



**AREVA in Niger**

January 2009

## NIGER AND URANIUM

Niger is one of the world's poorest countries<sup>1</sup>, but it has mineral wealth in the form of uranium. Uranium mining accounts for one-third of export revenues (more than EUR 190 million in 2007), 5% of Niger's GDP of nearly EUR 3.5 billion, and more than 5% of its tax revenues.

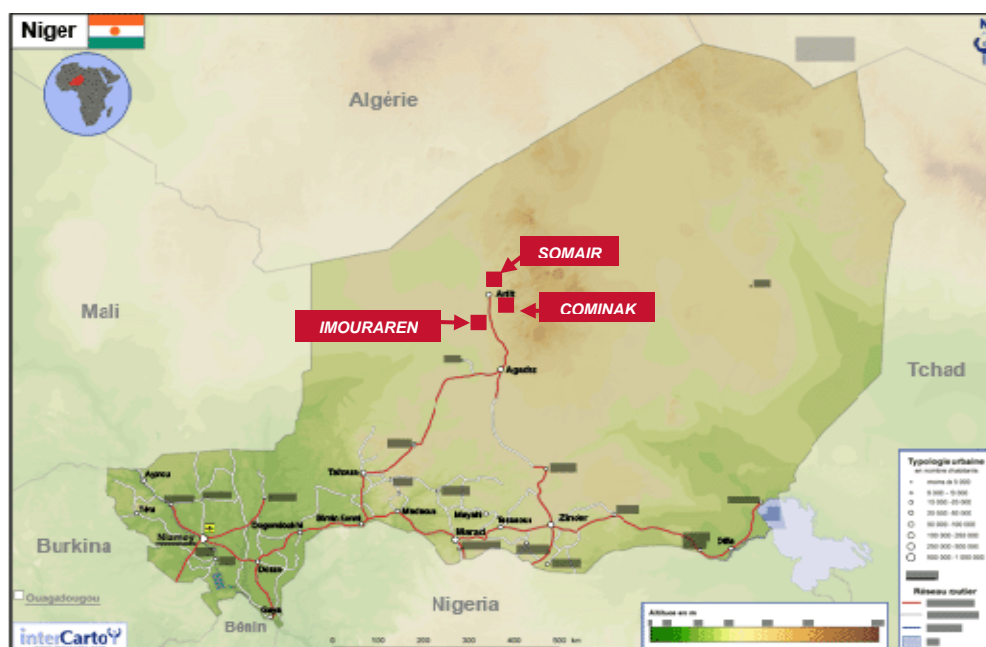
One of the world's largest uranium deposits lies on the western edge of the Air Mountains. A systematic radiometric aerial survey was carried out for the first time in the country's history in 2003. It revealed a significant quantity of surface uranium over an area of 4,500 sq. km, which is half the area of the Paris region (Ile-de-France).

Uranium in Niger is currently mined by two companies incorporated under Nigerien law: SOMAIR and COMINAK. They are operated by their principal shareholder, AREVA, through its subsidiary AREVA NC. SOMAIR and COMINAK hold a mining license to work the deposits in a 360 sq. km area of the Arlit region, in northeastern Niger, located over 1,200 km by road from the capital, Niamey. Each mine has its own ore processing plant. The towns of Arlit and Akokan have grown up around the mines and now form an urban area with a population of nearly 80,000.

Since their creation in the late 1960s, the two mining companies have extracted over 100,000 tons of uranium.

Deposits will not be exhausted for another 15 to 20 years. Because of the region's potential, AREVA has filed applications for several new licenses since 2004 to search for new deposits and maintain its operations there.

At the same time, AREVA is making preparations to begin mining the large Imouraren deposit in 2012. The estimated 180,000 tons of reserves at Imouraren will be extracted with the largest open-pit uranium mine in West Africa and the second-largest uranium mine in the world. Production will ultimately be about 5,000 tons of uranium a year, and mining is expected to continue for more than 35 years.



<sup>1</sup>Niger (14.2 million inhabitants; an area of 1,267,000 sq. km) ranks 174th (out of 177) on the Human Development Index of the United Nations Development Programme. The literacy rate is 28.7%; 63% of the population lives below the national poverty line; life expectancy at birth is 55 years; 20% of the population uses suitable sanitation and 60% uses an improved water source.

### **Key Figures for SOMAIR (Sociétés des Mines de l’Air)**

- Shareholders: AREVA NC 63.4%, SOPAMIN (*Société du Patrimoine des Mines du Niger, formerly ONAREM*) 36.6%
- Annual sales: EUR 107 million in 2007
- Annual production: approximately 1,750 t. (2007)
- Total production since mining began: approximately 46,300 tons of uranium
- Open-pit mines, 50 to 70 meters deep
- Horizontal sedimentary deposit 7 km northwest of the town of Arlit
- Processing plant near the mine for the production of yellow cake.
- Uranium content of the ore: approximately 3 kg of uranium per ton
- Reserves: As of end-2007, 23,000 tons of uranium remain to be extracted from the SOMAIR deposits (Tamou, Tabellé, Tamgak, Ariège and Artois). At the present rate, these deposits will provide approximately 11 more years of production.  
In addition, an estimated 24,000 tons of uranium resources<sup>2</sup> will be minable in future years and transformed into reserves. It is also estimated today that 20,000 tons of uranium will be available using the heap leaching method<sup>3</sup>.
- Workforce: 701 employees in 2007, including five French expatriates
- Legal framework: a long-term agreement with the Nigerien government expiring on December 31, 2013, sets forth the company's legal and fiscal status.

