

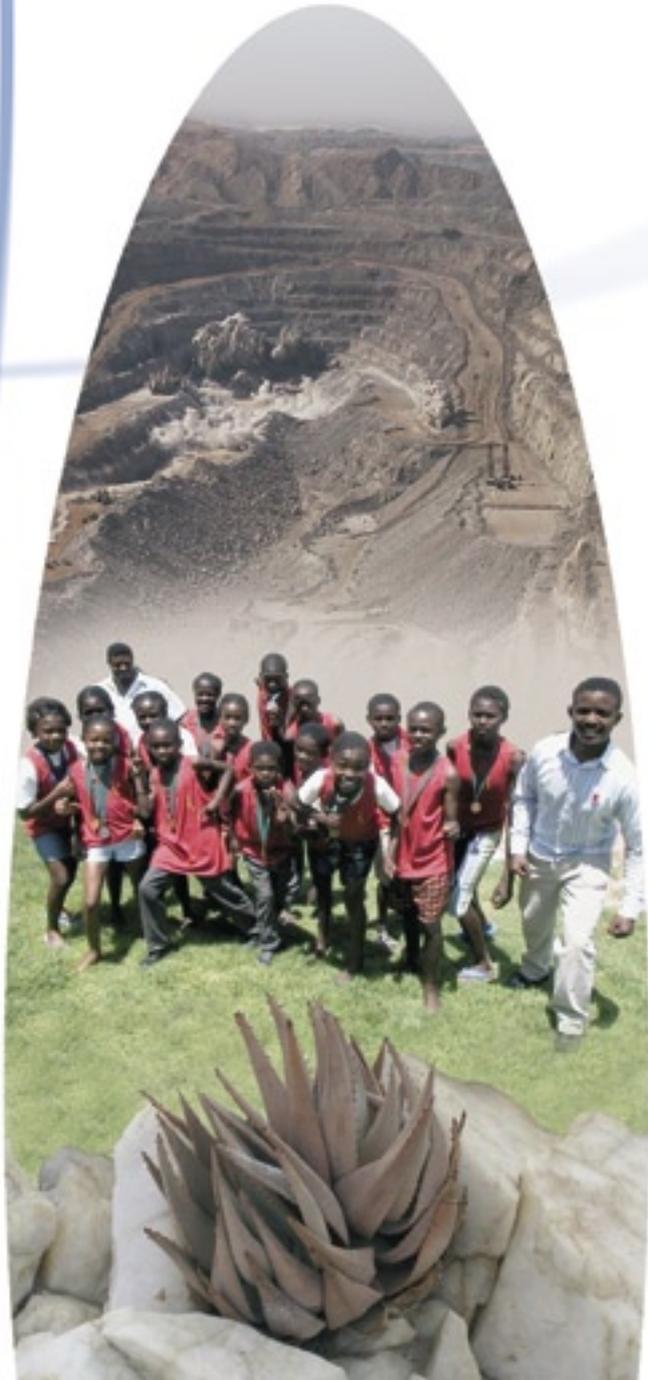


**Rössing Uranium**

*A member of the Rio Tinto Group*

WORKING FOR NAMIBIA

# 2005 report to stakeholders



environmental social economic

# 2006 OUTLOOK

## THE PURPOSE OF THIS REPORT

This report aims to give Rössing Uranium's stakeholders a review of January to December 2005, as well as of the company's interaction with society, the economy and the environment. The stakeholders of the Rössing Mine and the Rössing Foundation are not only the shareholders who have invested their money in the business, but are all those people and institutions that influence the company and on whom the mine has an influence. Stakeholders, therefore, include the mine's employees, the communities of Arandis and Swakopmund, governmental institutions, service providers, and the mine's customers.

This report will reach readers well into 2006, and they will see the results of many activities planned during 2005 that are already under way.

During 2006, the focus will be to implement the significant decision to extend the life of the mine beyond the original estimate of 2009 till at least 2016 – and perhaps even beyond that.

Over the next two years, one of the main targets is to increase production from the 3,711 tonnes of uranium oxide delivered in 2005 back to the mine's full production capacity of 4,000 tonnes. After 1990, production had been reduced following a drop in the uranium price and the mine had to adjust production to the consequent decrease in demand.

Returning to full production capacity involves some major changes to the operation. Some of these changes are already being implemented, and will continue to receive attention during 2006. Moreover, the training and development of young Namibians has already begun with over 200 people currently receiving either full or partial support. This step aims to ensure that the mine has the required human resources to take it into the future.

The pioneering work to prepare the area where the mine will be extended has also started. The target completion date for this preparation is July 2007. In addition, eleven new haul trucks and three new hydraulic shovels have been ordered, and will be delivered during 2006 and 2007. Four new

buses have also been ordered, to cater for an expected increase in the number of employees to be transported safely to the mine and back home. Other changes currently under way include the upgrading of the dust extraction system at the processing plant, an extension of the tailings dam, and the installation of a seepage treatment plant.

Like the year before, some of our stakeholders were asked for their opinion on the usefulness of this report. Again, we have tried to incorporate as many of their suggestions as possible. On page 31, for example, a flow chart of Rössing's operations has been added. Readers can now see, at a glance, how uranium ore is mined, how the uranium is leached out of the rock (ore), and how it is packed into drums as uranium oxide. Also illustrated is the nuclear fuel cycle, which shows what processes the uranium oxide undergoes outside Namibia in order to become useful for generating electricity at nuclear power stations.

In order to continually improve the engagement between Rössing and its stakeholders, please contact us (see details on the inside back cover) so that we can discuss how this review can be made even more useful to our readers in future.

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# RÖSSING URANIUM IN NAMIBIA

Rössing Uranium began operations in 1976 and will be celebrating 30 years of production in 2006.

By the end of 2005, the mine employed 860 people – an increase of 27, compared with 2004. Of these employees, 96% were Namibians living in the towns of Arandis, Swakopmund and Walvis Bay. During 2005, employees were introduced to an intensive training and development programme. Well-prepared human resources will ensure that the mine can continue its operations as far as possible into the future.

Rio Tinto, one of the largest mining houses in the world, owns the majority of shares (69%) in Rössing Uranium Limited. The Namibian Government has a 3% shareholding, but it has the majority (51%) when it comes to voting rights. The Government of Iran owns 15%, while individual local shareholders own 3% and the Industrial Development Corporation of South Africa owns 10%.



In total, 19.5 million tonnes of rock were mined during 2005. Of this amount, slightly more than 12 million tonnes were uranium ore, which was crushed and milled to extract the uranium by leaching with sulphuric acid. For this purpose 226,276 tonnes of acid were imported through the harbour of Walvis Bay from global acid producers. In the metallurgical processing plant, uranium is concentrated to the final product – uranium oxide (U<sub>3</sub>O<sub>8</sub>). During 2005,

a total of 3,711 tonnes of uranium oxide were produced and exported through Walvis Bay to converters in Canada, China, France and the United States of America, where it is prepared for enrichment. Only once it has been enriched can uranium be used for producing electricity. Rössing's uranium was sold to European, Chinese, USA and Asia-Pacific electricity producers.

For the mining and production process during 2005, some 3,17 million cubic metres of water were used. The water was bought from the Namibia Water Corporation Ltd (NamWater), the parastatal that supplies bulk water to the coastal towns of Arandis, Henties Bay and Swakopmund from the Omdel groundwater supply scheme east of Henties Bay. The volume used by Rössing represents 27% of the total water used in the Central Namib Area.

Regarding power consumption during 2005, 187,331 megawatt hours of power were used – which represents about 5% of Namibia's total electricity consumption.

In return for the substantial use of resources, the mine contributes significantly to Namibia's economy. Although Rössing made no profit during 2005 and, therefore, did not pay over any company tax to the Receiver of Revenue, the amount of employee tax paid over to the

Receiver totalled N\$37 million. In 2005 N\$607 million was paid to Namibian suppliers and service providers, which indirectly supported the Namibian economy.

The Rössing Foundation continued to operate in the field of community development in the north-central regions of the country as well as in the Erongo Region, where the mine is situated. Most of the funds made available by the mine were applied to assist the Arandis community and the Arandis Town Council. Programmes to make the previous mining town of Arandis economically independent of the mine were initiated during 2005. An elected Town Council has managed Arandis since 1994. Since one-third of Rössing's workforce live at Arandis, economically the town remains heavily dependent on the mine.

Towards the end of 2005, the shareholders agreed to extend the life of the mine beyond 2009 to well into the next decade. Extending the mine's life became an option when the price of uranium increased substantially and the market showed a positive outlook for the next 20 years.

By June 2006, Rössing Mine will have been in operation for 30 years. With the extension of the life of the mine, we can now look forward to a renewed period of full production and growth.



# MESSAGE FROM MIKE LEECH

## MANAGING DIRECTOR

30 April 2006

Welcome to our 2005 Rössing Report to Stakeholders.

This past year was certainly a highlight in a number of ways in the mine's operating life of close to 30 years.

Most importantly, the uncertainty of the past few years about the future of the mine has now been cleared up. As you may know, the mine was to close in 2009, but its operating life has now been extended to at least 2016 or beyond.

This decision came in December 2005, after Rössing had been engaged for close to three years in surveys, studies, test work and investigations on the best way to expand the mining operation.

The mine will be investing about US\$112 million (about N\$750 million) over the next two years on mining equipment such as haul trucks and shovels, on the refurbishment of the processing plant, and on additional buses for the transport of employees.

The extension of the mine's life will add another 150 jobs over the next two years.

The growing nuclear power industry worldwide has resulted in a 20-year high in demand for uranium. Rössing is now well placed to increase its market share and we are actively investigating production growth and expansion options.

In 2005, the mine produced 3,711 tonnes of uranium oxide – the highest output since 1990. The aim is to increase the mine's production over the next two years to its full capacity of 4,000 tonnes.

As we reposition ourselves and focus on increased production, it is vital that our first thought is always about safety. We must have the commitment of all employees and contractors to work safely at all times. We have started our efforts on increasing production by adding to the workforce in the safety area,

and by introducing safety awards and competitions to raise the profile and importance of ZERO INCIDENTS.

A legacy of the long hard years of low prices and production was a low training capacity in the company. In 2005, we began preparing our workforce for the future. In this report, you can read more about our new Improvement and Training Department, various programmes put in place to improve and enhance employee skills, and programmes to ensure we continue having well-qualified employees in future.

As regards the Rössing Foundation at Arandis, its activities are being refocused after a baseline survey was taken of the town. The various programmes will continue, with a number of capacity-building projects for the residents, local government, schools and businesses.

As a way of reporting back to local communities and those directly affected by the mine's operations, we have again included feedback from our employees and the public on what Rössing means to them. I am pleased to see that many people share with us our renewed optimism for the future and look forward to working with us for the development of the Erongo Region and Namibia.

This year's feedback contains a number of quite clear concerns about water availability at the coast as a result of the increasing pace of development. I believe that the water balance at the coast is being carefully monitored; the thinking of NamWater around the inevitable need for a desalination plant is advanced, and development actions are beginning. I have noted the need for increased communication and availability of water information and, where relevant to Rössing, will focus on filling this gap.

Please let us have your comments and concerns as well!



Mike Leech  
Managing Director  
Rössing Uranium



Charles Kauraisa  
Chairman  
Rössing Uranium



Willem van Rooyen  
General Manager:  
Operations



Rehabeam Hoveka  
General Manager:  
Commercial



### DIRECTORS:

Rössing Uranium's Directors and senior management team in Swakopmund when the well-known Namibian athlete, Frank Fredericks, was appointed as a Director.

# RÖSSING AND ITS EMPLOYEES

## RÖSSING MINE AND ITS EMPLOYEES

As an employer of choice for career-seekers, the Rössing Mine values its human capital as its most important asset. We are committed to our focus on training and developing employees, and on continuing to recruit high-quality workers who cooperate in maintaining safety and productivity to support the future of the mine.

At the close of 2005, the mine employed 860 permanent workers, 96% of whom were Namibians. The male : female ratio is 9 : 1, which is the same as in 2004.

The age profile continues to indicate an aging workforce, with an average age of 43.6 years. At the end of 2005, two employees reached the age of 64, while the youngest employee was 20 years old. Of the 69 new employees who joined the mine during 2005, 61 were 40 years old and younger, while the largest number – 21 – of this new employee group were aged between 26 and 30. Of the newcomers, 22% were women and 78% men.

A total of 42 employees left the company's employment for various reasons during the year under review. By the end of 2005, the average length of service in the workforce was 15.9 years, compared with 18 years in 2004.

