Mined U

Financing of new uranium mines

Mined U

Financing of new uranium mines

By any reasonable standard of scientific proof ... there is no safe dose or dose-rate below which dangers disappear. No threshold-dose. Serious, lethal effects from minimal radiation doses are not "hypothetical," "just theoretical," or "imaginary." They are real.
Dr. John Gofman

Acknowledgements

This report was produced in association with BankTrack and with financial support from Greenpeace Netherlands, the JMG foundation and the Isvara Foundation.

The research was done by Profundo, a consultancy for economic research, see **www.profundo.nl.**

Every effort has been made to ensure that the information contained in this report was accurate at the time of publication (March 2008)

NIRS/WISE welcomes any further comments from readers and is committed to correct any factual mistakes in eventual future editions of this report and on our website.

This report has been send to subscribers of the Nuclear Monitor for free and counts as NM # 668/669

Contents

Contents

Summary

Uranium mining is a crucial stage in the nuclear energy production chain. During the past years, global demand for uranium increased more strongly than the output of uranium mines. As a result, prices have risen considerably. In turn, this is spurring new investments by mining companies in developing new uranium mines. To finance these investments, mining companies use the funds supplied by their financial stakeholders: shareholders, banks, bondholders.

Financial institutions involved in the financing of uranium mining companies, such as banks and asset managers, therefore play a crucial role in the further growth of the global nuclear energy sector.

For this reason, World Information Service on Energy (WISE) commissioned Profundo to research the involvement of international financial institutions in the financing of the uranium mining sector. In consultation, a group of 14 uranium miners was selected, including the world's largest uranium mining companies and smaller players with activities in Kazakhstan. Together, these 14 companies account for more than 90% of the world's uranium production.

This report provides an overview of the financial institutions which were involved since early 2003 in the financing of 14 selected uranium mining companies. For each company, the financial stakeholders are described and analyzed in a separate chapter. Each type of financial service (shareholding, lending, investment banking and other services) provided to the uranium mining company is discussed separately, providing details on the financial institutions' involvement.

The findings of this study are summarized on the first pages of this report.

This report provides an overview of the financial institutions which were involved since early 2003 in the financing of 14 selected uranium mining companies, including the world's largest uranium mining companies and smaller players with activities in Kazakhstan. The table below provides an overview of all financial institutions found to be involved in the financing of these companies since early 2003.

Financial institution	Country	Involved in the financing of:														
		Areva	BHP Billiton	Cameco	Denison	ERA	KazAtomProm	Navoi	Paladin Energy	Rio Tinto	Rössing	Techsnabexport	TVEL	Uran	Uranium One	Number of companies
ABN Amro Bank	Netherlands		x							x						2
Alfa Bank	Russia												x			1
Fred Alger	United States								x						x	2
AMP	Australia		x													1
ANZ	Australia		x													1
Bailie Gifford & Co	United Kingdom		x													1
Bank of America	United States		x							x						2
Bank of New York	United States								x							1
Bank of Tokyo-Mitsubishi UFJ	Japan	x	x							x						3
Barclays	United Kingdom		x	x						x						3
Barnard Jacobs Mellet	South Africa														x	1
BBVA	Spain	x	x													2
Blackrock	United States		x		x											2
BMO Financial	Canada	x	x	x											x	4
BNP Paribas	France	x	x													2
Canaccord	Canada														x	1
Capital Group	United States			x	x					x						3
Cazenove	United Kingdom									x						1
CDC	France	x														1
Citigroup	United States	x	x				x			x			x			5
CIBC	Canada			x												1
Commonwealth Bank	Australia		x													1
Computershare Trust	Canada				x										x	2
Crédit Agricole	France	x	x													2
Crédit Mutuel	France	x														1
Credit Suisse	Switzerland		x							x						2
Daiwa Securities	Japan		x													1
Deutsche Bank	Germany	x	x							x						3
Dundee Securities	Canada				x				x						x	3
Eastbourne	United States														x	1
Export Credit Insurance Corporation	South Africa								x							1
Fidelity	United States			x					x						x	3
Fortis Bank	Netherlands/Belgium	x	x													2
GMO	United States														x	1
GMP Securities	Canada				x										x	2
Goldman Sachs	United States		x							x						2
Goodman & Co	Canada				x											1
Gresham Partners	Australia		x													1
Hargreave Hale	United Kingdom														x	1
Haywood Securities	Canada				x				x							2
HSBC	United Kingdom	x	x	x						x						4
ING	Netherlands	x	x													2
Jarislowsky Fraser	Canada			x												1
JP Morgan Chase	United States	x	x		x					x						4
Lazard	United States		x													1
LBBW	Germany	x														1

Financial institution	Country	Involved in the financing of:														
		Areva	BHP Billiton	Cameco	Denison	ERA	KazAtomProm	Navoi	Paladin Energy	Rio Tinto	Rössing	Techsnabexport	TVEL	Uran	Uranium One	Number of companies
Legal & General	United Kingdom		x							x						2
Lehmann Brothers	United States									x						1
Macquarie Bank	Australia									x						1
McLean Budden	Canada			x												1
Merrill Lynch	United States		x		x	x										3
Mizuho Bank	Japan		x				x									2
Morgan Stanley	United States									x						1
National Australia Bank	Australia		x													1
National Bank of Canada	Canada				x				x							2
Natixis	France	x					x									2
Nedbank	South Africa								x						x	2
NM Rothschild	United Kingdom	x								x						2
Nordea	Sweden	x														1
Old Mutual	United Kingdom		x													1
Oppenheimer Funds	United States								x						x	2
Orion Securities	Canada														x	1
Paradigm Capital	Canada														x	1
Raymond James	United States				x										x	2
Renova Group	Russia											x				1
Royal Bank of Canada	Canada	x	x	x					x						x	5
Royal Bank of Scotland	United Kingdom	x	x							x						3
Salman Partners	Canada				x											1
Santander	Spain	x	x													2
Scotiabank	Canada			x												1
Société Générale	France	x	x						x							3
State Street	United States		x													1
Standard Bank	South Africa								x							1
Steinberg AM	United States				x											1
Sprott Securities	Canada				x										x	2
Sumitomo Mitsui	Japan		x													1
TD Bank	Canada				x											1
Toll Cross Securities	Canada				x										x	2
UBS	Switzerland		x			x			x				x			4
UniCredit	Italy	x														1
Vneshtorgbank	Russia											x				1
Wachovia	United States									x						1
Wellington Mgmt	United States			x												1
Wellington West	Canada														x	1
Westpac	Australia		x													1
Total Number of banks involved		*22*	*37*	*11*	*16*	*2*	*3*	*0*	*13*	*19*	*0*	*2*	*3*	*0*	*20*	

As the table shows, more than 80 international banking groups and institutional investors are involved in financing uranium mining companies. Their involvement can consist of shareholdings, loans, underwriting share and bond issuances, financial advisory services, or other financial services. The number of banks involved in each mining company varies widely.

State-owned enterprises of the former Soviet Union (KazAtomProm, Navoi, Techsnabexport, TVEL) are largely intransparent. Based upon the limited information available, it seems that financial institutions only play a minor role in financing their mining activities.

But the commercial (uranium) miners - such as BHP Billiton, Cameco, Denison, Paladin Energy, Rio Tinto and Uranium One - and the French state-owned nuclear energy group Areva, have many financial institutions involved in their financing. These companies partly fund their activities by bank loans, have financial institutions as major shareholders or use investment banks to arrange share and bond issuances.

Financial institutions which seem to be most strongly involved in the uranium mining sector are Royal Bank of Canada and Citigroup (involved in the financing of 5 companies each), BMO Financial, HSBC, JPMorgan Chase and UBS (involved in the financing of 4 companies each).

Why is uranium mining a problem?

Uranium mining is a crucial stage in the nuclear energy production chain. During the past years, global demand for uranium increased more strongly than the output of uranium mines. As a result, prices have risen considerably. In turn, this is spurring new investments by mining companies in developing new uranium mines. To finance these investments, mining companies use the funds supplied by their financial stakeholders: shareholders, banks, bondholders.

Financial institutions involved in the financing of uranium mining companies, such as banks and asset managers, therefore play a crucial role in the further growth of the global nuclear energy sector - a sector which is controversial because of enduring safety and waste issues.

Uranium is different from all other minerals extracted from the earth, in a number of ways. Together with its by products (such as plutonium) and it's end products (many kinds of radioactive waste) uranium is a health hazard: not only for those who work in the industry, but for all the inhabitants of this planet and for all future generations.

Problems with uranium mining

1. Tailings waste

Most deposits contain less than 1% uranium. So huge amounts of ore have to be processed to get useful quantities of the uranium. The leftover 'waste' rock is called tailings. In the course of processing it is crushed to a fine powder, which is almost as radioactive as the uranium itself. It is hazardous for more than 250,000 years, which might as well be forever. These tailings need to be isolated from the environment to prevent a cancer epidemic, and there are - according to the most accurate figures possible - 230 million tonnes of uranium tailings already waiting for a solution.

2. Radon Gas

As uranium emits radiation, it transforms itself into a new element, which in turn emits radiation and decays, and so on through 14 steps until it eventually - after hundreds of thousands of years - becomes a stable form of non-radioactive lead. One of the elements along the way is radon, a radioactive gas which can travel for hundreds of kilometres before decaying. Mine workers and others who breathe in this gas risk developing lung cancer and other forms of lung disease.

3. Environmental Contamination

Uranium mining contaminates the air, water and earth with radioactive chemicals and heavy metals which can never be properly cleaned up. In addition to the radiation hazard, mining is also associated with poisonous process chemicals, heavy metals and the use of huge quantities of water. In the short term, uranium mine sites wreck the ecology of the local region; in the long term, they pose a risk to a much broader area.

4. Health risks

The health risks of uranium mining are by now quite well known, although still aggressively disputed by the mining industry. Collectively, uranium miners suffer the highest radiation doses of all workers in the nuclear fuel chain (apart from accident cleanup crews). The main problems are inhalation of dust and radon gas, which leave alpha radiation emitters lodged in the body where they can do most harm. As the contamination from the mines spread away from the mine site, local people are also exposed to contamination. While uranium mining is most commonly associated with cancer, low level radiation is also implicated in birth defects, high infant mortality and chronic lung, eye, skin and reproductive illnesses.

Occupational health effects of uranium mining

What is radiation

Radiation consists of high-speed particles and electromagnetic waves which damage living tissue by breaking chemical bonds and cause biochemical changes. Different types of radiation have different hazards. Alpha particles are damaging if inhaled or swallowed, gamma rays and X-rays penetrate very thick layers and neutrons are even more penetrating. Radiation can induce cancer and **inheritable** genetic disease, both of which usually appear decades after exposure. Radiation also lowers the ability of the body to respond to infection by interfering with the immune system.

There is no safe dose of ionizing radiation. All it takes is one cell and one radioactive decay for the possibility of cancer, or a genetic defect.

There are already reports of increased incidence of human cancers and diseases, particularly in children. The effluent pathways of nuclear facilities impact human reproduction and undercut conclusions drawn primarily from studies in which adult males were exposed to external gamma radiation doses. Mankind is still in the process of describing the effects of chronic low doses of ionizing radiation on diverse populations. There is a whole range of studies that sound the alarm about low doses of radiation.

Epidemiological studies deliver findings that low doses of ionizing radiation cause more harm per unit of dose than higher exposures. This calls into question standard dose-response ratios and anticipates the findings from data of Japanese atomic bomb survivors.

Genetic impacts are discussed less frequently than cancer. Ionizing radiation can cause genetic impacts that are not displayed for several generations. This is called '**genomic instability**' and it affects all forms of life. Latent genetic damage is like a time bomb waiting to go off. The radioactive dose already committed to the biosphere has dangerous consequences and should not be allowed to increase.

Polluters know that a small, determined group, working energetically for its own special interests, can impose -- via government or via direct force -- an injustice upon a vastly larger group, provided that the larger group believes that the injury is either "hypothetical," or real-but-small. This is the axiom of concentrated benefit versus diffuse injury.

Each time some relatively low radiation dose is approved, it allows levels of radiation or release of radioactivity that may become persistent. Radionuclides with a long half-life are cumulatively loaded into the environment and may result in health impacts or long-term damage to the gene pool. Both entail loss and cost not only to the individual but to the larger system of which they are a part. Genetic effects may be persistent within the population generation after generation. Non-persistent radionuclides may also have a long-term effect on the population. These exposure standards are cynically based on the Law of Concentrated Benefit Over Diffuse Injury.

What matters biologically is the sum of all these relatively small doses. The loading of the environment with releases of radioactivity from multiple sites violates the principle of precaution. Altering the collective gene pool of life on earth is not an experiment that is reversible. In this case, we can't wait until we see adverse effects and then adjust our programs. Zero is the only acceptable level and there should be no increase over naturally occurring background radiation levels.

Uranium threatens the health of mine workers and the communities surrounding the mines. According to the International Physicians for the Prevention of Nuclear War, uranium mining has been responsible for the largest collective exposure of workers to radiation. Mine workers are principally exposed to ionising radiation from radioactive uranium and the accompanying radium and radon gases emitted from the ore. Ionizing radiation is the part of the electromagnetic spectrum that extends from ultraviolet radiation to cosmic rays. This type of radiation releases high energy particles that damage cells and DNA structure, producing mutations, impairing the immune system and causing cancers.

It is widely agreed in the scientific community that there is no safe level of radiation exposure. Because it can take more than twenty or more years for cancer produced by low levels of ionizing radiation to become apparent, it is not easy to trace the cause. It is imperative that long term medical records be kept of all workers, residents and their children, including those conceived after the mining site.

At present there is no independent monitoring of the communities around the mines. In the coming decades, when the health effects of uranium are emerging, the people will be left to pick up the costs, just like the asbestos mining communities before them.

"It's like throwing a grenade into a computer. The probability of getting an improvement in a computer by throwing a grenade into it is very small, and similarly with radiation events and human cells. Now, the cells that die are really no problem, as long as not too many of them die. They can be replaced. The ones that are particularly dangerous are the ones that survive. Those damaged cells can develop into cancers. You can also have damage to germ cells -- eggs and sperm -- leading to genetically damaged children, grandchildren, or great-grandchildren."
Gordon Edwards, Ph.D.

