### Business improvement: At a glance

- ‘Business as unusual’ will underpin all actions in the nuclear fuel industry for the next decade.
- Positioning our company to withstand projected short- and medium-term economic challenges, we have introduced an array of projects as part of our ongoing business improvement programme.
- Key areas during 2011 were mining, processing, human resources and procurement.

The first area to be tackled was the shovel reliability function, which forms part of our mining operations. This Mini-T was launched to improve the performance and availability of shovels. Since the project’s implementation, there has been a slow but steady increase in shovel reliability. Work still continues to ensure that the breakdown cycle is significantly reduced and eventually eliminated.

The Shovel Productivity Mini-T, also a part of mining operations, was initiated to improve shovel loading rates from 2,300 t per hour (tph) to 2,500 tph, and to reduce operation delays. This Mini-T has reaped early successes to date in respect of its shift changeover improvement mechanism, as well as from increased fragmentation of the rock.

The Fine Crushing Mini-T, which forms part of processing, aims to provide sustainable solutions to enable the Fine Crushing Plant to deliver 14 million t of ore a year to the rod mills, an increase from the current 12.4 million t. This Mini-T is expected to deliver value through improved reliability once all the relevant initiatives have been implemented. The project implementation team has already started to see a steady upward trend in crushing rates.

Good progress has also been recorded with the Total Value of Ownership (TVO) Mini-T, which supports work in the Procurement Department

(for more on the TVO approach to procurement, see page 55). The improvements identified have helped capture cost savings worth more than N\$10 million against a target of N\$24 million, and work is continuing to ensure that full value is captured.

The Recruitment Mini-T, which supports the Human Resources Department, has worked at delivering value by improving on the recruitment process.

Finally, the technical improvements to the ore-processing components are turning Rössing’s Processing Plant into a well-understood, stable and predictable Metallurgical Plant that can deliver 14 million t of ore a year, at a uranium recovery rate of more than 4 per cent above recent historical performance.

## Looking ahead

Moving into 2012 and beyond, Rössing will be launching additional Mini-Ts as part of our business improvement agenda. This aims to ensure that we achieve improvements throughout the value chain and eventually have the business improvement process well embedded across all levels and functions of our company.

*Dama Fotelela (left), Mine Monitoring and Control (MMC) Superintendent, and Du Preez Calitz (centre), Maintenance Manager, discuss ways of improving overall equipment effectiveness while Makhula Magaoga (right), Rio Tinto Procurement, looks on.*

# Marketing our product



Rössing Uranium produces and exports uranium oxide from Namibia to nuclear power utilities around the world. Thus, our core purpose is to maximise the value delivered to shareholders by being a significant and growing long-term supplier of uranium oxide.

Our product contributes significantly towards meeting Namibia's socio-economic development needs by creating wealth to support community infrastructure as well as health care and education programmes, and by delivering financial dividends to our shareholders. Our activities also provide us with the opportunity and means to develop new approaches to solving the world's environmental and human development challenges, such as climate change and poverty.

Uranium is a relatively common element the world over. The ore is mined at various levels of grading in many countries, where it is processed into uranium oxide ( $U_3O_8$ ). Uranium oxide has to be processed further before it can be used as fuel for nuclear reactors that generate electricity.

Rössing's existing uranium ore body is generally of a low grade, in contrast to countries such as Australia and Canada, where the grade of ore in uranium-bearing deposits is relatively high. It is, therefore, much more challenging to mine and extract Rössing's uranium cost-effectively.

All uranium produced by Rio Tinto's mines is marketed by the London-based Rio Tinto Group. Rössing, the third largest conventional uranium mines in the world, supplies electricity companies located in all three major markets: Asia, Europe, and North America. Almost all of Rössing's production is marketed through long-term contracts.

Without question, the dominant event in the nuclear power industry in 2011 was the massive earthquake and tsunami that struck eastern Japan on 11 March. The heart of the world went out to the people of Japan, as entire towns and some 20,000 people were swept away by the tsunami.

*Rössing's final product, uranium oxide ( $U_3O_8$ ) after the 'yellow cake' has been dried and roasted.*

In addition, the tsunami disabled four of the nuclear reactors at the Fukushima Daiichi plant, which later experienced partial fuel meltdowns and releases of low-level radio-activity over the region.

While this event naturally received intense media coverage, much of it was inaccurate with regard to the impact of radiation on human health. This affected public sentiment towards nuclear power, both in Japan and around the world. Nevertheless, it is important to keep in perspective that, despite the considerable loss of life from the tsunami itself, there have been no deaths as a result of the radiation release.

The clean-up efforts will take years and come at high financial cost, but experts believe there are likely to be negligible long-term health impacts to the population from the radiation release. Moreover, nuclear operators worldwide will learn important lessons from the way in which the Tokyo Electric Power Company and Japanese regulators managed the accident, and these insights will be applied to the global industry.

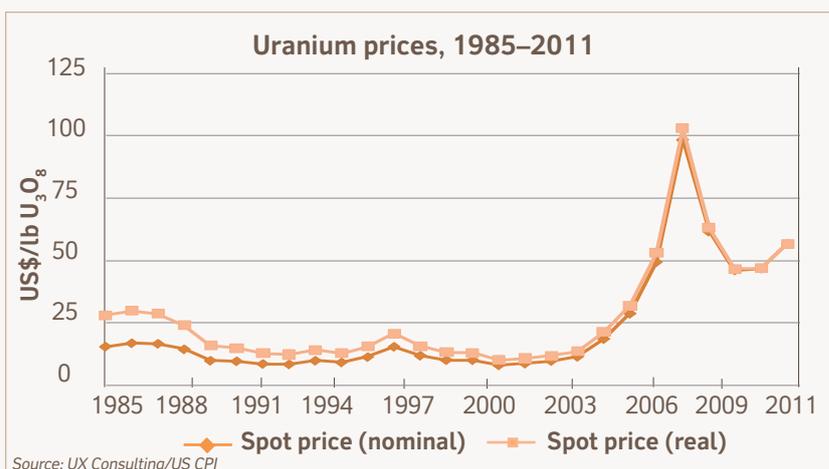
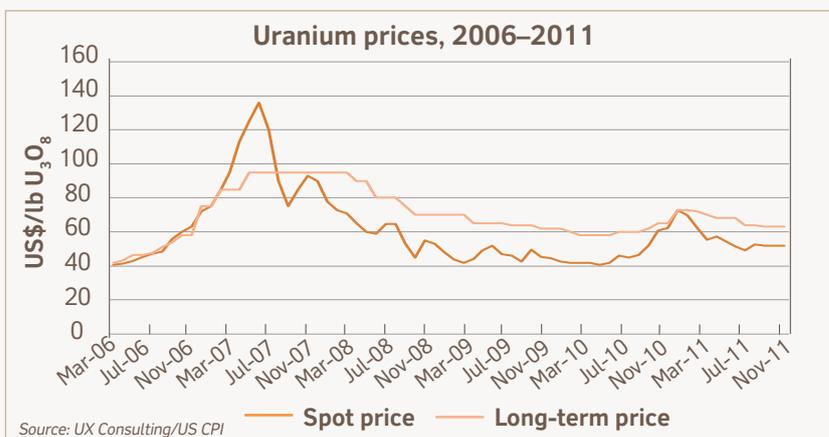
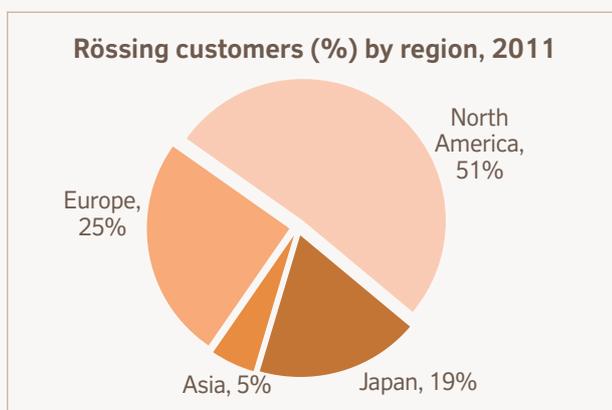
The reaction in the uranium market to this extreme event was immediate panic, followed by an equally rapid recovery, and then a gradual decline in prices over the course of the year.

The spot price dropped from almost US\$70 per pound uranium oxide in early March to under US\$50 for a day or so after the accident, as some traders and financial players sought to sell quickly. The price then recovered to around the US\$60 level. But over the next six months, as Japanese utilities sought to delay or cancel contracted deliveries and additional supply emerged, the price gradually eased into the low US\$50s.

The long-term price remained more stable, but also fell from US\$67 in March to US\$61 by year end, as competition increased among sellers and buyers, who largely avoided the short term market and waited to see the impact of the accident on demand and price.

## Marketing our product: At a glance

- The 2011 tsunami in Japan and its impact on the Fukushima plant negatively impacted the uranium industry.
- However, the long-term outlook for nuclear power remains positive, as climate change concerns and energy security continue to drive global energy planning.
- As an established, experienced and reliable producer, Rössing remains in an excellent position to grow its business for many years to come, for the benefit of its employees, customers, stakeholders and Namibia.



“While the tragic tsunami and its impact on the Fukushima nuclear plant in Japan certainly had a negative impact on the uranium market during 2011, the longer-term outlook for nuclear power remains very positive. This is true not only in China but around the world, as climate change concerns and energy security continue to be two of the most important drivers of global energy planning. Uranium mining will still need to expand significantly in the coming years to meet global demand, so Rössing’s large reserve base, experience and reputation strongly position the company for future growth.”

Clark Beyer, Managing Director, Rio Tinto Uranium



The political impact of Fukushima has been most profound in Japan, where most of the country’s nuclear units remain offline for inspections and stress tests. The next most decisive political impact was in Germany, where public reaction veered overwhelmingly in favour of abandoning nuclear power.

As a country with a major manufacturing economy and few natural energy resources, Japan had always benefitted from strong public support in favour of nuclear power. While most people believe that Japan has no choice but to continue its nuclear programme, particularly if it hopes to constrain CO<sub>2</sub> emissions, public support for nuclear power has dropped precipitously in Japan. Reactor restarts will depend in part on such public support, and the industry and government will need to work hard to rebuild that confidence over the coming years.

While Germany is home to a vociferous ‘green’ anti-nuclear lobby, the country has long had conflicted views on nuclear power, and had planned to exit the industry after the Chernobyl accident in 1986. But the realities of nuclear power’s beneficial role in combating climate change recently enabled German Chancellor Angela Merkel to secure lifetime extensions of most of their 17 reactors. Such extensions had been approved just weeks before the Fukushima accident.

Following 11 March 2011, and despite the fact that Germany is not known for experiencing earthquakes or tsunamis, the government quickly reversed its stance and announced the full and immediate shutdown of eight older nuclear power units, with all the remaining units being shut down by 2022.

These decisions raised the question of how Germany would fill this power gap, since renewables are vastly more expensive than installed nuclear plants, and the intermittent nature of wind and solar energy means renewables are not a substitute for base-load power generation.

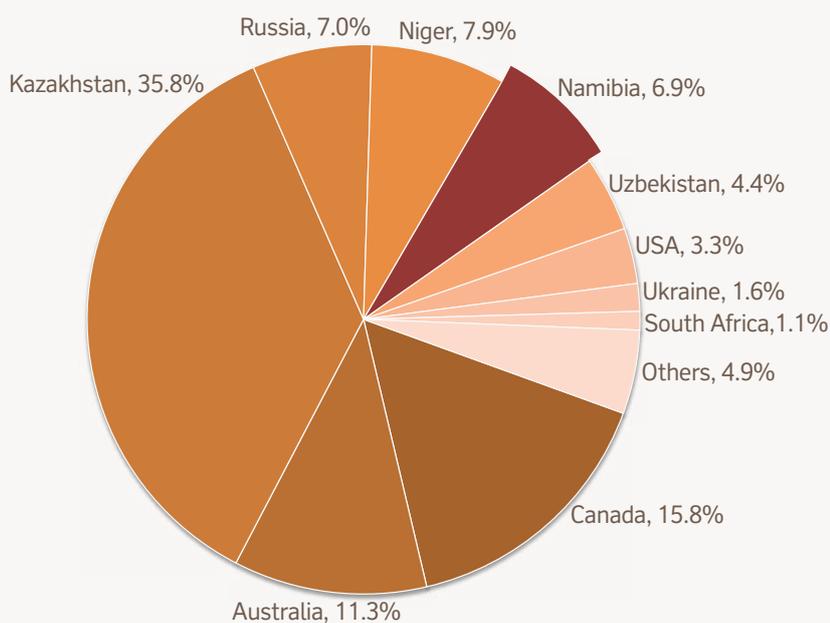
In fact, the only viable alternative will be for Germany to burn significantly more coal and gas, which will make it much harder to reach the country’s aggressive carbon-reduction goals. It is clear that the issue is far from resolved, but the German public is not expected to reconsider the nuclear question for some time, if ever, given the large percentage of the population who remain ideologically opposed to nuclear power.

Fortunately, the growth of nuclear power in China, and to a lesser extent in South Korea and other countries, means that the German phasing-out process will have no real effect on uranium demand in the long term.

Like all other countries, China slowed its construction plans during 2011 while it reviewed the safety implications of Fukushima. But it is expected to begin approving new projects in 2012, and plans to build at least 60 new units by 2020 (with 26 under construction) to add to the 15 in operation. Thus, China is by far the leader of growth in the industry, and Rössing – the first Western producer to deliver to China – is well-positioned to build on its role as one of China’s major suppliers.

Elsewhere, demand continues to grow on a more moderate scale. New reactors are under construction in Finland, France, India, Russia, South Korea, Taiwan, the United Arab Emirates (UAE), and the United States of America (USA). A number of other

**World primary production of uranium oxide (%), 2011**



In 2011, Namibia provided 6.9 per cent of the world's uranium oxide production. Rössing's share in this production was 57 per cent, while it was responsible for 3.9 per cent of world production.

countries are considering new builds. In the USA, competition from inexpensive natural gas is the main challenge to new nuclear construction, but public support for nuclear remains strong – even after Fukushima. Although only a few new units are expected to be built this decade, the country's existing fleet of 104 reactors will need to be refuelled for many years to come. Hence, the USA is currently the largest market for Rössing's supply.

With regard to competition from other uranium suppliers, some major new mines are expected to enter production in the next few years. However, there is a growing realisation that some of those planned new mines will struggle to enter production or survive in a market trading at current price levels. Most acknowledge — even after accounting for post-Fukushima slowdowns in building additional plants — that many of the new uranium mine projects will need higher incentive prices in order to make economic sense. Thus, while the market effects of Fukushima could last for another year or two, at some point higher prices are likely to be needed to ensure sufficient new mine production.

Despite the market repercussions from the Fukushima incident, the long-term outlook for this industry, and for Rössing, remains very bright.

And as an established, experienced and reliable producer, Rössing remains in an excellent position to grow its business for many years to come, for the benefit of its employees, customers, stakeholders and Namibia.



*Test tubes showing the different stages of concentration and purification of processed uranium at the mine.*

# Our operations

Our operations consist of two distinct phases: mining of the uranium-bearing rock, and processing this ore to produce uranium oxide.

We operate on a 24-hour, 365-day basis, and all our attention is directed not only towards keeping our business safe and viable, but also towards ensuring that we are a long-term contributor to Namibia in terms of employment and tax revenue.

## Exploration and drilling

A first step in any of our mining activities – and an important one to take when investing in our future – is to understand the geology of our ore body. “What exactly is in the ground?”, “How much is there?”, and “Where is it?” are the most critical questions that need to be answered for any mine.

To ensure consistently high levels of production over the next decade, we continued with our drilling and development programmes, allowing us to be well positioned to expand and further extend the life of the mine.

### 2011

Phase 2 of our drilling programme was continued towards defining a mineral resource that can be confirmed and externally reported in early 2012.

By comparison with the original plan of 40 holes to achieve a 100-m grid spacing, a total of 38 holes (13,807 m) were drilled by the end of 2011. This comprised 7,563 m of reverse-circulation rotary drilling, which is now complete, as well as 6,244 m of diamond core drilling, 75 per cent of which has been completed.

A further 2,000 m of diamond core drilling will have been done by the end of March 2012, thus completing Phase 2 of the programme.

### Looking ahead

Preliminary modelling, to a depth of 500 m, of the available data in December 2011 showed potential for up to 50,000 t of uranium in Z20, a uranium occurrence within Rössing’s mining licence area, if one considers all mineralisation above 100 g of uranium per tonne of rock as ore. Part of this estimate has since been confirmed using the rotary-drilling assay data. A final estimate, which will include all the diamond-core drilling data, will be available at the end of July 2012.

It is important to note that the initial resource estimate will not take into account any mining, metallurgical or economic factors. As such, the estimate will reflect only the metal contained in blocks above a set cut-off grade and depth limit, and with a confidence applicable to an inferred resource category. For the final estimate planned for July 2012, the inclusion of a geological interpretation from surface mapping and diamond drilling cores should raise confidence in the estimation.

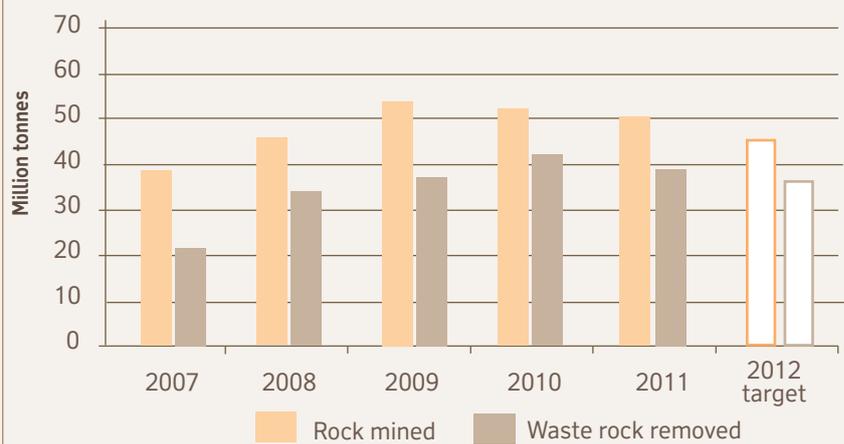




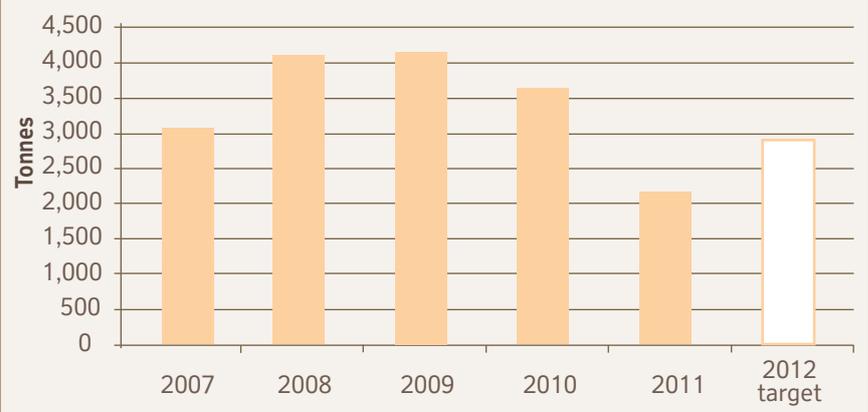
## Our operations: At a glance

- Excessive rains at the beginning of 2011 and industrial action towards the end of the year, as well as exceptionally low-grade ore supplied to the processing operations meant we could only produce 2,148 tonnes of uranium oxide in 2011, a significant reduction compared with the last few years.
- We invested N\$1.7 billion in capital expenditure over the past five years as part of our expansion, impacting on our profitability.

Production 2007–2011: Tonnes mined and waste rock removed (millions)



Production 2007–2011: Tonnes of uranium oxide produced



*A drill rig preparing blasting holes in the open pit.*

# Geology

The Geology Department is part of a multidisciplinary team, ranging from exploration and geotechnical disciplines to grade control and resource development. All these functions are integrated and form an essential service to mining engineers to plan and perform profitable mining.

As in most other mines, our Geology Department plays a vital role by ensuring data is available for the right mix of ore to be fed to the Processing Plant.

## 2011

Overall, 2011 was focused on geological modelling and improving the representation of Rössing's ore body. Drilling began at the SK4 satellite pit, and helped revise planning parameters.

We also began drilling in the western side of the open pit, investigating ore options close to the current open pit. The first indications were that the area has potential.

Other work focused on improving grade control practices, strengthening data reconciliation efforts, and revisiting applied scanning methodology.

The Geotechnical Division significantly increased availability of the monitoring systems and, as a result, dramatically improved safe working in the open pit. Two radar units now monitor the walls of the open pit 24 hours a day, seven days a week. The installation of the micro-seismic monitoring system was completed in November.

Exploration drilling started at the extreme south-western edge of our mining grant (ML28) in an area called Z20.

The second stage, with deeper diamond drilling, commenced late in 2011, with geologists from Rössing and Rio Tinto Exploration working together successfully to ensure the timely delivery of quality data for the mine's Geology Resource Section. A first model is expected to be available in early 2012.

## Looking ahead

In 2012, the Geology Department will enhance the geotechnical monitoring capability by reinstalling water pore pressure-measuring systems (piezometers) and considering the replacement of outdated and unsupported global positioning system (GPS) technology. Grade control will focus on blast-hole logging and improving sample assay availability within shorter time periods.

