Total uranium stocks
(tonnes natural U-equivalent)

Holder	Natural uranium stocks in concentrates	Enriched uranium stocks	Depleted uranium stocks	Reprocessed uranium stocks	Total
Government	0	0	0	0	0
Producer	0	0	0	0	0
Utility	0	0	0	0	0
Total	0	0	0	0	0

• South Africa •

URANIUM EXPLORATION

Historical review

See the 2007 edition of the Red Book for a brief historical review.

Sharply rising prices have reawakened interest in uranium exploration and production in South Africa during 2007 and 2008. The metal's market fundamentals, being now at their most positive in over two decades, make the prospect of uranium beneficiation in the country more feasible.

Opportunities are also increasing for the recovery of uranium from unconventional resources such as phosphates in the west coast of South Africa and fossil fuels in the Springbok Flats as the uranium price has risen in recent times.

Recent and ongoing uranium exploration

In South Africa, the launching of a "uranium beneficiation" programme by the government, encouraging demand/supply fundamentals and a much more positive attitude towards nuclear power are underpinning rapid uranium price increases, which in turn are fuelling investment in greenfield and brownfield projects.

There are at least eight companies actively exploring for, developing, or already mining deposits and some of this activity started in the last two years:

First Uranium Corporation of Canada is comprised of two operating entities; Ezulwini Mining Company Proprietary Limited (Ezulwini) and Mine Waste Solutions Proprietary Limited (MWS). Subsequent to the granting of the Ezulwini prospecting right in January 2008, diamond drilling

commenced on the revised exploration programme. The original plan called for 18 holes from surfaceon a 400 m by 400 m spacing. This programme was amended to 10 surface drill holes on a 300 m by 300 m spacing, each to depth of 2 000 m. Of the planned 10 surface drill holes, 4 were completed with a capital cost of approximately ZAR 30 million. The capital expenditure for the balance of the 10 exploration drill holes still in the approval process, is estimated at approximately ZAR 64 million. Underground drilling has been deferred to a later date.

Extensive exploration activities currently underway in the Karoo Uranium Province are expected to lead to an increase of Identified Conventional Resources.

UraMin Inc. has identified several areas of interest in the Springbok Flats coal field on 22 prospecting rights, focussing on the Leffi and Mocha Blocks. The resources for the entire Springbok Flats coal field is estimated at 77 072 tU at grades of 0.06-0.1% U. The most significant constraint to exploitation is determining a uranium extraction process that does not detrimentally affect the environment (i.e. groundwater and atmosphere).

UraMin Inc. is also conducting a drilling programme on the largest sandstone – hosted uranium deposits in Ryst Kuil Channel, southeast of Beaufort West, as well as in Sutherland, Karoo Northern Cape, within 34 prospect areas. Mineralisation amounting to a total of approximately 27 million pounds U_3O_8 (10 385 tU) has been identified on the properties in Sutherland and proximate areas.

Little or no activity is taking place in the other uranium resource fields: surficial fluvial, lacustrine and pedogenic in the North West Cape, Concordia granite in Namaqualand in the Vicinity of Springbok, Natal Group in Kwazulu – Natal north of Shepstone and the Mozaan Group in the northern part of Kwazulu – Natal, even though they all have the potential to contain economically – viable deposits.

URANIUM RESOURCES

Identified Conventional Resources (Reasonably Assured and Inferred Resources)

The Witwatersrand Basin contains the majority (about 73%) of South Africa's *in situ* Identified Conventional Resources recoverable at less than USD 80/kgU. It has been the site of extensive prospecting activities and is currently the only source of uranium production in South Africa. Less than 10% of the total South African Identified Conventional Resources recoverable at less than USD 40/kgU and 13% of the Identified Conventional Resources recoverable at less than USD 80/kgU are associated with South Africa's only uranium recovery facility.

The majority of these uranium resources are associated with gold resources within the Witwatersrand Supergroup. However, since only one mine, Vaal River Operations, has a uranium recovery plant in operation, large amounts of uranium are presently being discarded into tailing dams. Recovery of uranium from this source will depend to a large extent on the degree of dilution by non-uraniferous tailings and the possible use of such tailings as backfill in mined-out areas.

The ZAR to USD exchange rate, mining operation, extraction technology and processes as well as uranium and gold prices affect significantly South Africa's uranium resource figures. Recovered uranium generally accounts for less than 10% of the total revenue from the ore mined.

South Africa

The Springbok Flats coal field contains the largest Identified Conventional Resources, but it is constrained by lack of a metallurgical process that can extract the uranium from the coal host –

rock.Harmony Gold has been investigating the potential of recovering uranium from 11 tailings dumps southwest of Johannesburg in the Gauteng Free State Provinces. The Cooke dump near Dooornkop is believed to contain 9 464 tU, as well as gold.