## REALISING RÖSSING MINE'S HUMAN POTENTIAL

At the beginning of 2005, Rössing established the Improvement and Training Department in order to increase the capacity and potential of its employees and prepare for extending the mine's life. The new Department successfully implemented a number of programmes in 2005, which included the following:

### Development of team leaders

This programme prepares our future leaders for supervisory roles. The programme has 23 modules that cover topics from Rössing's geology, to complying with the law. The programme was so successful that it is being extended to provide refresher training for existing supervisors as well. In 2005, 28 non-supervisors and supervisors were enrolled in the programme.

### Technical schooling for employees

With a need for additional and better-qualified staff, some employees were sent to technical schools and colleges for further training. In 2005, six employees attended technical school. In 2006, another 28 will undergo further training in this way.

### Equipment simulator training

Rössing is leasing a high-tech equipment simulator to improve capacity amongst operators of haul trucks and shovels. The first haul-truck training module was launched at the end of 2005, while the shovel training modules will be implemented in early 2006.

### Employee exchanges

In this programme, employees from two different sections exchange jobs for a three- to six-week period. This is aimed at exposing them to more aspects of the entire operation. Six employees participated in this programme during 2005.

### Bursaries for artisans

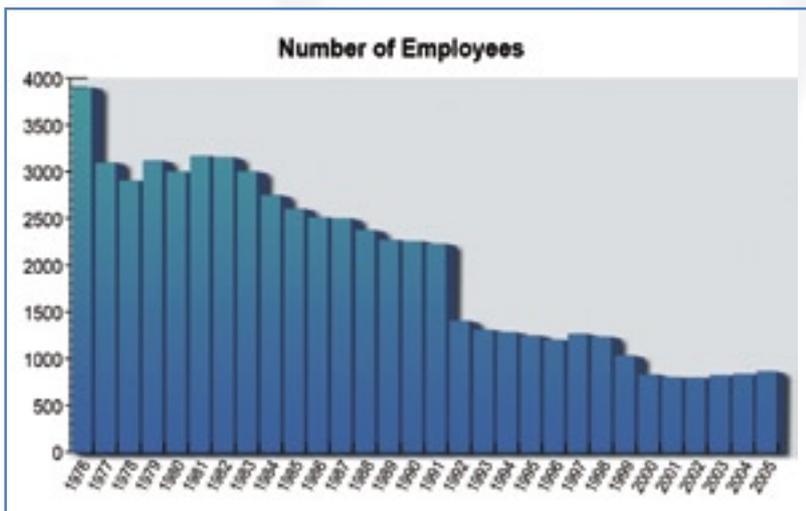
Keeping in mind the number of employees who will be retiring over the next ten years, and the need for more artisans in the future, Rössing added another 40 bursaries for students undergoing training at the Namibian Institute of Mining and Technology (NIMT). Another 40 bursaries will be added to the programme in 2006.

### Development positions

It is difficult to recruit qualified workers in Namibia with mining experience. Against this background, Rössing decided to employ up to 20 workers with no mining experience, and develop them for future vacancies. In 2005, 14 jobs were offered to such candidates, and they will commence duty in early 2006.

By the end of 2005, a total of 187 employees and students were participating in intensive improvement and training programmes to increase their abilities and skills. Participation in the various programmes was as follows:

NIMT bursaries	58 awards made
NIMT job attachments	10 employees
College/university bursaries	19 awards made
Technical training	4 employees
Currently undergoing training at college/university	2 students
Team leader development	28 candidates
Correspondence programme enrolments	36 employees
Rössing employee-dependent scholarships	30 awards made



# RÖSSING AND ITS EMPLOYEES



### TRAINING:

Employees are the mine's most important asset and the mine is focused on their training and development. These employees benefited from an internal exchange programme.



### TRAINING:

Employees display their certificates after successful completion of various training courses to improve their skills.



### RECOGNITION:

Employees regularly receive tokens of appreciation from supervisors for jobs well done.



### LONG SERVICE:

The average length of service at the mine is almost 16 years, with many employees being presented with 20-, 25- and 30-year service certificates.

In 2005, Rössing and the Rössing Branch of the Mineworkers' Union of Namibia (MUN) reached the following agreements:

- That basic salaries increase by 7% for employees in the Bargaining Unit as from 1 January 2005, including an increase in the housing allowance of N\$371 for these employees, and
- That, over and above the annual salary increase for 2005 and the adjustment to the housing allowance, employees could qualify for a monthly and quarterly Production Reward if a uranium oxide production target of 11 tonnes per day or more was achieved; during the year a total of N\$2.9 million was paid to employees as part of this reward.



*"There is no doubt in my mind that Rössing has helped to shape the culture and economic atmosphere of the Erongo Region and will continue doing so in future. In my opinion, one person that works at Rössing probably maintains the lives of ten other individuals not working at Rössing. For me, Rössing is like a college with 30 years of research, experience and skills. It would be a loss to mankind if it were to close down."*

Frans Goaseb,  
Radiation Specialist  
(New employee)



*"I think the LoME (Life of Mine Extension) project was definitely worthwhile. All the hard work, stress, and sleepless nights have paid off in terms of Rössing's future. Because the mine's life has been extended it means people will stay employed, and the employees' children will also have work at Rössing. It means bigger and better opportunities for Namibians to study further through the Rössing bursary scheme."*

Ndawedapo Mbangula,  
Trainee Geologist  
(New employee)

# RÖSSING AND ITS EMPLOYEES

*"The LoME (Life of Mine Extension) project was worthwhile indeed, especially for us employees who have 30 years of service with the company. Had the mine closed down as was projected earlier, we would not have had anywhere else to go. Our age would have counted against us – even though we still have a few years left of good service.*



*Other companies would have thought twice before giving us the opportunity to share our expertise. For the young employees, the fact that the life of the mine has been extended is a good opportunity for them to settle into a good career. They came here with a lot of expectations and hope to grow professionally, but if the LoME project had been unsuccessful, what would have happened to them? It is good to know that the uncertainty has been eliminated."*

Theo Ganaseb,  
Protection Services Controller  
(30 years of service)



*"Being part of the first group selected for the programme, I must say that I have gained a lot. I will be able to apply what I have learnt in my current position."*

Zelda Nangolo,  
(participant in the Team Leadership  
Development Programme)

*"The changes can only be positive. New blood will be joining Rössing at all levels, and new ideas will flow from all levels of the organisation. The last 30 years have provided us with a wonderful platform for taking Rössing into the next 30. That will be achieved if we all look forward to change in the future, whilst we learn from the past."*



Tsanangurai  
Dube,  
Superintendent:  
Geology (LoME team member)

*"The LoME (Life of Mine Extension) Project offers significant employment and business opportunities. First of all, in 2002 and 2003, Rössing employees could hardly live with the fact that we might face closure in 2007 or 2009. It was not easy to plan for the future, as there were uncertainties. The Project has [now] presented employment security and opportunities for at least the next ten years. New employment opportunities are evident at Rössing. For example, additional trucks purchased for the mining operations have increased the number of truck operators; and successful construction of the ore-sorter waste removal route and test work have presented business and additional employment opportunities to the contractors involved in the activity. The LoME Project was planned around purchasing more heavy mobile equipment and several plant upgrading projects that are expected to increase the number of contractual and permanent Rössing employees."*



John Makgatho,  
Metallurgist (LoME team member)

## EMPLOYEE RELATIONS

Negotiations between Rössing Mine's management and the MUN's Branch Executive Committee in respect of salary increases for the 2005 financial year began in late 2004 and were completed in January 2005. Negotiations for the 2006 salary increase began in November 2005 and are projected to continue into 2006.

During 2005, salary negotiations and dispute resolution meetings dominated the Company-Union agenda. The disputes discussed related to the following:

- Dispute of interest  
Discriminatory payment of Grade 10 versus Grade 11 Artisans
- Dispute of interest  
Discriminatory pay practice between management and bargaining unit employees
- Dispute of interest  
Inconsistency during interview process (selection and recruitment)
- Unfair dismissal  
Unauthorised possession of company property

The company was also involved in three cases at the District Labour Court during the year under review.

## AFFIRMATIVE ACTION

In 2005, for the fifth consecutive year, Rössing was certified as having complied with the stipulations of the Affirmative Action (Employment) Act, 1998 (No. 29 of 1998). We regard this as a significant achievement because it shows the company is heading towards a fully diversified workforce.

# RÖSSING AND ITS EMPLOYEES

Among other things, the mine's Affirmative Action Plan prioritised an increase in the representation of designated groups, as follows:

Objective	Target (%)	Current status (%)
Increase designated group representation in Senior Management	33	23
Increase female representation in Middle Management	17	10
Increase Namibian understudies and citizens in Specialised/Skilled/Senior Supervisor categories	60	55
Increase female representation in Skilled, Semi-skilled and Unskilled categories	7	4

The workforce profile in 2005 was as follows:

	2004 (%)	2005 (%)
Historically disadvantaged Namibian men	79.0	77.9
Historically disadvantaged Namibian women	7.2	8.5
Previously advantaged women	1.1	1.2
Previously advantaged men	8.5	8.3
Non-Namibian men	3.5	3.5
Non-Namibian women	0.4	0.2
Persons with disabilities – men	0.4	0.5
Persons with disabilities – women	0.0	0.0

• Progress in the Executive Directorship and Senior Management categories during 2005 took the form of one male from the historically disadvantaged grouping (HDG) being appointed in the Executive Directorship category, while one female from the same designated grouping was appointed in the Senior Management category, albeit in a designated capacity. Rössing is intensifying its initiative to diversify by considering Namibians from the designated groupings when filling vacant posts in the above categories, especially those occupied by non-Namibians. In the Specialised/Skilled/Senior Supervisory category, appointments in the designated group increased significantly, with 31 males and 3 females now serving in these posts.

• An Understudy Programme was launched as part of the drive to increase the number of Namibians in the workforce, and as required by the Affirmative Action (Employment) Act. Accordingly, Namibian employees were identified to act as understudies to expatriate experts, with a view to taking over from the expatriates once they eventually have left.

• All advertisements for vacancies at the mine currently declare Rössing as "An Equal Opportunity Employer", and state that "Previously disadvantaged people, especially women and people with disabilities, are encouraged to apply". Affirmative Action and union observers form part of all interview panels at Rössing to ensure fairness in the selection process.



**THANK YOU:**  
*Christmas hampers were prepared for employees working on Christmas Day as tokens of appreciation.*



**EMPLOYEES:**  
*At the end of 2005 the mine employed 860 employees, of whom 10% were female. Cynthia Pogisho is a Process Technician.*

# RÖSSING AND ITS EMPLOYEES

## OCCUPATIONAL HEALTH

With the renewed interest in uranium exploration in the Namib, and the planned opening of the Langer Heinrich uranium mine in 2006, members of the public, members of the Arandis community and Earthlife raised concerns about the health effects of uranium mining in general.

The mine has had similar concerns right from the start of its operations, and has for many years put programmes in place to monitor and control occupational exposures.

### Occupational Exposures

#### Radiation

The radiation exposure for employees in identified groups working in different parts of the mine stayed well below the exposure limit of 20 millisieverts (mSv) per annum.

Radiation levels at Rössing are low compared with the recommendations for worker radiation safety as published by the International Commission for Radiological Protection, and adopted as standards by the International Atomic Energy Agency in Vienna. This is due to the fact that, firstly, Rössing is a low-grade

uranium mine (the lowest grade mined in the world, in fact), and, secondly, that effective controls are in place in areas where uranium concentrations are at their highest. The internationally set exposure limit is 100 mSv over a five-year period, with a maximum of 50 mSv a year. At Rössing, to keep things simple, the exposure limit is set at 20 mSv per year. In 2005, this exposure limit was not exceeded by any of Rössing's employees.