- Key dates:

February 2, 1968	Creation of SOMAIR
January 1971	Production of the first yellow cake
1981	Record annual production: 2,100 tU
1994	Extension of the agreement until Dec. 31, 2003
1996	Mining of the Takriza section
1999	Mining of the Tamou section
2001-2002	Resumption of prospecting in the TAGORA project and discovery of new resources
2003	Extension of the agreement until Dec. 31, 2013
2004	Feasibility study for the Artois deposit
2006	Presentation and application for a mining license for the Artois deposit
2007-2008	24 months without a work accident for SOMAIR employees (unequaled performance on the continent)

<sup>2</sup> Reserves are confirmed and economically minable quantities of uranium, whereas resources are assumed to exist and their economic profitability is not proven. More precise data concerning resources allows them to be reclassified as reserves.

<sup>3</sup> The heap leaching (or static recovery) method is used when the uranium content of the ore is too low to justify the cost of conventional milling. In this process, the ore is heaped on an impermeable surface and then irrigated with an acid solution that dissolves the uranium. The leach solution containing the uranium is then sent to a plant where the uranium is extracted.

**Key Figures for COMINAK (Compagnie Minière d’Akouta)**

- Shareholders: AREVA NC 34%, SOPAMIN 31%, OURD (Overseas Uranium Resources Development, Japan) 25%, ENUSA (Empresa Nacional del Uranio S.A, Spain) 10%
- Annual sales: approximately EUR 85 million in 2007
- Annual production: 1,403 tons of uranium in 2007. Since 1978, COMINAK has produced 57,700 tons of uranium.
- Akouta underground mine – depth of 250 meters, with over 250 km of galleries (the largest underground uranium mine in the world)
- Horizontal sedimentary deposit
- Ore processing plant at the pit head, producing magnesium uranate
- Uranium content of the ore: approximately 4.5 kg of uranium per ton
- Reserves: The Akola, Akouta North and Afasto areas will take about 10 years to mine at the current rate (figures at end-2007: 24,300 tons of uranium reserves, of which 11,000 are for AREVA). In addition, the development of known resources could provide another five years of mining.
- Workforce: about 1,200 employees, including five French expatriates
- Legal framework: a long-term agreement with the Nigerien government expiring on December 31, 2013, sets forth the company's legal and fiscal status.

- Key dates:

June 1974	Creation of COMINAK
August 1978	Production of the first uranate by COMINAK
1982	Farm-out of the Akola area to COMINAK and startup of mining
1998	Record production of about 2,200 tU
2002	Signature of an additional clause to the agreement providing for the development of the AFASTO West sector
2002	AFASTO feasibility study
2006	Turnaround and development plan

***Conversion of Nigerien Uranium***

The yellow cake produced in the ore processing plants in Niger is natural uranium concentrate containing about 75% uranium.

Comurhex, an AREVA subsidiary, performs the refining (removal of impurities) and conversion processes.

- The Comurhex-Malvési plant converts the concentrates into UF<sub>4</sub> (uranium tetrafluoride).
- The Comurhex-Pierrelatte plant converts the UF<sub>4</sub> into UF<sub>6</sub> (uranium hexafluoride), a gaseous compound used for enrichment by gaseous diffusion at the Eurodif plant.

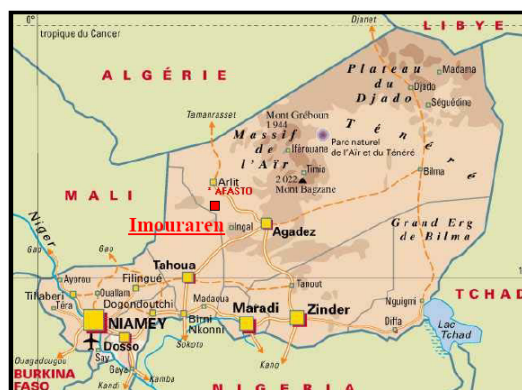
## The Imouraren Project

Discovered by teams from the CEA<sup>4</sup> in 1966, the Imouraren site is located 160 km north of Agadez and 80 km south of Arlit. Following several exploration campaigns, two feasibility studies were done in 1974 and 1983 in preparation for future mining. The project was subsequently called off when uranium prices fell sharply on world markets, and the persistence of weak price levels over the next two decades prevented economically viable exploitation of the deposit.