# Mining operations

Mining consists of three main activities: drilling and blasting to break the rock; loading the ore by shovel onto trucks; and hauling the ore from the pit – either to the Processing Plant, if the uranium grade is high enough for efficient processing, or to waste dumps adjacent to the pit.

The uranium in the mining licence area is found in very hard and abrasive granitic rock called *alaskite*. To move the required amount of ore and waste, we have to conduct blasting operations at least once a week. Electric and diesel-powered shovels load the uranium-bearing ore onto haul trucks, which then transport the ore to the primary crusher for the first stage in the crushing process. From there, the crushed ore is conveyed to the coarse ore stockpile, where it is reclaimed and put through several more crushing stages before the processing stage of our operations begins.

## 2011

A great deal of waste-stripping has been done over the past three years, in order to ensure the mine remains operative until the expected closure date of 2023. We will continue with this in the open pit's north-western and southern areas for another year. *Waste-stripping* entails the removal of blasted rock that does not bear sufficient uranium and,

therefore, is not economical to process. It is an essential investment in our long-term future. Nonetheless, it challenges our short-term cash flow and profitability situation since it does not contribute towards delivering ore to the Processing Plant.

Overall, 2011 was a challenging year in our mining operations. Excessive rains at the beginning of the year and industrial relations issues towards the second half of the year meant that our mining and processing performance did not achieve the targets set for the year. We mined 2 million t less ore than the previous year.

A total of 41.4 million t of rock was mined by Rössing's fleet during 2011, being 7 per cent below the operating plan target. Together with the activities of the mining contractor Basil Read Mining Namibia, the total mined during 2011 amounted to 50.1 million t, compared with 52 million t during 2010.

Our mining activities continued to focus on providing the targeted amount of ore to the Plant to keep it running sustainably. Most of this ore came from the open pit, the satellite SK4 Pit, and from existing ore stockpiles.

Similar to the previous year, extensive management time was invested in recruiting and training new equipment operators. Orientation towards our strong culture of safety performance and high productivity is relentless.



*Fanuel Ashipala (Shovel Operator) at the controls of Shovel 15, loading a haul truck in the open pit.*

## Looking ahead

The key priorities in 2012 will be to improve our safety performance; focus on Phase 2 mining, which is our current ex-pit ore supply; provide consistent and well-blended feed to the Processing Plant; and reduce our mining costs. In 2012, we plan to mine 45 million t at an average stripping ratio of 2.88, which is about 9 per cent higher than that mined with the Rössing fleet in 2010. To achieve this plan, we will build on the work commenced in 2011, where we used cross-

functional employee teams to drive improvements in the availability, utilisation and productivity of mining equipment. No contract mining is planned for 2012. The specific focus will be on shovels, drills and blasting. Our cost position remains a challenge, so we continue to lead our employees, suppliers and contractors in identifying and implementing cost-saving initiatives to reduce overall mining costs.



*Suspended sand and slime from leaching are separated by hydro-cyclones after washing in the roto scoops to remove traces of uranium-bearing solution.*

# Processing operations

The Processing Department is responsible for safely and efficiently extracting uranium from the ore, and processing it into final product for shipment to overseas converters.

## 2011

The Department's health and safety performance remained a challenge in 2011, particularly with respect to dust control at the Fine Crushing Plant, and the high rate of safety-related incidents.

By the end of the year, 95 per cent of the operations staff received Zero Harm training, and we expect that the benefits of this training, reinforced by an emphasis on visible safety leadership at all supervisory levels, will be realised in 2012. Our goal remains to make our workplace a safe zone from which we all return to our homes without incident every day.

Drummed final product for 2011 amounted to 2,148 t of uranium oxide – a significant reduction compared with the last few years.

This decrease in production can be attributed to ore grade and metal recovery being lower than the 2008–2010 levels, due to the processing of low-grade ore from the

open pit after the closure of Trolley 10 in late 2010. Production was also affected by industrial action during the months of July and September 2011.

Given the aforementioned operations challenges, the focus for 2011 was to implement solutions from the business improvement initiative that started in 2010. The objective of the initiative is to deliver world-class performance that will form the basis for future organisational growth.

In respect of processing, this entailed –

- a review of departmental structures and the reassignment of staff;
- constitution of the Fine Crushing Mini-T project team, who were tasked with improving plant utilisation and operation systems that would raise the Fine Crushing Plant throughput to 14 million t by 2014;
- a technical evaluation to improve uranium recovery; and
- initial work on a new metallurgical accounting system, which will continue in 2012.

The plant maintenance shut-down in November 2011 was successfully completed with major installations and maintenance from the primary crushers through to Final Product

Recovery being completed on schedule. This work will form a solid foundation for plant availability and production performance in 2012.

## Looking ahead

In 2012, we will continue to review our organisational structures and redefine role and team responsibilities in order to –

- streamline and revitalise the Department;
- review planning and task execution practices;
- reinforce performance management systems; and
- continue with the implementation of our business improvement projects, which will include constituting Mini-T project teams for the Extraction Plant.

The metallurgists will benefit from in-house training provided by the Technical and Innovation Department as part of our drive to develop internal skills, while process operators will undergo training to enhance their workstation competency.

# Development projects

Planning for long-term development continued to evaluate strategic projects associated with our expansion activities, in support of the company's goal of meeting the increasing global demand for uranium.

## 2011

Our main activities were associated with driving the Heap Leach Project forward as the preferred expansion option. Progress included completion of the engineering design and cost estimate, followed by ongoing optimisation test work and production at the Demo Heap to demonstrate productivity on a commercial scale.

A total of eight heaps were stacked during 2011, with 26 t of U<sub>3</sub>O<sub>8</sub> leached from 152,000 t of ore, i.e. around 75 per cent recovery. These results confirmed the ability of heap leaching to achieve recoveries within

10 per cent of tank leaching, with equal or less acid consumption. Since acid consumption is an important driver of our operation cost, we also updated an evaluation of acid supply options, including a continuation of acid imports versus building a new Acid Plant on-site.

## Looking ahead

The key priority during 2012 will be the completion of the pre-feasibility study for Heap Leaching as the preferred process expansion route for Rössing, together with the recommended acid supply option. In addition to this, the Demo Heaps will continue to operate and produce uranium while optimising the process.

Tobias Haitota (Geological Technician) collecting data from a Slope Stability Radar (SSR) in the open pit.



# Our people

Through employment, large companies such as Rössing can make one of the greatest contributions to society and the economy. Providing stable, long-term and rewarding employment, backed by career development opportunities, we contribute specifically to wealth creation and better living standards in the Erongo Region, where we operate.

A large number of people with varied backgrounds work at the mine. We recognise the benefits of this diverse and motivated workforce. Our people bring a valuable pool of knowledge that is an important contributing factor to our business.

Several measures are used to determine how well we are meeting our employment objectives. Our total number of employees provides an indication of the economic and social impact we have by way of employment. Tracking the percentage of local employees, as well as female and previously disadvantaged employees, measures how well we are achieving our goal of encouraging local employment and diversity in the workplace, in line with Namibia's official development targets.

We are aware of the limited pool of experienced technically skilled people in Namibia. Coupled with a high mobility rate among our local professionals and technically skilled

people, human resource management remains a challenge. Obtaining visas and work permits for Rio Tinto employees from other operations worldwide to fill up skills gaps in critical areas is another challenge we face.

## 2011

### Workforce at a glance

At the end of 2011, we had 1,637 employees — information on our workforce is provided on the following page.

### Employee relations

An important area of focus for the business is employee relations. The working environment is crucial when it comes to building employee morale and enhancing overall productivity.

The reporting year was a challenging one for Rössing in terms of managing the tripartite employment relationship between management, employees and the Mineworkers Union of Namibia (MUN). The period between July and September 2011 saw costly industrial action, for example. However, the company and the MUN's Rössing Branch managed to overcome the issues concerned by signing a settlement agreement on 5 October 2011.

The agreement dealt not only with the central issues in dispute, but also matters that could bring potential benefit to both Rössing and its employees.

The agreement was aimed at starting a new relationship – rebuilding trust and understanding between senior management, bargaining unit employees, and the MUN, eliminating the angst caused to the parties by the current pay and bonus system. The agreement also enabled fundamental changes to how we operate that will provide direct business benefit.

Therefore, Rössing and the Rössing Branch of the MUN reached agreement on the following in 2011:

- To increase basic salaries, pay scales, total packages and total package scales for the bargaining unit by 7 per cent;
- To increase the monthly housing allowance according to the various job grades;
- To increase the once-off retirement bonus by 80 per cent;
- For a joint task force to explore the possibility of introducing a cost-neutral medical aid process for retirees; and

- To introduce a funeral benefit for employees and their immediate dependants from 1 January 2012, while other options will be investigated.

The company and the MUN also embarked on a process of renegotiating other critical agreements, which showed great progress towards the end of 2011.

Apart from the challenges that were faced, we also hosted two employee functions to recognise and reward our employees' dedication, commitment and contributions. A Long-service Award ceremony was held in July 2011, where 125 employees received tokens of gratitude. The company also reinstated formal year-end employee functions.

### Employee support activities

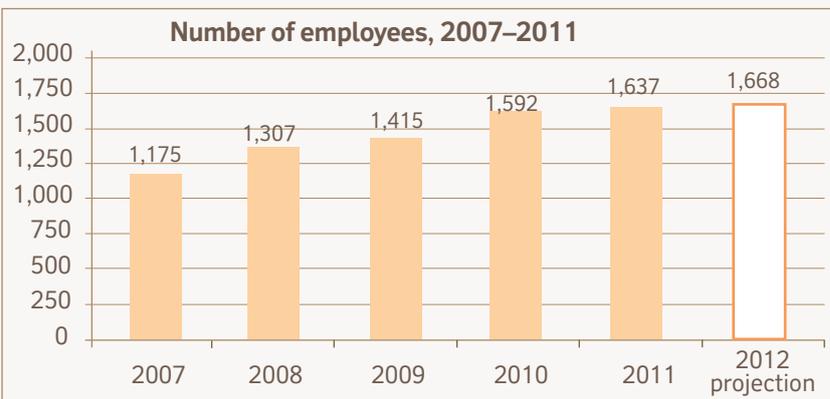
Certain support activities are aimed at assisting our employees with personal situations that, if left unaddressed, have the potential to interfere with their health and/or ability to perform responsibly. Forming part of our in-house employee assistance programmes, such support is actualised through counselling, referrals to specialists, and awareness sessions in the different areas affecting employees.

A total of 287 counselling sessions were held in 2011, including referrals to external service providers. Some 192 employees received training in financial wellness, which aims at equipping them with the required know-how to manage their finances, while ten retirees received pre-retirement counselling, aiming to help them plan for retirement more effectively. Stress management sessions were also held to assist employees with identifying, managing and avoiding stress at work and in their private lives.

A total of 122 employees received training in understanding addiction and compulsive behaviour. As part of the sessions, participants also voluntarily underwent a self-assessment exercise. In addition, some 41 employees were sent to the Okonguarri Therapeutic Centre for addiction-related and other psychological and psychosocial concerns. General educational sessions on alcohol- and drug-related problems encouraged employees to practise responsible drinking and seek timely assistance if an abuse problem was developing.

## Our people: At a glance

- Providing stable, long-term and rewarding employment, we contribute significantly to wealth creation in the Erongo Region.
- The settlement agreement signed by management and the MUN after industrial action during July and September 2011 enabled fundamental positive changes that benefited our employees and the company.



### Statistical information on our workforce

#### Local and foreign employees:

- Namibians:** 98.4 per cent (1,611)
- Non-Namibians:** 1.6 per cent (25), including –
  - 0.7 per cent (11) work permit holders, and
  - 0.9 per cent (14) permanent residence permit holders.
- Female representation:** 13.8 per cent; new female employees recruited: 5 per cent
- Average age of new employees:** 30 years
- Number of employees who left the mine's employment:** 122
- Number of new employees recruited:** 167

Workforce profile	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)
Historically disadvantaged Namibian men	79.8	79.0	79.6	79.9	80.0
Historically disadvantaged Namibian women	9.8	11.3	12.4	13.6	12.8
Previously advantaged women	1.1	1.1	1.1	1.1	1.1
Previously advantaged men	6.2	5.9	6.8	4.6	4.5
Non-Namibian men	2.5	2.1	2.0	1.5	1.5
Non-Namibian women	0.3	0.2	0.1	0.2	0.1
Persons with disabilities: men	0.3	0.3	0.3	0.3	0.1
Persons with disabilities: women	0.0	0.0	0.0	0.0	0.0

### Employee Engagement Survey, 2011

As part of the Group's activities aimed at enhancing organisational effectiveness, Rio Tinto conducts regular Employee Engagement Surveys. These help management understand how employees feel about their work and Rio Tinto in general,

and assist in determining action that needs to be taken to improve on areas of concern or enhance key drivers. A total of 699 employees participated in the third Employee Engagement Survey held at Rössing. The survey results were made available during November 2011, and by the end of the reporting year, leaders had already begun communicating these results to employees.

# Organisational effectiveness

Our employees are our greatest asset, and the youth of Namibia are our future workforce. Therefore, we continuously strive to support and contribute to the development of our people. This we do by way of sponsoring employee development and ensuring funding for the development of young people in Namibia. These contributions are pivotal to the progression and advancement of our workforce and the Namibian nation.

## 2011

Over the past five years, we have invested N\$81 million training programmes. In 2011, a total of N\$15.5 million benefiting 426 participants was spent on a wide range of development and training programmes. A similar amount was spent the previous year.

### Frontline Leadership Programme

Our Leadership Programme is built on the “Leading at Rio Tinto” competencies. It is designed to develop essential leadership skills to positively impact employee performance and engagement. The Programme, which offers intensive skill-building opportunities, focuses on being practical and hands-on in order to develop skills that can readily be transferred to the workplace. In 2011, six groups – representing a total of 50 participants comprised of current Frontline

and prospective future leaders – underwent and successfully completed the Programme.

### Graduate development

The development of graduates plays a significant role in our contribution to the Namibian economy. Not only does our tailored Graduate Development Programme work towards creating a pool of highly competent professionals within the business, but it also promotes skills development in young Namibians.

In 2011, a total of 29 graduates from different disciplines participated in the Rössing Graduate Development Programme. This Programme focuses on growth and exposure to accelerate skills and orientate young professionals within the mine. Its goal is to create highly skilled professionals that will contribute not

only to our operations, but also to the wider Rio Tinto Group and, ultimately, to Namibia.

Rio Tinto Graduate Intensive Training was also hosted in 2011. This provided graduates with the opportunity to learn behavioural and business skills, giving them a wider appreciation of the company as a business, since they participated in a mining simulation exercise as well.

Together with the Rössing Foundation, graduates assisted Grade 12 school learners from the Erongo Region through tutoring sessions and motivational talks. These social initiatives by graduates indicate their appreciation of the opportunities they were given to widen their skills, and enable them to give back to the community.

Costs and number of participants in training and development programmes, 2007–2011	December 2007	December 2008	December 2009	December 2010	December 2011
Trade bursaries	104	167	130	142	118
Trade job attachments	4	10	11	9	11
Apprentice employees	3	3	3	3	2
College/university bursaries	37	66	60	69	45
College/university job attachments outside company bursary scheme	0	0	2	2	12
Employees enrolled at a technical college (full-time studies)	9	6	8	6	4
Employees enrolled at college/university (full-time studies)	7	5	3	5	6
Employees involved in correspondence programmes	22	49	48	47	55
Employees enrolled in the Leadership Development Programme	62	73	25	29	50
Development positions	14	0	12	7	0
Rössing dependant scholarships awarded	69	99	122	99	118
Employees in limited-contact studies in various fields	6	17	16	9	5
<b>Total number of participants</b>	<b>337</b>	<b>495</b>	<b>440</b>	<b>417</b>	<b>426</b>
<b>Training programme costs (N\$)</b>	<b>13,029,178</b>	<b>17,771,710</b>	<b>18,373,015</b>	<b>15,527,087</b>	<b>15,529,708</b>



*Charles Kasaona (Plant Operator) and Frampton Melani from Instrumentation filling out a permit to work at the Counter Current Decantation Tanks in the Processing Plant.*

### **Educational support**

Throughout the years, we have provided financial support to various individuals in different fields of study through our bursary scheme. We supported 45 students enrolled at various tertiary institutions in 2011, 18 of whom will graduate in 2012. Our total investment in the form of bursaries for the reporting year was just short of N\$4 million. We invested a further N\$3 million in educational assistance, by means of which we finance part of the tuition fees for our employees' children. The latter programme benefited 118 children.

### **Technical training**

In March 2011, 14 employees underwent training that enabled them to become certified Assessors and Facilitators. A total of 61 new Equipment Operators were trained on the Haul Truck 730E, while another 16 Grader Operators began ongoing training provided by Barloworld SA. Our Open Pit Training Coordinator also received his moderation

certification. Some 22 employees were awarded their extra heavy duty licences after they had undergone training conducted by C&V Road Safety Consultancy in Walvis Bay. In addition, a wide range of other training interventions took place in the technical training section, ensuring that a total of 2,077 employees underwent initial or refresher training.

### **Continuous Improvement Programme**

The Continuous Improvement Programme (CIP) entered its third consecutive year. This successful programme rewards employees for any business improvement suggestions that are implemented.

In 2011, 129 suggestions were received, and N\$274,475 was awarded to various individuals for their successfully implemented proposals.

## **Looking ahead**

Being acutely aware that a more productive workforce translates into more effective and efficient processes and systems, we will continue to reinforce self-learning and development. We emphasise using financial resources efficiently, ensuring smarter, more cost-effective methods of operation, both of which have a direct bearing on the sustainability of our business. Increasingly, we will encourage a sense of organisational citizenship, where employees are engaged with the company. This will eventually translate not just to the growth and development of our company, but also to a significant contribution towards the advancement of the Namibian economy.

# Celebrating our people

## Long service awards

At an award ceremony held on 1 July 2011, Rössing honoured its employees who had rendered 30 and 35 years of service to the mine. A total of 125 employees received tokens of gratitude from the mine, and were treated to a dinner and dance evening at the Swakopmund Hotel and Entertainment Centre. In his address our Chief Operating Officer, Mpho Mothoa, said that it was due to these employees' exemplary services, utmost devotion and dedication that the mine had grown to its current scale.

Reuben Hoab, our longest-serving employee (right), started with the mine 38 years ago, in April 1974.

With 62 years of service between them, Edna and Tuckey Cloete (below) are Rössing's longest-serving couple. Both received their 30-year service certificates. In 1979, after completing her secondary education in South Africa, Edna joined her father, who also worked at Rössing. She started as a Filing Clerk for the Human Resources Department, where she occupied various positions over the years. Since 2006, Edna has served as Rössing's Human Resources Advisor, and has been involved in the recruitment of most of the mine's employees. "It's something that I'm immensely proud of," she says.

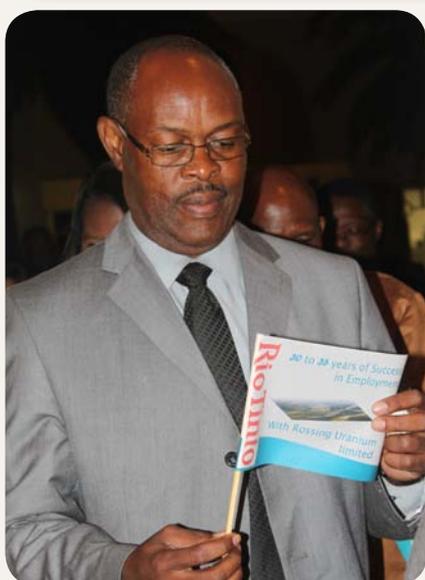
Tuckey joined the mine as a Pit Equipment Operator in 1981. Today, he leads a crew of about 70 employees as Drill Foreman. "Looking back, I am proud that I am a part of a team that kept the mine going through the difficult times," he declares, adding that he looks forward to many more

good years to come. Edna also expressed her gratitude to Rössing, whose excellent educational benefits have enabled the couple to provide all three of their children with sound tertiary education.

Below, far left: Mesag Aibeb, one of Rössing's heroes, receives his flag – a symbol of his hard work.

Below, middle: Zebra Kasete (right), former General Manager of Business Development, congratulates Reiner Przybylski (left), who has worked at the mine for 35 years.

Below, far right: During his address, Bethuel Nguarambuka thanked Rössing and the team who had helped build the mine.



Personal development and self-learning have always received high priority at Rössing, since we recognise that organisational effectiveness has its foundation in a productive and well-equipped workforce. We continue to invest heavily in skills development, having spent N\$81 million over the past five years. This investment in our people is showing results by way of their achievements and sense of organisational citizenship. The few short stories below illustrate this.

### Rössing graduates plough back

Some 15 Rössing graduates from the classes of 2010 and 2011 collaborated with the Rössing Foundation in a social responsibility programme to share their knowledge and experience with some of Namibia's future leaders. The graduates themselves initiated the programme because they felt strongly about assisting others by sharing their knowledge and experiences. The graduates offered a unique learning opportunity due to their combined knowledge in a variety of fields and tertiary institution backgrounds.

The first phase of the programme addressed Grade 10 to 12 learners in Arandis and Swakopmund on various career options they could choose from. The graduates also elaborated on their experience at the various tertiary institutions, explaining their field of work and encouraging the learners to dedicate more time to their studies. Four graduates delivered the first motivational talk to learners at the Rössing Foundation offices in Swakopmund. In the photo (right) Steven Massipa (Graduate Mining Engineer), Fred Bailey (Graduate Electrical Engineer) and Inekela Iiyambo (Graduate Environmental Advisor) addressed a group of 30 learners from various schools in the Erongo Region. The graduates plan to expand the programme in 2012 by offering extra classes for problematic school subjects.