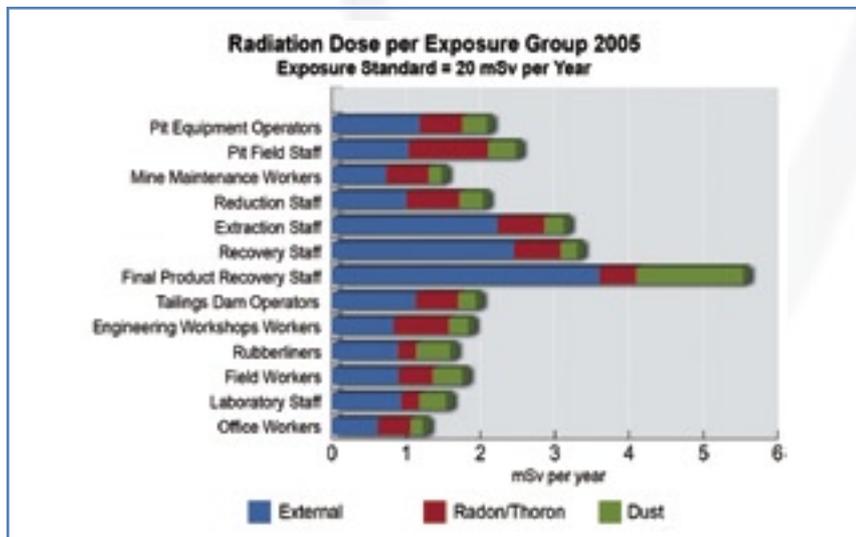
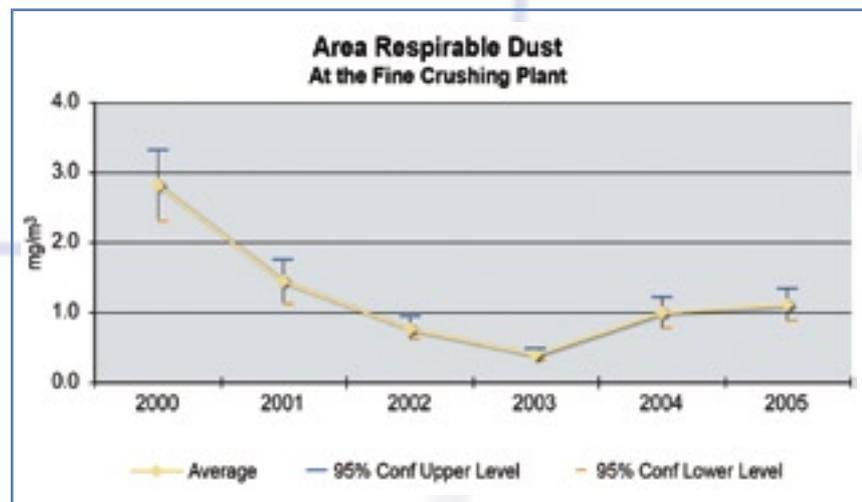
Employees working in classified radiation areas are individually monitored, while all other employees are monitored in worker groups. Worker groups consist of employees who are active in similar areas of the mine, and are likely to receive similar

radiation doses throughout the year. In 2005, worker groups received doses between 1.2 and 3.3 mSv during the year, while employees in the Final Product Recovery Plant were exposed to an average of 5.7 mSv for the same period.

#### Dust

Rössing's Fine-crushing Plant reduces the size of the uranium-bearing rocks to a size that can easily be reduced by the rod mills to the consistency of sand. During this fine-crushing process, dust is generated.

The average levels of dust measured in the plant during 2005 were around 1 milligram (mg) of dust per cubic metre (m<sup>3</sup>) of air. However, by wearing respirators,



workers in this plant were adequately protected, allowing the standard of 0.5 mg/m<sup>3</sup> of dust exposure to the individual to be maintained. Whereas the standard for exposure to nuisance dust is 10 mg/m<sup>3</sup>, Rössing has a lower internal standard of 0.5 mg/m<sup>3</sup> – to ensure that exposure to ore dust, which contains silica (quartz), is kept low. Although much has been done to maintain the dust-extraction system at the Fine-crushing Plant, the equipment is reaching the end of its life and will be replaced during 2006.

# RÖSSING AND ITS EMPLOYEES

## Health promotion

The Rössing Mine's peer educator programme is a valuable tool in educating and raising awareness among staff about HIV and general health and well-being. The programme received an award in April 2005 as the best one affiliated with the Namibia Chamber of Mines' Occupational Health Education and Awareness Programme (OHEAP).

The existing HIV programme at the mine – i.e. education and awareness, voluntary counselling and testing (VCT), treatment benefits and support through the Aid for AIDS programme on the company's medical aid – was successfully maintained during 2005. A survey in 2003 determined the prevalence of the pandemic within the company and its possible effects on the mine's future. The survey found that the prevalence of 7.4% was far below that which applied to the country at the time. The participants in the survey were kept anonymous, because the aim was to identify as many employees as possible through constant VCT. This, in turn, had the objective of providing support and treatment to staff as early as possible. Education and awareness continues through the peer educators and induction sessions for new employees.

## Workplace safety

**The total of 25 injuries sustained in 2005 was the lowest number ever in the history of Rössing Mine.**

The mine worked for 12 months without any lost-time injuries. However, in March 2005 the mine suffered a fatality, when an employee sustained severe electrical burns while doing fault finding on mining equipment.

Following the fatality, the mine again experienced a number of lost-time injuries. After that, safety performance continued to improve, with the mine completing the last three months of production in 2005 without any injuries at all.

The number of injuries reported in 2005 was as follows:

Lost-time injuries (LTIs) (inclusive of one fatality)	8
Medical treatment cases (MTCs)	5
First Aid cases (FAs)	12

Although there were fewer injuries in 2005, their severity rate increased significantly because of the fatality: a 0.89 severity rate in 2005, compared with 0.08 in 2004 and 0.30 in 2003. The severity rate relates to the period of time that an injured person has been booked off: the longer the period booked off, the higher the severity rate.

Rössing strongly believes that safety and production go hand in hand. For this reason, all the team leaders at the mine conducted safety interactions on a daily basis during their walkabouts. The objective was to improve leadership participation, which in turn identified risk behaviour.

Through a quarterly internal house-keeping audit competition, employees were encouraged to improve house-keeping in their respective work areas. The top-performing sections were rewarded. This enabled the company to implement and improve workplace safety.



*"We are always concerned about the health issue. We hear from mine workers at Rössing that they complain about their deteriorating health. We would like to see facts. It's very easy to say, 'I was affected by uranium mining.' Surely Rössing have doctors employed monitoring the workers' health? It would be important for us to see medical reports, so that we can judge the situation better."*

Bertchen Kohrs,  
Earthlife Namibia,  
Windhoek

# RÖSSING AND ITS EMPLOYEES



1 DECEMBER: Rössing's employees and contractors participated in **World AIDS Day** on site, creating awareness about prevention and treatment.



WELL DONE:  
The **Mobile Equipment Workshop team** were invited to a special lunch as a token of appreciation after completing a number of tasks without any safety incidents.



SAFETY ALWAYS FIRST:  
Safe work practices among employees and contractors were reinforced through a safety promotional event on site under the title "**Big Bang**".



# RÖSSING - THE BUSINESS

In 2005, the mine produced 3,711 tonnes of uranium oxide, which was 129 tonnes more than in 2004 and 1,310 more than in 2003. In total, 19.5 million tonnes of rock were mined during the year under review: 12 million tonnes of ore, and 7.5 million tonnes of waste rock.

During 2005, 12 million tonnes of rock passed through the plant, compared with 11 million tonnes in 2004.

Whilst the South African Rand appreciated by about 11% against the US Dollar during 2005, our neighbour's currency managed to claw back its losses over the last few months of the year as commodity prices surged, capital inflows increased, and perceptions towards South Africa steadily improved. Rössing, as an exporter, once again keenly felt its dependence on the exchange rate.

Since uranium trade on the world market is done in US Dollars, sale proceeds are deposited into Rössing's banks in Namibia in US Dollars. The bulk of the US Dollar funds not used to settle any foreign debt are exchanged to Namibia Dollars within the 90-day restriction, in accordance with the Bank of Namibia's exchange control regulations. The average US\$/N\$ exchange rate dropped slightly from a 2004 average of N\$6.46/US\$1.00 to N\$6.37/US\$1.00 in 2005.

By the end of the year under review, the number of permanent employees had increased from 830 in 2004 to 860, while 510 contract employees provided services to the mine. In 2005, the salaries and benefits paid to employees totalled N\$204.8 million, of which employees paid N\$37 million over to the Receiver of Revenue as personal income tax.

As Rössing still found itself in a tax loss situation in 2005, personal income tax was the only indirect contribution that

the mine made to the Namibian Government in 2005. Payments for goods and services bought in Namibia amounted to 60% of money spent, while those bought outside Namibia amounted to 40% of expenditure.

## EXPLORATION

The year under review saw an upsurge in the uranium price, a fact which rekindled interest in uranium exploration worldwide. In line with world uranium market trends, therefore, Rössing Mine is paving the way for increased production and growing the business. A number of steps have already been taken to ensure that the mine's short- and long-term plans deliver results.

In the second half of 2005, Rössing brought in exploration geologists from Rio Tinto Exploration South Africa to take another look at areas where uranium was found during the 1970s. A helicopter survey was done, bringing in a much-needed information update about where radioactive geological formations in and around the mining lease area were, and what their size was. This was followed by an extensive literature survey of exploration records dating from the 1970s, sampling of rocks at surface, and re-evaluating historical information from past exploration drilling.

From the numerous uranium occurrences within the existing mining lease area, Rössing chose two exploration targets for further investigation, namely the SH anomaly 2.5 km west of the current open pit, and the SK anomaly 1.5 km east of the open pit.

The SH anomaly is likely to contain just over 6 million tonnes of ore, with an average of 322 grams of  $U_3O_8$  per tonne. This leaves a potential tonnage



*"It is a pleasure to see a business that large and that important in global terms to be so involved in and attentive to local problems and needs and to also to respond to those. I think that is very positive and it also indicates a high degree of business ethics, which these days are so keenly required in business worldwide – and often lacking completely."*

Anton von Wietersheim,  
businessman and Chairman of the  
Namibia Chamber of Commerce  
and Industry, Swakopmund Branch



**FILMING:**  
A UK-based film group gathered material for a film on southern Africa's Rio Tinto operations.

# RÖSSING - THE BUSINESS

of nearly 39 million still to be investigated. However, information so far has shown that most of this ore will contain betafite, a uranium mineral which cannot be processed readily by Rössing's current acid leaching system. However, Rio Tinto is continuing with research to develop a way to extract uranium from betafite.

The SK anomaly has a potential ore tonnage of 80-120 million to be investigated, as inferred from sampling and limited exploration drilling done in the past. The average grade is probably lower than 300 grams of  $U_3O_8$  per tonne of ore. Exploration drilling is expected to start in the first half of 2006.

## Exploration for Future Mining Possibilities



SH Anomaly



SK Anomaly



Mining License Area Boundary

## Mine Life Extension



# THE ARANDIS COMMUNITY

Henties Bay

Arandis

Swakopmund

Uranium

Walvis Bay

## THE RÖSSING FOUNDATION IN ARANDIS

The mining town of Arandis was established in 1976 by the Rössing Mine to house its workers and their families. It was developed to provide family accommodation for its workers, with the hope of establishing a new community that people would call home.

The mine managed the services and infrastructure for Arandis until two years after Namibia's independence in 1990, when management of the town was handed over to the Namibian Government.

In the 1980s, Rössing devoted much effort to developing and training members of the Arandis community. However, from 1994 to 2000, Rössing gradually began disengaging itself from anything that was not related to its core activities of mining. This meant excluding most of its community development activities at Arandis. Against this background, and with closure of the mine envisaged for 2009, Rössing decided to open a branch of the Rössing Foundation at Arandis, since the town and its residents continue to be heavily dependent on the mine.

The overall objective of the Rössing Foundation's work in the Erongo Region in the last few years has been to help Arandis become economically independent of Rössing Mine well before its closure. To this end, in 2005, staff at the Foundation were increased from initially only two, to five permanent employees and three members on contract, who are assisted by five volunteers.

Rössing Foundation's programmes to assist the Arandis Town Council have concentrated on a full spectrum of the community's development needs.

From the middle of 2005 the Foundation began to review its approach and to develop a new strategy to assist Arandis in reducing its dependence on the mine. To inform the new strategy, a socio-economic baseline study was carried out between July and August 2005. The study highlighted a number of development issues that needed to be addressed if Arandis was to become a sustainable municipality. Staff from the Arandis Town Council, Rössing Foundation and Rössing Mine worked through the findings of the study in detail, and began drafting a development plan to be put in place by mid-2006.

### Schools

Quality education is the backbone of any community and the country at large. It ensures that school-leavers are well equipped to further their training and so prepare themselves for suitable careers. The Programme for Technological Careers (PROTEC) course model is being considered to assist the Arandis schools as well as secondary schools in the Erongo Region with science, mathematics and technology, so that learners are able to follow careers in engineering, computing, medicine and related fields. PROTEC is an independent, non-profit educational service provider in South Africa that specialises in science, mathematics and technology education. Work is under way to adapt the PROTEC model to suit the Namibian curricula by 2006.