Gold Fields is also investigating the uranium potential of tailings dumps and a gold – uranium quartz – pebble conglomerate at the Beatrix mine in the Central Rand Group near Welkom. This conglomerate contains 30 million tonnes of ore with about 24 600 tU and 75 tonnes Au identified resources.

Western Uranium Limited has undertaken a feasibility study on the Henkries mine near Pofadder, a surficial pedogenic deposit consisting of calcrete containing carnotite with an identified resource of 1 126 tU, although grades are below 90 ppm U_3O_8 (0.0076%U).

In March 2008, First Uranium published a revised technical report on the Mine Waste Solutions **(**MWS) tailings reclamation project, which included updated resource figures.

Undiscovered Conventional Resources (Prognosticated and Speculative Resources)

No change reported from figures published in the 2007 Red Book.

Unconventional Resources and other materials

A phosphate field has been identified off the west coast of South Africa with contained uranium. Uranium grades do not exceed 430 ppm U (0.043% U) and extraction of uranium from genetically similar off shore phosphate workings has proved to be unfeasible.

URANIUM PRODUCTION

Historical review

See the 2007 edition of the Red Book for a brief historical review.

South Africa's uranium production amounted to 1 400 tU_3O_8 (1 185 tU) in 2007, representing a 3.7% decrease compared to 2006. In 2008, the total production was 1 700 tU_3O_8 (1 440 tU). South Africa's uranium production is set to increase to over 5 000 tU_3O_8 (4 240 tU) over the next 10 years dominated by projects in the Witwatersrand Basin and in the Karoo Uranium province.

South Africa is planning to build four to six new nuclear reactors by 2030 and in order to secure nuclear fuel supplies for South Africa's growing electricity needs gold miners are now looking into the possibility of reviving their old mine dumps to extract uranium and spur investment in expansions, new capacity, new projects and grass roots exploration.

More mining companies are taking advantage of the uranium boom, with new players; such as First Uranium Corporation (Simmer and Jack Mines Ltd.) , SRX Uranium One, UraMin Inc., Western

Uranium Ltd., Harmony Gold, and Witwatersrand Consolidated Gold Resources (Wits Gold) investing in exploration programmes, production and marketing.

Of significant importance is the fact that in many South Africa production centres uranium is mined in conjunction with gold. Gold alone is processed in the metallurgical plants and all costs

are attributable to gold. Although the uranium passes through the processing plant, there is no uranium recovery and the residue is deposited into the surface tailings ponds.

Status of production capability and mine development activities

AngloGold Ashanti, the largest producer of gold and by-product uranium, has increased its production since 2007 and acquired additional uranium assets. Uranium production for 2007 was 1.38-million lbs U_3O_8 (530 tU) and production in 2008 was 1.5-million lbs U_3O_8 (575 tU). AngloGold Ashanti is planning to increase annual uranium production in 2009 and 2010, as it expands its uranium processing plant to 400 kt/mo in 2010.

First Uranium Corporation (Simmer & Jack) is focused on the development of its South African uranium and gold mines through the re-opening and underground workings in the Ezulwini Mine and the expansion of the Mine Waste Solutions tailings recovery operation.

At the Ezulwini uranium and gold mine it plans to reach an annual production of 130 kt of ore by 2009 and 180 kt by 2012 from Upper and Middle Elsburg reefs. The uranium plant at the Ezulwini Mine is scheduled for ADU (ammonium diuranate, or yellowcake) recovery in early 2009. The first two modules of the USD 63 million uranium plant (and the second module of the gold plant) at Mine Waste Solutions (MWS) are scheduled for ADU recovery in early 2009. In May 2009, uranium production commenced with the commissioning of the new uranium module. The average annual production over the 16 year life of the project is expected be 349 tU and 3 636 kg of gold.

Buffelsfontein Gold Mines Limited (BGM) has built a processing plant at Ezulwini mine in the Central Rand Group south west of Johannesburg. Production started in October 2007, building to an annual production rate of 336 tU from 2008 to 2024.

In June 2007, SRX Uranium One opened the Dominion Reefs mine, west of Klerksdorp, with uranium as the primary commodity, after extensive exploration and feasibility studies. Exploration and mine development are currently underway and this mine will have a maximum depth of 500 m and a mine life of 30 years. The processing plant has a design capacity of 1 460 tU per annum, which is planned to be increased to 1 730 tU by 2011. The first ADU (ammonium diuranate) was produced in May 2007. Dominion produced 491 000 lbs U_3O_8 (189 tU) and 501 000 lbs U_3O_8 (193 tU) respectively in 2007 and 2008.

