

ENYGF 2015 Presentation

23rd June 2015

Environmental Impact of Mining Activities: AREVA's policy

- When one works in the nuclear industry, one must never forget a very important point: everything begins with the production of uranium and thus with uranium mines. Without mines, there is no uranium, and without uranium, no fuel cycle, no nuclear power plants, and no recycling.

Slide 2: Ranking of Commodities in the world economy

Ranking of commodities in the world economy

| Commodities | Mined ('000t) | Price (US\$/t) | Value PA (US\$ bn) |
|-----------------------|---------------|----------------|--------------------|
| Coal | 7,800,000 | 85 | 663 |
| Iron ore | 1,900,000 | 130 | 247 |
| Copper | 17,000 | 7,100 | 121 |
| Gold | 2.65 | 42,300,000 | 112 |
| Bauxite | 260,000 | 350 | 91 |
| Nickel | 1,700 | 14,000 | 24 |
| Zinc | 13,000 | 1,800 | 23 |
| Platinum-group metals | 0.48 | 30,300,000 | 15 |
| Diamonds | 0.025 | 580,000,000 | 14 |
| Lead | 3,600 | 2,000 | 7 |
| Top 10 total | 9,995,000 | (132) | 1,317 |

Source: Intertek/RMG

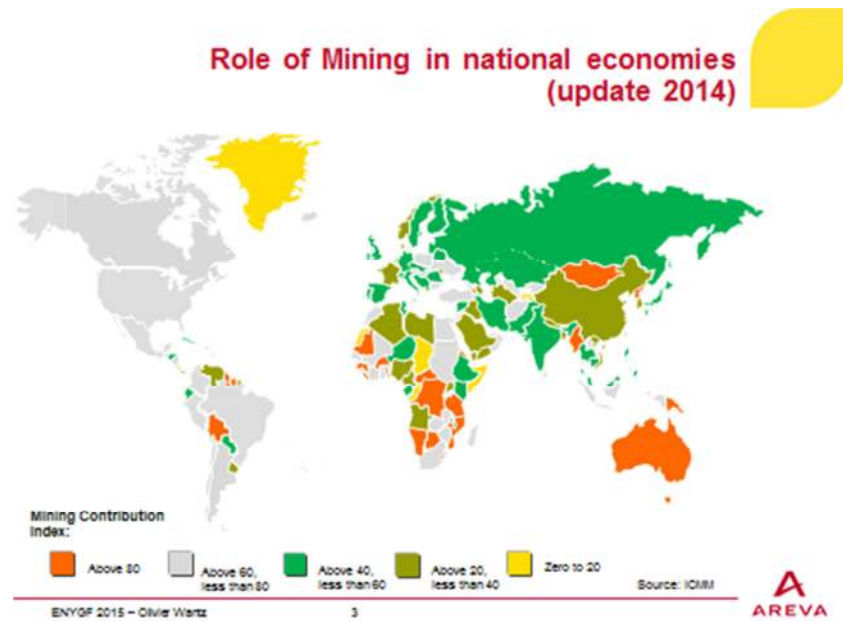


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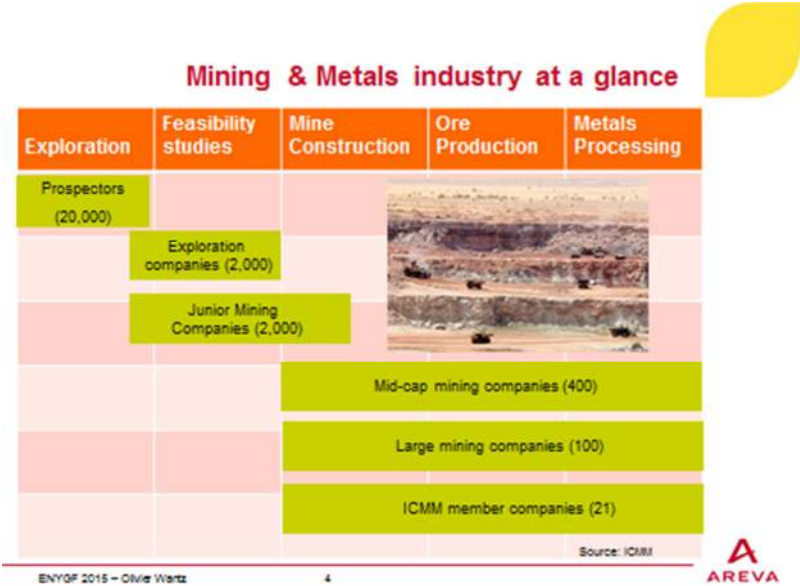
- The mining industry's role is to supply the minerals needed by the world economy.
- Important activity economically

Slide 3: Role of Mining in national economies (update 2014)



- Mining is done all over the world. All countries exploit their underground resources, but the importance of mining in the national economy varies greatly from one country to another.
- 50 countries where this contribution is very large tend, of course, to be emerging countries, but there are some developed countries among them, too, such as Canada, the United States and Australia.
- Smaller impact of mining in Europe and particularly in France, which has now essentially entered the post-mining period.