Educational support for Arandis schools continued in various fields. Spring School, an initiative that began in 2004, saw 120 Grade 10 and 12 learners from both the Kolin Foundation Secondary School and SI Gobs Secondary School attending. This initiative help learners prepare for their exams.

Other current projects are supporting teachers in science laboratory teaching; the use of a language laboratory – from which 200 learners have already benefited; remedial classes for Grade 1 to 4 learners to improve their reading and comprehension skills; and support for tuition programmes in English, mathematics and science subjects. These projects will continue until 2009.

The Rössing Foundation's Tamariskia and Arandis libraries are still well utilised, as evidenced by the 27,184 users recorded during 2005. The library service is a long-term programme carried out in conjunction with the Ministry of Education. The Ministry is envisaged to take over ownership of these library services by 2009.

### Agricultural promotion

Although the town of Arandis is situated in a desert environment and is not ideal for agricultural production, a number of projects are showing results. The produce grown is intended as a dietary supplement as well as a possible source of income from sales.

The community's gardening projects continued in 2005, with the Rössing Foundation again assisting in the promotion and marketing of the fresh produce generated. The Arandis Old Age Garden Project continued delivering vegetables to a business outlet in Swakopmund, while the Ratanang Gardening Project made good progress in cultivating vegetables. It plans to enter the market as well by 2006.

A Mushroom Cultivation Project was launched in 2005. The Rössing Foundation coordinated the training of five trainers and 15 project members from Arandis. Other partners in this project are the University of Namibia and the Arandis Town Council.



# THE ARANDIS COMMUNITY

## Recreation and culture



*"I hear many people say, 'If only we had a bank, people would buy things here.' But I don't think so. If we draw our money from a bank, where do we buy? That's a problem. We need investors to come here even before we get a bank. We need investors to open up their shops here. But the people from Arandis must also start their businesses – then investors from outside will see that something is happening here. We, the residents of Arandis, have good ideas, but we cannot begin our businesses without financing. We really need help with financing. If I apply for a loan, they look at my salary and then I don't get any help because my salary is very low."*

Eunice Guriras,  
aspiring entrepreneur,  
Arandis



*"I've won entrepreneur awards for bright ideas. All these certificates you see on the wall are courses that I've done, work that I've done. I have a lot of experience in this stainless steel market and I want to share it with the community."*

Daniel Amaambo, entrepreneur  
(Namibia Sheet Metal  
Manufacturers), Arandis

When the Rössing Foundation started to work in Arandis three years ago, it was with the understanding that sports and cultural activities would help to bring members of the community together after school or work. A number of recreation and culture programmes were embarked on, therefore, which have helped to form a new community spirit amongst many Arandis residents.

The highlight of 2005 was the annual Arandis Sports Weekend, which took place in June. Over 300 sports enthusiasts participated, with soccer, netball, road running, volleyball, tennis, judo, boxing, and darts being featured. Soccer in particular enjoys considerable interest, with 84 players participating in the soccer league to play in Arandis and elsewhere in the country.

During the year under review, music theory and practice were provided to schools and the community in general through chorus singing, a recorder group, a brass band, and piano lessons. Some learners were also registered with the College of the Arts and wrote examinations in, for example, music theory and practice as well as the visual arts.

## Tourism

The area around Arandis shows significant potential for tourism development and natural resource management. The Rössing Mountain, the Khan River, Arandis itself, and several mine sites – including Rössing Mine – are features that can be brought closer to the tourist's interest for Arandis's benefit. This is exactly what the Arandis Urban Conservancy Committee, which was formed in 2004, has set itself to do. The concept of an urban conservancy is new to Namibia, so there is as yet no legislation in place

to guide such enterprises. Nonetheless, the Rössing Foundation was actively involved in furthering the concept, and provided training and raised awareness among the members of the conservancy's management committee. Training was offered in effective leadership, good governance, and committee members' roles and responsibilities. Educational trips to Tsumeb and the Erongo and Otjozondjupa Regions were organised to expose members to operational conservancies and their activities.

At the end of April 2005, the Arandis Urban Conservancy organised the Arandis Cultural Festival. This highly successful and memorable event strengthened networking with cultural groups in the Erongo Region and the rest of the country. The festival demonstrated that cultural groups gave great weight to preserving our cultural heritage. Another festival is planned for 2006.

During the last quarter of 2005, the conservancy ran an HIV/AIDS awareness programme partly financed by the Namibian Association of Community-based Natural Resources Management Support Organisations (NACSO). Through this programme, 700 residents gained a better understanding about HIV/AIDS, peer education, counselling and testing, and how to get further information and assistance.

In addition to the work in Arandis, the Foundation also assisted about 100 members of other conservancies in the Erongo Region. This included input in basic tourism training, benefit distribution planning, facilitating meetings, boundary mapping and demarcation, and conservancy registration. Community groups in Erongo were also informed about conservancies and their activities in the Region.

# THE ARANDIS COMMUNITY

## Business development

The aim of the Rössing Foundation's Business Development Programme in Arandis is to equip residents with skills and so increase their opportunities for employment. A number of small- and medium-scale (SME) initiatives have been launched through the programme, and at least 384 Arandis residents (299 female and 85 male) benefited from it in various ways during the year under review. Among these beneficiaries were the SME members who participated in the Swakopmund and Walvis Bay Trade Expos, the Ongwediva Trade Fair and an Arandis SME Exhibition.



*SME EXHIBITION:  
SME members participated  
in several exhibitions.*

## Local government and infrastructure

The Rössing Foundation assisted the Arandis Town Council in a number of areas in order not only to strengthen service delivery to the town's residents, but also to support the Council in the daily management of municipal affairs.

One of the most critical issues for the Council is to ensure the supply of water to Arandis residents. To make certain that NamWater does not cut off supply to the town

because of unpaid bills, the Council has to optimise the way it collects money from residents. In addition, it is very important to ensure that there are no leaks in the distribution network so that water – and money – are not wasted.

During the year under review, NamWater assisted the Town Council by detecting and repairing water leakages, resulting in a 20% reduction of the water losses in Arandis, while the mine assisted it by providing maintenance materials worth N\$150,000. An important initiative taken during 2005 was the replacement of non-functioning prepaid water meters by conventional meters. In order to prevent losing money from residents' unpaid bills, a system of suspending the supply of water to such users was introduced in December 2005.

In 2006, the Town Council will employ a debt collection service to arrange with defaulters to pay their outstanding fees. In support of this move, the debt collection company will offer training in and awareness-raising about water conservation and water demand management to all Arandis residents.

As regards capacity-building, the Town Council's four Heads of Department received training on disciplinary procedures. The aim of the training was to ensure that proper disciplinary hearings could be conducted to address a potential lack of discipline within their Departments. The Customer Care Manager, Receptionist and the Personal Assistant were trained in their roles and responsibilities, in customer care, in telephone etiquette, and in presentation. Staff in the Financial Department were also given training in the use of accounting software.



*"We have been living in Arandis for the past*

*8 years and we're very happy. I will not exchange this town for any other place in Namibia. It is quiet and relaxed here; we don't have any crime or burglaries and the community is very helpful towards each other. All my kids grew up in Arandis; they finished school here at the local school and achieved good results."*

Bets Coertzen,  
Arandis resident and wife of  
entrepreneur,  
Arandis

*"Even though the clay is 20 km from Khorixas, I want to start the business here in Arandis. The tourist attraction is better here than there. The water and electricity are enough in Arandis. I grew up in Arandis and went to school here – for the past 25 years; and I will never want to move to any other place. I like the place very much, so I'd rather start the clay business here where I grew up."*

Eunice Guriras,  
aspiring entrepreneur,  
Arandis

# THE ARANDIS COMMUNITY



*"Arandis would make a wonderful Centre of Education. NIMT is already a technical college of excellence, and the Kolin School in Arandis in days gone by has produced some of the best locally educated people in Namibia. With the return of the Rössing Foundation, the opportunity for Arandis to be the learning centre in Namibia is there. To add to this, Arandis is a safe and healthy environment for children. I also think Arandis would be an ideal place to set up any industry with its good weather, no rust problems, plenty of space and Government assistance. It is ideally situated next to a railway line and the Kalahari Highway, with no great distance to Swakopmund and the Walvis Bay harbour."*

Jenny Carvill, businesswoman (Karakulia), Swakopmund



*"Everyone knows each other, so when something happens to someone, there are always people that will help you. Long ago, when the town started, things were even better, but unemployment is a problem. People don't have jobs, so they don't have money to buy things, like from my shop. But we still survive – I can give my kids and family food and we would never live in any other place."*

Max Moalusi, entrepreneur (Vicky's Shop), Arandis

*"Rössing Foundation has given people courses. Maybe for three weeks or three months you will do a course, but you will not reap the fruits of that course because you still don't know how to get a job or use your skill to make a living. After the course, you may know how to work on a computer or how to bake a wedding cake, but you still don't have customers to whom you can sell your products. And that's a big problem here in Arandis. We have many people that can do a lot of things, but they don't know where to find customers."*



Gisela Neib, co-owner of Paradise Restaurant, Arandis

*"I am very excited about this, because I want to work for Arandis. I want to see development in the town. I want to employ the youth so that they have something to do and earn some money. I don't want to see Arandis becoming a ghost town – we want to be independent, so that one day when Rössing closes down, then Arandis is a place in its own right."*



*The reason why I started this cleaning and maintenance business is because I thought of the unskilled people who live here in Arandis that are unemployed."*

Victoria Emma Naoxas, aspiring entrepreneur, Arandis



## SWIMMING POOL:

*It took a young entrepreneur to reopen the Arandis swimming pool, to the delight of the town.*

*"When I was at school, I was a swimming champion. Unfortunately, I had limited opportunities to further my swimming career. Now it's wonderful to hear the screams of delight of the children when they jump into the water. My plans are to upgrade the swimming pool – it was very neglected – and it is a constant challenge to ensure that the business can carry itself since a lot of chemicals are used. There are always business opportunities in Arandis and I would encourage people, especially from Windhoek, to explore the potential for business here. I'm involved with the Business Association of Arandis and it is very satisfying. I have great respect for the people of Arandis who, despite their difficulties, do not complain – they always appreciate what they get. I really enjoy it here and, without a doubt, I will stay here. My wife and kids are also happy here."*

Fransico Resandt, entrepreneur, Arandis



# THE ARANDIS COMMUNITY

## THE ARANDIS TOWN COUNCIL

In 1992, the town of Arandis was given over to the Government of the Republic of Namibia, and in 1994 it was proclaimed as a town. The Town Council took over management of the town from Rössing.

I faced many challenges in Arandis the moment I stepped in as mayor. We have a 36% unemployment rate [there].

I was also faced with a huge water loss of nearly 60%, due to the fact that Arandis was built to last for only 20 years, and many of the water pipes had started collapsing a few years ago. We also faced a problem with the water meter system introduced in 2000 by a local company that later closed down. We are working on the water loss challenge together with NamWater, and it is still my Priority No. 1.

We are also currently working on a strategic plan for the town for the next ten years. By the tenth year we want the town to be sustainable. The plan is divided into phases, so that by the tenth year everything will be in place, and the town will be economically independent. I have the courage, and I am convinced that we can work with our current team, and that we can overcome the challenges.

Rössing Mine is also one of the stakeholders in Arandis, together with the Rössing Foundation, and they still have a social responsibility towards the town.

We also have different categories of people living in the town, which makes it more difficult to manage. We have the youth, who have either dropped out of school or cannot find work although they have completed their schooling. The other category constitutes pensioners, who either used to work for the government or the mine. Many of them can hardly afford to pay for their houses and services.

When I took over the mayoral position I was met with demonstrations, but we managed to talk to the people. The conclusion was that much miscommunication existed between the Town Council and the community. This is an area that we managed to improve on. I see that trust is once again being built up within the community, and that is a big plus.

So these are some of the challenges that I'm facing. We also have a lack of banking facilities in the town, which contributes towards investors passing Arandis by. People travel to Swakopmund in order to draw money and buy their groceries. We undertook a study last year and found that N\$9.3 million of the residents' money is being spent elsewhere instead of in Arandis.

In terms of the economic growth of the town, it is a fact that many investors do not want to invest in the town because of the lack of facilities and a petrol station. We are working towards that because we want to attract investors to Arandis. We have many SMEs, specifically those initiated by women in the town, and there is a big need for space where they can sell their goods, like industrial parks. [The need for an industrial park] is something that I have already brought to the attention of the Minister of Trade and Industry.