In the photo (right) Steven Massipa (Graduate Mining Engineer), Fred Bailey (Graduate Electrical Engineer) and Inekela Iiyambo (Graduate Environmental Advisor) addressed a group of 30 learners from various schools in the Erongo Region. The graduates plan to expand the programme in 2012 by offering extra classes for problematic school subjects.

### Graduate awarded top honours



Tomas Aipanda, one of our bursary students, achieved a First Class distinction in his Mining Engineering degree by the University of Pretoria in South Africa.

He obtained three prizes at the graduation ceremony: as Best Achiever in Mine Environment Engineering; the best achiever in Strata Control and Best Final-Year Student in Mining Engineering for 2010. Tomas said that doing practical courses at the mine during his university holidays contributed greatly towards his outstanding performance.

He was awarded a Rössing bursary in 2006 after completing his secondary education at Oshigambo High School in the Oshikoto Region.

He is one of 13 bursary holders who successfully completed their studies in 2010. He currently works at the Drill and Blast section.

### From trainee to MD

Zebra Kasete, appointed as Managing Director at Murowa, Rio Tinto's diamond mine in Zimbabwe, epitomises Rössing and Rio Tinto's long-term commitment to the personal development of its employees and future leaders in the surrounding communities.



Having taken part in a Rössing Foundation junior leadership programme, known as *Veld and Vlei*, Zebra's talent as a future leader was quickly noticed. He joined Rössing in 1987 as a young trainee and successfully completed his studies to become a Metallurgist. At that stage, Rössing recruited scholarship students by approaching final-year mathematics and science learners from various schools. Successful candidates like Zebra became part of the mine's scholarship programme and, after completing their tertiary education, joined the mine. Zebra spent the next 24 years moving through the ranks, before expanding his horizons through Rio Tinto. He first worked on the Kintyre Project in Western Australia while based in Perth and then in the USA in Procurement, servicing Rio Tinto Minerals.

In 2008, Zebra returned to Rössing as General Manager of Corporate Services. He then served as General Manager of Business Development, before being appointed as Managing Director of Murowa. Acknowledging the role Rössing and Rio Tinto have played in his personal growth path, he says: "Rössing has given me experiences and opportunities second to none. I have travelled around the world and have had the opportunity to grow and develop tremendously. The opportunities at Rössing and Rio Tinto are there: just don't limit yourself."



# Our community

Because we depend on sustainable communities, our stated goal is to ensure that our operations are carried out in harmony with the environment and the communities around us.

We ensure that we know the communities in which we operate, clearly disseminate information to stakeholders, listen and respond to their needs, and embark on collaborative projects that benefit all parties involved.

Being an active community partner, we have invested substantial resources in community involvement initiatives over the years. Most of these resources are channelled through the Rössing Foundation, in addition to various community development initiatives we support directly. Some of these are highlighted in the next few pages.

## 2011

### External communications and activities

A leader in community relations joined the mine and is re-evaluating all our community relations activities to chart a new direction.

High-level engagement with politicians and senior Government officials was regularly undertaken to discuss a number of pertinent matters of interest to the company and the Government. The purpose of the meetings was to keep the Government informed about our ongoing business turnaround strategy, and seek Government buy-in in some matters moving forward.

An example of such high-level engagement was informing Government on our acceptance of the Kalahari Minerals share offer. The shareholding of the Iran Foreign Investments Company in Rössing Uranium

was also regularly discussed with Government. We believe that this matter requires urgent resolution to ensure that Rössing's customers and potential business contacts are not deterred from doing business with the company due to the perceived non-compliance to the United Nations resolutions.

Discussions with politicians and senior Government officials also focused on the company's request to review the royalty tax rate of 6 per cent that Rössing continues to pay, compared to the 3 per cent industry norm.

Even though our financial resources were severely challenged in 2011, with the mine showing a financial loss for the second year, we invested an additional N\$1.4 million in our communities through cash and in-kind donations and sponsorships.

One such sponsorship involves the Namibia Athletics' Club Championship, a new event made possible through our financial support of N\$100,000. About 400 athletes from



## Our community: At a glance

- We are committed to building enduring relationships that are founded on mutual respect, active partnership, and long-term commitment.
- We, therefore, work collaboratively with our communities to ensure socio-economic stability and to deliver sustainable long-term benefits for all.
- We have invested N\$137 million in community-related activities over the past five years.
- We channel most of our community investment through the Rössing Foundation, focusing on education, enterprise development and the Arandis Sustainable Development Project.

*Grade 1 learners in class at the Arandis Primary School, in Arandis which is the mine's neighbouring town.*

across the country participated in this coveted event in Swakopmund in the reporting year.

Together with Rio Tinto, Rössing also pledged N\$1 million to the Namibian Government to seek a long-term solution to the hardships brought to many people by the annual floods in the northern part of the country.

We place a great deal of importance on informing the public about our operations. We achieve this through various platforms and activities, some which are mentioned here.

The success of the mine's visitors' programme is seen in the number of visitors received during 2011. The mine hosted 156 tours, totalling 2,938 visitors (compared with 2,838 in 2010 and 2,835 in 2009). This is the highest number of visitors over the past few years. The increased awareness of the mine is attributed to the international interest in uranium mining as a whole, and to Rössing as a world-class mining operation in particular.

In addition, tours by the general public remain very popular and are usually fully booked. Two tours a month are hosted, which includes taking visitors to the Information Centre at the Chamber of Mines' Uranium Institute in Swakopmund before driving to the mine. The income generated by ticket sales for these tours is donated to the Swakopmund Museum, where visitors begin their tour.

We also hosted family tours for employees' family members. This proved to be successful, with positive comments from both family members and employees.

The Uranium Institute and its Information Centre, where Rössing also has a detailed exhibition, saw their second year of operation in 2011.

In addition, the mine also updated its exhibition at the Ministry of Mines and Energy Windhoek headquarters' display centre.

We participated in the second Mining Expo in Namibia and found it an excellent way to promote the company, especially among local businesses. The mine won second prize in the "Best Stall" category.

We actively participated in local events such as career fairs, which advertised our activities to many secondary school learners. In addition, we participated in the Erongo Trade Fair in Walvis Bay for the first time in 2011, as well as in the first-ever Mining and Minerals Expo, which was hosted in Swakopmund. Our involvement in both of these events resulted in several industrial enquiries and contacts of value to procurement.

Our Outreach Programme to secondary schools continued to inform senior learners at schools about Rössing's operations; its health, safety and environment (HSE) practices; radiation; bursary opportunities with the company; recruitment; and possible career opportunities at the mine.



*Young residents of Arandis.*

More than 800 senior secondary learners were reached at various schools in the Erongo Region. This programme was rewritten as a radio programme and broadcast in various episodes by West Coast 107.7 FM.

Our company website aims to provide information about us through the worldwide web. During 2011, our site received 116,906 visitors, compared with 110,900 in 2010 and 82,406 visitors in 2009.

The annual Rössing Marathon Championship, a highlight on the coast's events calendar, was hosted for the 20th consecutive year in 2011. Also presented were the 10-km race, the Rössing team event and the Fun Walk for the Cancer Association – all of which attracted a good number of participants. An increase in the prize money across all categories was well received, and attracted positive media coverage.

The mine's interdepartmental sport days were held in August in Swakopmund, while October saw an inter-mine tournament for

mines in the Erongo Region. The events were well attended by our employees and their family members, as well as by their counterparts from other mines.

Rio Tinto Rössing's annual birdwatching event was again well attended, and still delivers significant awareness about the environment to school learners.

Our annual Report to Stakeholders serves as Rössing's flagship communication tool and reflects on the mine's annual operations. Being a mandatory Rio Tinto requirement, the report is issued to suit the needs of the bulk of our stakeholders.

A successful media weekend was hosted in November 2011, attracting a number of Windhoek-based journalists and coastal media representatives. The media activities were part of the mine's media relations programme, and aim at fostering healthy, open and transparent relations with the local and international media.

## Internal communications

Effective internal communication is an integral component of the company's culture. *Internal communication* involves promoting transparent and effective interaction among all employees. By encouraging open communication, we build trust in the organisation.

A communication activity plan was introduced towards the end of 2011, with the aim of reviewing all internal communication activities to streamline and perhaps bundle some of the initiatives concerned so as to offer more value to our audiences.

The overall quality of internal communications also increased. These were distributed via a range of platforms, such as the weekly *e-Rössing Bulletin*, our intranet, business briefs, DVD productions, and numerous project-specific news flashes, briefs by the managing director, and dedicated e-mails.



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1. The annual Rössing Marathon Championship has become a highlight on the coast's events calendar and was hosted for the 20th consecutive year in 2011.

2. Rio Tinto Rössing's birdwatching event was again well attended, and continues to deliver significant awareness about the environment to school learners.

3. Grade 11 learners from Namib High in Swakopmund comprised one of many visitor groups to the mine. The visitors' programme, which constitutes an important part of our communication activities, informs the public about our operations.

4. The Namibia Athletics' Club Championship, held for the first time in 2011, was a great success – with more than 400 athletes from 24 clubs across the country taking part in Swakopmund.

5. The town of Arandis welcomed the opening of its new petrol station in June 2011, a step deemed necessary for the town to become self-sustainable. MD Chris Salisbury (right) and Chairman Rehabeam Hoveka (middle) were the first customers.

6. Rössing received top honours at the Chamber of Mines' second Mining Expo, held in Windhoek. Botha Ellis, Rössing's Advisor for Corporate Communications, explains our location on a satellite photo to Veston Malango (second left), GM of the Chamber of Mines, and the Minister of Mines and Energy, Hon. Isak Katali (extreme right) with Jerome Mutumba, our Manager of External Affairs (second right).

7. Special tours to the mine were organised for employees' families, enabling them to learn more about their spouses' and parents' workplace. The areas visited did not require personal safety ware.

8. Managing Director Chris Salisbury with graduates from the various Rio Tinto business units in Africa, who attended a four-day intensive graduates' workshop in Swakopmund on interpersonal skills and business improvement.

# The Rössing Foundation

The Rössing Foundation was established by Rössing Uranium Limited in 1978 through a Deed of Trust to implement and facilitate its corporate social responsibility activities within the communities of Namibia.

The Foundation undertakes a number of activities across a broad spectrum of community development areas, mainly within the Erongo Region. This includes Local Authority support to the town of Arandis, as well as investment in the fields of education, health, poverty alleviation, innovation, environment, and enterprise development. Over the past five years, the Foundation has spent N\$120 million on such programmes.



*Job Tjiho, Director*

## 2011

The Rössing Foundation's activities focused on education, enterprise development and the Arandis Sustainable Development Project. A detailed account of the foundation's activities is provided in their annual report, of which some highlights are given here.

### Education Programme

Recognising that a good education forms the foundation of a prosperous and well-balanced society, we invest heavily in educational activities. This entails focusing on not only primary and secondary learners, but also their teachers and their communities.

#### English Language Centres

To most Namibians, English is a third and often a fourth language. Because it is Namibia's official language and the lingua franca of choice throughout the world, English is awarded a high premium by Rössing. For this reason, English proficiency is a prime target of its various development programmes assisting school learners and adults alike.

We built and equipped two Language Centres in the Erongo Region (in Arandis and in Swakopmund) and one in the Oshana Regions, fully equipped with an A-Z Reading Programme, a Sound and Reading Programme, an English Reward Programme and an English Enrichment Programme for senior secondary learners. Each Centre can accommodate a minimum group of 160 learners per year. Since the establishment of the first English Language Centre, 1,440 pupils, 45 teachers and 24 community members have participated in the courses offered.

The reporting year saw 31 teachers from 14 local schools attend a workshop on the Sound and Reading Programme, which aimed at assisting them in English language pronunciation and producing reading materials. About 2,150 learners have in turn benefited from this Programme.

#### Libraries

The main purpose of Rössing Foundation libraries is to ensure that learners, teachers and community members have access to information. During 2011, these libraries supported 3,112 learners, 150 teachers and 650 community members, judging from access records, compared with 2,671 learners, 118 teachers and 413 community members in 2010.

The reporting year also saw the Foundation's Katutura Library in Windhoek being handed over to the Ministry of Education. In 1987, the Rössing Foundation took ownership of the library from what was then the Katutura Municipality. At the time, the Municipality lacked the adequate resources to fund and provide the expert skills required for effective and efficient library management, so they appealed to have the library taken over. When the Rössing Foundation took ownership of the library, about 1,800 people were registered as library users. Today, the library has become an important service to the community, with over 22,000 visitors recorded in 2011.

#### Science Centres

The Rössing Foundation Science Centres aim to elevate the quality of science teaching and learning to achieve a pass rate of at least

80 per cent for learners who do science. The Centres offer support not only to learners, but also to teachers, who endeavour to acquire the highest level of pedagogic knowledge and skills in their subjects.

The Science Centres set a target of entering 30 quality science projects in regional and national science fair competitions. This target was exceeded, with 38 projects being entered in total. Together, they received 10 gold medals, 19 silver and 9 bronze.

#### Mathematics Centres

The Rössing Foundation has three Mathematics Centres, fully equipped with the Master Maths interactive software programme and offering a range of computer-assisted mathematics courses from Grade 4 to Grade 12, aiming to increase mathematics proficiency.

The Mathematics Centres also supported 12 community members and young people who had not completed their schooling in a bid to improve their Grade 12 mathematics results.

#### Outreach Programme

The Rössing Foundation embarked on an Outreach Programme with the Erongo and Omaheke Regional Directorates of Education. The main purpose of the Programme is to support schools in leadership and management in an effort to improve the way schools are run. Enhanced skills in these spheres should cascade down to improved Grade 10 and 12 examination results.



*New open-market kiosks being erected for Arandis' SME entrepreneurs in the central business district of the town.*

## Arandis Sustainable Development Project

The Rössing Foundation continues to support Arandis in its bid to become a sustainable town beyond the lifespan of the surrounding mines. To this end, 2011 saw several activities result in positive outcomes. A few of these are highlighted here.

### Arandis Business Development

The objective of having a petrol station was realised and the service is now operational. The service station was built through a tripartite agreement between the Arandis Town Council (ATC), the Rössing Foundation and Puma Energy. The ATC provided the land for the site, the Rössing Foundation financed construction, and Puma provided the pumps, storage tanks and branding. The service station currently employs 17 people and supplies fuel to the Arandis community, travellers and surrounding mines. In this way, it contributes to Arandis's socio-economic growth.

### Arandis Structure Plan

Various public and stakeholder consultations were conducted during 2011 to inform the local community and other interested and affected parties about the Structure Plan initiative, as well as to solicit and record comments and input. The main areas of the Structure Plan are industrial development, establishing a centre of educational excellence, sustainable and niche-market tourism, and affordable housing.

### Towards financial sustainability

During 2011, various financial policies and procedures were developed and implemented in order to improve the ATC's financial operations. These entailed drafting a credit control policy, a debt management policy, and a tariff policy. These policies will contribute towards sound financial management practices and improved revenue collection. As part of the ATC's Five-year Strategic Plan, more partners were required to make a meaningful contribution to the town's development. The ATC therefore signed a partnership agreement with AREVA, owner of the nearby Trekkopje uranium mine, resulting in funding amounting to about N\$672,000 being secured for the construction of an open market.

### Investment Conference

In line with the ATC's Local Economic Development Strategy, investors have to be attracted to Arandis to contribute towards the diversification of economic activities and employment creation. To this end, the ATC successfully hosted its first Investment Conference in November 2011. About 100 participants attended the Conference, which was complemented by an SME Fair that attracted 20 national, regional and local small- and medium-scale enterprises (SMEs).

### Youth skills development

Eight young people living in Arandis were sponsored by the Foundation in 2010 and successfully completed their Special Training Course at the Namibia Institute of Mining and

Technology (NIMT) in 2011. The relationship between NIMT and the Rössing Foundation was maintained in 2011 when seven young people were sponsored by the latter so that they could enrol in a special training course in welding, boilermaking and diesel mechanics. These recipients are expected to complete their courses by August 2012. This progress is a further step towards achieving our goal of deepening the pool of skilled and employable young people from the Arandis community.

### SME development

Trading space for Arandis SMEs has always been a challenge. For this reason, the ATC secured funds through the Constituency Office of the Erongo Regional Council and has successfully constructed 11 trading units for SMEs in the 2009/10 financial year. During 2011, another six units were completed and allocated to traders.

## Enterprise development programme

### Erongo Micro Credit initiative

In 2011, the Rössing Foundation, the Erongo Development Foundation and Bank Windhoek renewed the Guarantee Fund Investment Agreement in terms of which credit is made available to micro enterprises in the Erongo Region that show potential for growth. The reporting year saw the Foundation contribute N\$250,000 towards this Fund, which awarded loans to 38 micro enterprises that were unable to source funding from commercial banking institutions.

# Safety

A safe workplace is a fundamental employment right, and safety is the foundation on which we build our business and our community. We believe all incidents, injuries and occupational illnesses are preventable and, thus, our goal is Zero Harm.

Safety management is an integral part of the way we work at Rio Tinto. Because our success as a business depends on it, it continues to remain a high priority in all of our business operations and activities.

In 2010 we embarked on a Zero Harm Project in the working environment, entitled “Accelerating Safety Performance Improvement”. This Project was expanded in our Safety Improvement Plan in 2011, where we identified the following initiatives to offer further impetus in reaching our Zero Harm goal:

- **Safety leadership and accountability talks:** These present clear accountabilities and effective toolboxes for leadership in the safety management process;
- **Zero Harm workshops:** These include the training in practical skills and tie back into expectations in the workplace;
- **Employee engagement systems:** These revitalise the Occupational Health, Safety and Environment (OHSE) Committees, aimed at improving employee participation in health, safety and environment (HSE) improvement measures;
- **Contractor safety enhancement:** These measures increase contractors’ engagement in our safety efforts, including engagement by their senior managers; and
- **Associated processes:** These strengthen the safety interaction process, introduce the Golden Rules of Safety, make leadership visible, improve communication, and implement uniform personal protection equipment.

Achieving Zero Harm requires absolute adherence to these policies, standards and procedures, which we know will protect people from injury and illnesses. As part of the roll-out of our Safety Improvement Plan, we introduced nine Golden Rules of Safety. These Rules intend

minimising significant negative impact on human lives. This does not mean that other rules are not important; however, non-adherence to the Golden Rules has severe consequences.

We use a range of measures to gauge our safety performance. The total number of all injuries (i.e. medical treatment cases and lost-time injuries) per 200,000 employee hours worked is one measure we use to compare safety performance between sites and over time. Our safety aims and objectives are set to encourage our employees to act in such a way as to project a positive and proactive attitude towards safety.

## 2011

To date, a total of 1,417 employees and contractors – representing 56.7 per cent of the total workforce – have undergone intensive safety (Zero Harm) training. These efforts will continue in 2012 until all employees and contractors at the mine have received the training. To further complement our efforts to achieve Zero Harm, a revised Job Hazard Analysis (JHA) form was implemented, enabling us to identify and manage our task-related risks.

Other HSE management system processes such as audits, risk assessments and HSE training were used throughout the year. These mechanisms were all geared towards inculcating a culture of Zero Harm within the workplace.

The mine recorded an AIFR of 0.81 for 2011, which is a 0.08 improvement from the 0.89 of 2010. No fatalities were reported. Rio Tinto’s AIFR target for 2011 was set at 0.74. While we fell short of this target by 0.07 points, we are adamant about continuing to improve our All Injury Frequency Rate (AIFR), and are working hard towards Zero Harm.

The following injuries and significant incident categories were reported:

- Lost-time injuries: 11
- Incidents requiring medical treatment: 13
- Incidents requiring first aid treatment: 49

- Significant potential incidents: 17
- Near-miss incidents: 74

The successes achieved during 2011 were as follows:

- A “Single Point Lessons Learned” programme was implemented to reinforce safety expectations and needs related to trends that may become a safety concern. Various key focus areas were identified and implemented in this regard.
- No lost-time injuries or medical treatment cases were reported for the months of June and December.
- Safety advisors are seconded to each General Manager for direct support and advice on safety management on the mine.
- About 95 per cent of all outstanding incidents have been reviewed and action taken. The target is that all incidents are to be reviewed and action taken within a calendar month.

## Looking ahead

Moving into 2012 and beyond, we will continue with Zero Harm training and workshops. This important message of being personally responsible for one’s safety and that of others, thereby contributing towards achieving a healthy and safe working environment for all employees, stakeholders and the community at large, remains the bedrock of our HSE activities.

The Golden Rules of Safety introduced towards the end of 2011 will be embedded in the daily tasks and activities of every worker. As part of our Safety Improvement Plan, they will be strictly enforced in 2012 and are applicable to all employees, contractors, service providers and visitors to Rössing sites. Any transgression of these Rules will result in serious disciplinary action for any party involved.

In addition, a new “Take 5” booklet is expected to be launched mine-wide in 2012. “Take 5” is a methodology applied to pre-task risk analysis, and is mandated for the entire workforce prior to commencing any task. “Take 5” refers to employees allocating some time prior to each task to evaluate the possible risks involved and to prepare for the task accordingly.