Chapter 1 Areva

1.1 Uranium mining

Areva is a French energy group with manufacturing facilities in 41 countries and a sales network in more than 100 countries. The company describes itself as "the world leader in nuclear power and the only company to cover all industrial activities in this field".[1]

Areva owns mining properties in Canada (McClean, McArthur River and Cigar Lake), Kazakhstan (Muyumkum - a joint project with Kazatomprom[2] - and Torkuduk) and Niger (Cominar, Somair and Imouraren). In addition, Areva owns and operates industrial facilities, most of which are located in Europe, including France, Germany, and Belgium, and in the United States.[3]

In June 2007, Areva acquired UraMin, a South-African uranium mining company. UraMin has uranium mining permits in South Africa, Namibia and the Central African Republic. UraMin has also obtained exploration permits and activities in Mozambique, Chad, Nigeria, Senegal and Canada.[4]

1.2 Financial structure

At the end of 2006, Areva owned total assets worth € 25.9 billion. These assets were being financed by the following stakeholders:[5]

• Shareholders	€ 1,996 million	8%
• Joint-venture partners	€ 1,411 million	5%
• Banks	€ 454 million	2%
• Trading partners	€ 6,826 million	26%
• Tax agencies	€ 2,848 million	11%
• Others	€ 12,358 million	48%

Shareholders play a relatively small role in the financing of Areva and the role of banks is very minimal. This is partly caused by the fact that almost half of the company´s assets are backed by provisions and reserves, which are largely held for clean-up activities after closure of mines and production plants.

The information found on these different groups of financial stakeholders is presented in the following paragraphs.

1.3 Shareholders

96% of the share capital of the Areva group is held by the French state and large French industries, of which **CDC** and Calyon (part of **Crédit Agricole**) are financial institutions. The remaining 4% of Areva's share capital is listed on the Paris stock exchange (Euronext) as investment certificates, which do not entitle voting rights.
At the end of 2006, the following institutions owned the shares of the Areva group:

• CEA	France	79.0%
• French State	France	5.2%
• **CDC**	France	3.6%
• ERAP	France	3.2%
• EDF	France	2.4%
• Total	France	1.0%
• Calyon, part of **Crédit Agricole**	France	0.9%

CEA stands for the French Commissariat *à l'Énergie Atomique*; a French government-funded technological research organisation which was founded in 1945 by president De Gaulle. In September 2001, the nuclear energy division of the CEA (95% owned by CEA) was transformed into the new company Areva.[7]

The **Caisse des Dépôts et Consignations (CDC)** is a French state-owned financial institution that performs public-interest missions on behalf of France's central, regional and local governments.[8]
The *Entreprise de recherches et d'activités pétrolières* (ERAP) is a French state-owned industrial and commercial establishment, which acquires - at the request of the French government - equity interests in companies in the energy, pharmaceutical and telecommunications sectors.[9]

Électricité de France (EDF) is the main electricity generation and distribution company in France and one of the world's largest producers of (mainly nuclear) electricity. The company was state-owned until 2004 and has been publicly owned since November of that year.[10]

Calyon is a large French investment bank, owned by the **Crédit Agricole** banking group.

In November 2004, Nicolas Sarkozy, the then French Minister for the Economy, Finance and Industry, announced the decision to sell a larger part of Areva's shares - between 35 and 40% - through the stock exchange. The French state would continue to hold, either directly or indirectly, more than 50% of the group's capital. In October 2005, the government of president Chirac pulled back this partial privatisation. But is expected to re-appear on the political agenda, now that president Sarkozy is carrying through economic transformations in France.

1.4 Joint-venture partners

Areva has set up several joint ventures to develop mining activities:

- In 2001 Cogema merged with Framatome to form the Areva group. Framatome, which is 34% owned by Siemens (Germany) is now called Areva NP and is a subsidiary of the Areva Group. [11]

- Since 2001, KATCO, a joint venture between Areva and KazAtomProm develops and operates a uranium mine in the Muyunkum deposit in southern Kazakhstan. In May 2004, Cogema (today Areva NC) invested an additional US$ 90 million in the joint venture, thereby increasing its share in the project to 51%.[12]

- In October 2007 Areva and Office Cherifien des Phosphates (OCP), a Moroccan conglomerate of mining and chemical industries, signed an agreement to develop their cooperation and research initiatives in the field of natural uranium. Areva and the OCP plan to launch a joint study into the feasibility of an industrial site producing uranium from phosphoric acid.[13]

1.5 Bank loans

The following information was found on bank loans provided to Areva since early 2003:

- In November 2006, a credit facility of C$ 350 million (€ 240 million) replaced the expiring one-year C$ 228 million (€ 156 million) loan to Areva NC Resources (former Cogema). It is not known which banks were involved in the deal.[14]

- In February 2007 Areva secured a € 2 billion syndicated seven-year credit facility. The banking syndicate was arranged by:

• Calyon, part of **Crédit Agricole**	France
• **Citigroup**	United States
• **HSBC**	United Kingdom
• **Société Générale**	France

Other banks participating in the syndicate were:[15]

• **BBVA**	Spain
• **BNP Paribas**	France
• **Natixis**	France

- In November 2007 an US$ 2.5 billion (€ 1.7 billion) three year term loan intended to back the purchase of UraMin was signed between Areva and an international banking syndicate.

  Arrangers of the loan facility were:[16]

• **BBVA**	Spain
• **BNP Paribas**	France
• **HSBC**	United Kingdom
• **Société Générale**	France

  Other banks participating in the syndicate were:

• **Banco Santander**	Spain
• **Bank of Tokyo-Mitsubishi**	Japan
• Calyon, part of **Crédit Agricole**	France
• **Citigroup**	United States
• **Crédit Mutuel**	France
• **Deutsche Bank**	Germany
• **Fortis**	Belgium
• HVB, which is owned by **UniCredit**	Italy
• **ING**	Netherlands
• **JP Morgan Chase**	United States
• **LBBW**	Germany
• **Natixis**	France
• **Nordea**	Finland/Sweden
• **Royal Bank of Canada**	Canada
• **Royal Bank of Scotland**	United Kingdom

1.6 Investment banking services

The following information was found on investment banking services provided to Areva since early 2003:

- In June 2007 Areva acquired UraMin, a South-African uranium miner, for more than US$ 2.5 billion (€ 1.9 billion). Financial advisors to UraMin and Areva were:[17]

• BMO Capital, part of **BMO Financial**	Canada
• **NM Rothschild**	United Kingdom

- A € 3.3 billion IPO of Areva is expected in the near future. The IPO was prepared during 2005, but pulled back by president Chirac in October of that year, as a political move to placate union and political opposition to the privatisation of Electricité de France. The current French president Sarkozy is expected to be keen on re-starting the privatization process. No banks are mandated yet to organise the IPO.

Intermezzo:

The case of Niger

"I am extremely worried that our children will never forgive us."
Touareg leader, Niger, april 2005

Niger is one of the poorest countries in the World. COMINAK and SOMAÏR, two subsidiaries of AREVA, have extracted uranium in Niger since the beginning of the 1970's and already produced 100,000 tons of uranium.

When residents of the desert town of Arlit, Niger's uranium mining settlement in the far north of the country, started getting increasingly sick, they questioned whether this had to do with their overexposure to radioactivity and called in French research institute CRIIRAD to investigate. The town of Arlit and nearby Akokan where the second mine is located, were constructed solely to accommodate mine workers.

Even though most of their scientific equipment was confiscated by the authorities when landing at Niamey airport, the team made a preliminary study and demonstrated that the AREVA subsidiaries were not complying with international radioprotection standards nor properly protecting people's health and the environment.

Reports by the French teams found that water, soil and metal scrap from the area where two uranium mines are mainly exploited by Areva were contaminated with abnormally high radioactivity levels.

"The French multinational Areva and its subsidiaries ... released contaminated metal scrap from their site, distributed water contaminated with uranium to the populations, left radioactive waste in the open where desert winds could disperse it far away and disregarded internationally recognized international norms for the protection against radioactivity.

The ventilation of the COMINAK underground mine (one of the biggest one in the world with its 250 km long galleries) discharges huge amounts of radioactive radon gas to the atmosphere in close vicinity of the city of Akokan. In some places, the annual dose limit of 1 milliSievert for the public is exceeded".

Such levels of contamination could cause a whole array of illnesses including cancer, but the researchers admit that it is difficult to give a quantitative evaluation of the health consequences without further research.

"There are very serious presumptions, even though they haven't been proven, that there is a link between some [of the workers'] illnesses and the radiation," said SHERPA, an NGO aiming at protecting human and workers' rights against multinationals.

But the French multinational that operates the mine has consistently denied the allegations, and has attributed the high number of illnesses to the harsh desert climate.

"The most frequently observed maladies are allergic reactions that are characteristic of desert zones because of the abundance of sand and dust," Areva said in a statement.

Uranium is a key export for impoverished Niger. Mining of the very dense metal generates the release of radioactive gases and dust into the environment, which have to be carefully controlled.

SHERPA found that Arlit residents are suffering from a whole range of illnesses - including lung cancer, tuberculosis, and many skin diseases - that, according to SHERPA, could be attributed to the mining activities.

Areva has been accused over and over of not taking enough measures to contain radioactive contamination. Traces are turning up in the air, water and scrap metal which locals are using to make cooking pots for instance. In 2004, when a truck carrying uranium ore was involved in a collision, the spill on the road was not properly cleaned up and one month afterwards radiation levels were still ten times higher than normal.

SHERPA, after interviewing residents, workers and medical doctors in Arlit found out that the mining company had not respected international norms for the protection of its workers.

For 15 to 20 years, no protection measure was taken for workers, neither protective equipment

nor masks, thus exposing workers to the deadly gases.

Several workers have suffered or died of pulmonary or skin diseases, but the link is difficult to establish because medical doctors paid by the companies are extremely reluctant to put names behind patients' symptoms that could potentially be linked to uranium mining.

"No cancer caused by exposure to ionizing radiation has ever been found in the hospitals in the region," according to the Areva statement.

Local and international NGO's demand that the company should better stock radioactive waste, repurchase contaminated scrap-metal that had been acquired by the population, consider long-term protection of underground water reservoirs and improve the monitoring of radioactivity in the environment. Areva and the Niger autorities make money exporting this energy producing metal while most of the inhabitants of Niger do not even have electricity in their homes.

Source and contact:
CRIIRAD,
www.criirad.org

Chapter 2 BHP Billiton

2.1 Uranium mining

The British-Australian company BHP Billiton is the world's largest mining company and one of the largest producers in the world of aluminium, energy coal and metallurgical coal, copper, lead, zinc, diamond, manganese, iron ore, uranium, nickel, silver, gold, cobalt and titanium minerals. The company also has substantial interests in oil, gas and liquefied natural gas.

BHP Billiton owns the Olympic Dam mine, located 560 kilometers north of Adelaide in South Australia. Olympic Dam is not only the world's largest uranium deposit, but also the fourth largest remaining copper deposit and the fifth largest gold deposit. Olympic Dam has long term contracts for the sale of uranium oxide concentrates to customers in the United Kingdom, France, Sweden, Finland, Belgium, Japan, South Korea, Taiwan, Canada and the United States. Olympic Dam was owned by the Australian mining company WMC Resources, which was acquired by BHP Billiton in August 2005. Currently, BHP Billiton is considering a further major expansion of Olympic Dam to more than double its current production capacity.[19]

2.2 Financial structure

At the end of June 2007, BHP Billiton owned total assets worth US$ 58,168 million (€ 43,073 million). These assets were being financed by the following stakeholders:[20]

• Shareholders	US$ 29,667 million	51%
• Joint venture partners	US$ 251 million	0%
• Bondholders	US$ 10,157 million	17%
• Banks	US$ 486 million	1%
• Tax agencies	US$ 3,924 million	7%
• Trading partners	US$ 4,869 million	8%
• Others	US$ 8,814 million	15%

Shareholders play the most important role in the financing of BHP Billiton, financing more than half (51%) of its assets. Bondholders also play an important role, financing 17% of total assets. Banks only play a minor role (1%).

The information found on these different groups of financial stakeholders is presented in the following paragraphs.

2.3 Shareholders

The shares of BHP Billiton Ltd. and BHP Billiton Plc. are quoted on the stock exchanges of Sydney, New York, London and Johannesburg.[21]

The following financial institutions recently owned more than 1% of the issued share capital[22] of the BHP Billiton group:[23]

• **Barclays Bank**	United Kingdom	4.63%
• **Old Mutual**	United Kingdom	2.41%
• **Legal & General**	United Kingdom	2.27%
• **AMP**	Australia	1.55%
• **State Street**	United States	1.51%
• **Blackrock**	United States	1.39%
• **Bailie Gifford & Co.**	United Kingdom	1.09%

2.4 Bank loans

The following information was found on bank loans provided to BHP Billiton since early 2003:

- In September 2004 BHP Billiton's existing US$ 2.5 billion (€ 2.0 billion) revolving facility (arranged in September 2001) was cancelled and replaced with a new US$ 2.0 billion (€ 1.6 billion) multi-currency revolving credit facility maturing in September 2009. This facility can be used for general corporate purposes and is also supporting the issuance of *Medium Term Notes* (a kind of bonds) in Europe and Australia.[24] The following banks participated in this facility:[25]

• **ABN Amro Bank**	Netherlands
• **ANZ**	Australia
• **Bank of America**	United States
• **Bank of Tokyo-Mitsubishi UFJ**	Japan
• **Barclays Bank**	United Kingdom
• **BNP Paribas**	France
• **Citigroup**	United States
• **Crédit Suisse**	Switzerland
• **Deutsche Bank**	Germany
• **HSBC Bank**	United Kingdom
• **JP Morgan Chase & Co.**	United States
• **Mizuho Bank**	Japan
• **National Australia Bank**	Australia
• **Royal Bank of Canada**	Canada
• **Royal Bank of Scotland**	United Kingdom
• **Sumitomo Mitsui Banking**	Japan
• **UBS**	Switzerland

  In March 2005, this facility (which can be used for general corporate purposes) was increased to US$ 3.0 billion (€ 2.3 billion). All 17 banks now have committed US$ 176.5 million (€ 133.6 million).[26]

- In April 2005 BHP Billiton secured a US$ 5.5 billion (€4.2 billion) credit facility to finance the acquisition of the Australian mining company WMC Resources. The facility is split into a US$ 3.0 billion 18 month term loan and a US$ 2.5 billion five year term loan. The credit facility was arranged by the following banks (including commitments):[27]

• **ABN AMRO Bank**	Netherlands	US$ 254 million
• **Bank of America**	United States	US$ 254 million
• **BNP Paribas**	France	US$ 254 million
• **Citigroup**	United States	US$ 254 million
• **Deutsche Bank**	Germany	US$ 254 million
• **HSBC Bank**	United Kingdom	US$ 254 million

  The other banks participating in the banking syndicate were:

• **ANZ**	Australia	US$ 252 million
• **Bank of Tokyo-Mitsubishi UFJ**	Japan	US$ 252 million
• **Barclays Bank**	United Kingdom	US$ 252 million
• **BBVA**	Spain	US$ 172 million
• **BMO Financial**	Canada	US$ 172 million
• Calyon, part of **Crédit Agricole**	France	US$ 172 million
• **Commonwealth Bank**	Australia	US$ 172 million
• **Crédit Suisse**	Switzerland	US$ 252 million
• **Fortis Bank**	Netherlands/Belgium	US$ 172 million
• **ING Bank**	Netherlands	US$ 172 million

• **JP Morgan Chase & Co.**	United States	US$ 252 million
• **Mizuho Bank**	Japan	US$ 252 million
• **National Australia Bank**	Australia	US$ 252 million
• **Royal Bank of Canada**	Canada	US$ 252 million
• **Royal Bank of Scotland**	United Kingdom	US$ 252 million
• **Société Générale**	France	US$ 172 million
• **Sumitomo Mitsui Banking**	Japan	US$ 252 million
• **UBS**	Switzerland	US$ 252 million

In July 2006 this facility was completely repaid.[28]

- In July 2005 BHP Billiton secured a US$ 400 million (€ 332 million) trade financing facility from three banks:[29]

• **ABN AMRO Bank**	Netherlands	US$ 150 million
• **ANZ**	Australia	US$ 150 million
• **BNP Paribas**	France	US$ 100 million

- In October 2006, the US$ 3.0 billion revolving credit facility established in September 2004 was replaced with a new US$ 3.0 billion (€ 2.4 billion) revolving credit facility maturing in October 2011. Which banks were involved is unknown. At the end of June 2007 this facility was undrawn.[30]

- To finance its possible acquisition of Rio Tinto, BHP Billiton has mandated a group of six banks to arrange a syndicated loan of US$ 55 billion (€ 41 billion):[31]

• **Barclays Bank**	United Kingdom
• **BNP Paribas**	France
• **Citigroup**	United States
• **Goldman Sachs**	United States
• **HSBC Bank**	United Kingdom
• **Santander**	Spain
• **UBS**	Switzerland

The loan will only be finalized when the acquisition materializes, which is far from certain yet.