# THE ARANDIS COMMUNITY

A lot of discussions are taking place with investors, people whom we want to have invest in the town, but it is not an easy task. We have to convince them why we want them to invest. Most of the things I mentioned earlier make our position very difficult. But as soon as we have that breakthrough, i.e. facilities like a bank and petrol station, it will make our task much easier to convince the investors.

Currently we are in discussion with a bank to open a full branch here. We are also in discussion to build a petrol station, and the discussions are very positive.

Although there are some activities in the town – like the new swimming pool that opened, a restaurant, things like that – we want more. The swimming pool is great because we didn't have recreational facilities for the youth [before]. And of course, two or three people are now being employed there as well, so they are earning something at least. That is also one of our conditions for the investors: that they must employ local people. Another restaurant also opened recently, selling groceries, fish and chips. These businesses are also contributing towards the revenue of the Town Council, so we are very eager for more businesses to open here.

Communication between the Council and the community is critical, because everything that is happening will affect the community or benefit it. Even if you do something that will benefit them, if you didn't communicate it to them, they might not accept it. So communicating is very important when you're dealing with communities. We have already started with regular community meetings, updating people on what's happening.

There are no criteria for becoming an elected leader within the party system that specify you have to be well educated or have a master's degree or whatever. As a result you might have people who are not well educated, but who are in a position to lead people. The Rössing Foundation is now focusing on building capacity among the Town Council's staff as well as the leaders and the councillors.

The youth of Arandis have also started to organise themselves. They now have a Constituency Youth Forum.

Last year we appointed a consultant to do a baseline study of Arandis, and that was completed middle of the year. We identified the risk areas and incorporated the results of the study within our Ten-year Plan we are working on.

We would like to make this town a model for the rest of the country's towns. We want to make Arandis a centre of excellence. We have a mining [educational] institution, which is one of the best in southern Africa.

I'm quite confident that the future of Arandis is positive.

Daniel Muhuura  
MAYOR OF ARANDIS



# RÖSSING IN THE ERONGO REGION



## BUSINESS PARTNERS IN THE REGION

Most of the benefits mining can bring to a region and a country are through purchases of goods and services from local suppliers and service providers. In order for it to run efficiently, however, Rössing Mine cannot only draw from local suppliers. This is partly because local supplies are not necessarily available. Those that are available are not always priced at a level that allows the mine substantial savings during times of economic survival.

Nonetheless, as in the past, more than half of the money spent during 2005 was in Namibia. Namibian companies are classified as those that have a Namibian business address.

In addition to purchases from NamPower and NamWater, fuel supplies, contracting services and transportation services make up the bulk of Namibian purchases. Major purchases from South Africa include spares for heavy mining equipment and some major consumables like explosives and steel. Sulphuric acid is bought through Transammonia, a company registered in Switzerland.

*"I think Rössing Uranium has since its inception been a very decisive factor for the coastal community and coastal economy. Even after the many changes that Rössing had to go through, which of course affected the business community and the town every time they happened, the community can be very grateful that things turned out the way they have now, where it seems the uranium business is flourishing once again and the mine will be in business for an additional number of years. Therefore, the positive effect that Rössing creates for the community can continue, and as far as I'm concerned, their social commitment as well as their business partnership is exemplary. I think Rössing is a model for businesses of the future, in that it is important not to be solely profit-minded, thereby ignoring everything else around you, but to foster community awareness and act in a socially responsible way – and that is very positive."*

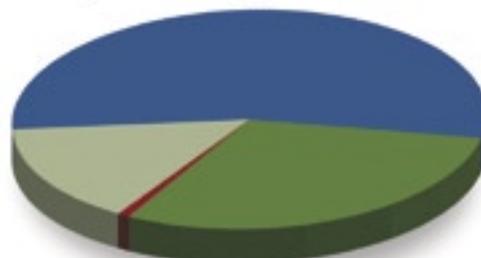
Anton von Wietersheim,  
businessman and Chairman of the  
Namibia Chamber of Commerce  
and Industry, Swakopmund Branch



*"We used to have a number of contracts with Rössing for the supply of various commodities. But at the end of 1999, all contracts with the local suppliers were discontinued because Rio Tinto decided that they wanted their various product ranges to be supplied by one supplier to all their mines in southern Africa, i.e. Phalaborwa, Richards Bay, Zimbabwe and Swakopmund. Seeing that it was not viable for us to supply these mines in South Africa and Zimbabwe, we were unable to quote on the contracts. By the end of November 2005 promises were made by Rössing that they would be introducing new contracts for the supply of material to Rössing only, to support Namibian suppliers, but nothing has materialised as yet. Over the past couple of years, our business with Rössing was roughly 3.5% of our total turnover, which is not much compared with the early 1980s, when it was 80%. In general, new mines that intend to operate in Namibia always promise that they will support the local suppliers, but unfortunately this is not very often the case."*

Pietie Dierking, businessman  
(Swakop Electrical Supplies),  
Swakopmund

Payments to Suppliers in Namibia



Swakopmund	30%
Arandis	1%
Walvis Bay	15%
Non-regional suppliers	54%

# RÖSSING IN THE ERONGO REGION



## COMMUNITY ACTIVITIES

### Rössing Mine

#### Rössing Foundation

A few hundred small-scale miners in the Erongo Region exploit various semi-precious gemstones in the Otjimbingwe area, and the Spitzkoppe and Erongo Mountains. These miners sometimes work in difficult and dangerous conditions without proper training or equipment.

The Rössing Mine, in conjunction with the Rössing Foundation, Arandis, is committed to supporting small-scale miners through training and the supply of safety equipment in an effort to improve their working environments.

Various organisations have been working together and have pledged to contribute towards erecting stalls from which the miners can sell their gemstones. These include a local architecture firm, the Navachab Mine, the Erongo Regional Council, the Anibed Fishing Company, and the Bundesanstalt für Geowissenschaften und Rohstoffe (BGR).

As part of its corporate social responsibility, the Rössing Mine supports the aims and objectives of the Rössing Foundation through additional community activities, specifically in the spheres of sustainable development, environment, education, health, and recreation. The following highlights were recorded for the year under review in this respect.

Cash and in-kind donations were made to the value of N\$455,994, up from about N\$300,000 the previous year. These donations benefited more than 60 organisations, mainly in the towns of Arandis, Swakopmund, and Walvis Bay, but also others in the Erongo Region. A number of the main donations and sponsorships focused on the following projects:

- Rössing again donated N\$50,000 to the Erongo House of Safety, which is a registered Children's Home and Place of Safety for vulnerable children.
- Through sponsorships, the company supported SOS International and the "Together We Care" road safety campaigns, and sponsored two vehicles for the Namibian Police's traffic monitors along the coast over the festive season.
- After a long absence the company reintroduced the Driver of the Year competition under the banner "Safety Always First" to promote responsible driving in general. The event was well attended, with entries from various transport companies.
- The Rössing Namibia Marathon Championship and 10 km Race demonstrates Rössing's commitment to promoting a healthy lifestyle. In 2005 the event was hosted for the 14th year and has now become a well-known item on the southern African athletics calendar, with attractive prizes in all categories.

*"I don't have any concerns. The big thing for them is the extension of the mine until 2016 and I think the fact that they've managed to extend it is absolutely fantastic. With the [prospect] at one stage of them not being around in a few years time, it was a big threat to Swakop, because the economy is already suffering with other industries not doing well. Tourism and fisheries have both been suffering, but are now on the mend. The fact that Rössing managed to extend the lifespan of the mine is phenomenal and fantastic."*



Robert Hodson,  
General Manager,  
Swakopmund Hotel and  
Entertainment Centre,  
Swakopmund

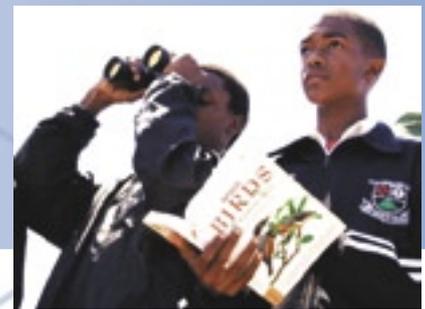


**MINERS:**  
Small-scale miners in the Erongo Region work in difficult conditions.



**SAFE DRIVING:**  
After a period of absence Rössing reintroduced the Driver of the Year competition. The event promotes safe driving skills.

# RÖSSING IN THE ERONGO REGION



Proceeds from the 5 km Charity Walk were again donated to the Cancer Association of Namibia.

- Rössing rendered support to the Gobabeb Training and Research Centre, where various environmental research projects are undertaken.
- Books promoting science, mathematics and environmental subjects were donated towards the annual prize-giving events at local schools.
- As part of the Rio Tinto partnership with BirdLife International, Rössing held a fifth birdwatching event in October 2005. A total of 54 learners, representing nine local schools, attended. With the assistance of eight bird specialists and guides, the learners identified 30 species at the Walvis Bay lagoon. After years of supporting the Damara Tern Fencing Project, which was concluded in 2004, Rössing introduced its sponsorship for the Seabird Rehabilitation Project at the coast.

## MANAGING ERONGO'S WATER TOGETHER

The Coastal Bulk Water Users Forum, established in 1998, continued its quarterly meetings to share information about long-term bulk water supply issues. Members of the Forum are the Town Councils of Arandis, Henties Bay, Swakopmund and Walvis Bay, as well as representatives from the Namibian Ports Authority (NamPort), Rössing Uranium, Langer Heinrich Uranium, NamWater, and the Ministry of Agriculture, Water and Forestry's Department of Water Affairs.

The focus in 2005 was on the reliability of the water supply in view of NamWater's aging infrastructure and the sustainability of the available groundwater resources, taking into account the addition of new bulk water users. To supply Langer Heinrich Uranium as well as its existing customers, NamWater announced plans

for a major infrastructure upgrade to be completed by 2010. This includes the construction of a pilot plant for seawater desalination.

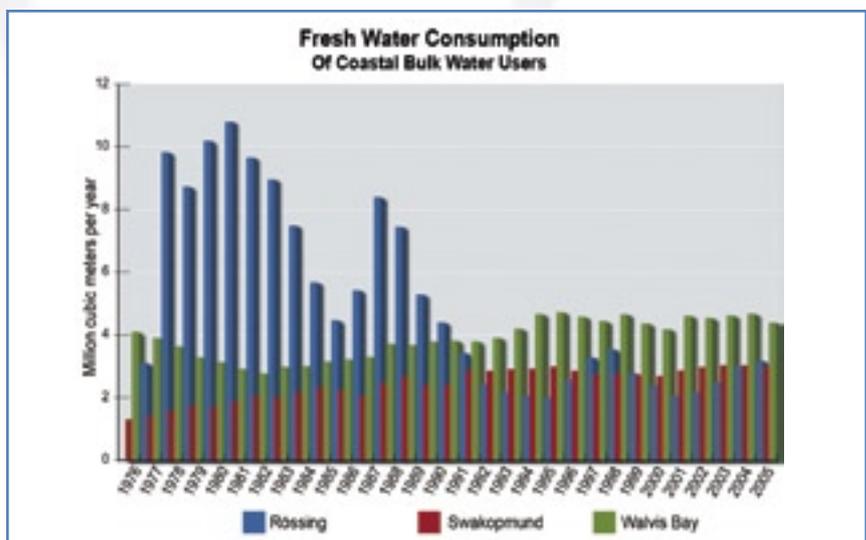
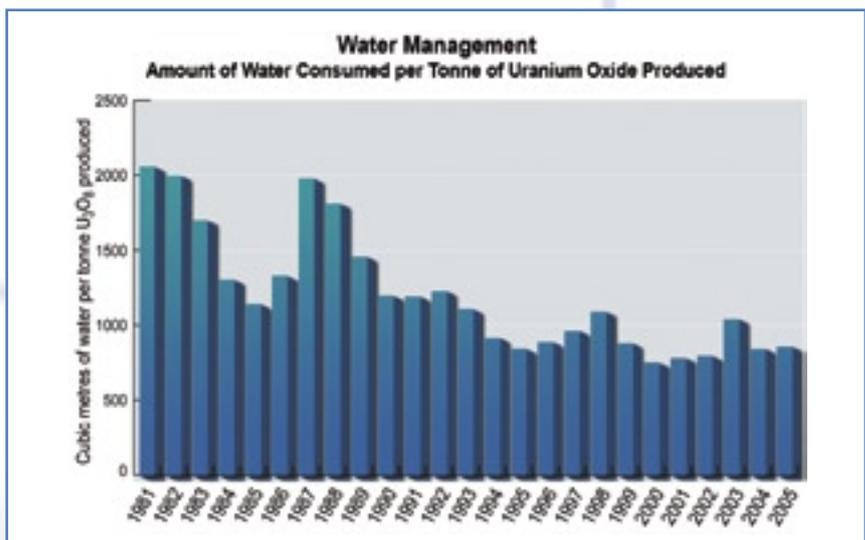
The Ministry of Agriculture, Water and Forestry has taken the first steps towards the establishment of the Omaruru-Swakop Basin Committee, in which Rössing will play an active role. Basin committees, as provided for in the new Water Resources Management Act, 2004 (No. 24 of 2004), are organisations that will ensure that all water users' needs are addressed in water supply planning.