UraMin Inc. has a feasibility study underway at its 74%-owned Ryst Kuil uranium project in South Africa. UraMin intends to bring these near-surface open-pit amenable projects into production, utilising mining and processing methods currently in practice worldwide in similar deposits. The Ryst Kuil Channel mine, southeast of Beaufort West, is about to open following extensive investigations within the Karoo Uranium province (molybdenum is expected to be recovered as a by-product).

South Africa’s entire production of uranium oxide is treated and exported by the Nuclear Fuels Corporation (NUFCOR). NUFCOR has two processing plants capable of producing approximately

4 000 t U_3O_8 (3 390 tU). The committed processing plant of SRX Uranium One, with a design capacity of 1 460 tU per annum, is expected to be operating at full capacity by 2010.

Concerning South Africa uranium extraction processes, earlier developments included the use of combined SX-IX systems (Eluex or Bufflex) and the introduction of continuous counter current ion exchange (CCIX). Column SX has found a ready application to uranium in view of the rapid extraction kinetics. With the renewed interest in uranium processing, efforts are being redirected towards further development of resin-in-pulp (RIP) as a means of driving down capital and operating costs.

Mine waste solutions (MWS) and Ezulwini are different types of operations. While the design of the processing plants for each project essentially follow the same principles, they have been customised to accommodate their specific production requirements in terms of the material being treated, volumes and grade content. Both uranium plants are based on an atmospheric leach process using sulphuric acid between 60-80 degrees. The uranium solution undergoes an Ion Exchange/Solvent Exchange (IX/SX) process to upgrade the solution content. Ammonium is then added to convert the solution into solid ADU.

MWS is a tailings recovery operation wherein the material from the tailings pond is hydraulically mined and the slurry is pumped from the reclamation station to the gold and uranium plants for recovery. The existing gold recovery plant has a capacity of 633 000 t/mo, but it does not have the facility to recover uranium. The waste material from this plant is deposited into the tailings pond for later processing and recovery. Currently under construction, and planned for commissioning in 2010, is a new gold and 2 uranium modules that has its own reclamation station, with a design capacity of 650 000 t/mo. The combined flow from both reclamation stations, totalling 1 283 000 t/mo arrives at the plants where a 10% feed will be processed through the uranium circuits, hence the processing capacity of 128 300 t/mo. A second phase, comprising a further gold and uranium module is planned for construction with commissioning expected in 2010. This will increase the uranium plant processing capacity from 128 300 t/mo to 193 300 t/mo.

Ezulwini Mining Company commissioned its uranium plant and commenced uranium production in May 2009. The planned plant capacity is 200 000 t/mo. First Uranium has a commercial contract in place with NUFCOR for the provision of calcining services. Under this agreement, NUFCOR has refurbished a redundant calcining stream for dedicated use by First Uranium and Mintails.

Ownership structure of the uranium industry

AngloGold Ashanti's primary stock exchange listing is on the JSE (Johannesburg stock exchange). It is also listed on the exchanges in New York, London, Australia and Ghana as well as on Euronext Paris and Euronext Brussels. In South Africa, AngloGold Ashanti operates seven wholly-owned underground mines which are located in two geographical regions on the Witwatersrand Basin. The most important are Vaal operating gold mines which produce uranium as a by-product.

First Uranium Corporation (Simmer & Jack). Ezulwini and Mine Waste Solutions (MWS) are wholly owned subsidiaries of First Uranium Corporation.

Uranium One Inc. is a Canadian-based uranium producing company with a primary listing on the Toronto Stock Exchange and a secondary listing on the JSE.

UraMin Inc. was sold in July 2007 to Areva for USD 2.5 billion. Areva is a French government majority-owned fully integrated uranium and nuclear company.

Western Uranium Limited is a subsidiary of Brinkley Mining Plc whose principal activities are mining and exploring for uranium in Australia.

Harmony Gold's primary listing is on the JSE. Harmony's ordinary shares are also listed on stock exchanges in London, Paris and Berlin, and are quoted in the form of American Depositary Receipts on the New York and Nasdaq exchanges and as International Depositary Receipts on the Brussels exchange.

Gold Fields is listed on JSE Limited (primary listing), the New York Stock Exchange and the Dubai International Financial Exchange, the New Euronext in Brussels and the Swiss Exchange.

Witwatersrand Consolidated Gold Resources (Wits Gold Limited) is listed on the main boards of the JSE and the Toronton Stock Exchange. The company is an active gold explorer with substantial mineral resources in the Witwatersrand Basin in South Africa

NUFCOR is a wholly owned subsidiary of AngloGold Ashanti Limited.

The South African Government is not associated with any uranium production and /or enrichment activities.