2.5 Investment banking services

The following information was found on investment banking services provided to BHP Billiton since early 2003:

- In April 2003 BHP Billiton issued US$ 850 million (€783 million) of 4.80% senior notes due 2013 on the American capital market. The joint lead managers of the underwriting syndicate were Citigroup (United States) and JP Morgan Chase & Co. (United States). The banks participating in the syndicate were, including amounts underwritten:[32]

• **Bank of America**	United States	US$ 42.5 million
• **Bank of Tokyo-Mitsubishi UFJ**	Japan	US$ 15.9 million
• **Citigroup**	United States	US$ 350.6 million
• **Crédit Suisse**	Switzerland	US$ 42.5 million
• Daiwa Securities SMBC Europe, a joint-venture of **Sumitomo-Mitsui Banking** Japan and **Daiwa Securities**	Japan	US$ 15.9 million
• **JP Morgan Chase & Co.**	United States	US$ 350.6 million
• **Mizuho Bank**	Japan	US$ 15.9 million
• **Royal Bank of Canada**	Canada	US$ 15.9 million

- In May 2003 BHP Billiton started a Euro Medium Term Note Program on the European capital market. Under this program BHP Billiton can regularly issue Medium Term Notes (a kind of short-term bonds), up till a total value of US$ 2.0 billion (€ 1.7 billion). Arranger for the program is **Deutsche Bank** (Germany). Dealers under the program are:[33]

• **ABN Amro Bank**	Netherlands
• **Barclays Bank**	United Kingdom
• **BNP Paribas**	France
• **Deutsche Bank**	Germany
• **HSBC Bank**	United Kingdom
• **Royal Bank of Scotland**	United Kingdom
• **UBS**	Switzerland

  In December 2006 the program was increased to US$ 3.0 billion (€ 2.0 billion). HSBC Bank was removed from the dealer group.[34]

- In December 2003 BHP Billiton started a A$ 3 billion (€1.8 billion) Medium Term Note Program on the Australian capital market. Under this program BHP Billiton can regularly issue Medium Term Notes (a kind of short-term bonds), up till a total value of AS$ 3.0 billion (€ 1.8 billion). Arranger for the program is **Westpac** (Australia). Dealers under the program are:[35]

• **ABN Amro Bank**	Netherlands
• **ANZ**	Australia
• **Commonwealth Bank**	Australia
• **Deutsche Bank**	Germany
• **Merrill Lynch**	United States
• **National Australia Bank**	Australia
• **Royal Bank of Canada**	Canada
• **UBS**	Switzerland
• **Westpac**	Australia

  In November 2006, **UBS** replaced **Westpac** as arranger of the program. **Merrill Lynch** and **Westpac** were removed from the dealer group.[36]

- In December 2005 BHP Billiton issued US$ 600 million (€ 506 million) 5.00% five year bonds and US$ 750 million (€ 633 million) 5.25% ten year bonds. The proceeds are used to repay debt incurred to fund BHP Billiton's acquisition of WMC Resources in August 2005 and to repay other debt. The joint bookrunners of the bond issuance were Credit Suisse First Boston, part of **Credit Suisse** (Switzerland), and **JP Morgan Chase & Co.** (United States). The following banks were involved in the underwriting syndicate (including amounts underwritten):[37]

• **ABN Amro Bank**	Netherlands	US$ 29.25 million
• **Bank of America**	United States	US$ 40.50 million
• **Barclays Bank**	United Kingdom	US$ 40.50 million
• **BNP Paribas**	France	US$ 40.50 million
• **Citigroup**	United States	US$ 40.50 million
• **Credit Suisse**	Switzerland	US$ 506.25 million
• **Deutsche Bank**	Germany	US$ 29.25 million
• **HSBC Bank**	United Kingdom	US$ 29.25 million
• **JP Morgan Chase & Co.**	United States	US$ 506.25 million
• **Royal Bank of Canada**	Canada	US$ 29.25 million
• **Royal Bank of Scotland**	United Kingdom	US$ 29.25 million
• **UBS**	Switzerland	US$ 29.25 million

- In April 2006 BHP Billiton issued € 650 million of 4.125% five year bonds in the framework of its EMTN programme (see above). The proceeds are used to repay debt incurred to fund BHP Billiton's acquisition of WMC Resources in August 2005. The joint bookrunners of the bond issuance were **Barclays Bank** (United Kingdom), **BNP Paribas** (France) and **Deutsche Bank** (Germany). The following banks participated in the issuing syndicate:[38]

• **ABN Amro Bank**	Netherlands
• **Barclays Bank**	United Kingdom
• **BNP Paribas**	France
• **Deutsche Bank**	Germany
• **HSBC Bank**	United Kingdom
• **Royal Bank of Canada**	Canada
• **Royal Bank of Scotland**	United Kingdom

- In February 2007 BHP Billiton issued € 600 million of one-year floating rate bonds and € 600 million of seven-year 4.375% bonds in the framework of its EMTN programme (see above). The proceeds were used to refinance short term debt. The joint bookrunners of the bond issuance were **Barclays Bank** (United Kingdom) and **BNP Paribas** (France). The following banks participated in the issuing syndicate:[39]

• **ABN Amro Bank**	Netherlands
• **Barclays Bank**	United Kingdom
• **BNP Paribas**	France
• **Deutsche Bank**	Germany
• **Royal Bank of Canada**	Canada
• **Royal Bank of Scotland**	United Kingdom
• **UBS**	Switzerland

- In March 2007 BHP Billiton issued three tranches of bonds on the American capital market with a total value of US$ 2.25 billion (€ 1.7 billion). The joint bookrunners of the bond issuance were **Bank of America** (United States) and **JPMorgan Chase** (United States). The following banks participated in the issuing syndicate (including amounts underwritten):[40]

• **ABN Amro Bank**	Netherlands	US$ 67.5 million
• **Bank of America**	United States	US$ 810 million
• **Citigroup**	United States	US$ 337.5 million
• **Deutsche Bank**	Germany	US$ 67.5 million
• **JPMorgan Chase**	United States	US$ 810 million
• **Royal Bank of Canada**	Canada	US$ 90 million
• **Royal Bank of Scotland**	United Kingdom	US$ 67.5 million

2.6 Bondholders

The following information was found on the bondholders of BHP Billiton:

- In February 2007 BHP Billiton issued € 600 million of one-year floating rate bonds and € 600 million of seven-year 4.375% bonds in the framework of its EMTN program (see above). 45% of the floating rate bonds were sold to investors in Germany and 22% to investors in France followed. The rest of the deal was sold in Switzerland for 15%, the Netherlands at 11% and the United Kingdom at 5%.

The 4.375% bonds were sold to investors in France (25%) and the United Kingdom (17%). Another 11% was sold to investors in Switzerland, 27% to Germany and 6% to the Netherlands. The rest was sold to the rest of Europe, Asia and the Middle East.[41]

2.7 Other financial services

The following information was found on other financial services provided to BHP Billiton since early 2003:

- In November 2007 BHP Billiton announced its plans to acquire the British-Australian mining company Rio Tinto (see Chapter 9). BHP Billiton has hired **BNP Paribas** (France), **Citigroup** (United States), **Goldman Sachs** (United States), **Gresham Partners** (Australia), **HSBC** (United Kingdom), **Lazard** (United States) and **Merrill Lynch** (United States) to advise on the acquisition.[42] In February 2008 BHP Billiton made a formal offer of 3.4 BHP Billiton shares for each Rio Tinto share, which values Rio Tinto at US$ 147 billion (€ 110 billion). Rio Tinto rejected the offer and the outcome is still unclear.[43]

Chapter 3 Cameco

3.1 Uranium mining

Cameco is a Canadian mining company, and the world's largest uranium producer accounting for 20% of world production. Cameco owns and operates mines in Canada and the United States and holds land positions in areas for new uranium discoveries in Canada and Australia. In 2008, Cameco expects to start commercial production of its uranium mining activities in Kazakhstan.

Besides mining, Cameco is also active in refining and conversion of uranium, fuel manufacturing (the company is a leading provider of processing services required to produce fuel for nuclear power plants), and a generator of nuclear power.[44]

Cameco is 54% owner of Centerra, a company that was set up in Canada in 2004 and incorporated all assets of Cameco Gold, the full subsidiary of Cameco.[45] Cameco has a 31.6% interest in the Bruce Power Limited partnership (BPLP) which operates the four Bruce B nuclear reactors.

As a secondary source of uranium, Cameco purchases uranium that is obtained by dismantling the Russian nuclear arsenal. This uranium is supplied by Techsnabexport. The companies also signed a non-binding memorandum of understanding in November 2006, that allows Cameco to pursue future joint ventures in uranium exploration, development and production. In March 2007, the agreement on uranium exploration became binding, making Cameco the first foreign miner in Russia to explore for uranium.[46]

3.2 Financial structure

At the end of 2006, Cameco owned total assets worth C$ 5,140 million (€ 3,343 million). These assets were being financed by the following stakeholders:[47]

• Shareholders	C$ 2,741 million	53%
• Joint Venture partners	C$ 400 million	8%
• Bondholders	C$ 507 million	10%
• Banks	C$ 197 million	4%
• Trading partners	C$ 510 million	10%
• Tax agencies	C$ 386 million	8%
• Others	C$ 399 million	7%

Shareholders play the most important role in the financing of Cameco.

The information found on these different groups of financial stakeholders is presented in the following paragraphs.

3.3 Shareholders

Cameco is listed on both the Toronto Stock Exchange and the New York Stock Exchange.[48]

In June 2007 the following financial institutions were owning more than 1% of the shares of Cameco:[49]

• **Capital Group**	United States	14.5%
• **Wellington Management**	United States	12.3%
• **Fidelity**	United States	5.4%
• **McLean Budden**	Canada	4.0%
• **Barclays**	United Kingdom	2.8%
• **Jarislowsky Fraser**	Canada	2.1%
• Harris Financial, part of **BMO Financial**	Canada	1.3%
• **Royal Bank of Canada**	Canada	1.3%

3.4 Joint-venture partners

Cameco has set up several joint ventures to develop mining activities:

- In May 2004, Cameco and KazAtomProm established a joint uranium production project for mining the Inkai deposit in Kazakhstan. The total cost to develop an in situ leaching mine has been estimated at US$ 40 million (€ 33 million), of which Cameco owns 60% and KazAtomProm 40%.[50] The Inkai mine contains estimated reserves or 86.4 million tons, and currently produces around 2,000 metric tons of uranium per year.[51]

3.5 Bank loans

The following information was found on bank loans provided to Cameco since early 2003:

- Commercial banks have provided a C$ 500 million (€ 325 million) five-year revolving credit facility, available until November 2011, which can be extended for an additional year. The participants in the banking syndicate are not known, apart from **Royal Bank of Canada** (Canada) - which has committed C$ 55 million to this credit facility - and **Scotiabank** (Canada) - which has committed C$ 50 million. At the end of June 2007, there were no amounts outstanding under this credit facility.[52]

- Cameco may borrow directly from investors by issuing up to C$ 400 million (€ 260 million) in commercial paper. It is not known which investors are involved. At June 30, 2007, there were no amounts outstanding under the commercial paper program.[53]

- Various financial institutions have entered into agreements to provide Cameco up to approximately C$ 280 million (€ 182 million) in short-term borrowing and letters of credit facilities. It is unknown which financial institutions are involved. At June 30, 2007, outstanding letters of credit amounted to C$ 207 million (€ 135 million) under these facilities.[54]

3.6 Investment banking services

The following information was found on investment banking services provided to Cameco since early 2003:

- In September 2003 Cameco completed the sale of C$ 230 million (€ 150 million) of 5% convertible bonds, maturing in October 2013. The underwriting syndicate was led by **Royal Bank of Canada** (Canada) and **Scotiabank** (Canada), and also included **CIBC** (Canada) and **HSBC** (Great Britain).[55]

- In September 2005 Cameco completed the offering of C$ 300 million (€ 195 million) of 4.70% bonds, maturing in 2015. The offering was underwritten by **Royal Bank of Canada** (Canada) and **Scotiabank** (Canada).[56]

Chapter 4 Denison Mines

4.1 Uranium mining

Denison Mines is a Canadian intermediate uranium producer, which came into being in December 2006, after the merger of Denison Mines Inc. (DMI) and International Uranium Corporation.

Denison owns and operates five uranium mines in the United States and two in Canada, and estimates production from these mines to add to 5.0 million lbs (2,268 tonnes) of U_3O_8 by 2011. Denison also has an interest in two of the four operating uranium mills in North America (in Utah and Saskatchewan). Denison's 2007 production from the two mills is estimated to be approximately 700,000 lbs (318 tonnes) of U_3O_8. Moreover, Denison has a portfolio of exploration projects in Canada, the United States, Mongolia and indirectly in Australia. Through its 97% ownership of OmegaCorp Limited - an Australian uranium mining company - Denison is also involved in the exploration of the Kariba Uranium Project in Zambia.[57]

4.2 Financial structure

At the end of June 2007, Denison Mines owned total assets worth C$ 900 million (€ 628 million). These assets were being financed by the following stakeholders:[58]

• Shareholders	C$ 754 million	84%
• Banks	C$ 0.1 million	0%
• Bondholders	C$ 0.1 million	0%
• Tax agencies	C$ 95 million	11%
• Trading partners	C$ 12 million	1%
• Others	C$ 39 million	4%

Shareholders play the most important role in the financing of Denison Mines, financing 84% of its assets. Banks do not play any role.