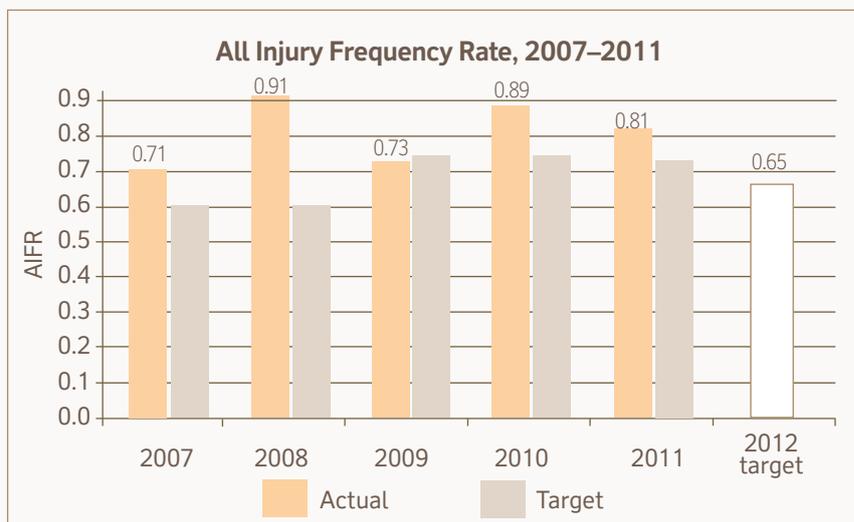
## Safety: At a glance

- We believe all incidents, injuries and occupational illnesses are preventable and, thus, our goal is Zero Harm.
- Safety management is an integral part of our success and continues to remain a high priority.

The All Injury Frequency Rate (AIFR) is the rate of occurrence of all injuries per 200,000 hours worked:

$$\frac{\text{Number of all injuries} \times 200,000}{\text{Hours of exposure}}$$

All Injury Frequency Rate (AIFR) 2011
<b>0.81</b>
Target AIFR 2011
<b>0.74</b>
2012 AIFR Target
<b>0.65</b>



### THE GOLDEN RULES OF SAFETY

**ISOLATION & LOCKOUT:** Never work on energised equipment without first applying your personal lock in accordance with the isolation procedure.

**CONFINED SPACES:** Never enter a confined space or other specified restricted area without the necessary permit to work being issued.

**WORKING AT HEIGHTS:** Never work above 1.8 m without fall prevention (e.g. fixed railings) or fall protection (e.g. harness and lanyard).

**SUSPENDED LOADS:** Never position yourself or any part of your body under a suspended load and always demarcate the area.

**POSITIVE CONTACT:** Never approach within 50 m of any heavy mobile equipment without making positive contact with the operator.

**LICENSED TO OPERATE:** Never operate Rössing vehicles, mobile equipment or machinery without authorisation of a valid licence.

**FITNESS FOR WORK:** Never enter the workplace if you are under the influence of alcohol or other drugs.

**TRAFFIC RULES:** Never use a cell phone when driving and always wear a safety belt.

**PERSONAL PROTECTIVE EQUIPMENT:** Never misuse or abuse such equipment, and always wear the correct equipment as provided and indicated.

An employee undergoes her annual medical examination at the on-site medical centre.



# Occupational health

Workplace health is a basic employment right and the health, safety and wellness of our employees remains, as ever, a high priority.

We aim to prevent that any of our workers contract workplace-related diseases, so we conduct personal health monitoring as well as surveillance and monitoring of the workplace, where relevant.

Because of the nature of our business, we are especially vigilant of diseases caused by exposure to excessive dust, fume, noise, manual handling, vibration and to all forms of radiation. Our goal is no new cases of occupational illness. Our risk-based occupational hygiene monitoring programme is reviewed and updated on an annual basis, based on Rio Tinto performance standards on occupational hygiene.

In 2011 no new cases of occupational illnesses, and no cases of personal annual radiation exposures above 20 mSv/annum were reported. Our monitoring programme is currently applied to 16 similar exposure groups (SEGs). An SEG is a group of workers working in the same environment or performing tasks with similar exposures. SEGs include all current employees and site contractors. The data received from our monitoring programme is vital in guiding us to make informed decisions with regard to the efficient and appropriate implementation of risk-based exposure control.

## Occupational medical surveillance

The medical surveillance programme provides relevant information to the mine for the purpose of controlling health risks and preventing, detecting and treating occupational diseases.

All employees and contractors undergo pre-employment medical examinations to ensure they are fit to work. These are followed by regular risk-based medical examinations during employment, as well as an 'exit' medical examination when leaving the company.

Our workplace wellness programmes are designed to assist us in creating a work environment that is healthy for our employees. Through these programmes, we encourage employees to choose healthier behaviours. Part of our programmes involves increasing knowledge and awareness through campaigns and education sessions, and introducing policies to help employees to make healthier choices. Through the wellness programmes, employees are encouraged to undergo additional medical screening tests to manage their own health and as a means of detecting chronic and/or life-threatening diseases.

## 2011

A total of 1,693 periodic medical examinations were done for Rössing employees, and 885 for contractors. In addition, a total of 197 pre-employment medical examinations and 124 exit medical examinations were conducted for Rössing employees, while 754 pre-employment and 225 exit medical examinations were performed on contractors. Various activities were undertaken during 2011 to support our wellness awareness programmes. A few of these are highlighted here.

### Peer Education Programme

Our Peer Education Programme has been in existence since 1996 and is a true success story. Peer Educators are employees and contractors who volunteer for and are trained to undertake educational activities with their peers, both within and outside the workplace. The aim of their activities is to develop people's knowledge; positively influence their attitudes, beliefs and skills; and enable them to protect their health.

During 2011, 33 Peer Educators attended training in behaviour change communication and in advanced peer education. In addition to their training, they initiated various community support activities during the year, including blood donation clinics, fundraising for the Cancer Association of Namibia, the commemoration of World AIDS Day, and support for tuberculosis patients who adhere to treatment.

### “Be Active” Challenge

The “Be Active” Challenge is a team exercise challenge designed to motivate employees to become more physically active. This challenge is coordinated annually by Rio Tinto and open to all Rio Tinto's companies. Participants work together in teams of four to complete a ten-week ‘virtual walk’ around the world, passing through many of the global Rio Tinto regions. Each registered participant is issued with a pedometer to accumulate steps that are entered online and contribute to the team total. The virtual route is designed in such a way that, ideally, each participant should walk a minimum of 10,000 steps a day to complete the route within the given period of ten weeks. In 2011, we participated for the second consecutive

## Occupational health: At a glance

- Workplace health is a basic employment right.
- Our occupational health programmes aim to promote and maintain the physical, mental and social well-being of our workers in order to prevent illnesses caused by working conditions, and to protect workers from health-related risks.
- In 2011, nearly 3,900 medical examinations of various kinds were conducted, and more than 2,000 personal radiation monitoring samples were collected.
- An increased focus was placed on dust control systems, especially those introduced within the Fine Crushing Plant area, which led to a significant decline in the average dust levels recorded.

year. The challenge took place from 16 May to 24 July. A total of 82 teams from Rössing participated, with one of the teams being second in Rio Tinto overall, and another team fifth.

### Employees knowing their HIV status

On-site voluntary counselling and testing (VCT) for the human immunodeficiency virus (HIV) are offered on a daily basis to both employees and contractors. In addition, a VCT campaign was held in conjunction with the Ministry of Health and Social Services' National Testing Day on 7 September 2011 with the principal purpose of increasing the uptake of HIV testing. Experienced HIV and AIDS counsellors from the Ministry visited sections on the mine to raise awareness about the virus, and to stress the importance of knowing one's HIV status. During the campaign, pre- and post-test counselling was offered. Some 326 employees and contractor employees were tested.

Employees are constantly encouraged to ensure that they know their HIV status through having regular tests done. By the end of 2011, a total of 1,565 Rössing employees and 814 contractors knew their HIV status. All employees that require treatment have access to anti-retroviral therapy through the company's medical aid.

### Alcohol and Drug Policy

The aim of this Policy is to advocate for a sober and safer workforce. In line with Rio Tinto's overall strategy of zero tolerance towards alcohol and drug abuse, we introduced the Alcohol and Drug Policy in mid-2010 to guide management in terms of how to handle cases of alcohol and other drug abuse in a consistent way. This decision was based on an increased trend in employees and contractors testing positive for alcohol and other drugs. The main purpose and focus of the Policy continues to be to reduce and ultimately eliminate the number of people developing addiction problems and posing a safety hazard to their fellow workers.

The application of consistent disciplinary action when a person tests positive for alcohol or other illegal substances when at work is intended to serve as a behavioural deterrent for other employees. We diligently test all employees for traces of alcohol each day as they enter the work area in the hope of changing this harmful behaviour and to continuously minimise and eventually eliminate the number of recorded cases. Random testing for other drugs has been conducted on employees since 2009. Daily alcohol testing on all employees started in December 2010 and is ongoing.

# Radiation safety

The reporting year saw the newly established National Radiation Protection Authority implementing its regulatory mandate. Although the Radiation Protection and Waste Disposal Regulations were only gazetted late in 2011 and came into force in January 2012, the Authority visited the mine three times during 2011 to learn how we implemented our radiation management programme.

Rössing's Radiation Management Plan was submitted in 2010, and was reviewed and fully updated in consultation with the Authority in mid-2011. The Plan is accessible to all employees via Rössing's intranet, and covers all aspects relating to radiation safety.

Two limits for radiation exposure are set, above that received from natural background or medical exposure, and aim to distinguish between two types of people: members of the public, and radiation workers. The limit set for members of the public is 1 millisievert (mSv) per year, while the limit for radiation workers is 20 mSv per year over five years, with a maximum of 50 mSv in any one year. Pregnant workers, therefore, have to be protected as members of the public at an annual exposure dose of less than 1 mSv. Any exposure at work is regarded as *occupational*, while exposures when not at work are regarded as *background*.

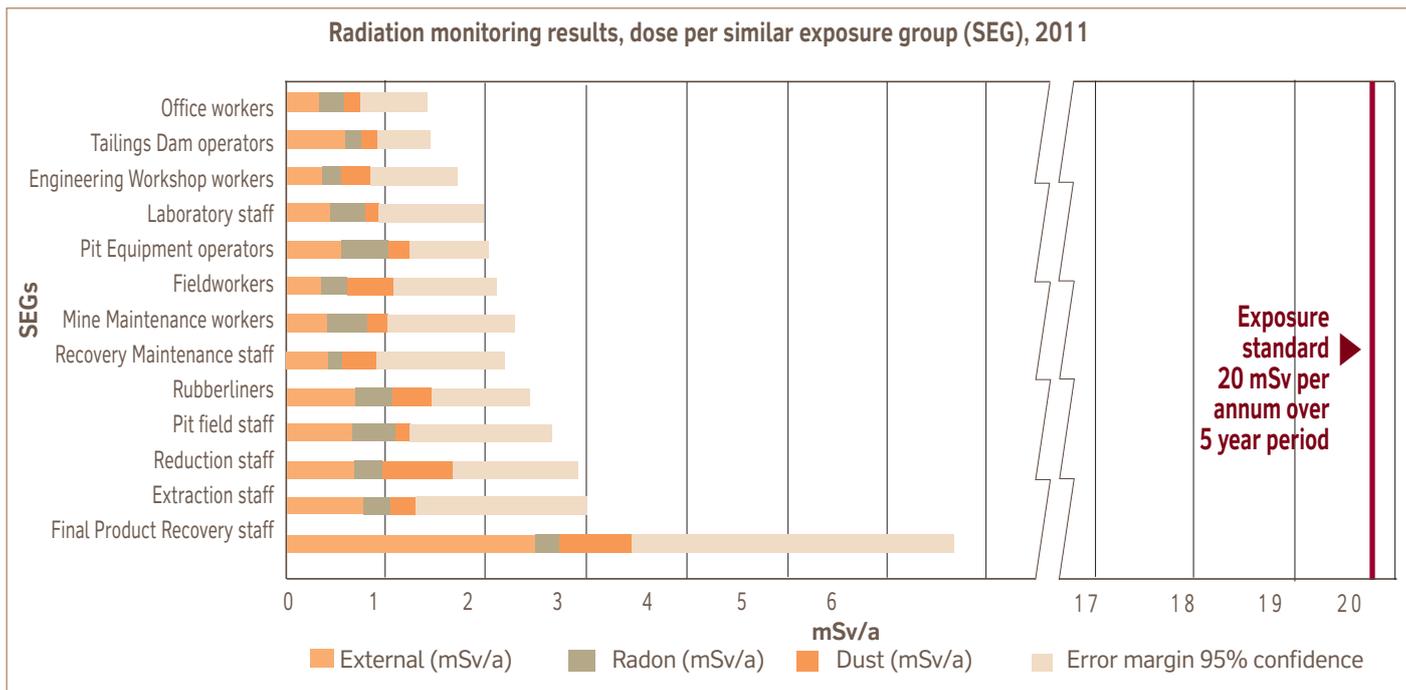
As indicated in our Radiation Management Plan, work areas are classified as *controlled* or *supervised* areas.

All areas in which the potential total radiation exposure of employees exceeds 5 mSv a year are designated as *controlled* areas. Such areas are access-restricted, and employees working in them are classified as *radiation workers*. The external exposure to ionising radiation for all radiation workers is monitored continuously, whereas internal exposure is monitored by way of both personal random sampling and workplace area monitoring. An example of a controlled area at Rössing is the Final Product Recovery.

*Supervised* areas are those in which the potential total radiation exposure to employees may exceed 1 mSv a year. Although some areas such as offices and certain workshops do not fall into this category, all work areas are regarded as supervised for the purposes of radiation protection. The occupational radiation exposure for workers working in supervised areas is monitored by way of randomly selected personal samples from each similar exposure group (SEG) and from each exposure pathway, rather than by continuous sampling – as is done with radiation workers.



Part of a pump in the Processing Plant being scanned for radiation contamination.



Our Radiation Management Plan includes a comprehensive monitoring programme for measuring all employees' occupational exposure to ionising radiation. Out of the 16 SEGs identified on the mine, 13 are distinguished according to the potential radiation exposures they encounter during different work processes. Four major exposure pathways form part of this routine monitoring programme.

## 2011

More than 2,000 personal radiation monitoring samples were collected in 2011. All measured exposure doses are extrapolated to the conventional 2,000-hour working year in order to yield a representative and comparable exposure dose value for the different SEGs. In shift work zones, exposure monitoring was done for all three shifts, and a time-weighted average of the exposures was determined.

Production of uranium concentrate was particularly low in 2011. This had a measurable effect on the overall exposure. The lower figures are due to the limited number of filled uranium drums and containers stored on-site, and less uranium-bearing ore in airborne dust.

In particular, the average exposure to radon in 2011 was very similar to that measured in 2010, whereas the average exposures from both external radiation and long-lived

radioactive dust were reduced significantly in 2011 relative to 2010. While the weighted average total annual occupational radiation exposure dose measured at the mine in 2010 was 1.7 mSv, the weighted average in 2011 was reduced to 1.1 mSv for the year.

The results of the monitoring programme are summarised in the graph above, which shows the average occupational radiation dose for the three main pathways – i.e. external, radon progeny and radioactive dust – as well as the 95 per cent upper confidence level for the exposure doses for the 13 SEGs.

For example, the average exposure dose for office workers due to external and internal radiation from radon progeny and dust was 0.34, 0.26 and 0.16 mSv per annum, respectively, yielding a total average annual dose of roughly 0.8 mSv for 2011. The 95 per cent upper confidence level for this particular SEG was 1.4 mSv, meaning that 95 per cent of workers in this specific group were exposed to less than 1.4 mSv per year. The 95 per cent confidence level for the weighted average mine-wide exposure dose was 2.1 mSv per annum in 2011.

During 2011, a total of 665 urine samples were taken. Eight of these exceeded the action level of 40 µg of uranium per litre, while an additional 7 samples exceeded the warning level of 20 µg per litre. The exceedances were related to two incidents where safe work procedures undertaken during the demolition and maintenance work

in the Final Product Recovery area were not adhered to. Both incidents were investigated in detail, reported to the Authority, and followed up to strengthen future compliance. Forensic kidney examinations on all affected employees showed the latter to be free of resulting complications.

Based on continuous records of external exposure for radiation workers as well as random samples for all exposure pathways (external, radon, dust) for all others, four workers received a total annual exposure dose exceeding 5 mSv, but no worker exceeded a total dose of 10 mSv. The maximum individual total annual exposure dose measured was 6.5 mSv.

Surface contamination is regularly monitored in the Final Product Recovery area to ensure that the spread of contamination to other areas is controlled. The target set for 2011 was to keep the average contamination levels below 1.80 Bq/cm<sup>2</sup>. Average contamination measured 1.76 Bq/cm<sup>2</sup>, which fell below the target limit. Measurements of contamination in the Final Product Recovery area are not announced to the staff prior to being taken.

These measurements are carried out at 32 locations each week. The results are then communicated to the area management in order to ensure ongoing compliance with cleaning procedures and other standards of non-contamination.

A 100-point radon monitoring grid in and around the mine site was set up in late 2010. This grid informs the models used to determine the public exposure dose as a result of our mining activities. At each monitoring location, a radon-measuring device was placed to measure the presence of radon for periods between two and six months at a time.

Analyses of the monitored values yield long-term average radon concentrations across the mine site, which are used as numerical controls and inputs for the ongoing radon modelling programme undertaken to determine the public dose assessment prepared for the 2011 mine expansion plan. This constitutes average continental environmental radon concentrations, which typically average up to 100 Bq/m<sup>3</sup> in outdoor conditions.

It was found that the ambient radon concentrations ranged between 7 and 370 Bq/m<sup>3</sup>, with an average concentration of some 50 Bq/m<sup>3</sup>. Radon concentration measurements will continue into 2012 so that public dose monitoring can improve continuously and update the dose assessments. The latest figures are available as part of the 2011 environmental impact assessment, and are downloadable from the Rössing website.

The programme also includes continuous dust and groundwater monitoring. Dust emissions are monitored with several high-volume dust samplers on site, and with samplers for PM10 (see information box below) in key locations such as Arandis.

Water from about 40 boreholes is sampled annually and submitted for radionuclide laboratory analysis. Data from these exercises are used to verify the existing public dose assessments, and serve as input for their continuous updating and improvement.

Monitoring of environmental air and water quality helps confirmation of compliance with public dose limits, and at the same time upgrades information necessary for continuous improvement on environmental emissions.

Stakeholder engagement includes informing the public and workers within the entire uranium mining industry about developments in radiation safety. To this end, we produced a workers' handbook on radiation, in collaboration with the Uranium Institute. The *Guide to radiation in Namibia's uranium exploration and mining sectors* is used across the industry as an easy-access source of information about radiation. We also produced a handbook for managers, entitled *Questions answered about uranium and radiation*. In addition, a basic radiation training course in three modules is now offered regularly at the mine, and about 800 Rössing employees attended these courses in 2011. Since the courses began in 2010, more than 1,800 employees have attended them. Several one-day training courses were also offered for members of the Namibian Police, security firms, and various municipalities, as well as teachers and other interested members of the public.

Dust is made up of many different materials that are suspended and blown about in the air. The size of dust particles depends on where they come from. Coarse (large) particles are associated with mining activities, whereas fine (small) particles typically come from vehicle exhausts and smoke from fires. The most commonly measured form of dust particulate matter (PM) is PM10, referring to a fraction of airborne material with an aerodynamic diameter of less than 10 micrometres (0.01 mm) in a cubic metre of air.



Aina Kadhila-Amoomo (Environmental Advisor) takes readings from an air quality and dust monitoring station at the Fine Crushing Plant.

# Dust

In an open-pit mine such as ours, the removal of topsoil and overburden – the soil and rock that sits on top of the ore body – and the transport of this material, along with the crushing of ore, are typically the major sources of dust emissions.

Dust sources may be –

- *localised*, e.g. from blasting, loading trucks, crushing ore, or transfer by conveyor
- *diffused*, e.g. from waste rock dumps, areas of disturbed ground, or
- *linear*, e.g. from haul roads.

Mining produces predominantly ‘fugitive dust’, that is, dust derived from a mixture of sources, or sources that are not easily defined.

Comprehensive monitoring activities take place at various locations on the mine site. PM10 dust samplers at different points are used to determine the level of dust in the air. The primary concern is to test to see how much dust under 10 microns in size is airborne, as dust particles this size or smaller can infiltrate the lungs and cause damage to one’s health.

Multi-vertical dust samplers at the edge of the Tailings Dams have a number of slots running up the length of the 5-m devices which collect dust and sand particles that are blown westwards off the Tailings Dams.

The primary purpose of airborne dust sampling is to protect workers’ health by measuring personal dust exposures. These measurements are taken in order to ensure that exposure levels do not exceed prescribed occupational limits. Other reasons for dust sampling include evaluating the effectiveness of existing and newly introduced controls to detect any changes in dust levels as a result of process changes, and to make informed risk-based decisions related to the level of control that needs to be introduced for the various exposure levels.

## 2011

In 2011, increased focus was placed on dust control systems, especially those introduced within the Fine Crushing Plant area to ensure these systems function optimally. In addition, a Dust Management Committee was established with the sole aim of controlling and reducing reported dust levels in this area to acceptable levels.

As anticipated at the end of 2010, a significant decline in the average dust level was recorded for 2011 (2.55 mg/m<sup>3</sup>) compared with 2010 (4.02 mg/m<sup>3</sup>).

## Looking ahead

The dust target remains set at 0.9 mg/m<sup>3</sup> for 2012, meaning that continued commitment is required from those involved to bring the levels down to below the target limits, as indicated by the graph below.