Employment in the uranium industry

A total of 4 980 workers are employed in South Africa's uranium mining industry. The company breakdown is as follows: AngloGold Ashanti, 100; NUFCOR, 55; First Uranium Corporation, 3 000 (with a planned capacity of 5 500 once both projects are fully operational); Uranium One Inc., 250; UraMin Inc., 125; Western Uranium Limited, 200; Harmony Gold, 750 and Witwatersrand Consolidated Gold Resources, 500.

Future production centres

By the end year 2009, with First Uranium's projects; Ezulwini, Ryst Kuil Channel and Buffeslsfontein going into production, production is expected to double to 2 800 tU_3O_8 (2 375 tU).

Five years from now (2014), with the South African state utility (Eskom) PBMR project underway, assuming all the mining projects that are scheduled to start producing in the coming years are producing as projected, if the demand/supply fundamentals continue to be positive in the forecast period and if the regulatory changes do not affect production in South Africa, production could pass the 5 000 tU_3O_8 (4 240 tU).

Uranium Production Centre technical details
(as of January 2009)

	Centre #1	Centre #2	Centre #3	Centre #4	Centre #5	Centre #6	Centre #7
Name of production centre	AngloGold Ashanti. Vaal River Operations	First Uranium Ezulwini mining	First Uranium Buffelsfontein	SXR Uranium One	Uramin Inc	Uramin Inc.	Uramin Inc.
Production centre classification	Existing	Existing	Existing	Existing	Committed	Committed	Committed
Start-up date	1977	2009	2005	2007	NA	NA	NA
Source of ore:							
• Deposit name	Vaal Reef	Ezulwini mining	Wits; BGM	Dominion Reef	Ryst Kuil Channel	Springbok Flats	Sutherland
• Deposit type	Quartz-pebble conglomerate	Quartz-pebble conglomerate	Quartz-pebble conglomerate	Quartz-pebble conglomerate	Sandstone	Sandstone	Sandstone
• Reserves (tU)	70 146 tU	RAR:29 500TU_3O_8 IR: 83 000 TU_3O_8	RAR: 27 721 Mt IR: 14 326 Mt	RAR:295 000TU_3O_8 IR: 83 000 TU_3O_8	6 790 tU	77 072 tU	
• Grade (% U)	Not available	RAR: 0.081 % IR : 0.038%	RAR: 0.287kg/t IR: 14 326	0.10% IR : 0.038%	0.10%	0.10%	
Mining operation:							
• Type (OP/UG/ISL)	UG	UG	UG	UG	OP	OP	OP
• Size (t ore/day)		100 000 tpm (3 333 tpd)	2700 tpd				
• Average mining recovery (%)	Variable	78%					
Processing plant (acid/alkaline):							
• Acid/Alkaline	Acid	Acid	Acid	Acid			
• Type (IX/SX)	SX	IX/SX	SX	SX	SX	SX	SX
• Size (t ore/day)		3 333					
For ISL							
• Average process recovery (%)							
Nominal production capacity (tU/year)	3 400	NA	NA	1 460	1 136	NA	NA
Plans for expansion	Yes	No	Yes	Yes	Yes	Yes	Yes
Other remarks	None	None	None	None	None	None	None

NA Not available.

Uranium Production Centre technical details (contd.)
(as of January 2009)

	Centre #8	Centre #9	Centre #10	Centre #11	Centre #12	Centre #13
Name of production centre	Western Uranium	Western Uranium	Harmony Gold	Harmony Gold	Wits Gold Uranium	First Uranium Mine Waste Solutions(MWS)
Production centre classification	Commited	Commited	Commited	Commited	Commited	Commited
Start-up date	NA	NA	NA	NA	NA	NA
Source of ore: • Deposit name • Deposit type • Reserves (tU) • Grade (% U)	 Waterval Rietkuil Quartz-pebble conglomerate 50 590tU 0.09%	 Henkries Surficial 1 420tU	 Cooke Dump Slimes dams & dumps 9 464tU at 0.09 g/t	 Beatrix mine Quartz-pebble conglomerate 24 600tU	 Klerksdorp & Southern Free Quartz-pebble conglomerate 266.5 Mt 0.233 kg/t U_3O_8	 Surface Tailings/dams
Mining operation: • Type (OP/UG/ISL) • Size (t ore/day) • Average mining recovery (%)	 UG	 OP	 NA	 UG	 UG	 4 276 NA
Processing plant (acid/alkaline): • Acid/Alkaline • Type (IX/SX) • Size (t ore/day) For ISL • Average process recovery (%)	 SX	 SX	 SX	 SX	 SX	 Acid IX/SX 128 000 tpd 75% atmospheric leach
Nominal production capacity (tU/year)	NA	NA	NA	NA	NA	NA
Plans for expansion	Yes	Yes	Yes	Yes	Yes	Yes
Other remarks	None	None	None	None	None	None

NA Not available.