The information found on these different groups of financial stakeholders is presented in the following paragraphs.

4.3 Shareholders

The shares of Denison Mines are quoted on the Toronto (TSX) and American Stock Exchange (AMEX).[59]

In September 2007, the following financial institutions were owning more than 1% of the shares of Denison Mines:[60]

• **Capital Group**	United States	3.7%
• **Goodman & Company Investments**	Canada	2.9%
• **Steinberg Asset Management**	United States	2.7%
• **Blackrock**	United States	2.2%
• **TD Bank**	Canada	1.5%
• **JPMorgan Chase**	United States	1.4%

4.4 Bank loans

The following information was found on bank loans provided to Denison Mines since early 2003:

- In November 2005, an unknown Canadian bank provided Denison Mines (DMI) with a revolving C$ 0.5 million credit facility, with a one year term, subject to renewals. To date, the company has not used the credit facility.[61]

4.5 Investment banking services

The following information was found on investment banking services provided to Denison Mines since early 2003:

- In December 2003, the International Uranium Corporation issued 6.7 million shares for an aggregate amount of C$ 10.5 million (€ 6.7 million). **GMP Securities** (Canada) was lead-underwriter and was responsible for selling 47.5% of the shares issued. **Dundee Securities** (Canada) and **Toll Cross Securities** (Canada) were underwriters and took responsibility for 42.5% and 10% of the shares respectively.[62]

- In September 2004, Denison mines (DMI) raised C$ 5 million by issuing 1.25 million shares. The offering was a private placement and no financial institutions were involved.[63]

- In November 2004, Denison Mines (DMI) issued 1.1 million share purchase warrants, expiring in November 2009, for a total amount of C$ 16.5 million (€ 10.6 million). Underwriters of the issue were **Sprott Securities** (Canada), **Dundee Securities** (Canada), National Bank Financial - which is part of **National Bank of Canada** (Canada), **Haywood Securities** (Canada) and **Salman Partners** (Canada).[64]

- In March 2005, Denison Mines (DMI) raised C$ 7 million (€ 4.3 million) through issuance of 1 million shares. Proceeds were used to fund Denison Mines' Canadian exploration projects. The offering was a private placement, and no financial institutions were involved.[65]

- In October 2005, Denison Mines (DMI) issued 6 million shares, for gross proceeds of C$ 45 million (€ 32 million). The offering was a private placement, and no financial institutions were involved. Proceeds have been used amongst other to re-open the U.S. uranium mines.[66]

- In December 2005, Denison Mines (DMI) issued 850,000 shares for gross proceeds of approximately C$ 6.6 million (€ 4.8 million). The offering was private placement and no financial institutions were involved.[67]

- In March 2006, Denison Mines (DMI) issued 2.2 million share purchase warrants, expiring in March 2011, for a total amount of C$ 67 million (€ 43 million). Underwriters of the offering were **Sprott Securities** (Canada), **Dundee Securities** (Canada), National Bank Financial - which is part of **National Bank of Canada** (Canada), Scotia Capital - which is part of **Scotiabank** (Canada) - and **Raymond James** (United States).[68]

- In January 2007, Denison issued 9.0 million shares for gross proceeds of C$ 106 million (€ 69 million). The offering took place through a syndicate of agents led by **Sprott Securities** (Canada) and **GMP Securities** (Canada). The syndicate also included **Dundee Securities** (Canada), CIBC World Markets - which is part of **CIBC** (Canada), Scotia Capital - which is part of **Scotiabank** (Canada) and **Raymond James** (United States). The shares issued were subject to a four month hold period and expired in May 2007.[69]

- In April 2007, Denison issued 1,104,295 shares for gross proceeds of approximately C$ 18 million (€ 11.7 million), which has been used for the company's exploration program in Saskatchewan. The shares expired in August 2007 and it is not known which institutions have underwritten the offering.[70]

4.6 Other financial services

The following information was found on other financial services provided to Denison Mines since early 2003:

- In December 2006, Denison Mines acquired all of the issued and outstanding shares of the Australian company OmegaCorp for a total consideration of approximately AU$ 170 million (€ 102 million). **Dundee Securities** (Canada) and **Haywood Securities** (Canada) were joint financial advisors to Denison Mines on the acquisition.[71]

Chapter 5 Energy Resources of Australia

5.1 Uranium mining

Energy Resources of Australia (ERA) is an Australian uranium mining company and the world's third-largest uranium producer. ERA mines uranium ore to produce uranium oxide (U_3O_8) at the Ranger Mine located 250 kilometres east of Darwin in Australia's Northern Territory. The mine is surrounded by the Kakadu National Park. The company provides 11% of the world's uranium needs, exporting to nuclear electricity utilities in Japan, South Korea, Europe and North America. The Ranger Mine predicted operational life time is extended until 2020. In 2006 ERA produced 4,748 tonnes of uranium oxide.[72]

5.2 Financial structure

At the end of 2006 ERA owned total assets worth A$ 869.3 million (€ 519 million). These assets were being financed by the following stakeholders:[73]

• Shareholders	A$ 552.5 million	64%
• Tax agencies	A$ 76.7 million	9%
• Trading partners	A$ 33.1 million	4%
• Loans from related parties	A$ 5.0 million	1%
• Others	A$ 202.0 million	23%

Shareholders play the most important role in the financing of ERA (64%). Tax agencies (9%) play a significant role. Trading partners (4%) and loans from related parties (1%) play a minor role in the financing of ERA, banks and bondholders play no role.

The information found on these different groups of financial stakeholders is presented in the following paragraphs.

5.3 Shareholders

ERA is listed on the Sydney Stock Exchange, but at the end of 2006 the majority of its shares (68.4%) was owned by the British mining company Rio Tinto Ltd., the parent entity of ERA.
At the end of January 2007 no financial institutions were owning more than 1% of the shares of ERA.[74]

5.4 Bank loans

No information was found on bank loans provided to ERA since early 2003. ERA normally secures short term loans from related parties.

- In 2006 ERA entered into a short term A$ 5 million (€ 3.1 million) loan arrangement with Rio Tinto Finance Ltd, a fully owned subsidiary of Rio Tinto Ltd. The loan was repaid in January 2007.[75]

- In January 2006 ERA entered into a uranium loan arrangement with Rössing Uranium Ltd, another subsidiary of Rio Tinto Ltd, for the inventory management of 129.8 tonnes of uranium oxide. The loan was repaid in 2006.[76]

5.5 Investment banking services

The following information was found on investment banking services provided to ERA since early 2003:

- In December 2005 **UBS** (Switzerland) and **Merrill Lynch** (United States) sold 25% of the shares of Energy Resources Australia to Australian investors, raising A$ 454 million (€ 272 million). The shares were sold by Cogema (France), Cameco (Canada) and Japan Australia Uranium Resource Development Co. (Japan).[77]

Intermezzo:

The story of Ranger Uranium Mine

Located in the heart of the rugged and unique Kakadu region of Australia's Northern Territory the Ranger uranium mine has been a source of controversy, conflict and contamination since the deposit was discovered in 1969.

The areas traditional Aboriginal owners, the Mirarr people, fearing environmental and cultural damage and the social impact of large numbers of non-Aboriginal mine workers in the region took a stand against the development of Ranger.

In 1977 with a background of relentless development pressure and an assessment process skewed towards approving the mine the Ranger Uranium Environmental Inquiry recognised the Mirarr's fundamental opposition to uranium mining on their country but declared that 'their opposition should not be allowed to prevail[1]'. So began a pattern of indifference and industrial imposition that continues today.

In the years since it opened in 1980 the mine has been the focus of sustained criticism over its environmental performance. Management of excess water and mine wastes have been two key problems facing mine operator Energy Resources of Australia (ERA). Using official government sources environmental NGO's have documented in excess of 150 spills, incidents and environmental breaches at Ranger.

A 2003 Inquiry into uranium mining by the Australian Senate found that 'ERA failed to inform stakeholders, failed to follow correct procedures and did not take timely action on a number of major incidents[2]'. The Inquiry identified 'a pattern of underperformance and non-compliance' and concluded that changes were necessary in order to protect the environment and its inhabitants from 'serious or irreversible damage'.

In March 2004 one of the litany of Ranger incidents attracted major media attention in Australia after an process error at the Ranger mill caused around 150 people to be exposed to drinking water containing uranium levels 400 greater than the maximum national standard.

In May 2005 ERA pleaded guilty to the contamination charge and was convicted for breaching environmental requirements and fined $A150,000. Later that year ERA faced a separate conviction over occupational health and safety breaches after a worker was seriously injured in the Ranger processing plant.

In early 2006 tropical cyclone Monica highlighted the mine's vulnerability and forced its emergency closure following sustained rainfall and flooding. Against this background of legal and media scrutiny and natural and unnatural disasters the increased global uranium price in 2006 came as welcome relief for the embattled Ranger mine. The renewed market enthusiasm for uranium has seen both a remarkable reversal of ERA fortunes and a growing threat to the environmental and cultural values of the World heritage listed Kakadu National Park in recent years.

Operations at Ranger had been planned to be phased out with mining scheduled to finish in 2008 and milling in 2011. The recent surge in the uranium price has instead seen ERA revise its mine plan with processing now set to continue until 2020.

As part of an active expansion program recent times have seen ERA increase its exploration activities in the region, lower the cut off grade for commercial ore and re-classify former waste rock stockpiles as millable ore, construct a water processing plant, expand the tailings dam, upgrade the Ranger processing mill and announce plans for a significant expansion of the primary mining pit.

This renewed activity at Ranger is a cause of deep concern to many for three principal reasons. It continues the impacts of the already over-stretched and under-performing Ranger mine infrastructure and regulatory regime. It adds considerable delay, cost and complexity to the final closure and rehabilitation of the site and it keeps the door open for future attempts by ERA to access its corporate Holy Grail - the development of the nearby and high grade Jabiluka uranium deposit which has been stalled following a major campaign by the Mirarr and environment groups.

The fate of the people and country of Kakadu remains in the balance.

References:

[1] Ranger Uranium Environmental Inquiry, 2nd Report, 1977, p.9
[2] Regulating the Ranger, Jabiluka, Beverley and Honeymoon uranium mines, Australian Senate Committee Report, October 2003, p.xv

Chapter 6 KazAtomProm

6.1 Uranium mining

KazAtomProm is the Kazakh national atomic company set up in 1997 and owned by the state government. The company is the world's third-largest uranium producer and controls all uranium exploration and mining as well as other nuclear-related activities, including imports and exports of nuclear materials.

KazAtomProm has forged strategic links with Russia, Japan and China, and has a 10% share in the international nuclear company Westinghouse (United States).[78]

KazAtomProm has developed uranium mining activities in various regions in Kazakhstan. In 2006, the company produced 3,010 tonnes of uranium; equivalent to 57% of the country's total uranium output.[79] KazAtomProm planned to start production at five new uranium mines in 2007, and another two in 2008. The main purchasers of Kazakh uranium are China, Japan, the United States and South Korea.[80]

In the Soviet era, Kazakhstan was the production region for the Soviet Union's nuclear weapons and the country has a major legacy of radioactive wastes from uranium mining, nuclear reactors, nuclear weapons testing, industrial activities, coal mining and oilfields.[81]

6.2 Financial structure

At the end of 2003, KazAtomProm owned total assets worth KZT 62 billion (€ 377 million). These assets were being financed by the following stakeholders:

• Shareholders	KZT 50 billion	80%
• Others	KZT 12 billion	20%

The shareholders (the Kazakh government) clearly are the most important stakeholders of KazAtomProm. But joint-venture partners and bank loans probably also play a relevant role.

The information found on these different groups of financial stakeholders is presented in the following paragraphs.

6.3 Shareholders

KazAtomProm itself is fully owned by the Kazakh government. But for the development of its mining activities, the company does set up joint ventures with non-government parties.

6.4 Joint-venture partners

KazAtomProm has set up several joint ventures to develop mining activities:

- In January 2004, commercial operations commenced at the Akdala uranium mine by the joint venture Betpak-Dala, between KazAtomProm (30%) and Uranium One (Canada, 70%). Akdala produces around 1,000 tonnes of uranium per year.[82]

- In May 2004, the French company Cogema (today Areva NC) invested an additional US$ 90 million in the uranium mine in Moinkoum, in southern Kazakhstan, which is owned by Katko, a joint venture between KazAtomProm and Cogema. With this investment, Cogema increased its share in the project to 51%. KazAtomProm owns the remaining 49%.[83] The Katko joint venture is also to develop the Tortkuduk mine in the future.[84]

- In May 2004, KazAtomProm and Cameco (Canada) established a joint uranium production project for mining the Inkai deposit in Kazakhstan. The total cost to develop an in situ leaching mine has been estimated at US$ 40 million (€ 33 million), of which Cameco will fund 60% and KazAtomProm 40%.[85] The Inkai mine contains estimated reserves or 86.4 million tons, and currently produces

around 2,000 metric tons of uranium per year.[86]

- In January 2006, the Japanese companies Sumitomo and Kansai Electric Power and KazAtomProm have formed the joint venture Appak, with an initial investment of US$ 100 million (€ 83 million). Appak will develop the new West Mynkuduk uranium mine and an in situ leaching operation in southern Kazakhstan. The Appak joint venture will be held 65% by Kazatomprom, 25% by Sumitomo and 10% by Kansai.[87]

- In July 2006 KazAtomProm signed three 50:50 nuclear joint venture agreements with Russian companies. The deals totalled US$ 10 billion (€ 8 billion), to be invested in new nuclear reactors, uranium production and enrichment. One of the joint ventures is with Techsnabexport for a uranium enrichment plant at Angarsk in southern Siberia.[88]

- In November 2007 KazAtomProm agreed to share some of its uranium resources with China, in exchange for equity in Chinese nuclear power facilities. China's leading nuclear power companies (China National Nuclear Corp and China Nuclear Guangdong Power Corp), would together have 49 per cent stake in a uranium mining venture in Kazakhstan with KazAtomProm retaining a 51 per cent stake. In exchange, KazAtomProm would take equity in Chinese nuclear fuel processing or electricity generation plants. Details of an agreement signed by the Chinese government are expected to be finalised by next month.[89]

- In the last quarter of 2007, the first uranium production is expected from the South Inkai mining project. South Inkai is developed by the joint venture Betpak-Dala, owned by KazAtomProm (30%) and Uranium One (Canada, 70%). The annual production target is 2,000 tonnes of uranium per annum.[90]

- In 2008, production is expected from the Kharasan uranium mines in western Kazakhstan. The mines are developed by the joint venture Kyzylkum, which is owned by KazAtomProm (30%), Uranium One (30%) and several Japanese companies (40%).[91]

6.5 Bank loans

The following information was found on bank loans provided to KazAtomProm since early 2003:

- In June 2005, KazAtomProm obtained a US$ 150 million (€ 123 million) three-year loan facility by an international banking syndicate. Lead arrangers of the syndicate were **Citigroup** (United States) and **Natixis** (France).[92]

- In September 2005 KazAtomProm obtained a US$ 60 million (€ 49 million) loan agreement with **Mizuho Bank** (Japan), for a newly signed 10-year uranium supply contract with the Japanese Itochu Corp.[93]

6.6 Investment banking services

The following information was found on investment banking services provided to KazAtomProm since early 2003:

- In June 2006, KazAtomProm mandated **Citigroup** (United States) to issue US$ 100 million three-to-five-year Eurobonds.[94] No further details are found.