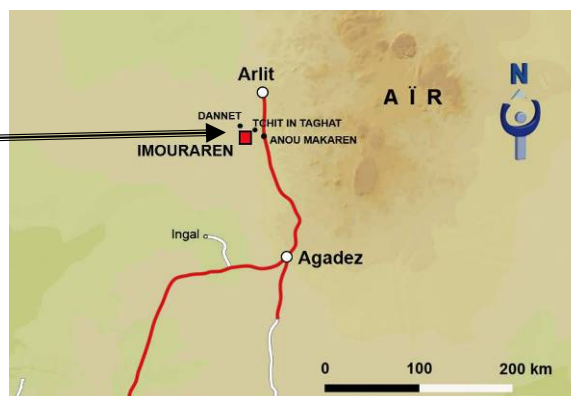


### By road:

- 1 150 Km from Niamey
- 160 Km north from Agadez
- 80 Km south from Arlit
- 250 Km from Algeria
- 1920 Km from Cotonou's harbour



Camp d'Imouraren



It was not until the mid-2000s and an upturn in the uranium market that it became possible to consider developing this site, where there is a large quantity of uranium, but contained in low-grade ore (an average of 0.8 kg of uranium per ton) that lies deep underground (between 110 and 170 m). After AREVA NC Niger (AREVA's operating company in Niger) was granted an exploration license on February 7, 2006, teams from the Group carried out additional exploration and more precise reconnaissance of the deposit. Several hundred holes have been drilled and billions of CFA francs have been invested.

This development work confirms the presence of a world-class deposit, whose characteristics will make state-of-the-art know-how essential in mining it. Based on a pre-feasibility study done by the Imouraren Project team, AREVA is planning to start mining in 2012. To do this, the project team is preparing several technical studies, as required by Nigerien laws and regulations, to show that the Group's plans are sound. Besides an Environmental and Social Impact Assessment (ESIA), an inventory of the site's environmental characteristics, and an action plan to minimize the effects of mining activities on the environment, the Group's teams have conducted a feasibility study totaling several thousand pages. On April 18 and May 15, 2008, the feasibility study and the environmental impact study were submitted to the ministries concerned.

The Imouraren Project is a new phase in the partnership between Niger and AREVA that began 40 years ago. Considered one of the largest uranium deposits in the world, Imouraren is expected to yield nearly 5,000 tons of uranium annually over a period of more than 35 years.

<sup>4</sup> CEA: Atomic Energy Commission

On January 5, 2009, with the validation process of the project's industrial, social and environmental aspects completed, AREVA chairman Anne Lauvergeon signed the agreement with the State of Niger granting AREVA the permit to mine the Imouraren deposit. At the same time, and 40 years after SOMAIR was created, the articles of association of the future operating company, Imouraren S.A., were approved. The adventure of making the Imouraren Project a reality is set to begin!



To achieve this production level, many challenges must be met (technical difficulties, high operating costs, installations in a remote area, etc.), but the resources employed are on a par with the task. AREVA has decided to invest more than EUR 1.2 billion (800 billion CFA francs) and to create almost 1,400 jobs. Imouraren is the largest industrial project ever undertaken in Niger, and the open-pit mine will be the largest in all of West Africa. A few figures attest to the huge scale of the project: an industrial site extending over nearly 200 sq. km, a deposit 8 km long and 2.5 km wide, and 3.8 billion tons of rock to be extracted.

Niger has therefore chosen a reliable partner whose expertise in uranium mining ensures that such a daunting project will be carried out successfully. AREVA has been working with the Nigeriens for 40 years, and it will support the government's efforts to set Niger on the road to sustainable and harmonious development by putting into operation what is now the largest industrial project in the country's history.

**Key dates:**

1966	The CEA discovers the deposit
1974/1983	A first and then a second feasibility study are done
Feb. 2006	AREVA NC Niger is granted an exploration license for the area where the Imouraren deposit is located
April and May 2008	The Environmental and Social Impact Assessment and the feasibility study are submitted to the Ministry of Mines and Energy
May 2008	A public hearing and validation workshop are held concerning the Environmental and Social Impact Assessment
July 2008	The Environmental Compliance Certificate is issued for the Imouraren project
January 2009	The mining license for the Imouraren deposit is granted to AREVA, and the operating company, Imouraren S.A. (66.65% AREVA, 33.35% State of Niger), is established.

## WORKING CONDITIONS AND RADIOLOGICAL PROTECTION

Nigerien personnel have a good safety culture, as reflected by a work-accident frequency rate that is ten times lower than in the French industry. Over a 15-year period, the average accident frequency rate has dropped from over 50 to less than 5 (less than 3 on average for both companies in 2007). SOMAIR has had a frequency rate of zero for 22 months starting in 2007.

With respect to the radiological protection of workers, Recommendation No. 60 of the International Commission on Radiation Protection (ICRP) and Euratom Directive 96/29 set the maximum exposure of an employee at 100 millisieverts (mSv) over a 5-year period and 50 mSv in any one year. According to the international specialists at the ICRP, this limit ensures that there is no impact on health<sup>5</sup>. Under Nigerien law, this standard was increased in 2006 to a maximum annual dose for a miner of 20 mSv.

In 2002, AREVA had already set an annual limit at 20mSv in all its activities. To achieve this result, the Nigerien mines set an operational objective of 18 mSv or less per employee. Meeting this objective required changing working methods and making major improvements in COMINAK's underground mine, where there is a higher concentration of radioactivity. The objective was reached in December 2003. Radiological protection standards for workers are thus the same as those in force in Europe

A total of 1,400 COMINAK and SOMAIR employees and 700 subcontracted workers were being monitored for radiation exposure at the end of August 2008. Each year approximately 30,000 measurements are taken in working areas at both sites.