Secondary sources of uranium

Production and/or use of mixed oxide fuels

South African has never produced or use mixed oxide Fuels.

Production and/or use of re-enriched tails

South Africa currently does not have a uranium enrichment industry. South Africa only uranium enrichment plant at Pelindaba was decommissioned and dismantled in the period 1997-1998.

Production and/or use of reprocessed uranium

No reprocessed uranium has been produced or utilised in South Africa.

In 2007, the South Africa government declared uranium "a strategic mineral" and launched a "uranium beneficiation" programme in order to secure nuclear fuel supplies for South Africa's growing electricity needs.

ENVIRONMENTAL ACTIVITIES AND SOCIAL CULTURAL ISSUES

Within South Africa mine related land exists that has been contaminated by radioactivity, particularly where existing and previous uranium plants are or were located. The National Nuclear Regulator is responsible for the implementation of nuclear legislation conforming to international norms related to these activities. South Africa has strict environmental legislation which ensures that such areas are suitably rehabilitated after closure.

Environmental issues relating to gold/uranium mining within Witwatersrand Basin are dust pollution, surface and ground water contamination and residual radioactivity. Scrap materials from decommissioned plants may only be sold after they have been decontaminated to internationally acceptable standards.

The by-product status of uranium production in South Africa makes it impossible to establish what portion of the total expenditure on environmental related activities specifically pertains to uranium. The South African mining industry, however, allocates considerable resources for environmental rehabilitation from the exploration stage through to mining and finally mill closure.

As part of the permitting process each operating company has to have an approved Environmental Management Plan (EMP) and Social and Labour Plan (SLP) in order to secure mining rights. Ezulwini has an approved New Order Mining Right and MWS is currently in the final stages of its application. Ezulwini's approved SLP supports the Korekile Home for Cerebral Palsy Children, Kamohelong Home Based Care, Zamani Project and the Thabong Village.

Mine Waste Solution (MWS) has been actively involved in the community for years under their Old Order Mining Right. Current programmes involve the subsidisation of the Margaret Village Creche and providing support to the Pinnacle Primary and Secondary Schools. As a precursor to the submission of the respective EMP's, Environmental Impact Assessments were conducted for both operations. Possible areas of impact were identified and effective management systems have been put in place for the management thereof.

At Ezulwini, with respect to extraneous water reporting to underground areas, systems have been put in place to separate dolomitic water from process water underground to ensure that no process water is pumped to surface. In phase 1 of the project the dolomitic water is discharged to the environment, and in phase 2 the intention is to have this treated to potable water standard within the plant site and made available to the region.

A positive outflow of the operation at MWS is the reprocessing of tailings from several sources and the deposition of virtually benign material at a single site. All existing footprints will subsequently be rehabilitated. Further, with the removal of tailings material from current sites, the pollution effect to dolomitic acquifers below the current dumps will be eliminated.

URANIUM REQUIREMENTS

South Africa's only one nuclear power station is Koeberg with two reactors; Koeberg I commissioned in 1984 and Koeberg II in 1985, with a combined installed capacity of 1 840 MWe. Together, the reactors require about 292 tU per annum.

In 2007, the South African state utility (Eskom) planned to boost its total electricity generation output from 1.8 GWet to 80 GWe by 2025, including 20 GWe of new nuclear generating capacity of which a portion would be provided by Pebble Bed Modular Reactor (PBMR) units. However, in December 2008 it was announced that due to a lack of finance these plans would be delayed for several years.

With its growing energy needs, uranium could definitely contribute to the country's nuclear energy supply and promote sustainable development. Although nuclear power cannot replace other forms of energy, it can form a larger part of the energy picture and the integrated energy plan in South Africa. Increased use of nuclear power is expected to contribute to the government commitment to diversify energy sources as well as strengthen security of supply.

Supply and procurement strategy

South Africa currently does not have a uranium enrichment industry and sources its uranium from the international market. The Nuclear Fuel Corporation (NUFCOR) processes and exports all uranium oxide produced in South Africa, although no local domestic mine sales were reported in 2007 and 2008.

According to PBMR (Pty) Ltd., enriched uranium for PBMRs under development will be imported from Russia through Durban harbour then transported to Pelindaba in the North West province. There the uranium will be manufactured into fuel spheres for the reactors and then be transported via road to Koeberg in the Western Cape, where the planned PBMR demonstration model construction site is planned.

The PBMR has been dogged by controversy since it entered the public domain. But PBMR (Pty) Ltd., says the PBMR is a new generation of safer and technologically sophisticated nuclear reactor, in which meltdown scenarios, as in the case of Chernobyl in 1986, are virtually impossible. PBMR (Pty) Ltd. also dismisses concerns around transportation or accidents, saying uranium transportation by sea and road has had an impeccable track record in the last half century. The highest

standards are in place to ensure safe transportation and, with each passing year, the PBMR is becoming a more viable solution for South Africa.