### BIRDING:

*A number of learners from coastal schools joined the fifth Rössing Bird-watching Day at the Walvis Bay lagoon, where they identified 30 bird species.*

### The mine's water use

Rössing Mine's fresh water consumption in 2005 was higher than planned. A total of 3.17 million cubic metres were used, compared with the planned use of 2.85 million. More fresh water was used than expected because less recycled water



# RÖSSING IN THE ERONGO REGION

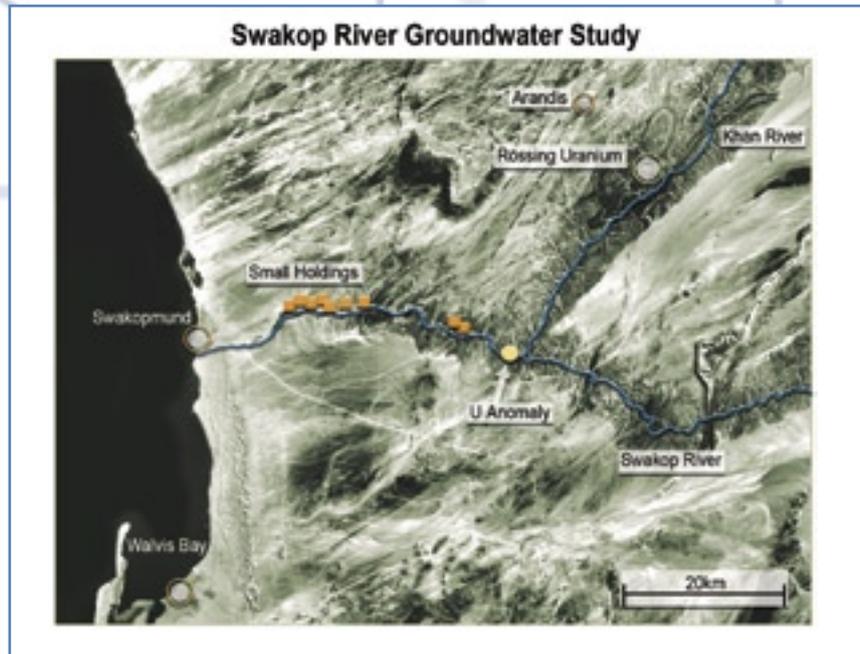
from the tailings dam was recovered to supplement the fresh water usage. The recycle pumps failed to deliver the expected amount of recycled water and resulted in a higher evaporation rate on the tailings dam. The upgrading of the recycle pump system started in 2005. For 2006, the target is 3.06 million cubic metres.

With the mine's life being extended for at least another ten years, water savings projects planned during 2005 will be implemented in 2006 and completed by early 2007.

Although production at Rössing will increase, these water savings measures will reduce the mine's consumption by 24% from its current levels to an average of 2.31 million cubic metres a year from 2008.

## Rössing's water strategy

In February 2005, Rössing put a water strategy in place and developed a water management plan to achieve its objectives. An assessment of risks related to water use and supply was carried out with some of Rössing's stakeholders, which helped focus on the issues most



relevant to Rössing. These included identifying further opportunities for water savings, negotiations with NamWater to improve supply assurance, and improving the mine's water balance and accounting. As anticipated in the strategy's objectives, there was regular communication with other bulk water users and stakeholders in the Erongo Region. In addition, water efficiency was one of the principles honoured in the

planning for the life-of-mine extension.

Amongst the ongoing water-related activities, a study was undertaken to determine the true value of water in the local context, implement the Rio Tinto Water Standard, continue the cooperation with farmers along the lower Swakop River, and enhance the water recovery systems at the mine. Plans for 2006 include the introduction of water awareness training for all new employees and contractors.

The investigation of groundwater resources and water quality in the lower Swakop River farming area, which was requested by the local farming community and began in January 2004, was continued throughout 2005. While water samples and water level data were being collected, an isolated uranium anomaly in groundwater was discovered near a farm in the Swakop River, 30 km downstream from the Rössing Mine. Although drinking water at the coast is supplied from the Kuiseb and Omaruru Rivers and not from the Swakop, farmers in the area are concerned as they pump their irrigation water for farming activities from the Swakop River.



# RÖSSING IN THE ERONGO REGION



## DRILLING PROJECT:

*A number of boreholes have been drilled in the Swakop River to assess the water quality.*

The uranium concentration in groundwater at the anomaly is around 0.15 milligrams per litre, compared with an average background concentration in the Swakop River groundwater of 0.05 milligrams per litre. In June 2005, Rössing drilled seven boreholes in the area of concern to determine the extent of the uranium anomaly, and to investigate whether it was a natural or mine-induced phenomenon.

The mine and the owners of smallholdings have formed a working group to coordinate a radiological dose

assessment by an independent expert. The outcome of a preliminary assessment indicates that there is no health risk on account of radiation to groundwater users. According to the water quality monitoring results to date, the anomaly is not moving downstream with the flow of groundwater; this indicates that the anomaly is natural in origin.

The area between Swakopmund and Usakos is characterised by numerous showings of uranium-bearing rock, and groundwater uranium concentrations in that area are higher than in other

groundwater sources in Namibia. A moving anomaly could have indicated a potential historic contamination event, with an anomaly migrating away from its source. Monitoring will continue during 2006.

Two media days were held in 2005 to inform the public about the area of concern to the mine and to farmers in

*"I don't think we have enough water for the long-term development of the area. Maybe now, for the time being, we have plenty of water, but there will be a time again where we have a shortage of water. And we don't know where the new mine is going to get its water. Is it also going to come from the Omdel Dam?"*



*I don't know. But it is a concern to see all these developments happening, but nothing is happening with the desali-*

*nation because it is too expensive. The amount of water that the mines use is much, much more than what the consumers are using. The closing down of the breweries has had very little effect on the water consumption, because they actually used very little in comparison to the mines. In actual fact, I would suggest that the Government should make it a requirement for the next mine that wants to operate here, to use water from the sea."*

Freddie Herzberg,  
businessman, Walvis Bay

*"In terms of having Rössing as a neighbour, I don't have a problem. I think they feel responsible for the environment. They do tests at our farm as well as at other farms in the area. They test the quality and quantity of the groundwater to see if the water is affected. Uranium mining is always a risky business, but as long as one is responsible and makes sure that things don't go wrong, it can have minimal negative effects. I have a lot of confidence in Rössing. What I've seen and experienced of them, they are serious in looking after the water and the environment."*

George Ellis,  
vegetable  
farmer,  
Swakop River



*"Henties Bay, Walvis Bay and Swakopmund get their water from the Omdel reservoir. Walvis Bay gets extra water from the Kuiseb River. The Rössing Mine is the main [user] of groundwater from the Omaruru River. [The mine takes] more water than Swakopmund, or they say about an equal amount. The problem is going to become bigger, because Rössing is not going to be the only uranium mine now."*

Kai Ermann,  
farmer in the  
Swakop River  
area



*Rössing is definitely more open with communicating to the public than what is was in the past. They have meetings with the public [and] they test the water at the smallholdings. It's good, and it's an improvement on the past. They are more transparent than I thought they would be."*

# RÖSSING IN THE ERONGO REGION

the Swakop River. At the event, the work programme of the Swakop River Farmers' Working Group and the outcomes of the studies commissioned by the Working Group were shared with the media. Stakeholders will be kept informed about further study results during 2006.

## PROTECTING THE ENVIRONMENT

In order to support the management of environmental protection, the International Standards Organisation (ISO) developed the ISO 14000 series of standards. These guide how environmental protection needs to be managed to ensure it is continuously improved.

Rössing's implementation of an Environmental Management System (EMS) that complies with ISO 14000 allowed it to receive ISO certification in February 2001. Since then, the mine's EMS has been audited regularly by the independent organisation, Bureau Veritas Quality International. Three audits were carried out during 2005, and although a number of findings were reported, the ISO 14001 certification was maintained.

## ENERGY USAGE

Rössing Mine is one of the largest energy users in Namibia. Whereas electricity is used in most areas of the processing plant, the electric shovels, and the electric overhead lines for the haul trucks, diesel is used by most of the mining equipment in the open pit. The total consumption of fuels and electricity is related to the total energy used. Expressed as energy used per tonne of ore processed, it gives a good measure of energy efficiency for Rössing's mining and production processes.

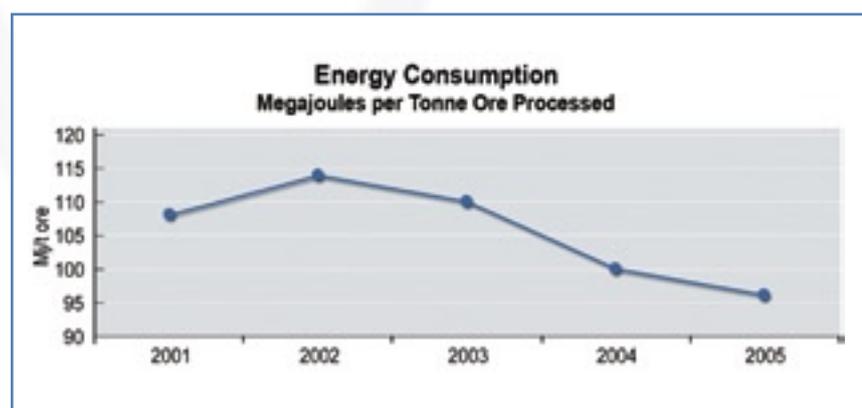
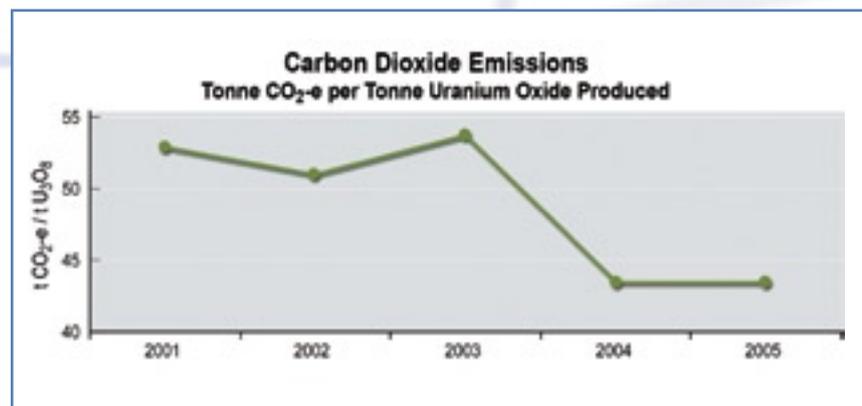
A further improvement in energy efficiency was achieved in 2005. Energy

consumption was 95.8 megajoules per tonne (MJ/t) of ore processed. This was within the 2005 target of 97.5 MJ/t. The target for 2006 is to reduce the energy consumption by 2.5% of the target achieved in 2005.

## GREENHOUSE GAS EMISSION

Greenhouse gases like carbon dioxide (CO<sub>2</sub>) are produced when coal or fuels are burned. Since about half of the electricity used in Namibia originates from coal-fired power stations in South Africa, the mine's energy consumption contributes to the generation of greenhouse gases. Targets were set within Rio Tinto to reduce greenhouse gas emissions by 20% between 2003 and 2008.

Greenhouse gas emissions at Rössing during 2005 amounted to 43.4 tonnes of CO<sub>2</sub> equivalents per tonne of U<sub>3</sub>O<sub>8</sub> produced, which was slightly above the target of 42.5 tonnes of CO<sub>2</sub> equivalents per tonne of U<sub>3</sub>O<sub>8</sub> produced. Currently, Rössing is still in step with the target to reduce its long-term greenhouse gas emissions by 20% by 2008. Thus, the reduction in greenhouse gas emissions evident in 2004 was continued in 2005. The target for 2006 is to further reduce the level by 2.5% of the actual emissions in 2005.