A radiation dose history is kept for each employee exposed. The consolidated results for each work area and exposure level are posted.

The Safety and Radiological Protection Department regularly conducts information and awareness campaigns.

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<sup>5</sup> By way of comparison, an abdominal scanner exposes the patient to a dose of 12 mSv.

## PROTECTING THE ENVIRONMENT

### ***An environmental management system certified to ISO 14 001***

SOMAIR and COMINAK are the only environmentally certified companies in Niger, and they number among the ten or so certified companies in West Africa. SOMAIR and COMINAK have environmental management systems that conform to the international standard ISO 14001. They were certified by the French Quality Assurance Association (AFAQ) in 2002 and 2003, respectively. SOMAIR's certification was renewed in late 2005.

SOMAIR is also working to obtain Integrated Security and Environmental Management (SMI) certification and hopes to receive it by the end of 2008.

### ***Radiological Protection of Surrounding Populations***

The decree of January 8, 2001, restates European regulations and sets a cumulative dose limit for the public of 5 mSv over a 5-year period (or 1 mSv per year).

This limit is respected around the mines and in the neighboring towns of Arlit and Akokan. The exposure of neighboring populations is, on average, lower than 0.5 mSv per year, which is the equivalent of a chest X-ray. Values range from 0.3 to 1 mSv on top natural radiation from the environment.

The network that monitors radiation in the environment and the population covers all vectors of exposure:

- Air: There are 13 monitoring stations – three in the towns of Arlit and Akokan, six on routes used by nomads, three at the pit heads of the two mines, and one outside the area affected by mining activities to serve as a benchmark. Approximately 750 measurements are taken each year. They concern external exposure to gamma radiation and internal exposure by inhalation of radon and dust particles suspended in the air.
- Water: Samples are taken every six months to perform Uranium 238 and Radium 226 analyses (118 analyses in 2004). In addition to radiological monitoring, the drinking water is also analyzed for chemicals and bacteria (700 analyses per year).
- Food chain: Samples are taken once a year. About sixty analyses are carried out to check for the presence of Radium 226, Uranium 238, Lead 210 and Thorium 230.
- Soil: Soil samples are taken at 56 points on seven parallel sampling lines spaced 4 km apart and running outward to the edges of the sites in the same direction as the prevailing winds, which is north-northeast to south-southwest (130 analyses). Radials are located in an area 20 km x 25 km encompassing the mines. Marking is localized to the mining area, as confirmed by the aerial radiometric survey in 2003.

### ***Preservation of Ecosystems***

Mining operations in desert areas impact the environment in special ways.

- Water

#### General background



In mining operations, groundwater is extracted for three purposes: to have a dry working area in the mine, to process the ore, and to provide drinking water for the workers, their families and the surrounding population.

Drilling is done during the geological exploration stage to identify the locations of groundwater. Initial studies determine the quantities necessary for the purposes noted above, and these are compared with the available resources to come up with future water-use scenarios. Based on the hydrological models, groundwater consumption is monitored with a network of piezometers that indicate how much water remains.

The authorizations to extract groundwater for the various needs are included in the general agreement between the State and the mining companies. They are an integral part of the mining agreements, which set forth not only how the water may be used, but also the technical, economic, social and other conditions according to which companies may exploit the deposit. This general agreement also defines the mechanisms for monitoring all operations, including water extraction and management.

### AREVA's Actions

Good water management has been a major concern since AREVA set up operations in the 1960s. Water is the principal natural resource essential in the daily life of the population and in the mining activities, but rainfall levels are too low to replenish the aquifers.

In the detailed production plans, annual water extraction is estimated. Mining companies contribute to AREVA's active sustainable development policy, which demands initiatives to continually reduce its environmental footprint and its water consumption.

There are several fossil water aquifers at the level of the Arlit and Akokan mining sites, but the mining operations in fact draw only on the one at Tarat.

In the places where the open-pit or underground mine cuts through this aquifer, the water must be evacuated so that work can proceed in dry conditions. The groundwater removed from these mines by a process called dewatering is not fit for human consumption, since it is contaminated by the uranium deposits it flows through. It is used in the mining operations, in particular for ore processing and dampening the roads to keep down dust.

Outside the mining area, the water is potable and used for the needs of the workers, their families and the population of Arlit and Akokan. The mining companies have a drilling network that can extract water for the entire population of Arlit. Planned initially to supply the mining towns, this network has expanded as the town has grown. Designed to meet the needs of fewer than 1,000 inhabitants in 1968 (the year SOMAIR was created), it supplies water to more than 80,000 people today. In addition to providing water to their personnel and their families, SOMAIR and COMINAK satisfy the needs of the two towns by selling water to a Niger utility (Société d'Exploitation des Eaux du Niger – SEEN), which distributes the water in Arlit. The water is sold at cost price in the neighborhoods of the town, but provided free of charge by the mining companies through fountains in the poorest quarters.