NATIONAL POLICIES RELATING TO URANIUM

The National Nuclear Regulator Act No. 47 and the Nuclear Energy Act No. 46 of 1999 provide expression to South Africa's national policies relating to the prospecting and mining of uranium, the State's role, foreign participation, as well as the export of uranium and the disposal of spent nuclear fuel.

The South Africa Nuclear Energy Corporation Limited (NECSA), a State owned company, regulates the acquisition and possession of nuclear fuel, the import and export of such fuel and prescribes measures regarding the discarding of radioactive waste and the storage of irradiated nuclear material.

The aim of South Africa government's nuclear energy policy and strategy is to secure South Africa's supply of uranium for 40 to 60 years. This strategy would outline a vision for nuclear base-load electricity generation capacity (similar to Koeberg) and small to medium–sized nuclear power plants (such as the PBMR) in South Africa.

The policies of the South African government encourage local beneficiation of mineral resources. The beneficiation (value added) with respect to uranium comes with responsibilities and sensitivities in safety and environmental management, and has to be pursued within the country's national and international obligations.

Because nuclear reactors generate highly hazardous waste that remains radioactive for tens of thousands of years and has to be stored, nuclear critics say it is too high a risk. Nuclear proponents have not come up with coherent plans or answers that address health and safety concerns. The risky transportation of the hazardous material, the potential for accidents and high construction and start-up costs are all factors that weigh against nuclear energy.

South Africa's nuclear proponents say that despite all these risks the country needs to push ahead with nuclear development. They believe the solution lies in the PBMR.

URANIUM STOCKS

The South African state utility (Eskom) has increased its strategic stock levels to mitigate the current supply/demand imbalance. However the information is classified and cannot be released.

URANIUM PRICES

Uranium prices are confidential.

Uranium exploration and development expenditures and drilling effort – domestic

Expenses in thousand ZAR	2006	2007	2008[1]	2009[1] (expected)
Industry* exploration expenditures	158 750	7 000	30 000	64 000
Government exploration expenditures	NIL	NIL	NIL	NIL
Industry* development expenditures	2 772	99 000	NIL	NIL
Government development expenditures	NIL	NIL	NIL	NIL
Total expenditures	161 522	106 000	30 000	64 000
Industry* exploration drilling (m)	91 621	21 269	8 000	12 000
Industry* exploration holes drilled	164	855	NA	NA
Government exploration drilling (m)	NIL	NIL	NIL	NA
Government exploration holes drilled	NIL	NIL	NIL	NA
Industry* development drilling (m)	NA	95 346	NA	NA
Industry* development holes drilled	56	243	4	6
Government development drilling (m)	NIL	NIL	NIL	NIL
Government development holes drilled	NIL	NIL	NIL	NIL
Subtotal exploration drilling (m)	91 621	21 269	8 000	12 000
Subtotal exploration holes drilled	164	855	NA	NA
Subtotal development drilling (m)	NA	95 364	NA	NA
Subtotal development holes drilled	56	243	NA	NA
Total drilling (m)	91 621	116 615	NA	NA
Total holes drilled	220	1 098	NA	NA

* Non-government.
1. 2008 and 2009 figures are only for Ezulwini Mining Company.

Uranium exploration and development expenditures – non-domestic

Expenses in thousand ZAR	2006	2007	2008	2009 (expected)
Industry exploration expenditures	NIL	NIL	NIL	NIL
Government exploration expenditures	NIL	NIL	NIL	NIL
Industry development expenditures	NIL	NIL	NIL	NIL
Government development expenditures	NIL	NIL	NIL	NIL
Total expenditures	NIL	NIL	NIL	NIL

South Africa

Reasonably Assured Conventional Resources by production method*
(tonnes U)

Production method	<USD 40/kgU	<USD 80/kgU	<USD 130/kgU	<USD 260/kgU	Recovery factor (%)
Underground mining	93 977	136 117	193 665	193 665	N/A
Open-pit mining	1 643	22 543	24 938	24 938	N/A
In situ leaching	0	0	0	0	N/A
Co-product and by-product	0	0	0	0	N/A
Unspecified	19 248	47 272	65 775	65 775	N/A
Total	114 868	205 932	284 378	284 378	N/A

* *In situ* resources. RAR data provided incomplete and totals for the two tables do not match.