Chapter 7 Navoi

7.1 Uranium mining

Navoi Mining & Metallurgy Combinat (NMMC or Navoi) is the state-owned mining company of Uzbekistan. Navoi is a large industrial complex, active in exploration, mining and production of amongst others uranium, gold, fluor-spar, construction materials and phosphorites.[95]

Since 1958, Navoi's uranium mining activities have taken place in central Uzbekistan, in the regions Uchkuduk, Zafarabad and Nurabad. At present Navoi incorporates mines, open pits, a sulfuric acid production plant, and underground leaching shops. One flooding tailings dump located one kilometre from the settlement of Durmyan has accumulated from 1964 to date 52,800 thousand tonnes of waste containing uranium, radium and polonium.[96]

In 2006, Navoi produced 2,260 tonnes of uranium from its three mining regions.[97] Before 1992, all uranium mined and milled in Uzbekistan was shipped to Russia. After the demise of the Soviet Union all production has been exported to the United States and other countries, through a US-based intermediary, Nukem Inc.[98]

7.2 Financial structure

No data are found on the financial structure of Navoi.

7.3 Shareholders

Navoi is part of the Uzbekistani state holding company Kyzylkumredmetzoloto (Kyzylkum Precious Metals and Gold). All uranium production in Uzbekistan is the property of the Uzbekistani government.[99] But for the development of its mining activities, the company does set up joint ventures with non-government parties.

7.4 Joint-Venture Partners

Navoi has set up several joint ventures to develop mining activities:

- Navoi and the French company Cogema (now Areva NC) have set up a joint venture to develop the Sagraly deposit in Uzbekistan with an estimated 38,000 tons of reserves.[100]

- In October 2007 Navoi and Itochu Corporation (Japan) agreed to develop technology to mine and mill the Rudnoye deposit in Kazakhstan from 2007 onward. A 50-50 joint venture is envisaged.[101]

7.5 Bank loans

No information was found on bank loans provided to Navoi since early 2003.

7.6 Investment banking services

No information was found on investment banking services provided to Navoi since early 2003.

Chapter 8 Paladin Energy

8.1 Uranium mining

Paladin Energy is an Australian mining company developing a number of uranium projects in Australia and Africa:[102]

- The Langer Heinrich Uranium Mine in Namibia became operational in 2007 and has a targeted annual production of 2.6 million pounds U_3O_8.
- Kayelekera (Malawi) is the second development project, targeted to come on line at the end of 2008.
- Manyingee and Oobgooma (Western Australia) are two projects for longer term development.

In June 2007 Paladin Energy acquired a majority share in the Australian mining company Summit Resources, which explores for uranium, gold and other minerals in the Mount Isa region of Queensland (Australia).

At the end of November 2007, the company changed its name from Paladin Resources to Paladin Energy.

8.2 Financial structure

At the end of December 2006, Paladin Energy and its subsidiaries owned total assets worth US$ 586.1 million (€ 444.7 million). These assets were being financed by the following stakeholders:[103]

• Shareholders	US$ 292.5 million	50%
• Bondholders	US$ 250.0 million	43%
• Trade partners	US$ 18.0 million	3%
• Banks	US$ 2.9 million	0%
• Others	US$ 5.1 million	4%

Shareholders and bondholders play the most important roles in the financing of Paladin Energy, together accounting for 93% of all liabilities. Banks play an insignificant role in financing Paladin Energy. Their contribution amounts to less than 0.5% of total assets.

More detailed information found on these different groups of financial stakeholders is presented in the following paragraphs.

8.3 Shareholders

The shares of Paladin Energy are listed on stock exchanges in Australia (Australian Stock Exchange), Canada (Toronto Stock Exchange) and Germany (Munich, Berlin, Stuttgart and Frankfurt Stock Exchanges).
The following shareholders own more than 1% of the shares of Paladin Energy:[105]

• **Dundee Securities**	Canada	8.8%
• **Fidelity**	United States	5.1%
• **Alger Management**	United States	2.3%
• **Oppenheimer Funds**	United States	1.2%

8.4 Bank loans

The following information was found on bank loans provided to Paladin Energy since early 2003:

- In September 2004 Paladin Energy secured a A$ 2 million (€ 1.1 million) term loan facility from **Société Générale** (France). The loan was used as a back-up funding facility to support funding

requirements for the Bankable Feasibility Study for the Langer Heinrich Project in Namibia and the Kayelekera Project in Malawi. The loan was repaid in the book year ending on 30 June 2006.[106]

- In August 2005 Paladin Energy secured a US$ 71 million (€ 58 million) term loan from an international banking syndicate for the construction of the Langer Heinrich Uranium Project in Namibia. The loan consisted of a 7-year project financing facility of US$ 65 million and a standby cost overrun facility of US$ 6 million. The banking syndicate was arranged by **Société Générale** (France). **Nedbank** (South Africa) and **Standard Bank** (South Africa) participated in the syndicate.[107]

- In February 2008 Paladin Energy secured a US$ 167 million (€ 125 million) financing package from an international banking syndicate for the construction of the Kayelekera Project in Malawi. The loan consisted of a 7 year project finance facility of US$ 145 million, a standby cost overrun facility of US$ 12 million and a performance bond facility of US$ 10 million. The banking syndicate consisted of **Société Générale** (France), **Nedbank** (South Africa) and **Standard Bank** (South Africa). The loan is guaranteed by **Export Credit Insurance Corporation** (South Africa).[108]

8.5 Investment banking services

The following information was found on investment banking services provided to Paladin Energy since early 2003:

- In September 2004 Paladin Energy issued 7.5 million shares, raising A$ 3 million (€ 1.7 million) new capital. The proceedings were used to fund the development of the Kayelekera Project. The majority of the shares was placed with an (unknown) prominent Canadian investment fund.[109]

- In April 2005 Paladin Energy issued 36 million shares raising another A$ 37.8 million (€ 22.6 million) of new capital, which was used to start development of the mine of the Langer Heinrich Project. The issuance was managed by a banking syndicate led by **National Bank of Canada** (Canada), including **Haywood Securities** (Canada) and **Dundee Securities** (Canada).[110]

- In September 2005 Paladin Energy issued 4.35 million shares, raising A$ 5.6 million (€ 3.5 million) of new capital, which was used to finance the acquisition of the remaining 10% of the Kayelekera project in Malawi.[111]

- In October 2005 Paladin Energy issued 35 million shares raising A$ 77 million (€ 48.3 million) of new capital. Together with the bank facility secured in August 2005, the proceedings of this issuance were used to fund the construction and development of the Langer Heinrich Project in Namibia. The rest of the proceedings will be used to fund the Kayelekera Bankable Feasibility Study and for working capital requirements. The issuance was managed by a banking syndicate led by **National Bank of Canada** (Canada) and **Royal Bank of Canada** (Canada).[112]

- In December 2006 Paladin Energy issued 1,250 5-year convertible bonds worth US$ 250 million (€ 189 million) on the Australian Stock Exchange. Proceeds from the offering will amongst others be used to further advance the development of the Kayelekera Project in Malawi and to establish a uranium marketing subsidiary. Joint lead managers and bookrunners were **Royal Bank of Canada** (Canada) and **UBS** (Switzerland).[113]

Intermezzo:

Which way is Namibia heading?

Namibia is experiencing a boom in uranium mining as a result of the phenomenal increase in the price of uranium.

Namibia produces presently 8% of the annual world demand. If the planned uranium mining projects get off the ground, Namibia could soon be producing well over 8,000 tonnes of uranium oxide per annum putting it in a position to almost rival Canada and Australia as one of the world's top three uranium producing countries.
Presently Namibia has two operational uranium mines:

- Roessing Uranium Mine, 69% owned by Rio Tinto, who mines uranium in Namibia for 32 years and operates the largest open pit uranium mine in the world; and

- Langer Heinrich Uranium Mine, totally owned by Paladin Resources, who mines in Namibia since 2007.

Presently 30 foreign companies are performing uranium prospecting and/or exploration in Namibia. Although the uranium industry is booming in the country and Roessing has been mining and exporting uranium for more than 30 years, Namibia does not yet have a legal framework in place regulating nuclear related issues. The foreign companies are not bound to restrictions other than those self imposed.

Many uranium deposits are in the protected Naukluft Park in the Namib Desert near the Atlantic Ocean coastline, so far a pristine tourist destination. Paradoxically, Namibians as well as tourists need a permit from the Ministry of Environment and Tourism to enter the Naukluft Park, while the Ministry of Mines and Energy issues licenses to foreign companies for mining (Langer Heinrich) and prospecting in the protected area. As a result, the environment gets extensively destroyed and spoiled for tourism.

North of the Naukluft Park, the Trekkopje mine by UraMin plans to start operations in 2008. The mine will use 20,000 million cubic meter of water per annum, which cannot be supplied by NamWater, the bulk water producer in Namibia. A desalination plant is under construction by UraMin and the water will be pumped through a pipeline from the coast to the mine. The mining area, but even more the desalination plant and the pipeline, are in close vicinity of the famous and most prominent lichen fields. The global significance of the lichen fields seems not to be fully understood. Lichen fields are a very peculiar phenomenon which have developed in evolutionary time scales and require a very specific, rare and vulnerable combination of environmental factors, which are present in the coastal area of Namibia. Scientists from all over the world come to Namibia to study this rare occurrence, which might be under threat through the mining activities.

One of Namibia's biggest problems is water scarcity. The climate is semi-arid to arid with unpredictable and extremely scattered rainfalls. Now farm owners in the Valencia area in Namibia's northwest, where another uranium mine is planned by Forsys Metals, with a 30% share of Namibian owned Ancash Investments, fear for their livelihood. The government granted Forsys Metals a two year license to extract 1,000 cubic meter of groundwater per day during the construction of the mine.

Namibia is a huge country with a population of around 2 million people, 2 per square kilometer. It's present power demand in peak times is below 500 MW; about 50% of which has been supplied by South Africa for a fairly low price. Since electricity shortages being experienced in South Africa are expected to persist for many years, new electricity generation methods towards achieving energy self-sufficiency need to be established. Namibia has sunshine for more than 350 days per annum and would be the ideal country to utilize solar energy. Unfortunately this only happens on a small scale.

Source and contact: Earthlife Namibia

Chapter 9 Rio Tinto

9.1 Uranium mining

Rio Tinto is a large British mining company. The company's activities span the world with production from every continent. Rio Tinto's products include aluminium, copper, diamonds, energy products, gold, industrial minerals and iron ore. In 2006 sales revenues amounted to US$ 22.5 billion (€ 17.9 billion), resulting in a profit of US$ 7.9 billion (€ 6.3 billion).[114]

In November 2007, Rio Tinto acquired the large Canadian aluminium company Alcan.[115] At present, the British-Australian mining company BHP Billiton is trying to take over Rio Tinto, but recent rumors say Rio Tinto is preparing a counter take-over bid.[116]

Rio Tinto is involved in uranium mining activities through interests in two uranium mining companies. It owns 68% of Energy Resources of Australia (see Chapter 5) and 69% of Rössing (see Chapter 10).[117]

9.2 Financial structure

At the end of 2006 Rio Tinto owned total assets worth US$ 34.5 billion (€ 26.2 billion) These assets were being financed by the following stakeholders:[118]

• Shareholders	US$ 19.4 billion	56%
• Bondholders	US$ 2.5 billion	7%
• Banks	US$ 1.0 billion	3%
• Tax agencies	US$ 3.7 billion	11%
• Trading partners	US$ 1.3 billion	4%
• Others	US$ 6.6 billion	19%

Shareholders play the most important role in the financing of Rio Tinto, financing 56% of its assets. Tax agencies (11%) and bondholders (7%) play a significant role. Trading partners (4%) and banks (3%) play a minor role in the financing of Rio Tinto.

The information found on these different groups of financial stakeholders is presented in the following paragraphs.

9.3 Shareholders

Rio Tinto is an international mining group with two holding companies: Rio Tinto Plc. (United Kingdom), a London listed public company and Rio Tinto Ltd. (Australia), which is listed on the Australian Stock Exchange. The two companies are joined in a "dual listed companies" (DLC) structure as a single economic entity, called the Rio Tinto Group.[119]

At the end of 2006 the following financial institutions were owning more than 3% of the shares of Rio Tinto Plc.:[120]

• **Barclays**	United Kingdom	4.0%
• **Capital Group**	United States	3.9%
• **Legal & General**	United Kingdom	3.1%

No financial institutions were holding significant interests in the capital of Rio Tinto Ltd.

9.4 Bank loans

The following information was found on bank loans provided to Rio Tinto since early 2003:

- The Rio Tinto Group maintains bank standby credit facilities, which totalled US$ 2.3 billion (€ 1.7 billion) at the end of 2006. These facilities are used as backup liquidity for debt maturing within 12 months and its commercial paper programs. The facilities were unused at the end of 2006 and can be drawn upon at any time on terms extending out to five years.[121] Which banks are involved is unknown.