Arlit is regularly short of water due to problems with the SEEN-operated network that supplies water to the town, which has not grown as fast as the distribution network in town. In addition, the lack of a system for storing water means that the quantities available cannot dependably meet the population's needs, which vary with the seasons. AREVA is ready to partner with the Niger government to look for possible solutions to this problem.

As regards quantities, a precise assessment of groundwater reserves is in progress. A preliminary study done in 1968 estimated their volume at 1.3 billion cu. m. So far, 270 million cu. m, or 20% of the Tarat aquifer, have been used during 40 years of operations. Annual consumption has declined regularly for several years and is approximately 7 million cu. m. Sixty-five percent of this water goes to the towns of Arlit and Akokan. Monthly bacteriological, twice-yearly radiological, and annual chemical analyses show no signs of contamination.

- Dust and Mine Tailings

The blasting and operation of heavy vehicles involved in open-pit mining creates dust. Mining companies use a variety of methods to deal with this problem, like dampening the roads and monitoring the radioactivity of dust in the air using dust samplers and dosimeters.

Tailings are stored on impermeable clayey layers of soil. A network of piezometers is installed at a medium depth to check for infiltration. Sampling is done every month to make sure there are no radionuclides in the deep aquifers.

An indurate sulfate crust several centimeters thick forms on the surface as a result of intense evaporation and ensures there is no dispersion by the wind.

- Waste

Everything possible is done to prevent waste. SOMAIR and COMINAK recycle reagents and resources such as mine drainage water and oils used during mining operations. These measures help to reduce the quantity of waste.

- Disposal of materials

All materials that the operators dispose of in the public domain undergo radiological inspection and are decontaminated if necessary. SOMAIR and COMINAK are working on better ways to prevent the theft of scrap metal. They also give away non-contaminated materials that can be reused by tradesmen or other members of the local community (for example, around 5,000 cleaned soda drums are donated annually for use in making things like fireplaces, trunks and animal shelters).

- Continuous Improvement Plan

In line with the AREVA WAY (the guidelines for managing continuous improvement applied throughout the Group), SOMAIR and COMINAK have begun their own continuous improvement plans. They concern:

- Tailings and their storage
- Monitoring of radiation exposure among employees and the surrounding population
- Discharge of uranium ore dust into the air
- Water resources (action plan launched in 2005 to improve groundwater management and reduce consumption)
- Recycling or elimination of industrial waste

### **External Information and Monitoring**

All economic, social and environmental data related to the impact of mining activities in Niger are available to the public. They can be found in the two mines' environmental and company report.

SOMAIR has set up a partnership with Aghir In'Man, a non-governmental environmental protection organization. The two mining companies and AREVA NC NIGER form a joint information commission each year. They also set up special commissions when each major mining project is launched.

SOMAIR presented its "Grand Artois" project in 2006, its "Heap Leaching Project" in 2007, and the "Tamgak and Tossa" project in 2008. COMINAK also presented its "Afasto" project to about 250 people from the civil society. AREVA NC Niger held a public hearing in May 2008 at Agadez in conjunction with the approval process for the Imouraren project, which resulted in its receiving the Environmental Compliance Certificate in July 2008.

The SHERPA association asked for and was granted permission to visit SOMAIR and COMINAK's industrial installations and health facilities in 2005.

Inspections are carried out by agents of the Mining Department and the National Center for Radiological Protection (*Centre National de Radio Protection – CNRP*). The IAEA has trained and equipped the CNRP and monitors it regularly. The CNRP conducts periodic on-site inspections and issues inspection reports. The inspection teams are highly qualified. The CNRP also has its own gamma radiation monitoring network around the mines. The Ministry of Mines and the CNRP, in liaison with the IAEA, are also conducting a Mine Tailings Management project in which several visits to the SOMAIR and COMINAK sites were organized.

In addition to the ISO 14001 certification follow-up and renewal audits conducted by the AFAQ, AREVA regularly performs or outsources audits in various areas, usually relating to safety, health, the environment and transport.

For example, in 2004, 2005 and 2006 AREVA asked the Institute for Radiological Protection and Nuclear Safety (IRSN), the chief French nuclear security and radiation protection agency, to carry out several audits of the environmental monitoring system, the radiological impact of SOMAIR and COMINAK, and the quality of distributed water. This decision was made in conjunction with an environmental policy initiated throughout the Group in 2003. This policy requires that each industrial site conduct radiological and chemical impact studies and then develop appropriate action plans. The CNRP was also involved in these audits, whose findings have been made public. The IRSN concluded that the two companies' environmental monitoring system was generally well structured and in conformity with international standards and that the water distributed to the population met the most recent WHO guidelines. The IRSN made suggestions for improvements, all of which AREVA followed.

In 2006, the Nigerien Human Rights Commission and a delegation from parliament visited the two sites. The reports of these two organizations are available to the public.

### ***Site Reclamation Studies***

The reclamation studies, which were begun in 2002, are based on AREVA's international experience in this area.

In view of the geographic location of the two mining sites, the work focused in particular on radiological monitoring, preservation of groundwater, and the treatment of mine tailings.