Reasonably Assured Conventional Resources by deposit type
(tonnes U)

Deposit type	<USD 40/kgU	<USD 80/kgU	<USD 130/kgU	<USD 260/kgU
Unconformity-related	0	0	0	0
Sandstone	1 643	22 543	24 938	24 938
Hematite breccia complex	0	0	0	0
Quartz-pebble conglomerate	88 135	126 380	163 632	163 632
Vein	0	0	0	0
Intrusive	1 351	1 351	1 351	1 351
Volcanic and caldera-related	0	0	0	0
Metasomatite	0	0	0	0
Other*	0	0	0	0
Total	91 129	150 274	189 921	189 921

* Includes surficial, collapse breccia pipe, phosphorite and other types of deposits, as well as rocks with elevated uranium content. Pegmatite, granites and black shale are not included. Also includes unspecified.

Inferred Conventional Resources by production method*
(tonnes U)

Production method	<USD 40/kgU	<USD 80/kgU	<USD 130/kgU	<USD 260/kgU	Recovery factor (%)
Underground mining	114 877	124 260	130 322	130 322	N/A
Open-pit mining	2 974	7 376	7 894	7 894	N/A
In situ leaching	0	0	0	0	N/A
Co-product and by-product	0	0	0	0	N/A
Unspecified	1 906	5 676	12 495	12 495	N/A
Total	119 757	137 312	150 711	150 711	N/A

* *In situ* resources. Inferred Resources data provided incomplete and totals for the two tables do not match.

Inferred Conventional Resources by deposit type
(tonnes U)

Deposit type	<USD 40/kgU	<USD 80/kgU	<USD 130/kgU	<USD 260/kgU
Unconformity-related	0	0	0	0
Sandstone	2 974	7 376	7 894	7 894
Hematite breccia complex	0	0	0	0
Quartz-pebble conglomerate	113 702	123 085	129 147	129 147
Vein	0	0	0	0
Intrusive	1 175	1 175	1 175	1 175
Volcanic and caldera-related	0	0	0	0
Metasomatite	0	0	0	0
Other*	0	0	0	0
Total	117 851	131 636	138 216	138 216

* Includes surficial, collapse breccia pipe, phosphorite and other types of deposits, as well as rocks with elevated uranium content. Pegmatite, granites and black shale are not included.

Prognosticated Conventional Resources
(tonnes U)

Cost Ranges		
<USD 80/kgU	<USD 130/kgU	<USD 260/kgU
34 901	110 310	110 310

Speculative Conventional Resources
(tonnes U)

Cost Ranges		
<USD 130/kgU	<USD 260/kgU	Unassigned
0	0	1 112 900

Historical uranium production by production method
(tonnes U in concentrate)

Production method	Total through end of 2005	2006	2007	2008	Total through end of 2008	2009 (expected)
Open-pit mining*						
Underground mining*						
In situ leaching						
Co-product/by-product	154 673	534	1 400	1 750	158 357	2 800
Total**	154 673	534	1 400	1 750	158 357	2 800

* Pre-2006 totals may include uranium recovered by heap and in-place leaching.
** Production for 2007 and 2008 are 540 tU resp. 570 tU (secretariat estimate).

Historical uranium production by deposit type
(tonnes U in concentrate)

Deposit type	Total through end of 2005	2006	2007	2008	Total through end of 2008	2009 (expected)
Unconformity-related	0	0	0	0	0	0
Sandstone	0	0	0	200	200	350
Hematite breccia complex	0	0	0	0	0	0
Quartz-pebble conglomerate	154 673	534	1 400	1 500	158 107	2 450
Vein	0	0	0	0	0	0
Intrusive	0	0	0	0	0	0
Volcanic and caldera-related	0	0	0	0	0	0
Metasomatite	0	0	0	0	0	0
Other*	0	0	0	0	0	0
Total	154 673	534	1 400	1 700	158 307	2 800

* Includes surficial, collapse breccia pipe, phosphorite and other types of deposits, as well as rocks with elevated uranium content. Pegmatite, granites and black shale are not included.

Ownership of uranium production in 2008

Domestic				Foreign				Totals	
Government		Private		Government		Private			
[tU]	[%]	[tU]	[%]	[tU]	[%]	[tU]	[%]	[tU]	[%]
0	0	1 700	100	0	0	N/A	N/A	1 700	N/A

Uranium industry employment at existing production centres
(person-years)

	2006	2007	2008	2009 (expected)
Total employment related to existing production centres	150	1 150	3 000	5 500
Employment directly related to uranium production	65	85	450	1 000

Short-term production capability
(tonnes U/year)

2010				2015				2020			
A-I	B-I	A-II	B-II	A-I	B-I	A-II	B-II	A-I	B-I	A-II	B-II
4 860	4 860	NA	NA	4 860	6 320	NA	NA	4 860	6 320	NA	NA

2025				2030				2035			
A-I	B-I	A-II	B-II	A-I	B-I	A-II	B-II	A-I	B-I	A-II	B-II
4 860	6 320	NA	NA	4 860	6 320	NA	NA	4 860	6 320	NA	NA