9.5 Investment banking services

The following information was found on investment banking services provided to Rio Tinto since early 2003:

- In June 2003 Rio Tinto Finance USA issued US$ 600 million (€ 514 million) 2.625% five year bonds. The proceeds were used to repay outstanding commercial paper of Rio Tinto Limited. The joint bookrunners of the bond issuance were **Bank of America** (United States), **Citigroup** (United States) and **JP Morgan Chase** (United States). The following banks were involved in the underwriting syndicate (including amounts underwritten):[122]

• **Bank of America**	United States	US$ 180 million
• **Citigroup**	United States	US$ 180 million
• **JP Morgan Chase**	United States	US$ 180 million
• **HSBC**	United Kingdom	US$ 15 million
• **Royal Bank of Scotland**	United Kingdom	US$ 15 million
• **Wachovia Bank**	United States	US$ 15 million
• **Bank of Tokyo-Mitsubishi UFJ**	Japan	US$ 15 million

- The Rio Tinto Group has a US$ 3 billion (€ 2.3 billion) European Medium Term Note programme for the issuance of debt. At the end of 2006 approximately US$ 1.6 billion (€ 1.2 billion) was drawn down under this programme. Issues under this programme occurred before 2003.[123]
  The arranger of this programme is Citigroup (United States). Dealers are:[124]

• **ABN Amro Bank**	The Netherlands
• **Barclays**	United Kingdom
• **Citigroup**	United States
• **JPMorgan Chase**	United States

- Rio Tinto also regularly issues unsecured debt on the American market to finance short term financing requirements. Dealers for this programme are **Lehman Brothers** (United States) and **Goldman Sachs** (United States).[125]

9.6 Other financial services

The following information was found on other financial services provided to Rio Tinto since early 2003:

- In May 2007 Rio Tinto hired **Morgan Stanley** (United States) to help defend the company against a potential hostile takeover bid by rival BHP Billiton (see Chapter 2).[126]
  Later **Deutsche Bank** (Germany), **Macquarie Bank** (Australia), **NM Rothschild** (United Kingdom), **Credit Suisse** (Switzerland) and JP Morgan Cazenove - a joint-venture of **JPMorgan Chase** (United States) and **Cazenove** (United Kingdom) - were added to Rio Tinto's defence team.[127]

Chapter 10 Rössing

10.1Uranium mining

The Namibian mining company Rössing owns a large open pit uranium mine. The Rössing mine is situated in Namibia and started operations in 1976. It is located close to the town of Arandis, 65 kilometres inland from the coastal town of Swakopmund in the Namib Desert in the Erongo Region in Namibia. Walvis Bay, Namibia's only deepwater harbor, lies 40 kilometres south of Swakopmund. Rössing produces uranium oxide (U_3O_8) and its customers are the nuclear power utilities in Central Europe, North America and South-east Asia where the uranium oxide is used in the generation of electricity. The uranium oxide from the mine is sold through Rio Tinto Uranium. Rössing is one of the largest open pit uranium mines in the world, with solid reserves which will continue to serve the world nuclear energy industry. The mine currently produces about 7.55 per cent of the world's uranium. Thanks to new exploration efforts in 2006 plans are being developed to further extend Rössing's mine life beyond 2020.

In 2006 Rössing produced 3,617 tonnes of uranium oxide, resulting in a net profit of N$ 304 million (US$ 46 million).[128]

10.2Financial structure

No information was found on the way Rössing's assets are financed. All financing are likely to be taken care of by Rio Tinto.

10.3Shareholders

Rio Tinto 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%, which was acquired during the set-up of the company in the early 1970s.

The Industrial Development Corporation (IDC) of South Africa owns 10%, while individual shareholders own 3%.[129]

10.4Bank loans

No information was found on bank loans provided to Rössing since early 2003.

10.5Investment banking services

No information was found on investment banking services provided to Rössing since early 2003.

Chapter 11 Techsnabexport

11.1 Uranium mining

Techsnabexport - which operates on the world market under the brand name Tenex - is a 100% Russian state-owned company, involved in a wide range of nuclear fuel cycle products and services.[130] The company is one of the world's largest suppliers of nuclear fuel, and has subsidiaries in Germany, South Korea and Japan.[131]

Techsnabexport also obtains uranium by dismantling the Russian nuclear weapon arsenal. This uranium is (partly) sold to Cameco (Canada). The two companies also signed a non-binding memorandum of understanding in November 2006, that allows Cameco to pursue future joint ventures in uranium exploration, development and production. In March 2007, the agreement on uranium exploration became binding, making Cameco the first foreign miner in Russia to explore for uranium.[132]

In June 2006, the Russian nuclear energy chief Kiriyenko announced that all Russia's uranium exploration and mining assets are to be combined into a single, purely state-owned enterprise. In November 2006, Techsnabexport and TVEL established the Uranium Mining Company (UMC), with the main objective to maintain a long-term and sustainable supply of Russian nuclear industry with uranium feed products. The UMC is the foundation of the today developing state-held giant AtomEnergoProm.[133]

In April 2007, the Russian President Vladimir Putin signed a decree ordering the formation of Russia's new state-owned nuclear power company, AtomEnergoProm (AEP). AEP will amalgamate the country's most significant nuclear enterprises - including Techsnabexport and TVEL - and is to become the largest nuclear company in the world. The company will research, design, build, operate, maintain and decommission nuclear power plants while mining, converting, enriching and fabricating nuclear fuel for them in Russia and abroad.[134]

In November 2007, AEP held 100% of the shares of 12 firms and held stock in another 34 entities.[135] In 2008 the Uranium Mining Company, a subsidiary of the new AtomEnergoProm, is expected to take over geological exploration firm Atomredmedzoloto, domestic uranium miners Priagrunsk, Khiagda and Dalur, and Russia's stakes in Uzbek and Kazakh uranium joint ventures.[136]

11.2 Financial structure

No figures were found on the financial structure of Techsnabexport.

11.3 Shareholders

Techsnabexport is fully owned by the Russian government. But for the development of its mining activities, the company does set up joint ventures with non-government parties.

11.4 Joint-venture partners

Techsnabexport has set up several joint ventures to develop mining activities:

- In October 2006, Techsnabexport and the Japanese trading house Mitsui launched feasibility studies on developing one of the world's largest uranium mines in eastern Siberia. Mitsui invested ¥ 690 million (€ 4.6 million) and obtained an option on a 25% share in the project. If commercial production begins as a result of the studies, Mitsui will be the first foreign company directly involved in uranium development in Russia.[137]

- In June 2006, Techsnabexport and KazAtomProm set up a joint venture project to start uranium

production from the Zarechnoye mine in south Kazakhstan.[138]

- In July 2006 Techsnabexport and KazAtomProm signed a 50:50 nuclear joint venture agreement to develop uranium mining activities; Akbastau, in south Kazakhstan, which is due to start production in 2008.[139]

- In January 2007, Techsnabexport signed a cooperation agreement with the Russian asset manager **Renova Group** to explore and develop uranium deposits in Africa and Asia. The two companies will establish joint ventures in South Africa, Namibia and the Democratic Republic of Congo (DRC), as well as other countries.[140]

- In February 2007, Techsnabexport, **Vneshtorgbank** (Russia) and **Renova Group** (Russia) agreed on setting up a joint uranium mining venture in Namibia. Details of the deal are not public.[141]

11.5 Bank loans

No information was found on bank loans provided to Techsnabexport since early 2003.

11.6 Investment banking services

No information was found on investment banking services provided to Techsnabexport since early 2003.

Chapter 12 TVEL

12.1 Uranium mining

TVEL is a state-owned Russian corporation, whose subsidiaries' activities include mining and reprocessing of uranium ore, manufacturing of fuel assemblies and components thereof, as well as services related to design, licensing and scientific support of fuel operation.[142]

TVEL only undertakes uranium mining activities domestically, but the nuclear fuel is exported to 13 countries.[143]

In August 2003, TVEL became the owner of a 83% shareholding in the Priargunsky mining (PMMCE), the largest uranium producer and refiner in Russia. Currently, TVEL's annual uranium output amounts to around 3,300 tons.[144]

In June 2006, the Russian nuclear energy chief Kiriyenko announced that all Russia's uranium exploration and mining assets are to be combined into a single, purely state-owned enterprise. In November 2006, Techsnabexport and TVEL established the Uranium Mining Company (UMC), with the main objective to maintain a long-term and sustainable supply of Russian nuclear industry with uranium feed products. The UMC is the foundation of the today developing state-held giant AtomEnergoProm.[145]

In April 2007, the Russian President Vladimir Putin signed a decree ordering the formation of Russia's new state-owned nuclear power company, AtomEnergoProm (AEP). AEP will amalgamate the country's most significant nuclear enterprises - including Techsnabexport and TVEL - and is to become the largest nuclear company in the world. The company will research, design, build, operate, maintain and decommission nuclear power plants while mining, converting, enriching and fabricating nuclear fuel for them in Russia and abroad.[146]

In November 2007, AEP held 100% of the shares of 12 firms and held stock in another 34 entities.[147] In 2008 the Uranium Mining Company, a subsidiary of the new AtomEnergoProm, is expected to take over geological exploration firm Atomredmedzoloto, domestic uranium miners Priagrunsk, Khiagda and Dalur, and Russia's stakes in Uzbek and Kazakh uranium joint ventures.[148]

12.2 Financial structure

At the end of 2006, TVEL owned total assets of RUR 43.6 billion (€ 1.3 billion). These assets were financed as follows:[149]

• Shareholders	RUR 36.2 billion	69%
• Trade partners	RUR 13.4 billion	31%

The shareholders clearly are the most important stakeholders of TVEL, financing 69% of its assets. Banks do not seem to play a significant role.

12.3 Shareholders

TVEL Corporation is fully owned by the Russian state.

12.4 Joint-venture partners

The Priargunsky mine is for 83% owned by TVEL and accounts for 95 percent of the country's uranium ore output. In June 2006 around 16% were owned by investors, including several major banks:[150]

• **Alfa Bank**	Russia
• **Citigroup**	United States
• **UBS**	Switzerland

With respect to AtomEnergoProm, Anna Belova - adviser to the Russian Federal Atomic Energy Agency - stated that "it is not federal money" that will be spent on the uranium program. Cash injections could come from "parties interested in cooperation with the nuclear sector," or strategic investors.[151] No information has been found on the identity of any of these "interested parties."

12.5 Bank loans

No information was found on bank loans provided to TVEL since early 2003.

12.6 Investment banking services

No information was found on investment banking services provided to TVEL since early 2003.

Chapter 13 Uran

13.1 Uranium mining

Uran is a small Australian mining company which is focusing on the acquisition of advanced and producing uranium assets worldwide but with emphasis on the countries of the former USSR. The company name was changed from Great Western Exploration to Uran in 2006 to reflect this. The company now is pursuing uranium interests in Kazakhstan, Ukraine, Czech Republic, Bulgaria and Uzbekistan. At present the company is not producing uranium ore.[152]

13.2 Financial structure

At the end of June 2007, Uran owned total assets worth A$ 6.1 million (€ 3.6 million). These assets were being financed by the following stakeholders:[153]

• Shareholders	A$ 5.8 million	95%
• Bank loans	A$ 0.0 million	0%
• Trading partners	A$ 0.2 million	3%

Uran is a typical start-up company with no present production activities. It therefore has only limited assets, which are financed almost completely (95%) by its shareholders. Bank loans finance only 0.3% of total assets.

The information found on different groups of financial stakeholders is presented in the following paragraphs.

13.3 Shareholders

The shares of Uran are quoted on the Australian Stock Exchange (ASX) in Sydney.
In September 2007 no financial institutions owned more than 1% of the shares of Uran.[154]

13.4 Bank loans

The only loan Uran had outstanding at the end of June 2007 was a small lease agreement with an unknown financial institution to finance a motor vehicle.[155]

13.5 Investment banking services

No information was found on investment banking services provided to Uran since early 2003.

Chapter 14 Uranium One

14.1Uranium mining

Uranium One Inc. is a Canadian uranium producer which came into being in 2005, with the merger between Aflease Gold, Uranium Resources and Southern Cross Resources. Uranium One has assets located in Canada, the United States, Australia, Kazakhstan (Akdala Uranium Mine) and South Africa (Dominion Reefs Uranium Mine). The company currently develops uranium mining projects in Kazakhstan (South Inkai and Kharasan Projects), Australia (Honeymoon Project) and in various regions of the United States (Texas, Wyoming, Utah, Arizona, Colorado and New Mexico). Exploration activities are focused around Saskatchewan (Canada), the United States, South Africa, Australia and in the Kyrgyz Republic.[156]

14.2Financial structure

At the end of 2006, Uranium One owned total assets worth US$ 642 million (€ 487 million). These assets were being financed by the following stakeholders:

• Shareholders	US$ 405 million	63%
• Bondholders	US$ 109 million	17%
• Banks	US$ 53 million	8%
• Tax agencies	US$ 31 million	5%
• Trading partners	US$ 24 million	4%
• Others	US$ 20 million	3%

Shareholders play the most important role in the financing of Uranium One.

The information found on these different groups of financial stakeholders is presented in the following paragraphs.

14.3Shareholders

The shares of Uranium One are quoted on the Toronto Stock Exchange and Johannesburg Stock Exchange.[157]

The following financial institutions owned more than 1% of the shares of Uranium One: [158]

• **Fidelity**	United States	7.6%
• **Oppenheimer Funds**	United States	7.3%
• **Fred Alger Management**	United States	2.0%
• **GMO**	United States	1.1%

14.4Joint Venture Partners

Uranium One has set up several joint ventures to develop mining activities:

- In January 2004, commercial operations commenced at the Akdala uranium mine by the joint venture Betpak-Dala, between Uranium One (70%) and KazAtomProm (30%). Akdala produces around 1,000 tonnes of uranium per year.[159]

- In the last quarter of 2007, the first uranium production is expected from the South Inkai mining

project. South Inkai is developed by the joint venture Betpak-Dala, owned by Uranium One (70%) and KazAtomProm (30%). The annual production target is 2,000 tonnes of uranium per annum.[160]

- In 2008, production is expected from the North Kharasan uranium mines in western Kazakhstan. The mines are developed by the joint venture Kyzylkum, which is owned by Uranium One (30%), KazAtomProm (30%) and several Japanese companies (40%).[161]

14.5Bank loans

The following information was found on bank loans provided to Uranium One since early 2003:

- In July 2004, Uranium One Africa entered into a ZAR 50 million (€ 6.7 million) loan agreement with Randgold. In December 2004, the loan facility was purchased by **Eastbourne Capital Management** (United States) and Uranium One repaid the loan in September 2005 with 21.5 million newly issued Uranium One Africa ordinary shares and purchase warrants.[162]

- For the investment of US$ 212,000 (€ 173,000) in shares of Randgold, a credit facility was made available by **Nedbank** (South Africa). The loan bears a variable interest in ZAR and has no fixed repayment terms.[163]

- In August 2006, Uranium One Africa raised ZAR 350 million (€ 39 million) with **Nedbank** (South Africa) to acquire the shares of Aflease Gold. The facility, bearing interest in ZAR at 9% per annum and had a 12 month term was due on September 20, 2007.[164]

14.6Investment banking services

The following information was found on investment banking services provided to Uranium One since early 2003:

- In December 2003, Southern Cross Resources raised approximately C$ 6 million (€ 3.8 million) by issuing 6.3 million shares. **Paradigm Capital** (Canada) and **Toll Cross Investments** (Canada) were the agents in the offering.[165]

- In August 2005, Southern Cross Resources raised C$ 6 million (€ 4.0 million) by issuing approximately 6 million shares, expiring on December 12, 2005. The syndicate for the offering was led by **Paradigm Capital** (Canada) and **Dundee Securities** (Canada) and included **Toll Cross Securities** (Canada).[166]

- In February 2006, Uranium One issued 22.3 million shares with gross proceeds of C$ 171 million (€ 123 million). BMO Nesbitt Burns - part of **BMO Financial** (Canada) -was a lead agent in the deal syndicate. The rest of the syndicate included the following banks:[167]

• **Barnard Jacobs Mellet**	South Africa
• **Canaccord Capital**	Canada
• **GMP Securities**	Canada
• **Hargreave Hale**	United Kingdom
• **Orion Securities**	Canada
• **Paradigm Capital**	Canada
• **Royal Bank of Canada**	Canada
• **Sprott Securities**	Canada
• **Toll Cross Securities**	Canada

- In October 2006, Uranium One Inc. raised C$ 173 million (€ 122 million) by issuing 20.8 million shares. The syndicate of underwriters was led by BMO Nesbitt Burns - part of **BMO Financial** (Canada) - and included the following banks:[168]

• **Canaccord Capital**	Canada

• **GMP Securities**	Canada
• **Orion Securities**	Canada
• **Raymond James**	United States
• **Sprott Securities**	Canada
• **Toll Cross Securities**	Canada
• **Wellington West**	Canada

- In December 2006, Uranium One raised C$ 155 million (€ 103 million) by issuing convertible bonds with a 4.25% rate and expiring in December 2011. BMO Nesbitt Burns - part of BMO Financial (Canada) - led the syndicate of underwriters, which further included:[169]

• Canaccord Capital	Canada
• GMP Securities	Canada
• Orion Securities	Canada
• Raymond James	United States
• Sprott Securities	Canada
• Toll Cross Securities	Canada
• Wellington West	Canada

Appendix 1 References

1 Website Areva (www.areva.com), Viewed in November 2007.

2 Areva and Kazatomprom launch their uranium production project in Kazakhstan, Press Release Areva, Paris, 29 April 2004.

3 Reference Document 2006, Areva, Paris, 2 May 2007.

4 Website UraMin (www.uramin.com), Viewed in November 2007.

5 Reference Document 2006, Areva, Paris, 2 May 2007.

6 Reference Document 2006, Areva, Paris, 2 May 2007; Website Areva (www.areva.com), Viewed in November 2007

7 Website CEA (www.cea.fr), Viewed in November 2007.

8 Website CDC (www.caissedesdepots.fr), Viewed in November 2007.

9 Website ERAP (www.erap.fr), Viewed in November 2007.

10 Website EDF (www.edf.com), Viewed in November 2007.

11 Areva could be split up after privatisation U-turn, William Emmanuel, Reuters, London, 25 January 2005; Siemens to keep hold on Areva NP, Thibaut Madelin and Denis Cosnard, Financial Times, London, 23 November 2007.

12 Areva and KazAtomProm launch their uranium production project in Kazakhstan ($90 million investment), Press Release Areva, Paris, 29 April 2004; Cogema to invest $90 million in Kazakhstan uranium mine, Europe Energy, 7 May 2004;

13 Morocco: AREVA and OCP sign mining cooperation agreement, Press Release Areva, Paris, 23 October 2007.

14 Reference Document 2006, Areva, Paris, 2 May 2007.

15 France, Euroweek - Issue: 986, London, 12 January 2007; France, Euroweek - Issue: 990, London, 9 February 2007.

16 France set for busy period as Areva shows others the way, Euroweek - Issue: 1029, London, 9 November 2007.

17 Areva Announces US$ 7.75 PER Share Friendly Cash Offer for UraMin, Press Release Areva, Paris, 15 June 2007.

18 Sarkozy likely to restart privatisation programme with Areva, Euroweek - Issue: 1008, London, 15 June 2007.

19 Website BHP Billiton (www.bhpbilliton.com), Viewed in December 2007.

20 Annual Report 2007, BHP Billiton, Melbourne, September 2007.

21 Website BHP Billiton (www.bhpbilliton.com), Viewed in December 2007

22 BHP Billiton Ltd. has issued 3.4 billion shares and BHP Billiton Plc. has issued 2.3 billion shares. Any financial institution holding more than 2% of the shares of one of these two companies is estimated to own more than 1% of the total share capital issued by the BHP Billiton group. Percentages given are estimates for the shareholding of the shareholder in the total BHP Billiton group.

23 Annual Report 2007, BHP Billiton, Melbourne, September 2007; Website ADR.com (www.adr.com), Viewed in December 2007.

24 Annual Report 2005, BHP Billiton, Melbourne, September 2005.

25 BHP Billiton PLC, International Financing Review, London, 9 September 2004; BHP Billiton jumbo mandate, International Financing Review, London, 26 March 2005.

26 Hammerson returns, International Financing Review, London, 23 April 2005; Annual Report 2005, BHP Billiton, Melbourne, September 2005.

27 Hammerson returns, International Financing Review, London, 23 April 2005; Loans - BHP Billiton, Euroweek, London, 29 April 2005; Annual Report 2005, BHP Billiton, Melbourne, September 2005.

28 Annual Report 2007, BHP Billiton, Melbourne, September 2007.

29 Asia loans, Euroweek - Issue: 914, London, 29 July 2005.

30 Annual Report 2007, BHP Billiton, Melbourne, September 2007.

31 BHP Billiton Offer For Rio Tinto, Press release BHP Billiton, Melbourne, 6 February 2008.

32 Prospectus for US$850,000,000 4.80% Senior Notes due 2013 issued by BHP Billiton Finance (USA) Limited and Fully and unconditionally guaranteed by BHP Billiton Plc and BHP Billiton Limited, BHP Billiton Ltd., Melbourne, 14 April 2003.

33 Offering Circular for U.S.$2,000,000,000 Euro Medium Term Note Programme guaranteed in respect of Notes issued by BHP Billiton Finance Limited and BHP Billiton Finance B.V., BHP Billiton Ltd., Melbourne, 9 May 2003.

34 Prospectus for U.S.$3,000,000,000 Euro Medium Term Note Programme guaranteed in respect of Notes issued by BHP Billiton Finance Limited by BHP Billiton Limited and guaranteed in respect of Notes issued by BHP Billiton Finance B.V. by BHP Billiton Plc, BHP Billiton, Melbourne, 1 December 2006.

35 Information Memorandum BHP Billiton Finance Limited and BHP Billiton Finance B.V. A$ 3,000,000,000 Medium Term Note Programme, BHP Billiton, Melbourne, 19 December 2003.

36 Information Memorandum BHP Billiton Finance Limited and BHP Billiton Finance B.V. A$ 3,000,000,000 Medium Term Note Programme, BHP Billiton, Melbourne, 6 November 2006.

37 Prospectus Supplement (to Prospectus dated November 17, 2005) US$600,000,000 5.00% Senior Notes due 2010 and US$750,000,000 5.25% Senior Notes due 2015 BHP Billiton Finance (USA) Limited, BHP Billiton, Melbourne, 5 December 2005; BHP Billiton Prices Global Bond, Press release BHP Billiton, Melbourne, 6 December 2005.

38 BHP Billiton Benchmark Eurobond Offering, Presentation BHP Billiton, Melbourne, 25 April 2006; BHP Finance Ltd, Euroweek - Issue: 951, London, 28 April 2006; Final terms - BHP Billiton Finance Ltd. Issue of €650,000,000 4.125 percent, BHP Billiton, Melbourne, 3 May 2006.

39 Final terms - BHP Billiton Finance Ltd. Issue of €600,000,000 Floating Rate Eurobonds, BHP Billiton, Melbourne, 22 February 2007; Final terms - BHP Billiton Finance Ltd. Issue of €600,000,000 4.375% Fixed Rate Eurobond due 26 February 2014, BHP Billiton, Melbourne, 22 February 2007.

40 Prospectus Supplement (to Prospectus dated March 12, 2007) US$625,000,000 5.125% Senior Notes due 2012, US$750,000,000 5.40% Senior Notes due 2017, US$875,000,000 Senior Floating Rate Notes due 2009, BHP Billiton, Melbourne, 26 March 2007.

41 BHP Billiton Finance, Euroweek - Issue: 992, London, 23 February 2007.

42 BHP Billiton and Rio Tinto Unlocking Value, BHP Billiton, Melbourne, 12 November 2007; UBS, Deutsche join advisory army on Rio, BHP deal, Eleanor Wason, Reuters, London, 22 November 2007.

43 BHP Billiton Offer For Rio Tinto, Press release BHP Billiton, Melbourne, 6 February 2008; Rio Tinto ratchets up dividend and hits at 'low' offer, Rebecca Bream, Financial Times, London, 14 February 2008.

44 Website Cameco (www.cameco.com), Viewed in November 2007.

45 Cameco Announces Offering Price of Centerra Shares, Cameco announcement, Saskaton, 22 June 2004.

46 Cameco Pursues Uranium Partnership with Russian Company, Canadian Corporate News, Saskatoon, 22 November 2006; Cameco to Explore for Uranium, The Moscow Times, 13 March 2007.

47 Cameco Annual Financial Review 2006, Cameco, Saskatoon, 3 April 2007.

48 Website Cameco (www.cameco.com), Viewed in October 2007.

49 Website Edgar 10k-Wizard (www.10kwizard.com), Viewed in October 2007.

50 Kazakhstan: Joint venture construction start-up on planned $40,000,000 uranium mine development project is tentatively scheduled to begin in early 2005, World Wide Projects - Business Opportunities in Eastern Europe & the CIS, 1 June 2004.

51 Cameco Seeks Output Boost, Bloomberg, Almaty, 30 May 2007.

52 Short Form Prospectus, Cameco $300,000,000, 4.70% Senior Unsecured Debentures, Series C due September 16, 2015, Cameco, Saskatoon, 12 September 2005; Form 6-K, Report of foreign issuer rules 13a-16 and 15d-16 of the Securities Exchange Act, Cameco Corp, 30 July 2007.

53 Form 6-K, Report of foreign issuer rules 13a-16 and 15d-16 of the Securities Exchange Act, Cameco Corp, 30 July 2007.

54 Form 6-K, Report of foreign issuer rules 13a-16 and 15d-16 of the Securities Exchange Act, Cameco Corp, 30 July 2007.

55 Cameco Announces Closing of Convertible Subordinated Debentures Sale, Cameco, Press Release, Saskatoon, 25 September 2003; Cameco Annual Information Form - for the year ended December 31 2006, Saskatoon, 30 March 2007.

56 Cameco Announces Closing of Debenture Offering, Cameco, Press Release, Saskatoon, 16 September 2005; Cameco Annual Information Form - for the year ended December 31 2006, Saskatoon, 30 March 2007.

57 Website Denison Mines (www.denisonmines.com), Viewed in November 2007.

58 Second Quarter Results 2007, Denison Mines Corp., Toronto, 9 August 2007.

59 Website Denison Mines (www.denisonmines.com), Viewed in November 2007.

60 Website Edgar 10k-Wizard (www.10kwizard.com), Viewed in November 2007.

61 Second Quarter Results 2007, Denison Mines Corp., Toronto, 9 August 2007.

62 Underwriting Agreement dated December 16,2003, Exhibit 4.2 to Form 20-F/A, Denison Mines Corp., Toronto, 14 February 2005.

63 Annual Information Form for 15 months ended December 31 2006, Denison Mines Corp, Toronto, 27 March 2007.

64 Warrant Indenture, Providing for the Issue of Common Share Purchase Warrants, Denison Mines, Toronto, 24 November 2004; Annual Information Form for 15 months ended December 31 2006, Denison Mines Corp, Toronto, 27 March 2007.

65 Annual Information Form for 15 months ended December 31 2006, Denison Mines Corp, Toronto, 27 March 2007.

66 Annual Information Form for 15 months ended December 31 2006, Denison Mines Corp, Toronto, 27 March 2007.

67 Annual Information Form for 15 months ended December 31 2006, Denison Mines Corp, Toronto, 27 March 2007.

68 Warrant Indenture, Providing for the Issue of Common Share Purchase Warrants, Denison Mines, Toronto, 1 March 2006; Annual Information Form for 15 months ended December 31 2006, Denison Mines Corp, Toronto, 27 March 2007.

69 Form 51-102F3 Material Change Report, Denison Mines Corp, Toronto, 9 January 2007.

70 Annual Information Form for 15 months ended December 31 2006, Denison Mines Corp, Toronto, 27 March 2007; Form 6K Denison announces CDN $18 million flow through common share private placement closed, Denison Mines Corp., Toronto, 2 April 2007.

71 Form 51-102F3 Material Change Report, Denison Mines Corp., Toronto, 5 December 2006; Form 6-K Report of Foreign Private Issuer, Denison Mines Corp., Toronto 31 July 2007.

72 Website Energy Resources Australia (www.energyres.com.au), Viewed in February 2006; Website Rio Tinto (www.riotinto.com), Viewed in November 2007; Annual Report 2006, Energy Resources Australia, Darwin, March 2007.

73 Annual Report 2006, Energy Resources Australia, Darwin, March 2007.

74 Website Energy Resources Australia (www.energyres.com.au), Viewed in November 2007.

75 Annual Report 2006, Energy Resources Australia, Darwin, March 2007.

76 Annual Report 2006, Energy Resources Australia, Darwin, March 2007.

77 ICICI gets easy $1.5bn in biggest Indian new share issue, Euroweek - Issue: 933, London, 9 December 2005.

78 Website KazAtomProm (www.kazatomprom.kz), Viewed in November 2007; Website World Nuclear Association (www.world-nuclear.org), Viewed in November 2007; Kazakhs Up Uranium Assets, Bloomberg, Almaty, 14 August 2007.

79 KazAtomProm Output Up, Bloomberg, Almaty, 26 January 2007.

80 Kazakh Uranium Expansion, Business in Brief, The Moscow Times, 10 May 2006; Koizumi, Kazakhs Hold Uranium Talks, Lilya Erzhanova, The Moscow Times, 29 August 2006.

81 Website World Nuclear Association (www.world-nuclear.org), Viewed in November 2007.

82 Website Uranium One (www.uranium1.com), Viewed in November 2007.

83 Cogema to invest $90 million in Kazakhstan uranium mine, Europe Energy, 7 May 2004.

84 Website World Nuclear Association (www.world-nuclear.org), Viewed in November 2007.

85 Kazakhstan: Joint venture construction start-up on planned $40,000,000 uranium mine development project is tentatively scheduled to begin in early 2005, World Wide Projects - Business Opportunities in Eastern Europe & the CIS, 1 June 2004.