## PRODUCTION TRACEABILITY

AREVA, the operator of SOMAIR and COMINAK, ensures that uranium production is fully traceable through all phases, including the transport to the chemical conversion plants.

- On site, encapsulation is automated, and the drums are numbered, weighed and sealed under the control of customs officers (450 to 600 kg per drum).
- The drums are kept under surveillance while awaiting shipment.
- Plant entry and exit tonnage is checked and systematically reported.
- The drums are transported under escort by road and rail to the port of Cotonou, in Benin. The sealed drums are placed in sealed containers under the supervision of customs officers.
- The yellow cake is shipped by sea to the French port of Montoir, a trip that takes three weeks. It is then transported to the Comurhex-Malvési plant in southern France.
- Production levels are systematically reported to the IAEA.

Four shareholders now purchase all production of the two mines: AREVA, the Japanese company OURD, the Spanish company ENUSA, and, since 2007, the state-controlled Nigerien company SOPAMIN. Until the mid-1980s, SOPAMIN bought a portion of the production. It now wants to exercise this right again and did so in 2007 (300 tons after the new price agreement took effect on August 1, 2007).

All production and sales figures have been published since the two mines began operating (export orders and Nigerien Official Gazette).

## LOCAL ECONOMIC DEVELOPMENT

### ***A Priority: Local Employment and the Transfer of Knowledge and Know-how***

The 1,900 employees of the two mines are directly or indirectly the source of livelihood for 80,000 people.

Nigeriens hold more than 99% of the 1,900 jobs at the mines (in the early 1980s, 500 expatriates were employed there). The dozen or so expatriates currently working in managerial positions facilitate the transfer of knowledge and know-how.

Nigerien nationals in senior management positions attended France's top engineering schools and were trained on the Group's mining sites in France. The mining companies initiated the creation of a school in Agadez (EMAIR) to train mining technicians and supervisors. To foster the sharing of knowledge and know-how, AREVA employs managers from Niger in other companies, particularly in France and Canada.

### ***Supporting the Arlit Region's Development***

In 2006, AREVA redefined and strengthened its policy of supporting the development of the urban and rural communities in the vicinity of the mines. It is a difficult undertaking. Rather than simply providing assistance at every turn, AREVA wants to encourage local leaders to take on projects and work for objectives that will lead to greater self-sufficiency and contributions from other funding providers. In particular, it wants to progressively give local authorities and communities the means to plan and carry out public works projects at Arlit as well as the capacity to manage public facilities.

The program that AREVA, with the government's cooperation, is trying to put in place for the five communities around the mines is unique in that it must be carried out within the framework of regional development programs (communal and national) that are still in their earliest stages and that currently lack decentralized financing.

AREVA is hoping to be able to join with international partners in an ongoing solidarity initiative that will contribute to the development that is desired by the population's elected representatives and by the government agencies in the region. To achieve this objective, it will ultimately be necessary to set up a development fund jointly supported by a group of contributors, including AREVA. Other organizations involved in development such as the European Union, the German state-sponsored cooperation enterprise GTZ, the UNDP, and American and local NGOs are already showing interest in AREVA's initiatives.

Up to now, AREVA has contributed more than 500 million CFA francs (or more than EUR 760,000) per year to projects proposed and implemented by local communities.

### ***Structuring Communication***

Achieving these aims requires the creation of communications structures to link together all the stakeholders and the various mechanisms of the 2004 law on decentralization.

Communication and cooperation are currently assured through:

A Bilateral Steering Council (CBO) created in May 2006 and headed by the Prefect. Besides AREVA, the Council's members include local elected officials and representatives of government and civil society. The Council defines the local development policy, determines priority areas for action, issues an opinion on projects, and, after defining procedures and criteria, ensures that each of the five

townships receives its fair share of new public facilities. Privately funded projects (currently, all funding comes from AREVA) are carried out under the supervision of a Technical Committee (CT). Its members include designated staff from the prefecture and representatives of the mining companies. This committee prepares and sends out the requests for proposals, receives and reviews the bids, determines the compliance control structure, and approves the inspection and acceptance reports.

A Local Information Commission (CIL) created in 2005 on AREVA's initiative and modeled on local commissions set up for nuclear installations in France. Besides members from AREVA, it includes representatives of civil society (traditional leaders, NGOs, associations, socio-professional groups, etc.). It is a forum for discussing all subjects related to the mining operations and their impact as well as the economic development of the region.

AREVA also set up a permanent internal unit, AREVA Niger Développement, in March 2005 to take care of the financial management of the programs during the initial phase, when AREVA is the sole contributor. It draws up a list of projects with the various stakeholders that are in line with the CBO's policy orientations. It writes up the project descriptions that will be presented to the various committees, handles the day-to-day management of the development projects (in liaison with the prefecture), and prepares the reporting documents. The AREVA Niger manager at Arlit supervises this unit.

### ***Preparing for the Future***

The renewal of mining reserves is a constant concern for both companies. The Afasto (COMINAK) and Artois, Tamgak and Tossa (SOMAIR) ore bodies have been confirmed, ensuring that the two companies have reserves for the next 15 to 20 years. AREVA has also resumed exploration in a larger area.