# RÖSSING IN NAMIBIA

## THE RÖSSING FOUNDATION: MEETING NEW CHALLENGES

### Supporting education

Although Namibia spends more than 25% of its national budget on education, the overall outcomes are still below the required levels to meet the demands of both the private and public sectors. As part of its overall contribution towards the education sector, the Rössing Foundation assists young students to complete their tertiary education. In 2005 a total of 38 Namibian students at local institutions received support through the Kolin Foundation Bursary Programme.

In further support of education in mathematics and science, the Rössing Foundation – in partnership with the Ministry of Education – manages a computer-assisted programme for these two subjects. Based in Khomasdal, the programme assisted more than 750 learners from local schools to improve their marks in their final three years of secondary education.

### Community Learning Centre, Ondangwa

Broadening the horizons of all Namibians, particularly those that have previously had limited access to some areas of information and knowledge, has prompted a significant shift of development activities at the Ondangwa Centre.



#### INFORMATION TECHNOLOGY:

*At the Rössing Foundation's Community Learning Centre in Ondangwa, students make use of computers to gain information and knowledge.*

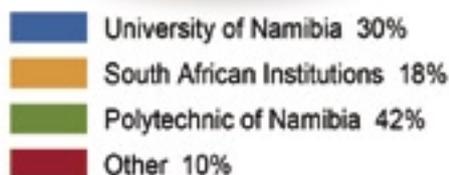
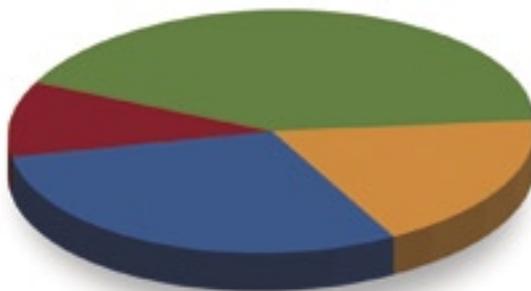
Increasingly, the growth of information and communication technologies (ICTs) challenges the development sector to respond to new needs. With this in mind, the Rössing Foundation began

implementing a significant shift of resources to the field of ICT.

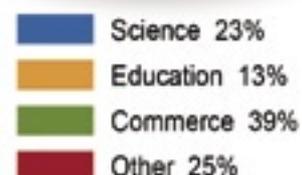
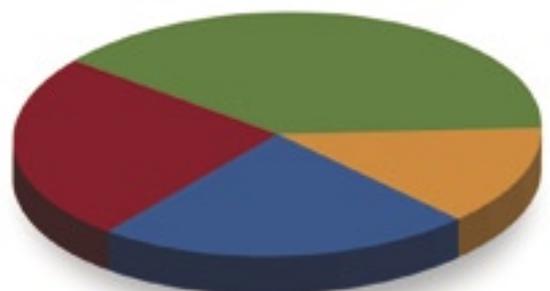
This has translated into four new areas of operation:

- Rössing Foundation has entered into a strategic partnership with SchoolNet Namibia to strengthen their capacity to roll out ICT solutions into schools in northern Namibia.
- The Centre has increased its capacity to deliver ICT training. Currently, three training facilities exist that offer end-user training on both proprietary (e.g. Microsoft) and open source (e.g. Linux) software.
- The library facility at the Centre has full Internet access and allows for research and related activities to complement the facilities already available.
- The Centre is also starting to investigate new opportunities available through the Free and Open Source Software (FOSS) initiatives that promote sharing information and knowledge. In these initiatives, participants are not only consumers of knowledge, but can also potentially contribute towards a body of knowledge.

**Institutions of Study**  
For Kolin Foundation Bursary Programme - 2005



**Fields of Study**  
For Kolin Foundation Bursary Programme - 2005



# RÖSSING IN NAMIBIA

Building on this base, the Rössing Foundation will start making use of new technologies such as wireless connectivity. In addition, an e-Business Centre is planned for 2006.

Coupled to these new developments is the continued work in language training as well as on vocational training programmes offered at the Centre.

## *Management of natural resources*

Funding has been secured to further the initiatives of four registered conservancies in northern Namibia. This technical support has focused on developing the capacity of local management committees to look after the conservancies' interests and take advantage of opportunities for local investment. The Uukwaluudhi Conservancy, for example, has now finalised a joint venture with a local lodge operator and developments are expected to materialise in 2006.

One of the Namibian Government's objectives is to promote the development of value-added activities in the production sector, and not to rely totally on exporting raw materials. With this in mind, the Rössing Foundation embarked on a programme of encouraging the processing of oil from the marula fruit, a product in great demand in the cosmetics industry. To add further value to the product, the Rössing Foundation in partnership with the Centre for Research Information Action in Africa (CRIAA) has started a process of obtaining organic certification for the product. This will increase the product's value fourfold on the international market. The process involves the registration of participating farmers and an extensive mapping of marula trees. Once the pilot project is completed in mid-2006, it is anticipated that the exercise will expand into other natural resources such as the melon seed and hoodia plants found in southern Namibia.

## *Small enterprise development*

In partnership with the Omba Arts Trust and Mudhut Trading, the Rössing Foundation continues to support the growth of small enterprises in the craft and tourism sector. With a focus on the higher-end niche markets, the emphasis of support is on product design and quality development to ensure that production meets the demands of a discerning market. The highlight of 2005 was undoubtedly the opportunity to showcase a product range called Pearls of the Kalahari at the prestigious South African Fashion Week held in Johannesburg, South Africa. The items were manufactured by San producers and designed by an international designer, Mickael Kra, from the Ivory Coast.

In 2005, the Rössing Foundation once again completed a year of contributing towards the development goals of Namibia, in the process making a real impact on the lives of many Namibians.



# RÖSSING'S PRODUCT AND ITS CUSTOMERS

## THE FUTURE OF URANIUM

With great interest, Rössing followed the changes in the uranium market and the uranium price – which continued its dramatic 2004 recovery during 2005.

The spot market price for  $U_3O_8$ , as published by Ux Consulting Company, rose over 70% – from US\$21.00 in January 2005 to US\$36.25 in December 2005. Buying activity was high throughout most of the year, as the power utilities sought to satisfy their short-term requirements and build inventories in the face of current uranium supply uncertainties.

The long-term price, under which Rössing sells most of its product, remained higher than the spot price for most of this time, rising from US\$26.00 to US\$36.25 by year-end. This represents the largest percentage gain since the 1970s. However, the continued weakness of the US Dollar reduced this gain significantly. Rössing's uranium is sold in US Dollars and the weaker the Dollar is compared with the SA Rand – to which the Namibia Dollar is linked – the lower the Namibia Dollar earnings are through sales. Furthermore, Rössing's average delivery price during 2005 was well below that in the prevailing market, due to the lagging effect of existing long-term contracts signed in previous years. As these older contracts fall out of Rössing's contract portfolio in the next few years, they will be replaced by contracts at today's market levels.

The primary causes of this two-year price increase have been the depletion of inventories built up in the past, a reduction in the availability of secondary supplies such as uranium from weapons, and a renewed interest by power utilities in buying material under long-term contracts well into the future. The volume of uranium sold under long-

term contracts in 2005 – over 200 million pounds of  $U_3O_8$  – greatly exceeded typical annual buying. The level of buying under long-term contracts is expected to remain high through 2006, as power utilities worldwide continue to cover their requirements for 2009 and beyond.

Another factor driving the market recovery is the improved outlook for nuclear power worldwide. Concern over climate change caused by greenhouse gas emissions is forcing governments to take a new look at nuclear power – which produces no greenhouse gases. Developing countries such as China and India are embarking on major nuclear-power construction projects, and are poised to become major importers of uranium within the next few years. Countries that some years ago considered abandoning nuclear power, such as Germany, Sweden and the United Kingdom, are now re-evaluating those plans and in fact may continue to develop their nuclear power infrastructure. Some utilities in the United States are also on the verge of ordering new reactors now that nuclear power is the lowest-cost source of electricity there.

The approval of Rössing's life-of-mine extension was warmly welcomed by the nuclear industry, which had given significant support to the proposed investment. Rössing is now in a position to seek new long-term contracts that maintain exposure to future market prices, while locking in the current favourable price levels. Rössing will also seek to maintain the geographic and customer diversification that provides the greatest total return, while minimising risk, and complying strictly with all international safeguard regimes. In summary, Rössing will seek to maintain mutually beneficial long-term relationships with the world's premier operators of nuclear plants. A number of Rössing's customers visited the mine in 2005 to familiarise themselves with the mining operation.

With the formation of Rio Tinto Uranium in October 2005, Rössing Uranium will benefit from a single, integrated marketing organisation for all of Rio Tinto's uranium mines. Collectively, Rio Tinto Uranium is responsible for marketing some 20% of world uranium production. Rössing will continue to evaluate opportunities to extend its reach in the current favourable



*"Earthlife Namibia started in 1990. At that time, information from Rössing was very difficult to get hold of. The production methods at Rössing have changed in recent years, and maybe the feeling that there is still not enough information available is our own fault – maybe we gave up too early. We are now involved in getting information on Langer Heinrich Uranium and the planned Trekkopje mine. People ask us why we didn't look at Rössing. In fact, we did – when Earthlife Namibia started. But at that time we were blocked; there was no transparency from Rössing's side. We didn't take it up again later. Obviously, with the other two mines being developed, attention is now again focused on uranium mining. We are sitting on many uranium deposits: probably even more mines are in the planning."*

Bertchen Kohrs,  
Earthlife Namibia, Windhoek

market circumstances, and to further assure its long-term future as a major supplier of uranium to the world's nuclear power plants.

## PRODUCT TRANSPORTATION

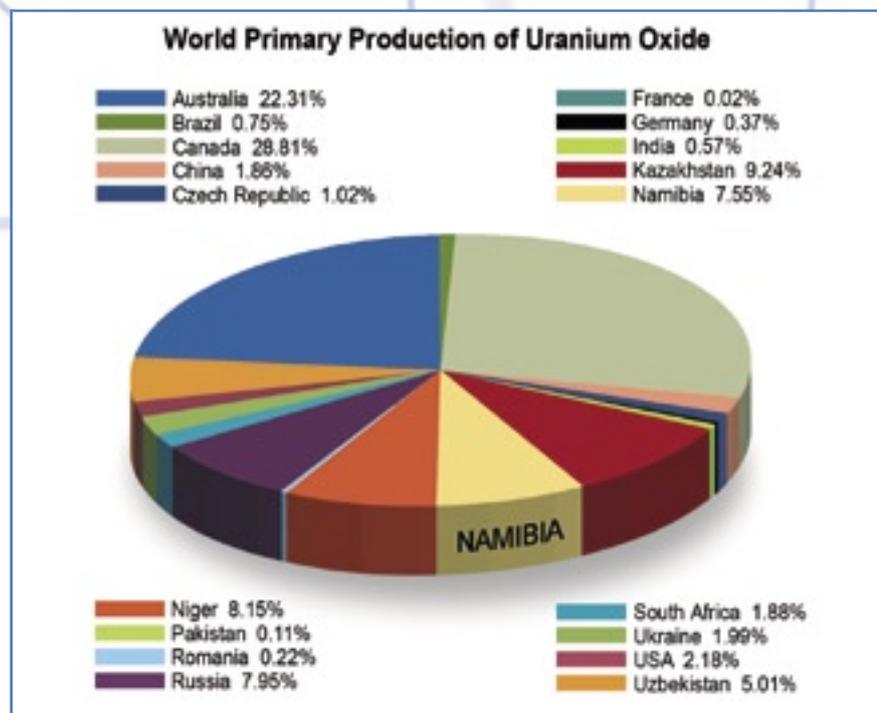
For safe transportation, Rössing's uranium oxide is packed into steel drums that are loaded into standard containers and transported by rail to the harbour of Walvis Bay. From there, the containers are shipped mostly via the South African ports of Durban or Cape Town to converters in Canada, China, France, and the United States. The converters then arrange to transport the converted uranium to the next recipients in the fuel cycle, and finally, to the nuclear power plants themselves.



### PRODUCT:

Rössing's uranium oxide is stored in drums, packed in containers and railed to Walvis Bay harbour for shipment to customers.