86 Cameco Seeks Output Boost, Bloomberg, Almaty, 30 May 2007.

87 Uranium mining planned for Kazakhstan, Mining Engineering, Society for Mining, Metallurgy and Exploration, Littleton, March 2006.

88 Website World Nuclear Association (www.world-nuclear.org), Viewed in November 2007.

89 Kazakhstan in nuclear deal with Beijing, Isabel Gorst, Financial Times, London, 18 November 2007.

90 Website Uranium One (www.uranium1.com), Viewed in November 2007.

91 Website World Nuclear Association (www.world-nuclear.org), Viewed in November 2007.

92 Kazakhstan, Euroweek, Issues 900, 904, 906, 908, London, May/June 2005.

93 Website KazAtomProm (www.kazatomprom.kz), Viewed in November 2007.

94 Alliance to blaze a trail with First Kazakh tenge Eurobond, Euroweek, Issue 967, London, 18 August 2006.

95 Website NMMC (www.ngmk.uz), Viewed in November 2007.

96 Website Global Security (www.globalsecurity.org), Viewed in November 2007.

97 Website World Nuclear Association (www.world-nuclear.org), Viewed in November 2007.

98 Website World Nuclear (www.world-nuclear.org), Viewed in November 2007; Website NTI (www.nti.org), Viewed in November 2007; Website Global Security (www.globalsecurity.org), Viewed in November 2007.

99 Website NTI (www.nti.org), Viewed in November 2007.

100 Areva to invest in uranium mine in Kazakhstan, Europe Energy, 3 June 2003; Website Global Security (www.globalsecurity.org), Viewed in November 2007.

101 Website World Nuclear Association (www.world-nuclear.org), Viewed in November 2007.

102 Annual Report 2007, Paladin Resources Ltd, Subiaco, August 2007; Website Paladin Energy (www.paladinresources.com.au), Viewed in December 2007.

103 Second Quarter and Half Year Report 2006, Paladin Resources Ltd, Subiaco, 31 December 2006.

104 Second Quarter and Half Year Report 2006, Paladin Resources Ltd, Subiaco, 31 December 2006.

105 Announcement to the Australian Stock Exchange, Fidelity International, Tedworth, 10 October 2005; Form N-CSR -Certified Shareholders Report of Registered Management Investment Companies - Oppenheimer International Small Company Fund, Announcement to the Security and Exchange Commission, Oppenheimer Funds, New York, May 2007; Form N-C - Quarterly Schedule of Portfolio Holdings of Registered Management Investment Company - Oppenheimer Gold & Special Minerals Fund, Announcement to the Security and Exchange Commission, Oppenheimer Funds, New York, May 2007; Form 13F-HR, Announcement to the Securities and Exchange Commission, Fred Alger Management, Boston, July 2007; Form N-CRCS, Announcement to the Securities and Exchange Commission, Alger Funds, Boston, June 2007; Form N-CRCS, Announcement to the Securities and Exchange Commission, Alger Institutional Funds, Boston, June 2007; Form N-Q, Announcement to the Securities and Exchange Commission, Alger American Fund, Boston, May 2007. Form 604 - Corporations Act 2001, Notice of change of substantial shareholder, Dundee Corporation, 26 April 2005.

106 Annual Report 2006, Paladin Resources Ltd, Subiaco, August 2006; Société Générale Loan Facility, Announcement to the Australian Stock Exchange, Paladin Resources Ltd, Subiaco, 30 September 2004; Annual Report 2005, Paladin Resources Ltd, Subiaco, August 2005.

107 Annual Report 2006, Paladin Resources Ltd, Subiaco, August 2006; Website Paladin Resources (www.paladinresources.com.au), Viewed in August 2007; Langer Heinrich Uranium Project, Namibia - Bank Approval for Us$71M Project Finance, Announcement to the Australian Stock Exchange, Paladin Resources Ltd, Subiaco, 25 August 2005.

108 Paladin Energy Announces Bank Approval for US$167M Project Finance for Kayelekera Uranium Project, Malawi, Paladin Energy, Perth, 13 February 2008.

109 Annual Report 2006, Paladin Resources Ltd, Subiaco, August 2006; $3 million placement, Announcement to the Australian Stock Exchange, Paladin Resources Ltd, Subiaco, 23 September 2004.

110 Annual Report 2006, Paladin Resources Ltd, Subiaco, August 2006; Proposed Placement, Company Announcement to the Australian Stock Exchange, Paladin Resources Ltd, Subiaco, 7 March 2005; Completion of AUD$ 37.8 Million placement, Announcement to the Australian Stock Exchange, Paladin Resources Ltd, Subiaco, 11 April 2005.

111 Annual Report 2006, Paladin Resources Ltd, Subiaco, August 2006; Kayekera Uranium Project, Malawi - Paladin to Purchase 10% remaining interest, Announcement to the Australian Stock Exchange, Paladin Resources Ltd., Subiaco, 6 July 2005; Issue of Fully Paid Shares - Secondary Trading Notice, Announcement to the Australian Stock Exchange, Paladin Resources Ltd, Subiaco, 19 September 2005.

112 Website Paladin Resources (www.paladinresources.com.au), Viewed in August 2007; Share placement, Announcement to the Australian Stock Exchange, Paladin Resources Ltd, Subiaco, 13 September 2005; Placement Completion, Announcement to the Australian Stock Exchange, Paladin Resources,Ltd, Subiaco, 21 October 2005.

113 Paladin Resources Limited to Issue US$250 Million of Convertible Bonds, Announcement to the Australian Stock Exchange Limited, Paladin Resources, Subiaco, 28 November 2006.

114 Website Rio Tinto (www.riotinto.com), Viewed in November 2007; Annual Report 2006, Rio Tinto, London, March 2007.

115 Rio Tinto Completes Acquisition of 100% of Alcan, Press release Rio Tinto, London, 14 November 2007.

116 Rio Tinto rejects approach from BHP Billiton, Press release Rio Tinto, London, 8 November 2007; Rio Tinto to blast BHP's £68bn bid, Grant Ringshaw and Louise Armitstead, The Sunday Times, London, 25 November 2007.

117 Website Rio Tinto (www.riotinto.com), Viewed in November 2007.

118 Annual Report 2006, Rio Tinto, London, March 2007.

119 Annual Report 2006, Rio Tinto, London, March 2007.

120 Annual Report 2006, Rio Tinto, London, March 2007.

121 Annual Report 2006, Rio Tinto, London, March 2007.

122 Dollar Spreads in Tight Range as Market Eyes 50bp Rate Cut, Euroweek - Issue 807, London, 13 June 2003; Rio Tinto Finance, , Euroweek - Issue 807, London, 13 June 2003; $600,000,000 Rio Tinto Finance (USA) Limited - 2.625% Notes due September 2008, Prospectus Supplement, Rio Tinto Finance USA, Melbourne, 12 June 2003.

123 Annual Report 2006, Rio Tinto, London, March 2007.

124 Website Rio Tinto (www.riotinto.com), Viewed in November 2007.

125 Website Rio Tinto (www.riotinto.com), Viewed in November 2007.

126 Australasia, Euroweek - Issue 1007, London, 17 May 2007.

127 UBS, Deutsche join advisory army on Rio, BHP deal, Eleanor Wason, Reuters, London, 22 November 2007; Rio Tinto to blast BHP's £68bn bid, Grant Ringshaw and Louise Armitstead, The Sunday Times, London, 25 November 2007.

128 Website Rio Tinto (www.riotinto.com), Viewed in November 2007; Website Rössing Uranium Ltd (www.rossing.com), Viewed in November 2007.

129 Website Rössing Uranium Ltd (www.rossing.com), Viewed in November 2007.

130 JSC 'Tecnsnabexport', part of the ministry of atomic power engineering (MinAtom) became a state property, A&G Information Services, St. Petersburg, 28 October 2001.

131 Website Global Security (www.globalsecurity.org), Viewed in November 2007.

132 Cameco Pursues Uranium Partnership with Russian Company, Canadian Corporate News, Saskatoon, 22 November 2006; Cameco to Explore for Uranium, The Moscow Times, 13 March 2007.

133 State to Register Uranium Miner by End of Year, Yuriy Humber, Moscow Times, Moscow, 13 September 2006; United Mining Company will secure Uranium for Russia, Press Release, Tenex, Moscow, 2 November 2006.

134 Russian corporate fusion continues, World Nuclear News, London, 14 November 2007.

135 AtomEnergoProm established, board named, World Nuclear News, London, 10 July 2007.

136 State to Own Uranium Miner, Yuriy Humber, Moscow Times, Moscow, 29 June 2006; State to Register Uranium Miner by End of Year, Yuriy Humber, Moscow Times, Moscow, 13 September 2006.

137 Mitsui to develop uranium mine in Siberia with Russian state-run firm, Kyodo News International, Tokyo, 6 October 2006; Mitsui, Tenex Complete Survey of Aldan Mine District, JCNN News Summaries, Tokyo, 6 October 2006; Mitsui in Uranium Venture, Moscow Times, Moscow, 9 October 2006.

138 Website World Nuclear Association (www.world-nuclear.org), Viewed in November 2007.

139 Website World Nuclear Association (www.world-nuclear.org), Viewed in November 2007.

140 Tenex and Renova jointly seek uranium, World Nuclear News, London, 22 January 2007.

141 Russian moves in Africa, World Nuclear News, London, 26 February 2007.

142 Website TVEL (www.tvel.ru), Viewed in November 2007.

143 Annual Report 2006, TVEL Corporation, Moscow, 9 October 2007.

144 TVEL will become the owner of uranium mines, A&G Information Services, St.Petersburg, 11 August 2003; Website TVEL (www.tvel.ru), Viewed in November 2007.

145 State to Register Uranium Miner by End of Year, Yuriy Humber, Moscow Times, Moscow, 13 September 2006; United Mining Company will secure Uranium for Russia, Press Release, Tenex, Moscow, 2 November 2006.

146 Russian corporate fusion continues, World Nuclear News, London, 14 November 2007.

147 AtomEnergoProm established, board named, World Nuclear News, London, 10 July 2007.

148 State to Own Uranium Miner, Yuriy Humber, Moscow Times, Moscow, 29 June 2006; State to Register Uranium Miner by End of Year, Yuriy Humber, Moscow Times, Moscow, 13 September 2006.

149 Annual Report 2006, TVEL Corporation, Moscow, 9 October 2007; Website TVEL (www.tvel.ru), Viewed in November 2007.

150 State to Own Uranium Miner, Yuriy Humber, Moscow Times, Moscow, 29 June 2006.

151 State to Register Uranium Miner by End of Year, Yuriy Humber, Moscow Times, Moscow, 13 September 2006.

152 Website Uran (www.uranlimited.com.au), Viewed in December 2007.

153 Annual Report 2007, Uran, West Perth, September 2007.

154 Annual Report 2007, Uran, West Perth, September 2007.

155 Annual Report 2007, Uran, West Perth, September 2007.

156 Website Uranium One (www.uranium1.com), Viewed in November 2007.

157 Website Uranium One (www.uranium1.com), Viewed in November 2007.

158 Website Edgar 10k-Wizard (www.10kwizard.com), Viewed in November 2007.

159 Website Uranium One (www.uranium1.com), Viewed in November 2007.

160 Website Uranium One (www.uranium1.com), Viewed in November 2007.

161 Website World Nuclear Association (www.world-nuclear.org), Viewed in November 2007.

162 Annual Information Form Year ended December 31, 2006, Uranium One, Toronto, 28 March 2007.

163 Short Form Prospectus C$ 135,000,000 4.25% Convertible Unsecured Subordinated Debentures due December 31, 2011, Uranium One, Toronto, 15 December 2006.

164 Form 51-102F3 Material Change Report, Uranium One, Toronto, 30 August 2006; Short Form Prospectus, 18,100,000 Common Shares C$150,230,000, Uranium One, Toronto, 26 October 2006.

165 Material Change Report Section 75(2) of the Securities Act (Ontario), Southern Cross Resources, Toronto, 16 December 2003.

166 Material Change Report, Southern Cross Resources, Toronto, 11 August 2005.

167 Form 51-102F3 Material Change Report, Uranium One, Toronto, 13 January 2006; Form 51-102F3 Material Change Report, Uranium One, Toronto, 6 February 2006; Form 51-102F3 Material Change Report, Uranium One, Toronto, 17 February 2006.

168 Form 51-102F3 Material Change Report, Uranium One, Toronto, 11 October 2006; Form 51-102F3 Material Change Report, Uranium One, Toronto, 31 October 2006; Short Form Prospectus, 18,100,000 Common Shares C$150,230,000, Uranium One, Toronto, 26 October 2006.

169 Indenture providing for the issue of 4.25% Convertible Unsecured Subordinated Debentures due December 31, 2011, Uranium One, Toronto, 20 December 2006; Uranium One Announces Completion of Public Offering, News Release Uranium One, Toronto, 20 December 2006; Short Form Prospectus C$ 135,000,000 4.25% Convertible Unsecured Subordinated Debentures due December 31, 2011, Uranium One, Toronto, 15 December 2006.

wise

NUCLEAR INFORMATION & RESOURCE SERVICE
www.nirs.org

Uranium mining is a crucial stage in the nuclear energy production chain. During the past years, global demand for uranium increased more strongly than the output of uranium mines. As a result, prices have risen considerably. In turn, this is spurring new investments by mining companies in developing new uranium mines. To finance these investments, mining companies use the funds supplied by their financial stakeholders: shareholders, banks, bondholders.Financial institutions involved in the financing of uranium mining companies, such as banks and asset managers, therefore play a crucial role in the further growth of the global nuclear energy sector.

This report provides an overview of the financial institutions which were involved since early 2003 in the financing of 14 selected uranium mining companies. For each company, the financial stakeholders are described and analyzed in a separate chapter. Each type of financial service (shareholding, lending, investment banking and other services) provided to the uranium mining company is discussed separately, providing details on the financial institutions' involvement.

The findings of this study are summarized on the first pages of this report.

Editorial WISE Amsterdam 2008 **Research** Profundo www.profundo.org **Editing** Peer de Rijk **Layout** Steven van Hekelen **Reproduction** in-house

WISE, P.O. Box 59636, 1040 LC Amsterdam, The Netherlands, **Phone:** +31 20 6126368, **Fax:** +31 20 6892179, **Email:** wiseamster@antenna.nl, **Web:** www.antenna.nl/wise; **NIRS,** 6930 Carroll Avenue, Suite 340, Takoma Park, MD 20912, **Phone:** +1 301-270-NIRS (+1 301-270-6477), **Fax:** +1 301-270-4291, **Email:** nirsnet@nirs.org, **Web:** www.nirs.org