# HSE policy

## Rössing's Health, Safety and Environmental (HSE) Policy

**Excellence in HSE management is one of the foundations of Rössing's vision to be a safe, long-term supplier of uranium oxide to the nuclear power industry around the world. This is in line with our commitment to Zero Harm, corporate citizenship, social responsibility, and sustainability.**

To accomplish this, Rössing undertakes to –

- recognise that nothing is more important than protecting the health and safety of our stakeholders, especially our employees, contractors, host communities, clients and shareholders
- commit to operating our business with respect and care for both the local and global environment in order to prevent and mitigate residual pollution
- understand and manage the effects of our product through its entire life cycle to deliver continuous improvements in a sustainable manner
- work with integrity and be in full compliance with applicable legal standards, all other requirements, and our internal controls
- seek continual and rapid improvement in HSE performance to create a Zero Harm work environment that is in line with leading practices
- provide adequate HSE training and resources to employees, contractors and visitors
- identify and assess hazards arising from our activities and manage associated risks to the lowest practical level
- enhance biodiversity protection by assessing and considering ecological values and land use aspects in investment, operations and closure activities
- continue in our efforts to raise awareness of HSE issues in our host communities
- regularly review our performance and publicly report our progress, and
- communicate our commitment to this HSE Policy to all our stakeholders and ensure that the Policy is readily available to them.

In implementing this Policy, we will engage in constructive dialogue with our employees, contractors, host communities and all other stakeholders in sharing relevant information and responsibility for meeting our requirements.

This HSE Policy is complemented by the HSE Strategy, which is also readily available to all our stakeholders.

Rössing recognises that its operations can have significant economic, social and environmental impacts on local communities throughout the life cycle of our mining operations.

As a resource-intensive industry, Rössing's operations have the potential to impact on natural resources and the environment. For this reason, we focus continually on improving our environmental approach to maximise benefits and to minimise negative impacts.

Our Health, Safety and Environmental (HSE) Policy (on the left) supports all of our activities.

We are also guided by the international set of standards set by the International Organization for Standardization (ISO), which was developed to assist companies in reducing their environmental impact. Rössing retained our ISO 14001:2004 certification for the tenth year running. We are the second mine in Namibia to have all activities certified under ISO 14001:2004.

Our key environmental management programmes include the following:

- Energy conservation and greenhouse gas (GHG) emission;
- Water usage;
- Air quality control;
- Non-mineral waste management;
- Noise and vibration control;
- Environmental incident and hazardous material management; and
- Rehabilitation and land use management.

*Hoodia gordonii, a leafless spiny succulent plant.*

# Our environment



# Energy and GHG emissions

Our mining operation has an impact on the community and the environment in which we operate. One such impact is on air quality. Among the activities that have a possible impact on air quality is our use of energy, which results in greenhouse gas (GHG) emissions.

In order to understand our impact in terms of GHG emissions, we monitor, measure, identify and implement programmes that will result in the reduction of energy usage. In addition, when planning new projects as part of our expansion activities, we seek to identify and select technology and equipment that will reduce our operation's impact on air quality.

## 2011

In 2011, our energy consumption was 88 GJ/t of uranium oxide produced. This was 31 per cent above the annual target of 675 GJ/t of uranium oxide produced. Our CO<sub>2</sub> emissions per unit of production were higher than the target, at 97 t of CO<sub>2</sub> equivalent per tonne (CO<sub>2</sub>-e/t) of uranium oxide produced, with the target being 77 t CO<sub>2</sub>-e/t of uranium oxide produced.

Our energy efficiency was impacted by a number of factors, such as the annual rainfall, low ore grades and higher calc indexes. Another factor related to the introduction of certain safety measures. For example, in the open pit, mining in a specific area was stopped, resulting in less ore mined. Industrial action also impacted on the mine's production, while planned

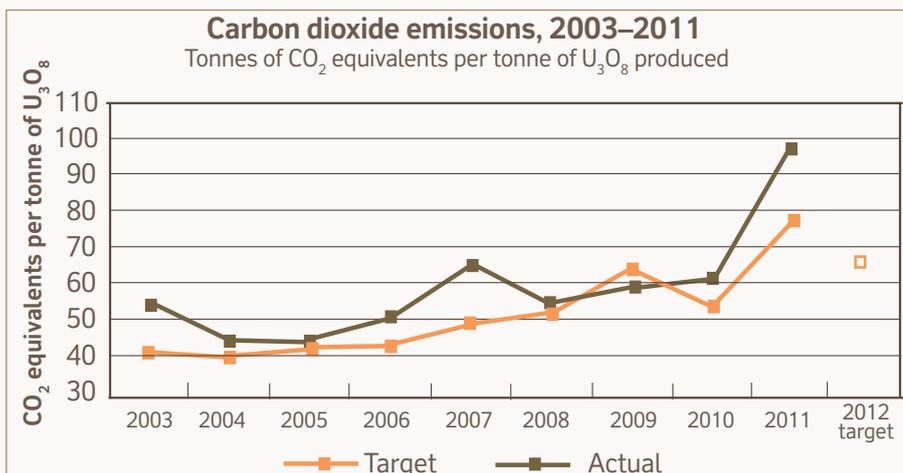
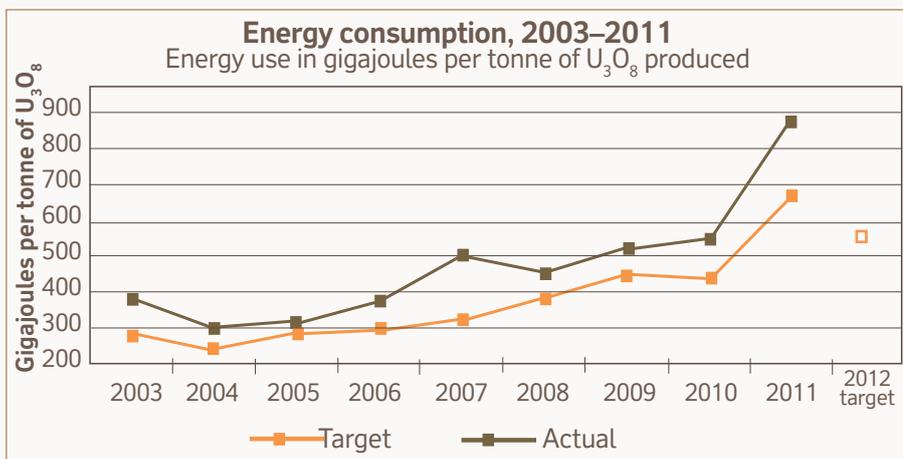


and unplanned maintenance activities in both the mining and processing plant areas contributed to lower production as well.

## Looking ahead

In 2012, our energy use target limit is 563 GJ/t of uranium oxide produced, while our total emissions target limit is 68 t CO<sub>2</sub>-e/t of uranium oxide produced.

To ensure that Rössing does not exceed its set GHG emission limit, a number of energy efficiency programmes were identified with the aim of improving our energy utilisation. One of the initiatives currently in place relates to the Bench 11 and 12 trolley assist lines in the mining area. These lines were commissioned in late 2011 and early 2012 in order to further reduce the energy intensity of mining. Trolley lines are installed to run the haul trucks on electricity and cut down on energy and emissions. Initial calculations for the 960-m Trolley 12 line showed that it would lead to a 5 per cent reduction in energy consumption in the mining area, amounting to an energy reduction of 73,502 GJ, and a reduction of 2,912 in CO<sub>2</sub>-e emissions.





*Air filters before and after being compacted by a waste compacting machine at the refuse dumps on-site, making it more viable for recycling due to the reduced volume.*

## Our environment: At a glance

- We recognise that our operations can have significant economic, social and environmental impacts on the local communities in which we operate.
- Various monitoring systems are in place to measure our impacts on the environment.
- We retained our ISO 14001:2004 certification for the **tenth** year running.

# Non-mineral waste

Appropriate non-mineral waste management is an integral part of any business, due to its potential impact on health, safety and the environment. Growing community concerns related to the unsustainable use of natural resources has also increased the emphasis placed on reuse and recycling.

At the mine, we aim to minimise waste generation and ensure the safe handling, treatment, storage and disposal of all our waste.

Our operations have non-mineral waste management plans that describe how to handle hazardous and non-hazardous waste, and specify which contractor to contact for its respective disposal. Plans also include actions to minimise waste and improve recycling, while we strongly support the diversion of waste from landfill disposal.

## 2011

The mine-wide Non-mineral Waste Management Plan and Procedures were updated in 2011. The growing awareness that numerous environmental and economic benefits can arise from good waste management, and the recognition that *Waste is not waste but a resource*, epitomises our experience in 2011.

We focused our attention on identifying additional non-mineral waste streams that could be recycled or reused. We collaborated with our waste contractor to find beneficial uses for these resources. Together with our contractor, we initiated a project to compact

air filters and metal containers on-site before disposing of them.

A press that compacts filters and containers was installed, therefore, making it more viable for recycling due to the reduced volumes. Handling and transport were simplified and became more economical as a result. This project has benefited the mine, since we can now minimise the volume of industrial waste ending up at the landfill, and increase the amount of waste we can recycle. Pressing waste will also save the mine money, and enable us to confirm to the Rio Tinto Environmental Performance Standard on non-mineral waste. More than 70 per cent of non-mineral waste generated on-site was recycled during 2011.

## Looking ahead

We plan to install a second press on-site, to be used for compacting oil and diesel filters. To continually improve our waste management performance, employees are provided with regular training and awareness on different aspects of this issue. We will also set a waste reduction target for the first time in 2012.

# Water usage

We are situated in the Namib Desert, where the climate experiences low and erratic rainfall with soaring temperatures and strong seasonal winds. This causes high water evaporation rates. Our mining and milling process requires some 3 million m<sup>3</sup> of water each year.

Water is bought from the country's bulk water supplier, NamWater, which sources it from the Kuiseb and Omaruru Rivers. However, expanding local communities and industry have placed increasing pressure on this supply. Many years ago, we recognised that we needed to develop an understanding of the impact of our water use on local systems and determine how our water demand affected the needs of other community members.

In 2005, the mine implemented a formal Water Strategy that built on our previous work and water management plans. A water risk assessment was carried out with some of our key stakeholders, which identified further opportunities for water savings and improving the mine's water balance and accounting.

Facing our water usage challenges head-on, we have worked to reduce our water consumption by –

- implementing water recycling at the mine;
- extracting and reusing water from the Tailings Dam;
- minimising high evaporative water losses;
- using alternative, lower-quality water sources; and
- creating awareness to conserve water.

Water used for cleaning in the Processing Plant is captured and recycled. Effluent from workshops is pumped to an Oil Separation Plant, from where the separated water is mixed with semi-purified sewage effluent and reused in the mine's open pit.

## 2011

### Freshwater use

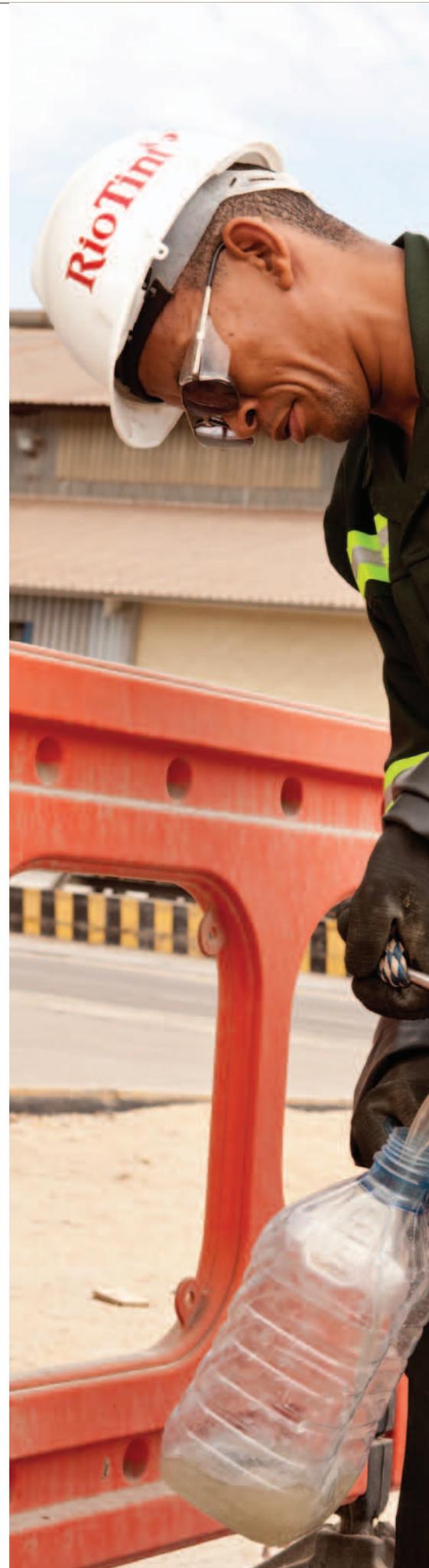
The operations of the Processing Plant and the disposal of the associated tailings are the biggest consumers of water at the mine. Tailings – which are the remaining crushed and milled ore rock from which uranium is extracted – are pumped to the Tailings Facility as a mixture of sand, fines and water. Water and tailings solids separate after deposition, with most of the water forming a pool on the Tailings Facility. From there, it is recovered for reuse in the rod mills.

In 2011, the mine's usage of fresh water was 3.06 million m<sup>3</sup> for the year, or 8,390 m<sup>3</sup> a day, against an operating plan target of 2.92 million m<sup>3</sup> a year or 8,230 m<sup>3</sup> a day. The water usage for 2011 was higher than anticipated, at a rate of 0.296 m<sup>3</sup>/t of ore milled, against a target of 0.26 m<sup>3</sup>/t of ore milled.

Our freshwater consumption remains a challenge and was above target due to a reduction in the recycled solution from the Tailings Dam as a result of deposition in drier paddocks. Drier paddocks (paddies) will tend to absorb more water before it can be decanted or seep through to the seepage areas. This will result in more fresh water being used in the process.

In addition, the calc in the processed product has increased considerably and this has a further impact in the reduction of recycled water, as it would cause seepage water to filter down through the tailings at a lower rate.

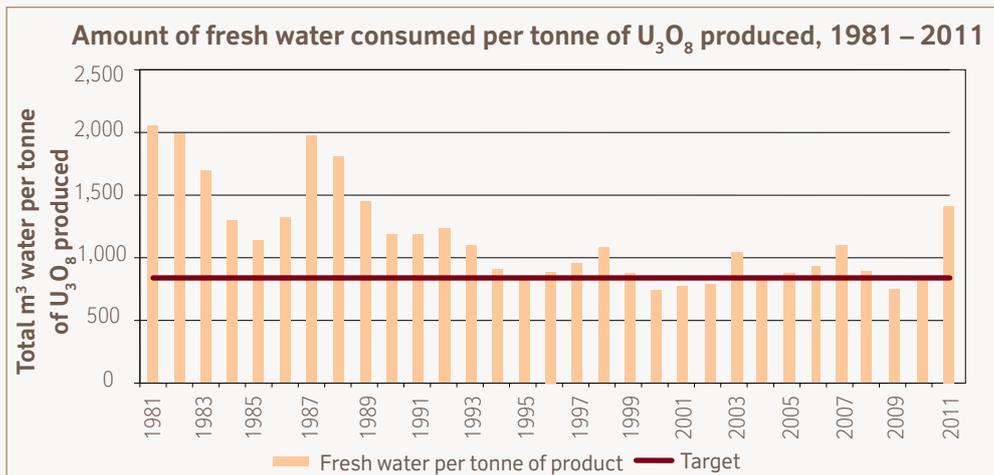
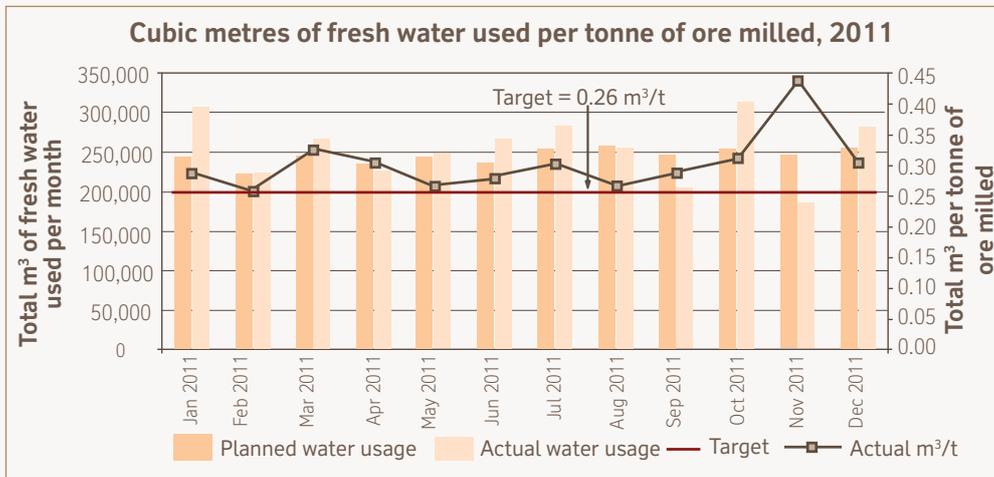
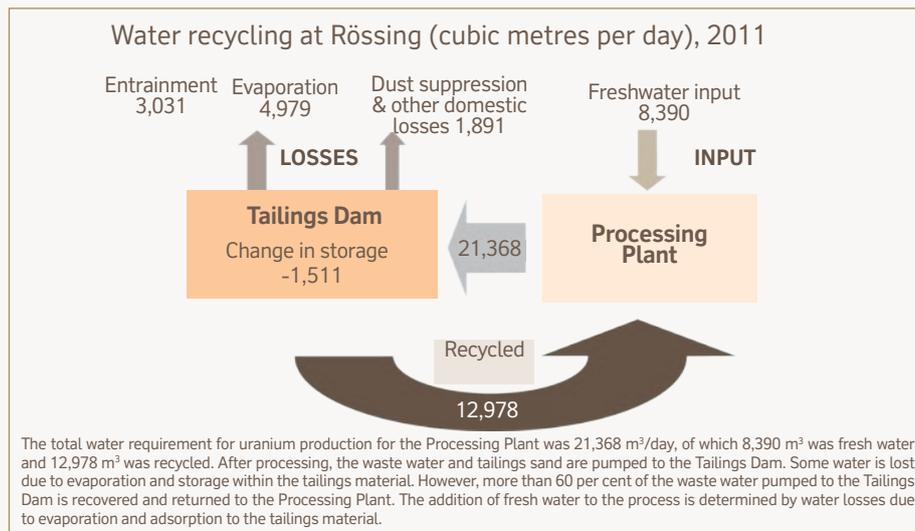
*Willem Swartbooi (Senior Water Control Officer) taking water samples from a borehole for diesel and oil contamination analysis.*





## Our water usage: At a glance

- Our usage of fresh water was higher than anticipated due to a reduction in the recycled solution from the Tailings Dam.
- We continue to optimise the tailings deposition to maximise recycled water recoveries and reduce water used.



## Efficient fresh water use and supply

The country's water utility supplier, NamWater, and the Ministry of Agriculture, Water and Forestry's Department of Water Affairs are responsible for the monitoring of the consumption of fresh water by bulk users and the status of the aquifers.

We are in regular contact with our bulk water supplier, NamWater, who partnered with the Department of Water Affairs in hosting the World Water day event in Swakopmund. The aim was to conserve groundwater resources by sharing information and promoting water demand management and possible projects such as seawater desalination.

We also participate in the Coastal Bulk Water Users' Forum Meeting where bulk users share relevant results and data pertaining to freshwater use. While the Forum was less active during 2011 due to its Chairperson's illness, activities will continue in 2012.

## Saline water use and quality

The abstraction of saline groundwater from the Khan River was resumed in August 2011 in order to supplement dust abstraction water for the open pit. The decision to resume was necessitated by the reduction in the recycled water from the Tailings Dam. The mine holds a permit to abstract brackish water from the Khan River for dust suppression purposes only, and the permit is valid until June 2014.

The abstraction of 600 m<sup>3</sup> a day is below the safe allowable abstraction. We will continue to monitor and measure the vegetation and water levels in the Khan and Swakop Rivers, as stipulated in our internal water quality and vegetation monitoring programmes as well as in various legal provisions.

## Looking ahead

The predicted freshwater demand for 2012 has been set at 3.31 million m<sup>3</sup>, based on operating plan requirements and expected water usage. In 2012, the focus will be on optimising the tailings deposition in order to maximise recycled water recoveries and to reduce water used as gland seals by introducing mechanical seals on pumps across the Processing Plant.

Ongoing water-related activities at the mine include –

- a study to determine the true value of water in the local context;
- continuing cooperation with local farmers;
- enhancing the water recovery systems at the mine;
- introducing water awareness training for all new employees and contractors; and
- introducing mechanical seals on pumps to reduce freshwater usage (as mentioned above).

# Environmental incidents

Rössing maintains a reporting system for environmental incidents. These are classified on a five-by-five matrix severity scale that takes account of the impact on the environment, regulatory non-compliance, or potential concern to communities. Incidents of sufficient concern rated as *High* or *Critical* are reported to Rio Tinto Management.

Examples of incidents that are reported to Rio Tinto Management would include loss of containment of a hazardous material causing off-site environmental impact, or non-compliance with permit conditions that could result in prosecution.

No fines were incurred for environmental offences at our operations during 2011. In the history of the mine, we have never received a fine for an environmental offence.

# Closure planning

Closure planning is a continuous process at Rössing, with plans for the mine's eventual closure having been in place since 1992.

Changes in operational circumstances, environmental conditions, new legislative requirements and stakeholder expectations are considered when the plans are updated.