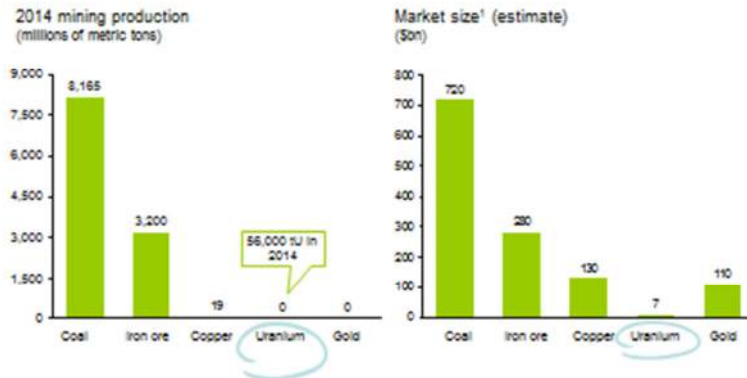
Slide 4: Mining and Metals Industry at a glance



- Mining industry is present everywhere in the world, with operations at different stages in the mining cycle – exploration, feasibility studies, ore production

Slide 5: Mining commodities

Among mining commodities,
uranium is a niche market



¹ - Excl. Secondary resources
Sources: BGR, USGS, Bloomberg, OPEC, Australian Government (GRU) analysis

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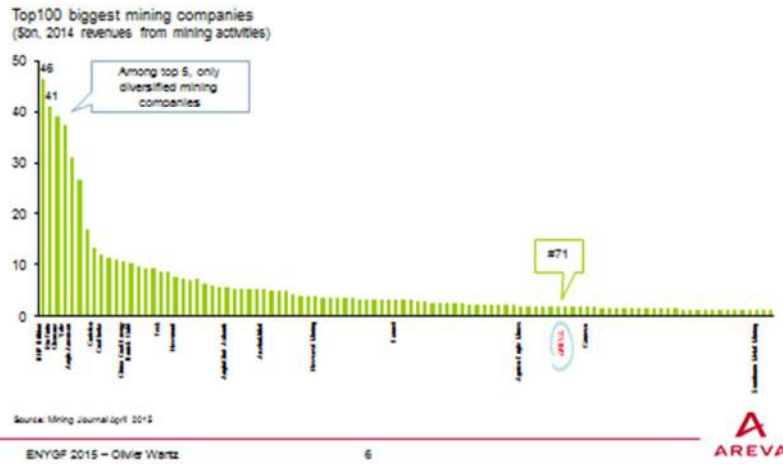
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- Uranium market : a niche market. Its volumes and market size are in no way comparable with those of coal or iron ore.