Looking further ahead:

- For the past three years, AREVA has invested in a vast program to discover resources for the longer term in the vicinity of the current mines. The 2003 aerial geophysical survey of the region, carried out following a regular and systematic grid, was a major step in determining whether it was worth expanding the exploration effort. AREVA has submitted applications for exploration licenses for targeted areas, but has not yet received responses to all of them.
- In 2006, AREVA received licenses for Agebout and Afouday, which include the Imouraren deposit, discovered 40 years ago by the CEA, and it immediately began intense development work to determine Imouraren's characteristics and the feasibility of mining it. AREVA was granted four more exploration licenses (Tagait 1, 2 and 3 and Zéline 3) in April 2007.
- AREVA also examines projects other than uranium mining that could develop natural resources and promote sustainable development in the region. SOMAIR and COMINAK are shareholders in SONICHAR as well as its main customers. The production of this coal mining company is used to generate electricity for the entire region, including Agadez, thus eliminating the need to import petroleum products.

In accordance with Nigerien law, provisions have been set aside for future reclamation programs, whose cost is currently being evaluated.

More than EUR 1 billion will be invested on site at Imouraren during the initial years of the project. It is the largest mining project ever undertaken in Niger and, indeed, in West Africa. It will create 1,400 jobs at the mining company and at its specialized subcontractors as well as many indirect jobs in the Agadez region. A training program for 60-odd Nigerien engineers and technicians has already been started in partnership with the Niamey Mining and Geology School (EMIG), and another one has been set up with the AIR Mining School (EMAIR) at Agadez to teach 270 young workers to operate heavy vehicles.

Production at Imouraren will double Niger's uranium output to 8,000 tons a year. As soon as the exploration license is obtained (2008), a large-scale effort will get under way so that mining can begin in the first half of the 2010 decade, if the situation permits.

### ***Mining Economics, Prices, Negotiations***

Like all jointly owned companies, COMINAK and SOMAIR pay dividends to shareholders in proportion to each shareholder's stake in the capital, with the amounts of the dividends based on the companies' profits.

The uranium produced by COMINAK and SOMAIR is sold directly to AREVA, OURD, ENUSA and SOPAMIN, which then resell it to their own customers.

The purchase price paid to SOMAIR and COMINAK is set by agreement between the companies' shareholders and, in particular, the Niger government. The initial agreements stipulate that the purchase price is to be determined according to long-term market prices.

As mentioned earlier, the uranium market remained depressed over a long period beginning in the 1980s. This was due in part to overly optimistic consumption forecasts and in part to the arrival in the market of stockpiles built up over the years (first in Russia in the early 1990s, then in the United States, with the DOE enrichment program, and last, with the military stockpiles in the late 1990s). This situation naturally had an impact on uranium sales in Niger, though the impact was delayed somewhat and not felt until the 1987-2003 period.

During this difficult period, the shareholders did not react as other producers did. Instead, they and their customers continued to support Nigerien uranium production by agreeing to long-term (10-year) purchase agreements at prices well above market levels.

In 2004, when there were signs of a recovery, the purchase prices were renegotiated with the Niger government for the years 2005, 2006 and 2007 on the basis of market trends at the time of the negotiations. They thus took into account the significant price increases over the period (more than 10% a year). AREVA applied this increase even though it had agreed to a lower price with its customers.

Following negotiations begun last year, AREVA chairman Anne Lauvergeon signed an agreement with Niger foreign minister Aïchatou Mindaoudounn on August 1, 2007, in the presence of secretary of state for cooperation Jean-Marie Bockel, revising the 2007 purchase price upward ahead of schedule.

An amendment concerning the financial terms of the contract was agreed to, with retroactive effect from January 1, 2007. It increases the purchase price of uranium to take into account higher market prices, and Niger is given the right to sell a portion of the production (300 tons) directly on the world market.

The shareholders and Niger entered into new price negotiations in late 2007 to determine the purchasing terms and conditions for the years 2008 and 2009.

Those negotiations concluded with the signing on January 13, 2008, of a win-win, solidarity agreement that provides for another increase in the purchase price to be paid to Niger.

This agreement consolidates AREVA's position as the primary uranium mining enterprise in Niger and responds to the legitimate aspirations of the country.

First, it sets forth the conditions for purchasing the uranium produced by the COMINAK and SOMAIR mines over the next two years. It provides for an approximately 50% price increase to reflect the recent rise in long-term prices (+100% in one year).

AREVA also obtains the government's agreement to launch development of the Imouraren deposit and to extend its exploration area, thus establishing its position as a mining operator in Niger for the coming decades.

Last, AREVA undertakes to continue supporting Niger's development through initiatives in the areas of health, education, training, and access to water and energy on behalf of the local populations.



## STRENGTHENING THE HEALTHCARE SYSTEM

The AREVA mining sites are located in a desert area. The towns of Arlit and Akokan have more than 80,000 inhabitants. SOMAIR and COMINAK employ 1,900 people from the two towns. When the families are included (with an average of eight children per family), it makes a total of some 21,000 people with a connection to the mines.