# RÖSSING'S PRODUCT AND ITS CUSTOMERS



Two incidents occurred in 2005 during product shipment from Rössing to the converters. In the first, uranium oxide was found on the floor of one of the containers carrying uranium oxide drums. The discovery was made when the container was unpacked at the Honeywell converter in the USA. The spill, which was confined to the container, was caused by a drum with a damaged bottom edge. The investigation indicated that the drum was damaged when it was loaded into its container at Rössing. The spill was cleaned up and Rössing changed its process of drum loading.

The second incident occurred while containers were being loaded onto the ship at Walvis Bay. A container with uranium oxide drums was knocked against another container, causing damage to its top left-hand corner. The damage was only discovered at the Cape Town harbour. On inspection, all the drums inside the container were still sealed, thus no uranium oxide was spilled. The drums were repacked into another container for further shipment.

## COOPERATION ON BIODIVERSITY ASSESSMENT

Rössing Uranium's customer, the Swedish power utility Vattenfall Bränsle AB, developed a methodology to assess what impact their operations in Europe had on biodiversity.

An agreement was reached to cooperate on a similar assessment at Rössing, and to introduce Vattenfall's methodology at the mine. During 2005, good progress was made in this respect: a Namibian ecologist, Dr Antje Burke, produced a vegetation map classifying the mine into areas with different biodiversity values. This information will be used during 2006 to assess the mine's impact in the past, and to better manage the way in which the extension of the mine's life will impact on biodiversity in its environment in the future.

# RÖSSING AND SUSTAINABLE DEVELOPMENT

## RÖSSING AND SUSTAINABLE DEVELOPMENT

A mining process has a start and an end which is related to the amount of ore the mine can economically extract from the earth. In the period during which mining takes place, employees earn salaries and support their families, and businesses and the Government benefit from purchases and taxes, while the shareholders receive a return on their money invested. But what happens after that?

For Rössing Uranium, *sustainable development* means –

- ensuring that the positive developments taking place during the mining period have a long-lasting positive effect on the people of the Erongo Region and Namibia as a whole
- that employees build capacity for themselves so that they can contribute to their future well-being
- that the inevitable environmental impacts of mining are minimised after closure of the operation
- that enough natural resources remain for the children of future generations to ensure their livelihood in the Region.

*“The best contribution the mine can make to sustainable development in Namibia is to stay in business.”*

David Salisbury  
Managing Director, 2003

Sustainability requires a driving force to manage a constantly changing environment.

By the time this report is issued in 2006, Rössing will be celebrating its 30th year

of production. In June 1976, the mine produced its first uranium oxide. Since then it has gone through several phases of drastic change to sustain the business.

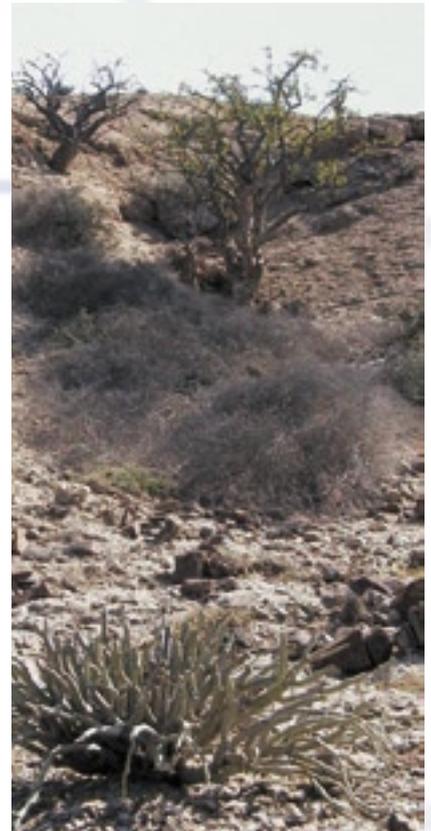
*“The core purpose of Rössing Uranium Limited is to create the most sustainable value for all our stakeholders.”*

Rössing Management team,  
2004

Throughout the 1980s, Rössing was very profitable and it invested substantially in the socio-economic development of the Erongo Region and Namibia. The establishment of the Rössing Foundation, the development programmes for the Arandis community, and the building of the Cottage Hospital in Swakopmund are just some examples of these investments. In 1990, when the Berlin Wall fell, the West opened up to uranium markets in former East Bloc countries. The increased availability of mined uranium that had been stockpiled in these countries resulted in a substantial drop in the metal's price, along with a drop in demand for primary (mined) uranium. Like many



other uranium mines around the world, Rössing had to scale down its production, which meant it was also compelled to withdraw from most of its external social activities. These economic conditions prevailed for more than ten years. The last substantial restructuring of the business took place around the year 2000.



Throughout the difficult past 15 years, Rössing's dedicated workforce and management have kept the mine in operation. Many of those who started work at Rössing when it was established are now reaching retirement age, while a new generation of young Namibians will take the mine into the future.

The future challenges to sustainability in the social, economic and environmental sense are numerous, and the mine is very conscious of these.

Therefore, in the plans for an extension of the life of the mine being developed during 2005, a number of mitigating initiatives addressing the future challenges were included. Amongst others, these involve training and development for employees and other young Namibians, and an increase in

# RÖSSING AND SUSTAINABLE DEVELOPMENT

*"I think it would be ideal if Rössing could be involved with renewable energy. I didn't even think that Rössing could turn around and put emphasis on renewable energy. Rio Tinto is such a big company with worldwide influence; it would be excellent if they could put effort and money into renewable energy. Renewable energy is still in the beginning phase, especially here in Namibia. I'm under the impression that renewable energy has been low on the agenda because of vested interest. I also believe that sun and wind power generation could be much cheaper if more emphasis had been put into technology research and if it would not have been suppressed by oil companies, nuclear power generators and others with vested interest. Here, in Namibia, we are facing an energy crisis."*

Bertchen Kohrs,  
Earthlife Namibia,  
Windhoek

Rössing Foundation activities for 2006 and beyond. Environmental aspects such as improving dust management at the plant and conserving water and biodiversity are already being addressed.

An update of the mine's closure plan, based on mine-life extension, was also completed during the year under review. This will

contribute to sustainability in the region after the mine closes one day.

In the spirit of developing a common vision for a sustainable future, please approach Rössing Mine or the Rössing Foundation with your comments and opinions. Contact details are provided on the inside back cover.



# RÖSSING AND SUSTAINABLE DEVELOPMENT

The renewed interest in uranium exploration worldwide and in Namibia's Erongo Region in particular might result in other uranium mines being opened in the near future. As with the development of Rössing Mine, the cycle of challenges of establishing new mines and managing potential social, economic and environmental changes will start. Looking back over 30 years of experience in managing these responsibly, Rössing Uranium is in an excellent position to work with new mine developers for the benefit and sustainability of the entire country. For Namibia to become a major uranium supplier worldwide, all stakeholder efforts could be combined to manage the social and environmental aspects responsibly, and to promote Namibia as a uranium supply country of choice.

*"Renewable energy – I think it is imperative ... Rössing is by no means one of the poorest companies in Namibia ... and I think it would only be good if Rössing could set aside some money into research for renewable resources. I think they should. It does not have to be a large amount, but they should show an interest to be involved, because they will benefit if there are other sources of renewable energy available.*

*And I don't think enough is being done in that area."*

Nora Schimming-Chase,  
Member of Parliament

## Location of Uranium Deposits



# RÖSSING MINE'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 or uranium oxide (U<sub>3</sub>O<sub>8</sub>). It must be further processed before it can be used as a fuel for a nuclear reactor where electricity is generated to produce steam and drive a turbine connected to a generator.**

## Drilling and blasting

Through drilling, blasting, loading and haulage, the uranium ore at Rössing is mined. Due to erratic distribution of minerals in the ground, waste and ore are often mixed together. Radiometric scanners measure the radioactivity level of each truckload. This determines whether the material is sent to the primary crushers or to the low-grade stockpile. Waste is transported to a separate storage area. The size of the open pit is 3 km long, 1.5 km wide and about 330 m deep.



## 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.



## 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.

## 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.

## Slime separation

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

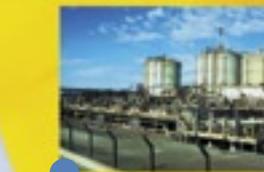


## Thickening

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.

## 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.



## 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.



## 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.



## Power generation

Fuel assemblies are loaded into nuclear reactors where the U<sup>235</sup> fissions, producing heat and steam used to generate electricity.  
Photo: [www.aveva.com](http://www.aveva.com)

## Fabrication

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



## Enrichment

This step increases the concentration of the isotope U<sup>235</sup> from its naturally occurring level of 0.7% to higher levels required for nuclear reactors – about 3%.  
Photo: [www.aveva.com](http://www.aveva.com)



## Conversion

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



## 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 4,000 t of uranium oxide each year.



## 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.



## Filtration

The ammonium diuranate is recovered on rotating drum filters as yellow paste - 'yellow cake'.



<b>PERFORMANCE DATA TABLE</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>Target for 2005</b>	<b>Target for 2006</b>
<b>The employees of Rössing Mine</b>							
Number of employees	791	793	820	833	860	847	1,108
Payments benefiting employees (N\$'000)	120,263	136,761	115,910	173,672	204,800	None	None
No. of cases of personal annual radiation exposure above 20 mSv	0	0	0	0	0	0	0
No. of lost-time Injuries	5	6	4	1	8	0	0
Lost-time injury incident rate	0.45	0.8	0.3	0.08	0.89	0	0
New cases of occupational pneumoconiosis	1	0	0	1	0	0	0
New cases of occupational dermatitis	0	0	1	0	0	0	0
New cases of occupational hearing loss	0	0	1	0	0	0	0
New cases of occupational chronic bronchitis	0	0	0	0	0	0	0
<b>Rössing – The business</b>							
Ore processed ('000 tonnes)	9,084	8,769	8,347	10,972	12,027	12,270	11,900
Waste rock removed ('000 tonnes)	12,033	13,015	10,434	8,139	7,483	9,621	10,279
Ratio of ore processed to waste rock removed	0.75	0.67	0.8	1.35	1.61	1.28	1.16
U <sub>3</sub> O <sub>8</sub> produced (tonnes)	2,643	2,751	2,374	3,582	3,711	3,800	3,582
Source dust levels at Fine-crushing Plant (mg/m <sup>3</sup> )	1.45	0.8	0.38	1.03	1.12	0.7	0.1
Reinvestment in the business (N\$'000)	237,700	1,066,200	0	0	0	None	None
<b>Rössing in the Erongo Region</b>							
<sup>1</sup> Payments to regional suppliers (N\$'000)	n/d	54,422	77,640	100,000	278,000	None	None
Fresh water consumption ('000 m <sup>3</sup> )	2,053	2,175	2,486	3,003	3,170	2,847	3,055
Fresh water per tonne of ore processed (m <sup>3</sup> /t)	0.23	0.25	0.30	0.27	0.27	0.23	0.23
Ratio of fresh water to total water	0.22	0.25	0.35	0.33	0.37	0.31	0.32
Seepage water collected ('000 m <sup>3</sup> )	1,609	2,001	1,963	2,381	2,018	2,654	2,719
Energy use on site ('000 GJ)	979	999	915	1096	1152	None	None
Energy use per tonne of ore processed (MJ/t)	109	114	109	100	95.8	97.5	91
CO <sub>2</sub> emission (Kt CO <sub>2</sub> equivalent)	139.7	139.9	127.5	155.7	161.0	None	None
CO <sub>2</sub> emission per unit of production (CO <sub>2</sub> t/t U)	52.9	50.9	53.7	43.4	43.4	42.5	42
<b>Rössing in Namibia</b>							
Companies' tax paid (N\$'000)	243,838	26,878	0	0	0	None	None
Payments to Namibian suppliers (see "Payments to regional suppliers" above) (N\$'000)	n/d	97,892	261,417	310,000	329,700	None	None
Value of charitable gifts (N\$'000)	138	107	61	9	104	None	None
Value of community investments (N\$'000)	109	322	5,442	4,131	4,717	None	None
Value of commercial initiatives (N\$'000)	0	0	196	5	0	None	None
<b>Rössing's product and customers</b>							
Uranium spot market price (US\$/lb)	8.84	9.88	11.56	20.43	36.25	-	-

<sup>1</sup> Regional refers to the Erongo Region and includes payments to suppliers and service providers from Arandis, Swakopmund and Walvis Bay  
n/d= Not separately determined

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# **Rössing Uranium**

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WORKING FOR NAMIBIA