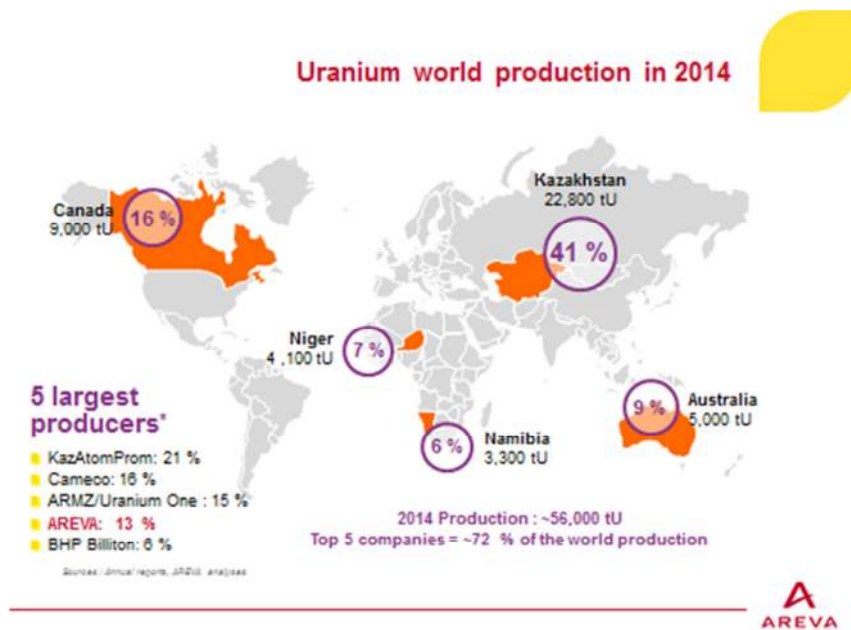
Slide 6: Mining companies

AREVA Mining Business Line is a mid-size mining company



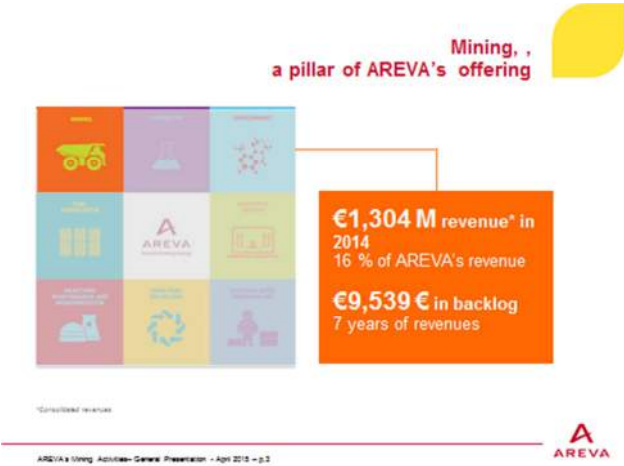
- Operators that specialize in uranium production, like AREVA, are small compared with those active in several mining markets, like BHP Billiton or Rio Tinto, for example.

Slide 7: Production breakdown



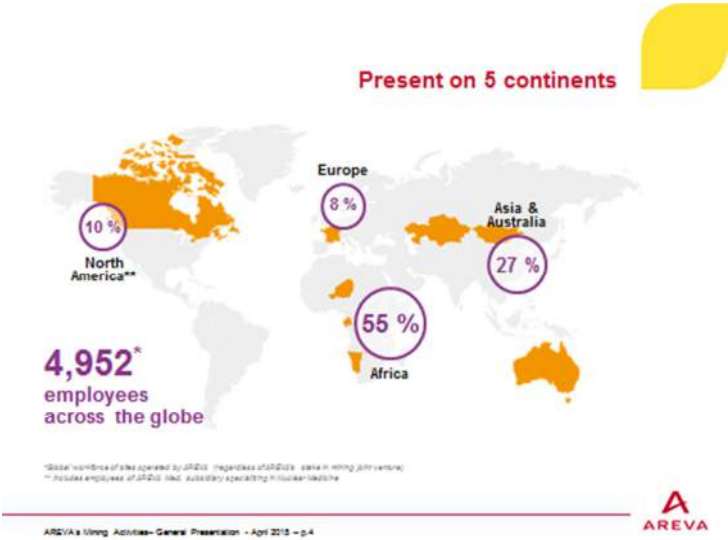
- Very few producer countries, and one of them stands out from the rest. Kazakhstan is far and away the number one producer, and it also has the lowest production costs.
- Production is not concentrated in one region, but spread across the globe, in Central Asia, North America, with the mines in Canada, Africa and Australia. This situation contributes to security of supply.
- AREVA is definitely modest in size compared with the major mining companies, but it is one of the leaders in terms of output, as we account for 13% of world uranium production.

Slide 8: AREVA's mining activities on 5 continents



- AREVA, mining activities contribute 16% of revenues.

Slide 9: AREVA's mining activities on 5 continents



- We have activities on five continents, with about 5,000 employees, most of whom work in Africa and Asia.