The Rössing Closure Plan 2011 was completed and submitted to Rio Tinto for review. Feedback is expected during the first quarter of 2012. A multi-disciplinary team participated in providing a wide range of inputs.

# Air quality

Air quality monitoring is an important consideration in our environmental management programmes because of its potential impact on health and safety, the close proximity of the town of Arandis to the mine site and the condition of the natural environment.

Dust emissions are an inevitable reality in many mining operations such as ours. Soil properties and climatic conditions in our desert environment combine to make dust one of our principal focus areas. Being a legitimate public concern, we aim to continuously improve our dust management.

With the expansion of our mining operations, the focus on dust management has increased to ensure air quality control that will meet community expectations. Our Air Quality Management Programme has been expanded since 2010 in order to incorporate six dust fall-out buckets around the mine to measure dust deposits. A permanent dust monitor was also set up in Arandis monitor ambient PM10 emissions.

## 2011

As part of the social and environmental impact assessment for the mine's proposed expansion project, an air quality impact assessment was conducted in 2009.

To determine beforehand how our current and expanded mining activities might impact on air quality, various simulations were done using internationally recognised air dispersion models. We tested for the highest daily and annual averaging levels.

The model simulation found that the highest predicted daily ground level concentrations due to routine operations at the mine were 0.48 mg/m<sup>3</sup> at the mine boundary, exceeding all relevant ambient air quality standards – the South African daily average PM10 standard is 0.12 mg/m<sup>3</sup>, for example – while the annual average PM10 ground level concentrations at the mine boundary of 0.056 mg/m<sup>3</sup> also exceeded the South African annual PM10 standard of 0.05 mg/m<sup>3</sup>.

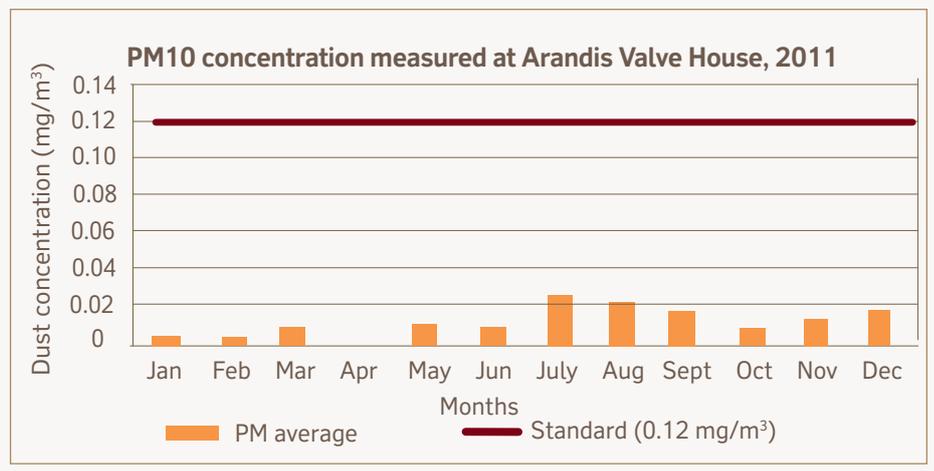
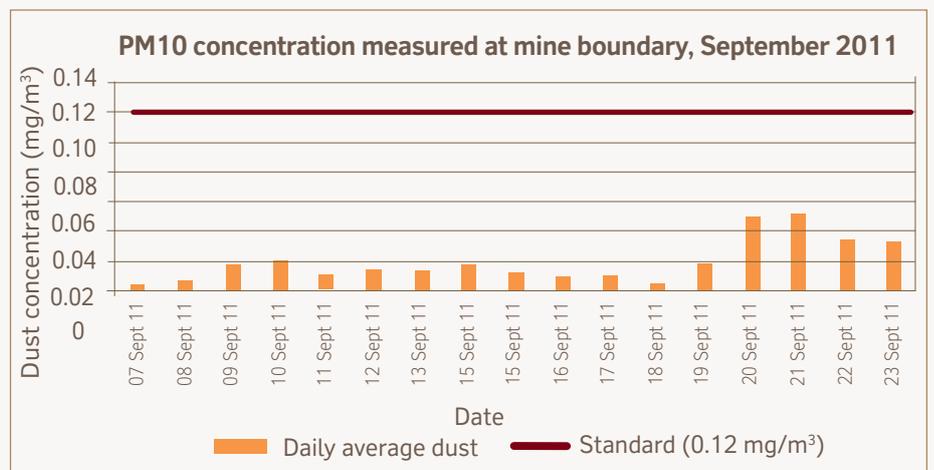
As a result, at the end of 2011, another dust monitoring station was erected at the mine boundary to monitor dust levels and verify the model results. The monitoring results recorded from the boundary thus far are all below the ambient standard of 0.12 mg/m<sup>3</sup> per day.

PM10 dust emissions have also been measured at the Arandis Valve House since 2010. The average PM10 dust level measured there was consistently below the 0.12 mg/m<sup>3</sup> standard during 2011.

## Looking ahead

In 2012, we will continue to quantify the dust emitted into the environment due to our mining activities. Our focus will be on collecting quality information at the mine boundary in order to assess the validity of the modelling results.

As part of the Rio Tinto commitments under the International Council on Metals and Mining (ICCM) Mercury Risk Management Position Statement, we will conduct a mercury assessment to understand Rössing's potential risk, if any, for mercury emissions to air.



# Land use and rehabilitation

Rössing is committed to limiting our impacts on land and biodiversity as much as possible. To achieve this, we use the ‘mitigation hierarchy’, which involves a combination of three factors, as follows:

- **Avoidance:** Wherever possible, prevent mining operations from encroaching onto undisturbed areas;
- **Mitigation:** Where such areas have been disturbed, try to reduce the impact of the disturbance; and
- **Rehabilitation:** Following inevitable disturbance, rehabilitate the land.

## 2011

The size of the current area of disturbance at the mine is about 2,400 ha. The open pit, waste rock dumps, Tailings Facility, infrastructure and Processing Plant account for about 90 per cent of this disturbance. The total footprint at Rössing has not increased substantially over time, mainly because of avoidance and mitigation.

Indeed, despite our current expansion activities, our total footprint has only been extended by 133 ha between 2003 and 2010, which is about 5.5 per cent of additional land disturbance over the period. It is very difficult to conduct rehabilitation in any of the active, operational parts of the current footprint without interrupting operations. For this reason, only 10 per cent of the footprint can be rehabilitated before the anticipated mine closure in 2023.

To leave all rehabilitation at the mine until mine closure is also not wise, however, because it means considerable eventual costs. Instead, specific efforts are being made to demolish and clean up redundant and decommissioned facilities and infrastructure. Because this happens throughout the life of the mine, mining activities are not interrupted and will continue as normal. Recently completed projects include the demolition of the old Acid Plant, the Central Sewage Facility, the Sand-screening Facility, and the Pyrite Bunker. A number of decommissioning projects are planned for 2012 and 2013.

Demolition is the first in a sequence of steps in rehabilitating a mining area. New assets offering a different utility or purpose may be

constructed on the same site. Alternatively, demolition is followed by a clean-up of waste and litter, landscaping, and revegetation, ideally resulting in a landscape restored to its original form and ecological function. The area where the Central Sewage Facility was demolished, for example, presented such an alternative. Outside the active operations areas at the mine, there are low-density disturbed areas which require remediation interventions. These include access track rehabilitation, litter collection, and landscaping – rather than demolition projects.

An inventory of rehabilitation tasks commenced in 2011 by mapping the various types of disturbances in the low-density disturbed areas. More than 2,000 ha were mapped in this way. The envisaged results of the study will include categorising rehabilitation tasks requiring different approaches and resources, and prioritising and scheduling such tasks. This will enable us to rehabilitate these areas systematically during the mine’s life, bearing in mind the long-term objective of permanently reducing the area of disturbance at the time of closure.

In the Namib Desert, where the annual rainfall shows a variation coefficient of 90 per cent on an annual average of less than 50 mm, man-made revegetation interventions have a high chance of failure. Thus, passive – but supported – revegetation is preferred. We also need to consider the functioning of ecosystems at a landscape level.

Seeds of annuals, for example, are distributed over vast distances, and may remain dormant for decades. At the right time, such as the prolonged wet period of the 2011 rainy season, these seeds germinate and transform an otherwise barren desert landscape into an apparent savannah-like landscape. In turn, perennials benefit from the 130 mm of the 2011 rainy season as well: they grow rapidly, reproduce and then remain dormant again for many years to come.



Natural regrowth is evident in most previously disturbed sites at the mine, regardless of their age or type of disturbance. Establishment of the perennials *Arthroa leubnitziae* (pencil bush) and *Zygophyllum stapffii* (dollar bush) on these terrains indicates that the mine, even without intervention, will not leave its entire footprint devoid of life into perpetuity. In addition, transplanting or propagation could be considered for the plants *Adenia pechuelii* (elephant’s foot), several *Commiphora* species (kanniedood), and *Lithops ruschiorum* (stone plant).

## Looking ahead

Undoubtedly, the Namib Desert is a major attraction for visitors to Namibia. The area where we are located is known for its scenic landscapes, solitude, and uniquely adapted biotic life. Collectively referred to as a *sense of place*, these aspects of the Namib Desert are highly valued. We at Rössing respect this sense of place, and endeavour to maintain and re-establish it throughout the life of the mine so that we leave a positive legacy after closure. This will benefit the Region economically and add to the visitor and community member’s enjoyment alike. Rehabilitation is, therefore, a key initiative in achieving this vision.



*Typical landscape at the mine, with waste rock dumps around edges of Rössing's open pit.*

# Noise and vibration control

Noise monitoring is one of the many activities that we monitor in line with our Environmental Management Programme.

We monitor noise arising from exploration and operations, including mining, mineral processing, materials handling, infrastructure, and on-site transport, because such noise may significantly impact employees, communities and the surrounding environment.

## 2011

Various monitoring points were recommended in the social and environmental impact assessment conducted for our mine's expansion, and in the ground vibration and air blast study done in 2009. The monitoring

of ground vibration and air blasts is deemed compulsory if Rio Tinto's blasting operations have a possibility of impacting on the general living conditions or lifestyle of a mine's neighbours. Thus, to monitor environmental noise, measuring points were established at the mine boundary and in Arandis.

In 2011, another permanent air blast and vibration monitoring station was built at Monitoring Point P01, which is adjacent to the mine's Safety Office building.

We also conducted an environmental noise risk assessment for the entire plant to identify and rate the impact that the noise has on the environment and surrounding community. In June 2011, we commenced with the monitoring programme of environmental noise and will continue in 2012.

In addition, we provide air blast and ground vibration monitoring data to the Geotechnical Section on a regular basis. They utilise the data in investigating the impact of blast vibrations on the stability of the pit.

We received a complaint from a concerned Swakop River farmer on the effects that blast vibrations were having on the structures on his property. Monitoring was conducted at the site for two months, during which time it was noted that no blasting effects were registered. From the results obtained, it was evident that no impact resulted from Rössing's blasting activities. The results were shared with the owner, who commended us on the way the concern had been handled. Thus, the complaint was successfully resolved.



# Our value addition

**Our Value Added Statement (on page 57) reflects the wealth created through the sale of our uranium oxide, payments for services and to suppliers, taxes to the Government, payments to employees and investments made in the community in which we operate.**

Due to our significant demand for goods and services within the Namibian economy, we give rise to a significant 'multiplier effect', where spending by one company creates income for and further spending by others. This leads to a long chain of value adding throughout the economy.

## 2011

Facing many challenges head-on during 2011, we laid the foundation for working more smartly while still making substantial contributions to our stakeholders. Having produced 1,500 t less uranium oxide than the previous year, and with uranium market prices under pressure, our turnover decreased from N\$3.6 billion in 2010 to N\$3.26 billion in 2011.

Rössing continued to demonstrate its value to Namibia through contributions to the fiscal authorities. We paid N\$196 million in royalties tax to the Receiver of Revenue, whereas pay-as-you-earn taxes amounted to nearly N\$179 million. Our payments to state-owned enterprises, such as NamWater and NamPower, amounted to nearly N\$230 million.

Employment creation continues to increase as we expand our operations and allow for the concomitant rise in employment costs. Since 2007, when we embarked on our life-of-mine expansion programme,

our employment costs have more than doubled, rising from N\$310 million in 2007 to N\$736 million by 2011. While our expansion has created more employment opportunities in the Erongo Region, it is also an area of concern: it increases our salary bill, which in turn impacts on our cost competitiveness.

From a procurement perspective, we spent N\$2.6 billion in 2011, of which N\$286 million was utilised as capital expenditure, representing a 15 per cent increase from last year's figure of N\$247 million. Despite challenges in sourcing local goods and services, a significant amount of our spending – amounting to N\$1.7 billion – was allocated to Namibian-registered suppliers and the rest to South African and international suppliers, accounting for N\$520 million and N\$466 million, respectively.

Cost-reduction initiatives remain a challenge, especially in the current economic climate, both regionally and locally. Our savings target for the year was N\$45 million. We managed to achieve 97 per cent of this amount, with support from the global and regional Rio Tinto hubs. The major contributors to this saving were the global explosives tender and the sulphuric acid tender.

Due to our operations processes, it is a challenge to find alternatives for our major consumables such as manganese dioxide and ammonia gas.

Another difficulty we experience is to increase our local empowerment spend on small-medium enterprises and previously disadvantaged local suppliers. We set an internal target, and progress is reported at Board level. The challenge we face is to ensure that we make decisions that benefit both our local community and offer the mine commercial benefit as a business. In 2011, we allocated a five-year transport contract to a local previously disadvantaged company, and

we look forward to working with them in the coming years.

We approached cost savings from a Total Value of Ownership (TVO) perspective, which entails going beyond the traditional procurement price reduction approach. This strategy means we get involved with the supplier, evaluating cost factors along the entire supply service chain from both sides. It stretches both the supplier and us as a business to look where costs can be streamlined and made more efficient and lean in terms of the supply offer.

Success with this approach was achieved with Komatsu, our heavy mining equipment supplier. We initiated a TVO Project as part of our business improvement activities, with the specific aim of investigating the link between parts availability and maintenance operations, and the performance of shovels in particular. This Project made a 48 per cent contribution towards reducing shovel downtime due to better parts availability, which in turn had a significant impact on our mining operations.

Highlights of the different value additions that we made are summarised in the graphs on the next page.

## Looking ahead

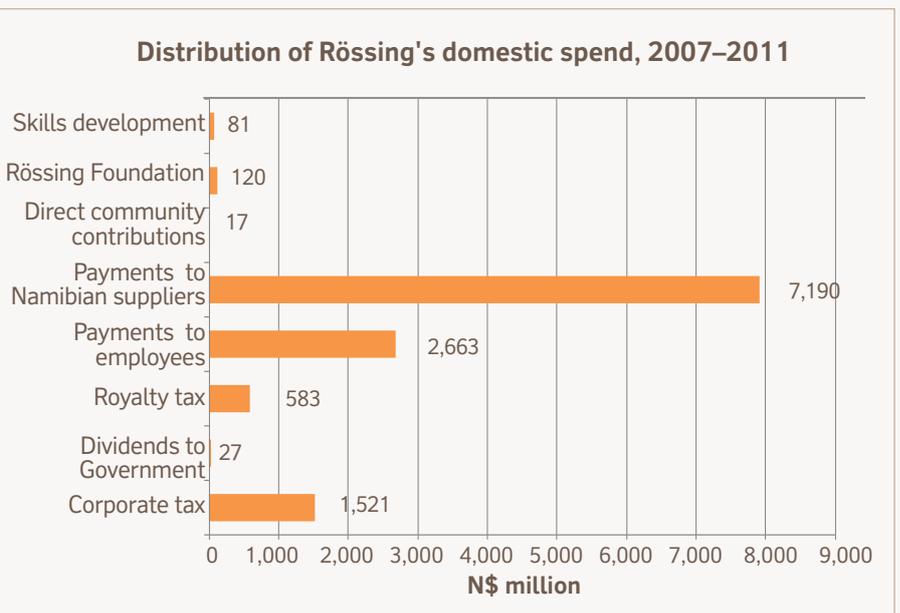
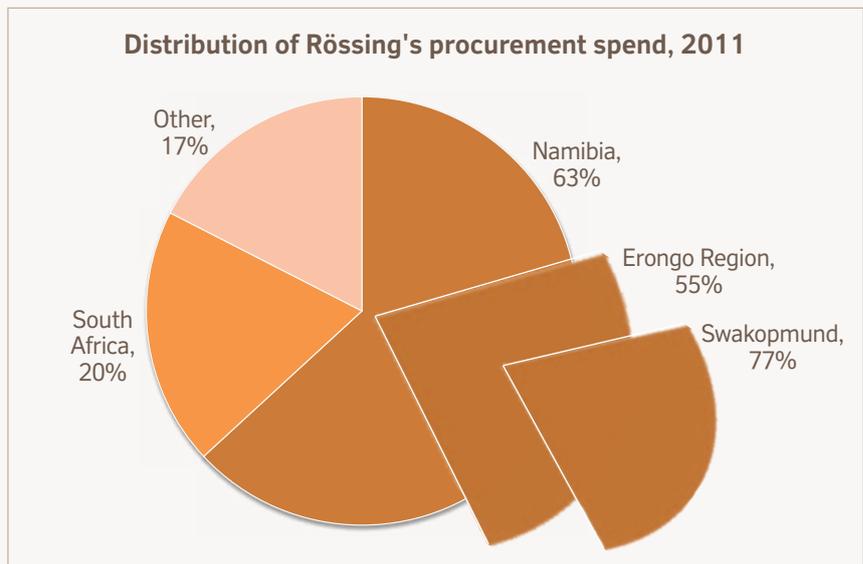
In 2012, our focus in terms of procurement will be to deliver sustainable value to the business, with a cost-saving target of N\$80 million.

As part of our strategy to deliver value, suppliers may be awarded longer-term contracts with year-on-year savings targets. We will also challenge suppliers to deliver continuous improvement strategies and encourage them to offer rebates that we will channel to developing the local community and charities.

We approach this challenge with much enthusiasm and the confidence of success. Motivated by individual targets and challenging our internal customers as well as our various Departments to work more smartly and eliminate waste, we can make a difference through vigorous costs savings that the business needs in order to return to profitability.

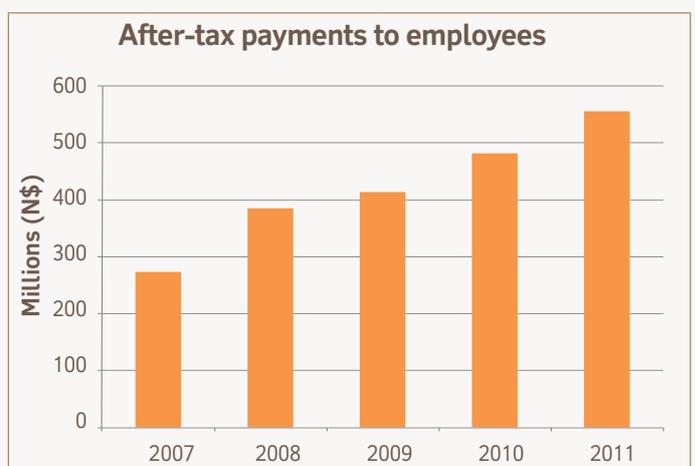
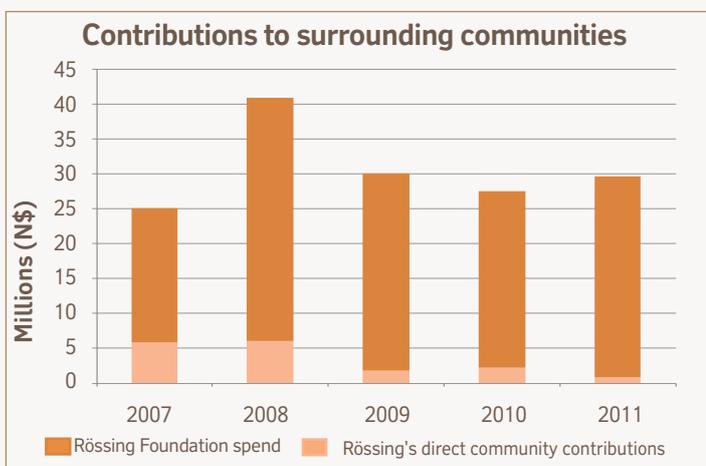
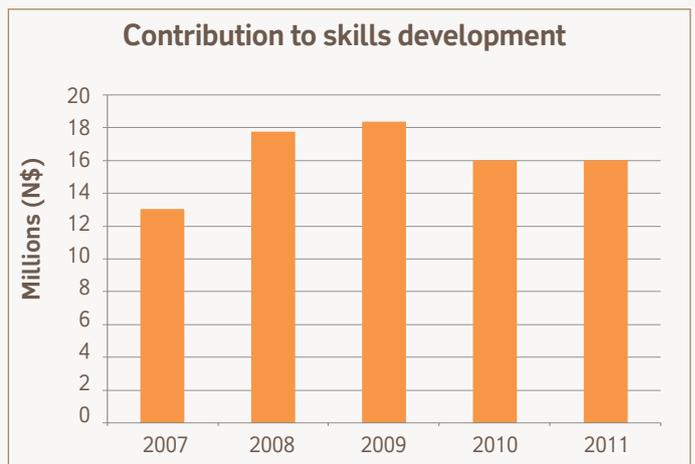
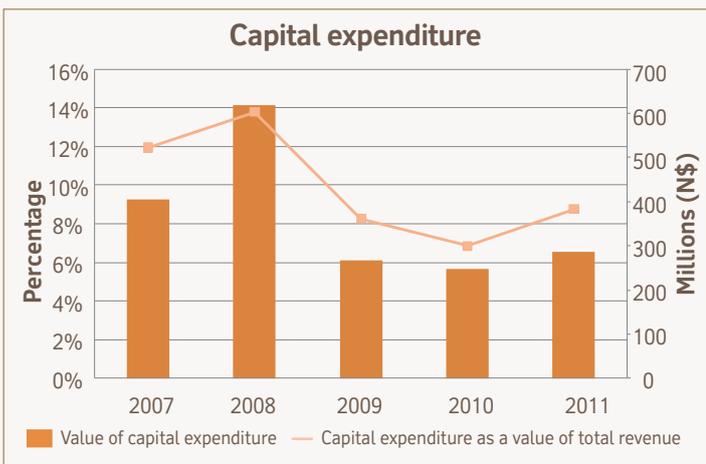
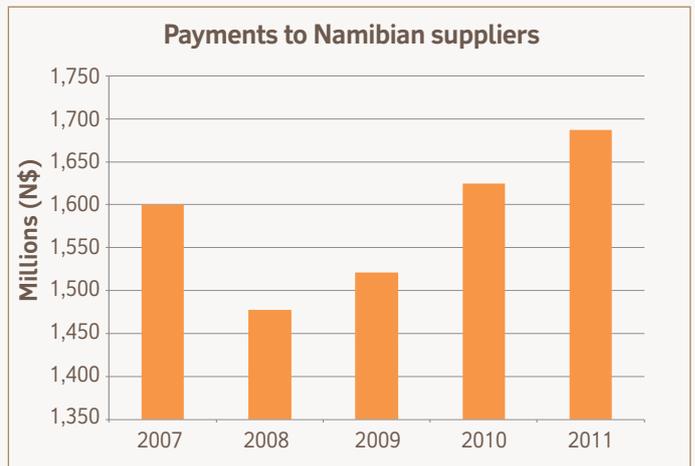
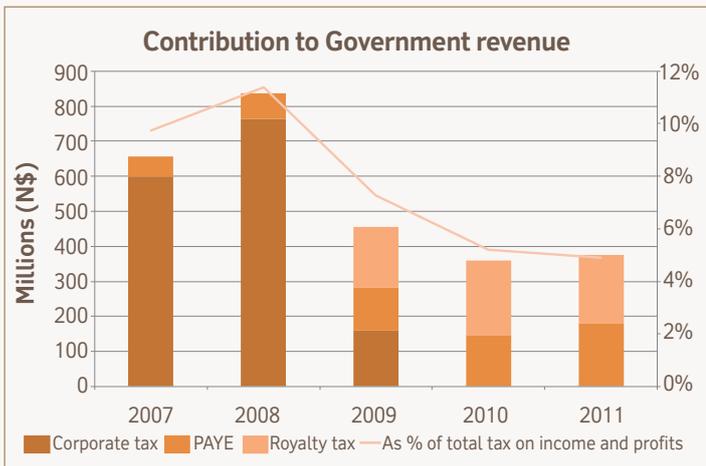
## Our value addition: At a glance