Net nuclear electricity generation

	2007	2008
Nuclear electricity generated (TWh net)	12.6	12.8

Installed nuclear generating capacity to 2035
(MWe net)

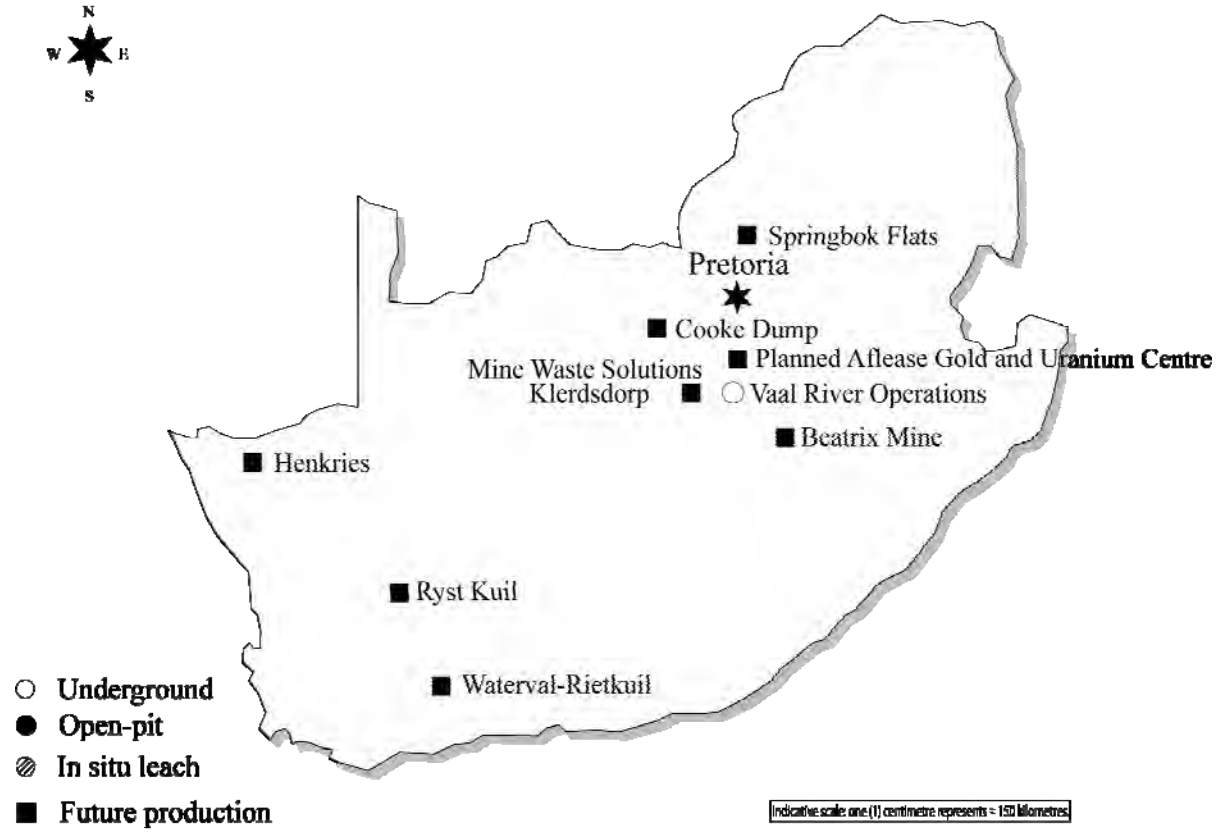
2008	2009	2010		2015	
		Low	*High*	*Low*	*High*
1 800	1 800	1 800	1 840	2 005	8 420

2020		2025		2030		2035	
Low	*High*	*Low*	*High*	*Low*	*High*	*Low*	*High*
10 500	15 340	30 000	50 000	30 000	50 000	30 000	50 000

Annual reactor-related uranium requirements to 2035 (excluding MOX)
(tonnes U)

2008	2009	2010		2015	
		Low	*High*	*Low*	*High*
282	292	292	292	294	1 312

2020		2025		2030		2035	
Low	*High*	*Low*	*High*	*Low*	*High*	*Low*	*High*
1 569	2 144	2 099	3 235	3 175	3 235	3 225	3 500



• Spain •

URANIUM EXPLORATION

Historical review

See the 2007 edition of the Red Book for a brief historical review.

Recent and ongoing uranium exploration and mine development activities

Berkeley Resources through its Spanish filial Minera de Rio Alagón S.L (MRA) has a total of 11 granted exploration licences totalling 45 214 hectares. The licences are located in two different provinces, ten in Salamanca and two in the province of Cáceres.