The mining companies provide free medical care to employees and their families. AREVA applies the same policy as it did in France for its miners

As part of this policy, SOMAIR and COMINAK have built and now manage two hospitals. The SOMAIR hospital is in Arlit and the COMINAK hospital in Akokan. Most of the medical care (surgery, maternity, dental, ORL, ophthalmology, etc.) is provided at these facilities. Their annual budget is EUR 3.5 million (payroll, medicine, medical services). The hospitals have 151 beds.

The Arlit health district also has a public healthcare center with limited facilities. Authorities are planning a new public hospital, and a program will be set up to optimize its construction in relation to the two private hospitals operated by SOMAIR and COMINAK, in collaboration with the European fund SYSMIN.

Patients that cannot be treated at these hospitals are taken to Niamey or Europe.

These facilities are open to everyone in the region, meaning that the population there benefits from the best healthcare in Niger. SOMAIR and COMINAK employees and their families account for two-thirds of all patients treated and the same fraction of the two hospitals' operating costs. The rest of the population receives one-third of the healthcare administered, but accounts for over 50% of major treatment or surgery.

AREVA is also participating in a national project to restructure the private–public healthcare system and the fight against HIV/AIDS.

Allergies (pulmonary, ORL, ophthalmologic) are some of the most common illnesses. They are found everywhere in the Sahara region and have long been recorded by the WHO as typical of desert areas. They are caused by sand irritating eyes and lungs and are unrelated to mining activities.

Cancers are extremely rare. During 40 years of mining, not one case has been detected that was thought to have been caused by exposure to ionizing radiation. Cancer is an illness found mainly in Western countries with elevated pollution levels and high consumption of rich food, tobacco and alcohol.

Associations at Arlit have rightly alerted the public to the issue of health conditions. In response, AREVA, in partnership with the health ministry, agreed to have operations at its hospitals audited by two specialized organizations, Quanta Médical and GISPE. Their reports were made public in 2007. AREVA followed up this initial step by setting up a health monitoring system (the only one of its kind in the industrial sector) for all its mining sites. In Niger, prominent doctors and health ministry representatives who make up this system monitor the health of former miners and the general population. An organization of distinguished members of the medical profession and independent NGOs is currently being set up in Paris to oversee these local monitoring units. If the scientific (i.e., statistical) data from this monitoring permits, these initiatives might eventually be followed up with an epidemiological study.

*Annual Healthcare Figures for the SOMAIR and COMINAK Hospitals*

<b>DESCRIPTION</b>	<b>NUMBER</b>
Nurse consultations	112,000
Doctor consultations	38,000
Minor surgery	5,000
Major surgery	770
Deliveries	640
Subsidiary medical treatments (plaster, injection, etc.)	134,500
Vaccinations	12,400

## DEVELOPMENT OF INFRASTRUCTURES

### **Education**

SOMAIR and COMINAK help to fund the schools in Arlit and Akokan (construction of buildings, equipment, etc.) and in particular the two schools run by parents who are salaried employees of the two companies. These two schools have over 1,500 pupils. A program to provide schooling for children and training for adults was set up when mining operations began.

AREVA NC and its subsidiaries are also involved in educational assistance programs for the children of the nomad population around Arlit and particularly in the foothills of the Air mountains. The Group also initiated a broader program in 2006 to provide scholarships to the worthiest students.

### **Water**

The two companies located and developed the aquifers and have been producing and supplying drinking water to Arlit and Akokan for over 30 years.

Programs to optimize water consumption have been set up. Consumption has been reduced by better managing the water network and educating people to use water more wisely.

The companies also occasionally provide assistance in drilling wells, extracting water, and setting up fruit and vegetable farms.

The Group is also studying the construction of mini-dams in the dry streambeds along the western edge of the Air. These structures would hold back rainwater longer to allow better replenishment of the alluvial groundwater system, where the wells are located.

### ***AREVA's participation in the national program to improve irrigation and combat food crises***

In late 2006, AREVA stated its support for the program to combat food insecurity and its readiness to back Niger in its rural development efforts by contributing to this program.

Concretely, AREVA has agreed to provide about 11.4 billion CFA francs requested by the Niger government to finance a project to extend the cultivable land area through irrigation. This would permit the development of 5,000 hectares. To get the project under way rapidly, AREVA has offered to immediately provide 150 million CFA francs for the feasibility study plus about 50 million CFA francs to set up a pilot farm using an existing well in the Irhazer. AREVA may also supply some of the services needed to carry out the project. The balance of the funding – about 11.2 billion CFA francs – will be provided according to progress in the project.

### **Energy**

AREVA is also helping to fund an ambitious electrification project that should reach some 50,000 people in neighborhoods on the outskirts of Arlit. This project, for which the township is the contracting authority, is an excellent example of a collective initiative involving a partnership of public (townships), private (AREVA) and civil society (the NGO *Droit à l'Énergie SOS futur*) entities. It is supposed to get underway in late 2008.

### **Transport**

Between 1978 and 1980, the two mining companies invested about €260 million to build a 685-km asphalt road from Tahoua to Arlit. It opens up the Agadez and Arlit regions by connecting them to the West African road network and the south of the country.