- We spent N\$2.6 billion on various procurements, of which 63 per cent was spent in Namibia. Of the 63 per cent, 55 per cent was spent in the Erongo Region alone. Of the latter amount, 77 per cent was spent in Swakopmund.
- We are a major foreign exchange earner for Namibia, having brought in more than US\$2 billion over the past five years.
- We have spent N\$81 million on skills development in the past five years.



## Summary of Rössing's value addition

At Rössing, we believe that our business can provide a strong base for economic growth in the communities around us, in the Erongo Region, and in Namibia as a whole. Our economic contribution is made up of the value that we add by paying wages, employee benefits, Government taxes and royalties, making dividend and interest payments, and retaining capital for investing in the growth of the mine. We also make significant payments to our suppliers of goods and services, both locally and nationally. The graphs below highlight some of the key socio-economic contributions Rössing has made to Namibia over the past five years, from 2007 until 2011.



Stakeholders' Value Added Statement <sup>1</sup>	Notes	N\$'000	N\$'000	N\$'000	N\$'000	N\$'000
For the year ended		2011	2010	2009	2008	2007
Turnover		3,265,170	3,609,020	3,232,493	4,492,442	3,396,282
Less: Purchased material and services from non-stakeholders		2,679,865	2,416,434	1,634,751	1,667,719	1,255,211
<b>Total value added</b>		<b>585,305</b>	<b>1,192,586</b>	<b>1,597,742</b>	<b>2,824,723</b>	<b>2,141,071</b>
Investment income		20,813	6,214	5,196	24,103	31,050
<b>Total wealth created</b>		<b>606,118</b>	<b>1,198,800</b>	<b>1,602,938</b>	<b>2,848,826</b>	<b>2,172,121</b>

Employees	1	736,316	626,597	534,600	455,241	310,766
Providers of equity capital		0	127,215	177,603	342,441	140,176
Providers of loan capital		6,005	15,799	18,616	7,128	6,469
Government	2	132,387	379,720	528,559	934,719	736,925
The Rössing Foundation		-	-	11,586	59,181	48,787
Reinvested in the Group	3	(268,590)	49,469	331,974	1,050,116	928,998
<b>Total wealth distributed</b>		<b>606,118</b>	<b>1,198,800</b>	<b>1,602,938</b>	<b>2,848,826</b>	<b>2,172,121</b>

**<sup>1</sup> Stakeholders in this context: Shareholders, Government, lenders, employees and the Rössing Foundation**

**Notes to the Stakeholders' Value Added Statement**

<b>1. Employees</b>		736,316	626,597	534,600	455,241	310,766
- Net salaries and wages		557,655	481,610	412,851	381,748	253,990
- Pay-as-you-earn (PAYE) taxes		178,661	144,987	121,749	73,493	56,776
<b>2. Government</b>		132,388	379,720	528,559	934,719	736,925
- Dividend		-	4,437	6,213	11,943	4,724
- Erongo Regional Electricity Distributor		2,481	Not reported separately	Not reported separately	Not reported separately	Not reported separately
- Mining royalty tax		196,046	213,619	173,269	-	-
- NamWater		37,948	25,577	25,566	26,447	21,895
- NamPost		7	Not reported separately	Not reported separately	Not reported separately	Not reported separately
- NamPort		2,688	Not reported separately	Not reported separately	Not reported separately	Not reported separately
- NamPower		137,570	125,508	118,383	95,727	84,531
- Rates, taxes and licences		1,670	1,404	1,639	1,192	1,374
- Receiver of Revenue		(294,647)	(33,037)	160,059	762,607	598,454
Current tax		-	1,299	146,006	573,677	502,277
Deferred tax		294,647	(34,336)	14,053	188,930	96,177
- Road Fund Administration		1,204	Not reported separately	Not reported separately	Not reported separately	Not reported separately
- Telecom Namibia		7,153	7,517	7,165	3,786	4,258
- TransNamib		40,268	34,695	36,265	33,017	21,689
<b>3. Reinvested in the Group</b>		(268,590)	49,469	331,974	1,050,116	928,998
- Depreciation		202,669	224,159	226,348	168,880	94,893
- Retained earnings		(471,259)	(174,690)	105,626	881,236	834,105

Capital expenditure		285,850	247,404	266,801	619,067	405,339
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# Our corporate governance



## Corporate governance statement

Our objective of being a world-class, responsible company requires us to conduct our business in compliance with leading international practice on corporate governance. Issues such as transparency, accountability and business ethics are key to achieving our objectives. We are proud of our reputation and need to ensure that Rössing retains the high esteem with which it is held around the world.

Corporate governance is aimed at promoting greater corporate accountability, transparency and stakeholder confidence. The Board of Directors also formally subscribes to these principles. It is the system by which we are directed and controlled. The corporate governance structure specifies how rights and

responsibilities are distributed among the various participants in the company, such as the Board of Directors, managers, shareholders and other stakeholders, and spells out the rules and procedures for making decisions on company affairs.

The Board of Directors executes the mandate it has received from the shareholders to ensure that Rössing is a world-class and responsible company by putting an executive team in place with certain targets to be achieved.

The Board is responsible for ensuring that the company is run in accordance with its mandate as described in Rössing's Articles of Association, and that the various stakeholder interests are balanced and receive the required attention.

While the Non-executive Directors acknowledge the need for their independence, they recognise the importance of good communication and close cooperation with the Executive Directors and other stakeholders.

## *The way we work*

Our reputation stems from our four core values which define the essence of who we are and who we will be: *Accountability, Respect, Teamwork and Integrity.*

These values are expressed through the principles and standards of conduct set out in *The way we work*, Rio Tinto's global code of business conduct. They define the way we manage the economic, social and environmental challenges of our operations, and are central to fulfilling our commitment to contribute to sustainable development in the country.

The Board is responsible for cultivating and promoting a corporate culture permeated by integrity. The objective of Rio Tinto's code of business conduct is to enable employees to act according to defined ethical principles at all times. This code commits all employees to the highest standards of integrity in dealing with all stakeholders.

Rössing Uranium Limited Board of Directors: 2011			
Member (age)	Role	Member (Age)	Role
RR Hoveka (60 years)	Chairperson (Non-executive Director)	RJ Fagan (alternate to SC Wensley) (50 years)	Rio Tinto plc Shareholder Representative: Non-executive Director
C Salisbury (45 years)	Managing Director (Executive Director)	DCW Ritchie (54 years)	Rio Tinto plc Shareholder Representative: Non-executive Director
EHT Angula (54 years)	Independent Non-executive Director	AM Lloyd (alternate to DCW Ritchie) (55 years)	Rio Tinto plc Shareholder Representative: Non-executive Director
F Fredericks (44 years)	Independent Non-executive Director	SN Ashrafizadeh (52 years)	Iran Foreign Investments Company Shareholder Representative: Non-executive Director
MM Kapia (58 years)	Independent Non-executive Director	AV Kalantari (46 years)	Iran Foreign Investments Company Shareholder Representative: Non-executive Director
VB Moll (70 years)	Independent Non-executive Director	A lilende (37 years)	Government of the Republic of Namibia's Shareholder Representative: Non-executive Director
BH Beath (49 years)	Rio Tinto plc Shareholder Representative: Non-executive Director	JS Louw (88 years)	Minority Shareholder Representative: Non-executive Director
SC Wensley (44 years)	Rio Tinto plc Shareholder Representative: Non-executive Director	HP Louw (alternate to JS Louw) (53 years)	Minority Shareholder Representative: Non-executive Director

All the company's stakeholders are required to be familiar with this code and to comply with it, as it is regarded as a strategic business imperative and a source of competitive advantage.

## Shareholders

Rio Tinto, the majority shareholder of Rössing Uranium Limited, owns 69 per cent of the shares. The Namibian Government has a 3 per cent shareholding, and a 51 per cent majority vote when it comes to issues of national interest. The Iran Foreign Investments Company (IFIC) owns 15 per cent. The Industrial Development Corporation (IDC) of South Africa owns 10 per cent, while local individuals own a combined 3 per cent of Rössing shares. The shareholders have no rights to production take-off.

The 15 per cent shareholding in the name of IFIC was acquired during the set-up of the company in the early 1970s, prior to the revolution in Iran, i.e. when the Shah was still in power. In 2010, the United Nations (UN) Security Council passed Resolution 1929 (UNSCR 1929), which prohibits UN member countries — of which Namibia is one — from allowing Iran to acquire an interest in a commercial activity involving uranium mining or to obtain access to nuclear technology.

Messrs SN Ashrafizadeh and AV Kalantari have not attended Board meetings and have not received Board material since February 2010, in compliance with the provisions of UNSCR 1929.

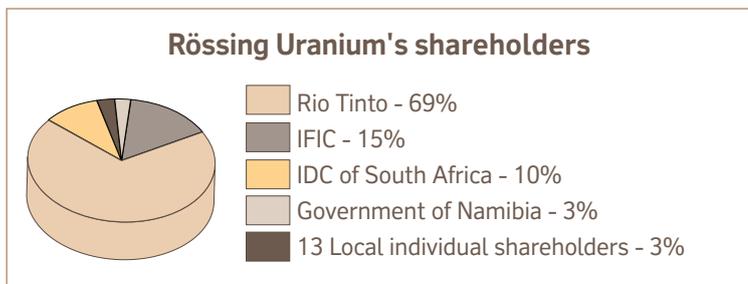
## Board of Directors

The company has a unitary Board. Its Chairperson is elected by the members from their ranks. The Chair is currently non-executive but not yet independent as he retired from Rössing as General Manager: Corporate Services in 2009. It is an acceptable norm that the Chairperson will only become truly independent from Rössing's executive and shareholders three years after his/her retirement.

The roles of Chairperson and Managing Director are separate and distinct, and the current number and stature of the independent Directors serving on the Board ensure that sufficient independence is applied when making significant decisions.

The company Board comprises 13 Directors: 1 Executive and 12 Non-executive. Of the Non-executive Directors, 4 are independent.

The Board seeks and assesses the independence of the Directors through the Nomination and Remuneration Committee. The Board of Directors believes that it is constituted with the appropriate mix of skills, experience and diversity.



## King III

Rössing has accepted guidance from the Code of and Report on Governance Principles for South Africa (King III) where applicable to the company's operations. Deviations from the King III guidelines are listed in the table below:

Identified points of potential non-compliance with King III		
1.17	The Board should comprise a balance of power, with a majority of non-executive Directors.	Rössing's Articles of Association provide that Rio Tinto will hold the majority of Director positions as long as it owns more than 40 per cent of the shares in Rössing. As such, the company does not have a majority of independent Directors.
1.23	Performance assessments of the Board, its Committees, and the individual Directors are completed every year.	Performance assessments of the Board, and its Committees have not been formally implemented and this is a matter which will be considered in 2012 by the Board once best practice in this area has been determined.
1.27	Companies should disclose the remuneration of each individual Director and certain senior Executives.	The remuneration of Directors and senior management are disclosed to shareholders: Rössing does not propose to disclose this information to the public.
1.28	The Nomination and Remuneration Committee should issue a remuneration report to explain the company's remuneration philosophy and how it has been implemented.	Remuneration policies will be explained at a policy level in the 2012 Annual Report to Stakeholders.
1.29	Shareholders should approve the company's remuneration policy.	Remuneration is reviewed in detail by the Nomination and Remuneration Committee and approved in principle by shareholders.

## Functions of the Board

The Board is responsible and accountable for providing the company with effective corporate governance, direction and control. The Directors have a duty to exercise leadership, entrepreneurship, integrity and judgment, based on transparency, fairness, accountability and responsibility. All Directors subscribe to the Directors' Code of Performance Standards.

A Board Charter governs the workings of the Board of Directors, and their performance is monitored by the Nomination and Remuneration Committee.

In terms of the Articles of Association, the Board is responsible for appointing the company's Managing Director. According to the Board Charter, the Board is responsible for adopting a corporate strategy, major plans of action, and major policies, as well as for monitoring operations performance. This includes identifying risks which impact on the company's sustainability, and monitoring risk management and internal controls, compliance management, corporate governance, business plans, key performance indicators, non-financial criteria and annual budgets.

Furthermore, the Board shoulders the responsibility for managing successful and productive stakeholder relationships. All Directors carry full fiduciary responsibility, and owe a duty of care and skill to the company.

## Appointment

The appointment of Directors is set out in the Nomination and Remuneration Committee Charter and ratified at the Annual General Meeting by shareholders that are present in person or by proxy.

Based on the Committee's recommendations, the Board approves the appointment of Directors in compliance with regulatory requirements. All Directors are subject to retirement by rotation and re-election by shareholders, in accordance with the Articles of Association.

The Nomination and Remuneration Committee takes cognisance of the need to ensure that the Board's composition is appropriately varied in terms of experience, skills, diversity, size and demographics to serve the interests of the company and those of its stakeholders.

## Board meetings

The Board meets every quarter, with additional meetings convened as and when required.

## Directors' development

Training and development for Directors is conducted through a formalised process that takes into account the performance of individual Directors and the Board as a whole. Directors undergo a formalised induction programme upon appointment, as well as ongoing professional development. Accordingly, training sessions were conducted for Directors in 2011. These sessions covered important topics such as recent developments on corporate governance, updates on legislative developments, and relevant developments in the company's areas of operation. Directors are also at liberty to propose training topics at their discretion.

## Board Committees

The Board sets up various Committees to assist it in achieving its mandate. These Committees enable the Board to make informed decisions by dividing the workload among its members, allowing them to focus more intensively on different aspects of the business and to debate the issues raised more intensively, based on their areas of expertise. Committees then take their proposals and recommendations to the Board for approval.

The **Audit and Risk Committee** reviews the effectiveness of the risk management process, reviews the appropriateness of financial controls, and manages the effectiveness of assurance activities. They are also the custodian of the company's standards of business conduct and ethics, and ensure compliance with all the relevant laws of the countries in which we operate.

The **Sales Committee** reviews the pricing policy and market condition assumptions used in the uranium marketing strategy.

The **Nomination and Remuneration Committee** manages the Directors' recruitment process, reviews their succession plans, reviews Board members' effectiveness, and determines their remuneration.

The **Transformational Economic and Social Empowerment Framework (TESEF) Committee**, established in 2009, reviews and proposes strategies to ensure our compliance with Government's empowerment policy statements.

Furthermore, **Ad Hoc Committees** are formed as and when required, allowing Board members to focus more intensively on the prevailing aspects of the business and to debate the issues raised at a deeper level.

All committees have formal charters and report to the Board of Directors. Such committees are chaired by Independent Non-executive Directors, who form the majority of members.

## Special purpose vehicles

The special purpose vehicles are the Rössing Foundation and the Rössing Environmental Rehabilitation Fund. Although the company established these two special purpose vehicles, they are managed independently from Rössing by their own sets of trustees. Rössing Board members are represented on these Boards of Trustees, but are in the minority.

The **Rössing Foundation** was established in 1978 by Rössing Uranium Limited through a Deed of Trust to implement and facilitate its corporate social responsibility activities within the communities of Namibia.

The trustees of the **Rössing Environmental Rehabilitation Fund** ensure that adequate financial provision is made for expenditure which Rössing is likely to incur with closure rehabilitation.

## Financial statements

The Directors are responsible for monitoring and approving the financial statements in order to ensure that they fairly present the company's affairs and the profit or loss at the end of each financial year. The independent auditors are responsible for expressing an opinion on the fairness with which these financial statements represent the company's financial position.

The financial statements are prepared by management in accordance with International Financial Reporting Standards (IFRS) and in the manner required by the Companies Act, 2004 (Act No. 28 of 2004). They are based on appropriate accounting policies that have been consistently applied and which are supported by reasonable and prudent judgements and estimates.

## Independence of external auditors

Rössing's annual financial statements have been audited by the independent auditors, PricewaterhouseCoopers. The company believes that the auditors have observed the highest level of professional ethics and has no reason to suspect that they have not acted independently from the company. The Board Audit and Risk Committee has confirmed the independence of the external auditors for the reporting period.

## Company Secretary

The Company Secretary, Ms GD Labuschagne, is suitably qualified and has access to the company's resources to effectively execute her duties.

## Risk report

Risk management is a fundamental part of the company's business. This is achieved by keeping risk management at the centre of company activities, and by introducing a culture in which risk management is embedded in the daily management of the business.

The Board acknowledges its overall responsibility for the process of risk management, as well as for reviewing its effectiveness. Executive management is accountable to the Board for designing, implementing and monitoring the process of risk management, as well as integrating it with the company's day-to-day activities. To this end, the company has fully adopted and implemented the Rio Tinto Group Risk Policy and Methodology. Risks are captured and monitored via the RioRisk system.

The company remains committed to the objective of increased shareholder value by developing and growing business that is consistent with its risk appetite, and through building more effective risk management capabilities.

## Protection of our reputation

A strong reputation is a valuable asset to the company. By managing and controlling the risks incurred in the course of conducting business, the company protects its reputation.

As part of the fraud awareness and prevention programme, the company utilises the “Speak-OUT” telephone reporting system that provides all stakeholders with a means to raise concerns regarding inappropriate corporate behaviour. Speak-OUT is administered by an independent external service provider. All calls received are confidential, and are appropriately investigated and resolved.

## Internal audit

The company’s internal audit function performs an independent appraisal activity with the full cooperation of the Board and management. Internal auditors have the authority to independently determine the scope and extent of work to be performed.

The objective of an internal audit is to assist executive management with the effective discharge of their responsibilities by examining and evaluating the company’s activities, resultant business risks, and systems of internal control. The mandate of the company’s internal auditors requires them to bring any significant control weaknesses to the attention of management and the Audit and Risk Committee for remedial action.

The internal audit function for the year was outsourced to Ernst & Young. Internal audit reports functionally to the company’s Audit and Risk Committee, and administratively to the company’s Manager of Compliance and Legal Services.

## Internal control

Internal control comprises methods and procedures implemented by management to ensure the following:

- Compliance with policies, procedures, laws and regulations;
- Appropriate review and approval procedures;
- Reliability and accuracy of data and information: Information used in the decision-making process at Rössing needs to be accurate, timely, useful, reliable and relevant;
- Effectiveness and efficiency: All operations at Rössing need to be effective and efficient, with the most economical use of resources, and add value; these are accomplished by the continuous monitoring of goals, i.e. that which is measured is controlled, and
- Safeguarding of assets: Assets are protected from theft, misuse, use for fraudulent purposes and/or destruction.

The Directors are responsible for maintaining an adequate system of internal control. Such a system reduces, but cannot eliminate, the possibility of fraud and error.

*A late afternoon view of the open pit.*



# Assurance

Our vision is to undertake our business with integrity, honesty and fairness at all times, building from a foundation of compliance with relevant laws and regulations and international standards, as well as being in line with various Rio Tinto and Rössing guidelines on leading business practices, such as *The way we work*.

Various external assurance and verification processes are conducted throughout the year on much of our work. For example, our financial statements are audited by external auditors, and environmental figures are audited annually by an external environmental auditing company. Auditing companies, Government bodies and other institutions that reviewed the company's practices in 2011 were as follows:

- PricewaterhouseCoopers (Rio Tinto Corporate Annual report data assurance designed to provide limited assurance over selected items, in Rössing's case, the AIFR data)
- Ernst & Young (internal audits)
- Rio Tinto Corporate Assurance (internal audits)
- Det Norske Veritas (ISO 14001:2004 certification and Rio Tinto HSEQ Management System Business Conformance)
- International Atomic Energy Agency (IAEA) (industry control agency)
- Metago Environmental Engineers (annual review of tailings and associated environmental aspects)
- Environmental Resources Management Ltd (Rio Tinto operations and business unit assessment)
- Ministry of Labour and Social Welfare – Affirmative Action (Employment) Act, 1998 (No. 29 of 1998) (compliance verification in respect of labour-related Acts)
- Ministry of Health and Social Services (compliance verification in respect of health and related Acts)
- Ministry of Agriculture, Water and Forestry (compliance verification in respect of effluent management and water-related Acts)
- Ministry of Mines and Energy (compliance verification in respect of mining operation-related Acts), and
- Ministry of Finance (compliance verification in respect of income tax and financial Acts).

## List of references

*The way we work*: Our statement of business practice

*The way we buy*

*Human rights guidance*

*Compliance guidance*

*Business integrity guidance*

*Corporate governance guidance*

*Antitrust policy and guidance*

*Our key relationships*

*Sustainable development*

*Rio Tinto HSEQ Management System Standard*

*Performance standards – Safety*

*Performance standards – Occupational health*

*Performance standards – Environment*

*Corporate standards – Communities*

*Corporate standards – Closure*

These reference documents are all available electronically from the Rio Tinto website – [www.riotinto.com](http://www.riotinto.com) – or in hard copy by writing to Rio Tinto, 2 Eastbourne Terrace, London, W2 6LG, United Kingdom.

Rössing Uranium Limited  
(Incorporated in the Republic of Namibia)  
Registration number: 70/1591

Condensed financial statements  
For the year ended 31 December 2011

**CONDENSED STATEMENT OF FINANCIAL POSITION  
AS AT 31 DECEMBER 2011**

	Notes	Audited 2011 N\$'000	Audited 2010 N\$'000 Restated	Audited 2009 N\$'000 Restated
<b>ASSETS</b>				
<b>Non-current assets</b>				
Property, plant and equipment	6	1 833 773	1 329 453	1 306 455
Available-for-sale financial assets		3 371 590	2 991 947	2 536 067
Rössing Environmental Rehabilitation Fund		193 677	162 869	133 516
<b>Current assets</b>				
Inventories	7	825 146	1 557 928	2 035 392
Current income tax asset		46 941	36 809	-
Trade and other receivables		568 620	362 849	1 125 901
Cash and cash equivalents		283 109	875 692	158 279
Restricted cash		50 925	48 688	28 375
<b>Total assets</b>		<b>7 173 781</b>	<b>7 366 235</b>	<b>7 323 985</b>
<b>EQUITY AND LIABILITIES</b>				
<b>Capital and reserves</b>				
Share capital		223 020	223 020	223 020
Available-for-sale investment revaluation reserve		2 869 151	2 489 508	2 033 628
Retained earnings		1 588 019	2 228 004	2 448 518
<b>Non-current liabilities</b>				
Interest-bearing borrowings	8	14 352	11 319	11 338
Rio Tinto International Holdings Australia Pty Ltd		752 787	584 059	538 234
Deferred tax liabilities		157 251	443 022	477 358
Provision for closure and restoration costs		925 294	486 766	468 523
Post-employment obligation		3 740	5 104	-
<b>Current liabilities</b>				
Bank overdraft		60 503	387 791	611 636
Trade and other payables		577 926	505 717	446 740
Current income tax liability				63 572
Current portion of interest-bearing borrowings	8	1 738	1 925	1 418
<b>Total equity and liabilities</b>		<b>7 173 781</b>	<b>7 366 235</b>	<b>7 323 985</b>

**CONDENSED STATEMENT OF COMPREHENSIVE INCOME AND EXPENSES  
FOR THE YEAR ENDED 31 DECEMBER 2011**

	Notes	Audited 2011 N\$'000	Audited 2010 N\$'000 Restated
<b>Continuing operations</b>			
Sale of uranium oxide		3 265 170	3 609 020
Other income		3 596	3 564
<b>Revenue</b>		<b>3 268 766</b>	3 612 584
Operating costs		(3 804 930)	(3 078 099)
Depreciation, amortisation and impairment charges		(202 669)	(224 159)
Royalties — mining		(196 046)	(213 619)
<b>Operating loss</b>		<b>(934 879)</b>	96 707
Finance income		20 813	6 214
Finance costs		(20 566)	(31 406)
<b>Loss before income tax</b>		<b>(934 632)</b>	(121 899)
Income tax income	5	294 647	33 037
<b>Loss for the year</b>		<b>(639 985)</b>	(88 862)
<b>Other comprehensive income for the year</b>			
Gain on available-for-sale financial asset		379 643	455 880
<b>Total comprehensive income for the year attributable to equity holders of company</b>		<b>(260 342)</b>	367 018
Reconciliation to (loss incurred)/income earned prior to accounting for a strategic stake in Extract Resources Ltd and Kalahari Minerals plc (refer to note 4)			
<b>Total comprehensive income for the year as above</b>		<b>(260 342)</b>	367 018
<b>Less: Increase in net income</b>			
- Net effect of accounting for above strategic stake (note 4)		(210 915)	(410 055)
<b>Net loss after tax from normal operations</b>		<b>(471 257)</b>	(43 037)

CONDENSED STATEMENT OF CHANGES IN EQUITY  
FOR THE YEAR ENDED 31 DECEMBER 2011

	Share capital N\$'000	Audited Available- for-sale investment revaluation reserve N\$'000	Retained earnings N\$'000	Total N\$'000
<b>Balance at 1 January 2011 (restated)</b>	223 020	2 489 508	2 228 004	4 940 532
Total comprehensive income and expenses	-	379 643	(639 985)	(260 342)
Dividend declared during the year	-	-	-	-
<b>Balance at 31 December 2011</b>	<u>223 020</u>	<u>2 869 151</u>	<u>1 588 019</u>	<u>4 680 190</u>
<b>Balance at 1 January 2010 (restated)</b>	223 020	2 033 628	2 448 518	4 705 166
Total comprehensive income and expenses (restated)	-	455 880	( 88 862)	367 018
Dividend declared during the year	-	-	(131 652)	( 131 652)
<b>Balance at 31 December 2010 (restated)</b>	<u>223 020</u>	<u>2 489 508</u>	<u>2 228 004</u>	<u>4 940 532</u>
<b>Balance at 1 January 2009</b>	223 020	-	2 378 687	2 601 707
Total comprehensive income and expenses (restated)	-	2 033 628	253 647	2 287 275
Dividend declared during the year	-	-	(183 816)	( 183 816)
<b>Balance at 31 December 2009 (restated)</b>	<u>223 020</u>	<u>2 033 628</u>	<u>2 448 518</u>	<u>4 705 166</u>

**CONDENSED STATEMENT OF CASH FLOW  
FOR THE YEAR ENDED 31 DECEMBER 2011**

	Notes	Audited 2011 N\$'000	Audited 2010 N\$'000 Restated
<b>Cash flows from operating activities</b>			
Cash generated by operations		287 412	1 431 171
Finance income		20 813	6 214
Finance costs paid		(13 747)	(23 077)
Income tax paid		(1 256)	(101 680)
<b>Net cash generated from operating activities</b>		<b>293 222</b>	<b>1 312 628</b>
<b>Cash flows from investing activities</b>			
Purchases of property, plant and equipment	6	(707 436)	(247 404)
Proceeds from sale of property, plant and equipment		268	879
Contributions made to Rössing Environmental Rehabilitation Fund		(20 686)	(19 192)
<b>Net cash used in investing activities</b>		<b>(727 854)</b>	<b>(265 717)</b>
<b>Cash flows from financing activities</b>			
Increase in amount due to Rio Tinto International Holdings Australia Pty Ltd		168 728	45 825
Increase in interest-bearing borrowings		2 846	487
Dividends paid		-	(131 652)
<b>Net cash generated/(utilised) from financing activities</b>		<b>171 574</b>	<b>(85 340)</b>
<b>(Decrease)/increase in cash and cash equivalents</b>		<b>(263 058)</b>	<b>961 571</b>
<b>Cash and cash equivalents at beginning of year</b>		<b>536 589</b>	<b>(424 982)</b>
<b>Cash and cash equivalents at end of year</b>		<b>273 531</b>	<b>536 589</b>

**NOTES TO THE CONDENSED ANNUAL FINANCIAL STATEMENTS  
FOR THE YEAR ENDED 31 DECEMBER 2011**

**1. Reporting entity**

Rössing Uranium Limited is a company domiciled in the Republic of Namibia. These are the condensed annual financial statements of the Company as at and for the year ended 31 December 2011. The audited annual financial statements of the Company as at and for the year ended 31 December 2011 are available upon request from the Company's registered office.

**2. Statement of compliance**

These condensed annual financial statements have been prepared in accordance with the framework concepts and the measurement and recognition requirements of IFRS and disclosure requirements of IAS 34, Interim Financial Reporting and the requirements of Companies Act of Namibia. These financial statements do not include all of the information required for full annual financial statements, and should be read in conjunction with the annual financial statements of the Company as at and for the year ended 31 December 2011.

**3. Significant accounting policies**

The accounting policies applied by the Company in these condensed annual financial statements are the same as those applied by the Company in its annual financial statements as at and for the year ended 31 December 2011.

**4. Comparatives**

In 2009 the Company acquired a strategic stake in Extract Resources Ltd and Kalahari Minerals plc, which together control the Husab deposit. The shares were acquired to assist the Company in negotiating a joint development of Husab at some point in the future. The shares and related joint development costs and interest expense were not accounted for. This has been rectified and comparatives adjusted accordingly.

	<b>Audited</b>	Audited	Audited
	<b>2011</b>	2 010	2 009
	<b>N\$'000</b>	N\$'000	N\$'000
		Restated	Restated
The effect of this is as follows:			
<b>Statement of financial position</b>			
Increase/(decrease)			
Available-for-sale financial assets	<b>3 371 590</b>	2 991 947	2 536 067
Available-for-sale investment revaluation reserve	<b>2 869 151</b>	2 489 508	2 033 628
Retained earnings	<b>( 250 348)</b>	( 81 620)	( 35 795)
Rio Tinto International Holdings Australia Pty Ltd	<b>752 787</b>	584 059	538 234
<b>Statement of comprehensive income</b>			
Increase/(decrease) in total comprehensive income for the year			
Comprehensive income and expenses	<b>( 168 728)</b>	( 45 825)	( 35 795)
Other comprehensive income and expenses	<b>379 643</b>	455 880	2 033 628
Net increase in total comprehensive income for the year	<b>210 915</b>	410 055	1 997 833

	<b>Audited 2011 N\$'000</b>	Audited 2010 N\$'000 Restated
<b>5. Taxation</b>		
Namibia - current taxation	-	1 299
Namibia - deferred taxation	( 294 647)	( 34 336)
	<b>( 294 647)</b>	<b>( 33 037)</b>
<b>6. Property, plant and equipment</b>		
Net book value at beginning of the year	<b>1 329 453</b>	1 306 455
Additions	<b>707 436</b>	247 404
Disposals	( 447)	-
Depreciation	( 202 669)	( 224 159)
Decrease in closure provision	-	( 247)
Net book value at end of the year	<b><u>1 833 773</u></b>	<b><u>1 329 453</u></b>
<b>7. Inventory</b>		
Inventory is stated after		
• Providing for obsolescence		
- raw materials	<b>18 945</b>	16 032
• Writing down carrying value to net realisable value		
- work-in-progress	<b>8 952</b>	-
- finished goods	<b>60 467</b>	-
<b>8. Interest-bearing borrowings</b>		
Non-current liabilities		
Capitalised finance lease agreements	<b>1 738</b>	1 925
Current liabilities		
Capitalised finance lease agreements	<b>14 352</b>	11 319
	<b><u>16 090</u></b>	<b><u>13 244</u></b>
<b>9. Capital commitments</b>		
Capital expenditure contracted but not yet incurred as at 31 December	<b>11 321</b>	89 777
<b>10. Related parties</b>		
The Company is controlled by Skeleton Coast Diamonds Ltd which owns 68,58% of the Company's issued shares. The remaining 31,42% of the shares are widely held. The ultimate holding company is Rio Tinto plc, a company registered in the United Kingdom.		
<b>Summary of related party transactions</b>		
Purchase of services	<b>264 796</b>	176 248
Receivables from related parties	<b>601</b>	528
Payables to related parties	<b>819 353</b>	689 827

## COMPANY OPERATIONAL AND FINANCIAL REVIEW

### Financial performance

Revenue decreased by 10% compared with the previous year. The company incurred a net loss after tax of N\$471 million (2010: N\$43 million) from normal operations. Further details of the Company's financial performance is set out in the condensed income statement.

### Operations

Production of uranium oxide for the year was 2,148 metric tonnes compared with 3,628 metric tonnes in 2010.

### Dividend declaration

No dividends were declared for the year.

### Subsequent events

On 31 January 2012, the Company sold its shares in Kalahari Minerals plc for GBP 69 million. On 19 March 2012, the shares in Extract Resources Ltd were sold for AUD 309 million.

No other material event or circumstance has occurred between the year-end date and the date of this report.

### Auditors' review opinion

The condensed results for the year ended 31 December 2011 have been reviewed by PricewaterhouseCoopers. The auditors' unqualified review opinion is available for inspection at the Company's registered office.

### Directors

RR Hoveka (Chairman), C Salisbury\*\*\* (Managing), EHT Angula, SN Ashrafizadeh\*\*, F Fredericks, A Iilende, AV Kalantari\*\*, MM Kapia, BH Beath\*, JS Louw\* (alternate HP Louw\*), VB Moll\*, DCW Ritchie\*\*\* (alternate AM Lloyd\*\*\*), SC Wensley\*\*\* (alternate RJ Fagen\*\*\*)

\*South African \*\*Iranian \*\*\*Australian

### Company Secretary

GD Labuschagne  
PO Box 22391  
Windhoek

### Auditors

PricewaterhouseCoopers  
PO Box 1571  
Windhoek

## Key performance indicators

## Performance data table

	2011	Target for 2011	Target for 2012	2010	2009	2008	2007
<b>Employees</b>							
Number of employees	1,637	1,580	1,668	1,592	1,415	1,307	1,175
<b>Production</b>							
Uranium oxide produced (tonnes)	2,148	3,203	2,973	3,628	4,150	4,108	3,046
Ore processed ('000 tonnes)	10,729	12,693	12,989	11,598	12,633	12,858	12,613
Waste rock removed ('000 tonnes)	39,913	37,389	33,404	41,955	38,755	33,899	21,396
Ratio of ore processed to waste rock removed	0.27	0.33	0.39	0.33	0.33	0.38	0.59
<b>Health, safety and environment</b>							
Number of personal annual radiation exposures above 20 mSv/annum	0	0	0	0	0	0	0
New cases of pneumoconiosis	0	0	0	0	0	0	1
New cases of dermatitis	0	0	0	1	0	0	0
New cases of hearing loss	0	0	0	0	0	0	0
New cases of chronic bronchitis	0	0	0	0	0	0	0
All injury frequency rate (AIFR)	0.81	0.74	0.65	0.89	0.73	0.91	0.71
Number of lost-time injuries	11	0	0	14	6	8	9
Source dust levels at Fine Crushing Plant (mg/m <sup>3</sup> )	2.55	0.90	0.90	4.02	2.33	1.52	0.93
Freshwater consumption ('000 m <sup>3</sup> )	3,060	2,884	3,194	2,870	3,131	3,700	3,300
Fresh water per tonne of ore processed (m <sup>3</sup> /t)	0.29	0.26	0.24	0.25	0.25	0.29	0.26
Ratio of fresh water:total water	0.39	0.33	0.33	0.31	0.33	0.36	0.32
Seepage water collected ('000 m <sup>3</sup> )	2,349	3,340	2,802	2,680	2,879	2,740	3,050
Energy use on site (GJ x 1,000)	1,897	1,951	1,774	1,996	2,168	1,812	1,534
Energy use per tonne of ore processed (MJ/t)	182.90	135.1	136.43	172.1	174.3	140.9	121.6
CO <sub>2</sub> total emission (kt CO <sub>2</sub> equivalent)	208.08	232.5	212.84	221.0	243.2	222.6	197
CO <sub>2</sub> equivalent emission per tonne of production (e/t uranium oxide)	97.37	76.84	67.62	60.70	58.60	54.20	64.7
<b>Product and customers</b>							
Uranium spot market price (US\$/lb) (average)	56.75	No target	No target	46	46	61	99

## Rössing's production of uranium oxide and the nuclear fuel cycle

Uranium is a relatively common element that is found in the earth all over the world, mined in many countries and processed into yellow cake, i.e. uranium oxide ( $U_3O_8$ ). Uranium oxide has to be processed before it can be used as a fuel for a nuclear reactor, that is, where electricity is generated to produce heat and steam in order to drive a turbine connected to a generator.

### Rössing Uranium's operations



#### 1. Drilling and blasting

Through drilling, blasting, loading and haulage, the uranium ore at Rössing is mined. Due to the erratic distribution of minerals in the ground, waste and ore are often mixed. Radiometric scanners measure the radioactivity level of each truckload, determining whether the material is sent to the primary crushers or to the low-grade stockpile. Waste is transported to a separate storage area.



#### 2. Crushing

Ore is delivered to the primary crushers by haul truck and then by conveyor to the coarse ore stockpile. It passes through a further series of crushers and screens until the particles are smaller than 19 mm. After weighing, the fine ore is stored on another stockpile.



#### 3. Grinding

Wet grinding of the crushed ore by means of steel rods reduces it further to slurry with the consistency of mud. The four rod mills, which are 4.3 m in diameter, are utilised as required by production levels and operate in parallel.



#### 4. Leaching

A combined leaching and oxidation process takes place in large mechanically agitated tanks. The uranium content of the pulped ore is oxidised by ferric sulphate and dissolved in a sulphuric acid solution.



#### 5. Slime separation

The product of leaching is a pulp containing suspended sand and slime. Cyclones separate these components and, after washing in Rotoscoops to remove traces of uranium-bearing solution, the sand is transported via a sand conveyor to a tailings disposal area.



#### 6. Thickening

Counter-current decantation thickeners wash the slimes from previous stages. A clear uranium-bearing solution ('pregnant' solution) overflows from the thickeners, while the washed slime is mixed with the sands and pumped to the tailings area.



#### 7. Continuous ion exchange (CIX)

The clear pregnant solution now comes into contact with beads of specially formulated resin. Uranium ions are adsorbed onto the resin and are preferentially extracted from the solution. Beads are removed periodically to elution columns where an acid wash removes the uranium from the beads. The resulting eluate is a purified and more concentrated uranium solution.



#### 8. Solvent extraction (SX)

The acidic eluate from the ion exchange plant is mixed with an organic solvent which takes up the uranium-bearing component. In a second stage, the organic solution is mixed with a neutral aqueous ammonium sulphate solution which takes up the uranium-rich 'OK liquor'. The acidic 'barren aqueous' solution is returned to the elution columns.



#### 9. Precipitation

The addition of gaseous ammonia to the 'OK liquor' raises the solution pH, resulting in precipitation of ammonium diuranate, which is then thickened to a yellow slurry.



#### 10. Filtration

The ammonium diuranate is recovered on rotating drum filters as yellow paste - known as 'yellow cake'. (Photo: www.aveva.com)



#### 11. Drying and roasting

Final roasting drives off the ammonia, leaving uranium oxide. The product is then packed into metal drums. Neither ammonium diuranate nor uranium oxide are explosive substances.



#### 12. Loading and despatch

The drums of uranium oxide are loaded and exported to overseas converters for further processing. At full capacity, the plant can produce 4,500 t of uranium oxide each year. This step completes the Rössing production process.

### Our customers' operations



#### 13. Conversion

The uranium oxide is converted to uranium hexafluoride crystals. Conversion plants operate commercially in Canada, China, France, the UK, and the USA. (Photo: www.aveva.com)



#### 14. Enrichment

This step increases the concentration of the isotope  $U^{235}$  from its naturally occurring level of 0.7% to higher levels required for nuclear reactors - about 3%. (Photo: www.aveva.com)



#### 15. Fabrication

Enriched uranium is converted into uranium dioxide, formed into solid cylindrical pellets, sealed in metal fuel rods, and bundled into fuel assemblies. (Photo: www.aveva.com)



#### 16. Power generation

Fuel assemblies are loaded into nuclear reactors where the  $U^{235}$  fissions, producing heat and steam used to generate electricity. (Photo: www.aveva.com)



2011 Year-end  
employees' function

For any feedback, comments, concerns or suggestions about this report please contact us.

**Rössing Uranium Limited** Registered in Namibia No. 70/1591

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