Slide 10: The mining cycle

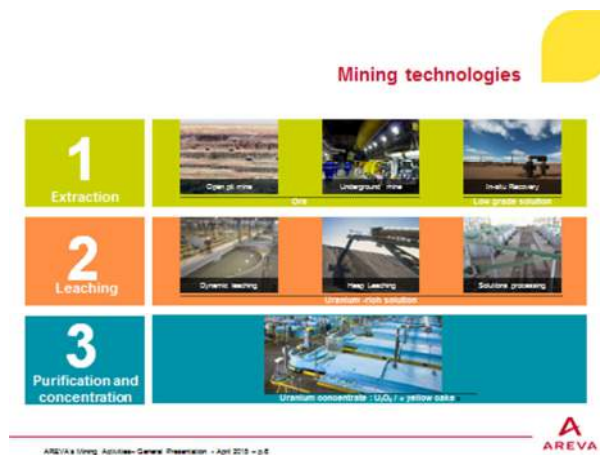


AREVA's Mining Activities - General Presentation - April 2015 - p.5



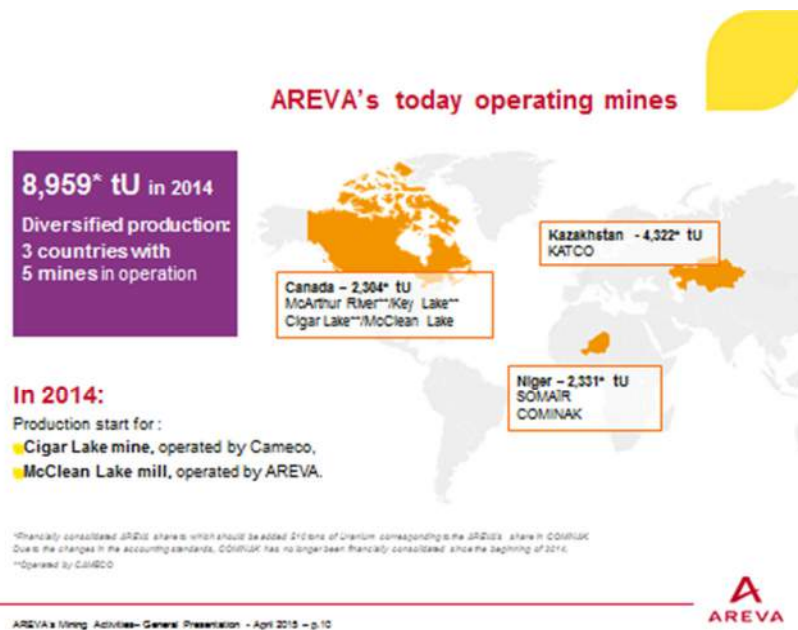
- In our mining activities, we are involved in all phases of the production chain.

Slide 11: Mining technologies



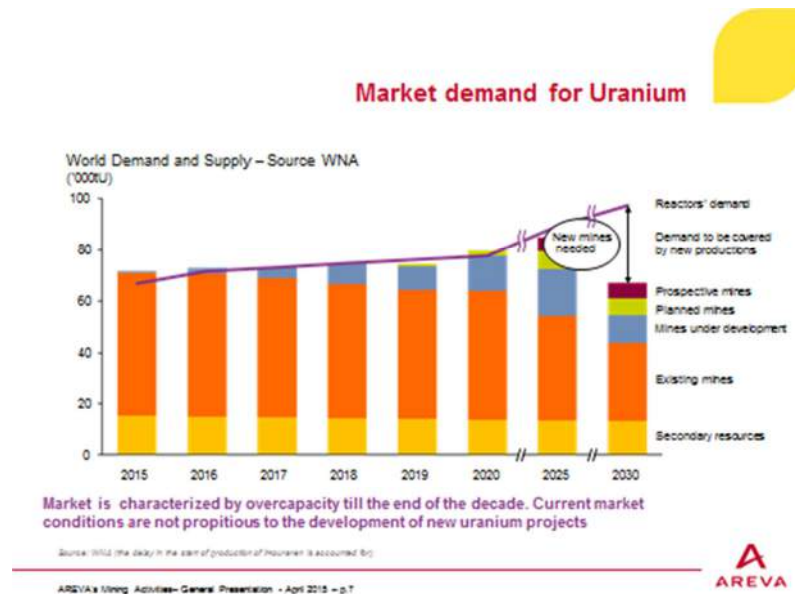
- Several types of mining operations.
 - Classic open-pit mines and underground mines.
 - In situ recovery technique : solution is injected into the ground to dissolve the uranium. The uranium-bearing solution is then pumped back to the surface and the uranium is extracted from it. In situ recovery accounts for 40% of the world's uranium production.

Slide 12



- AREVA mining : five mines in three countries: two in Niger, one an open-pit mine and the other an underground mine, of which we are the operator; one in Kazakhstan, which we also operate; and two in Canada, which are operated by Cameco, but in which we are a partner.
- AREVA's share of production : 9,000 tons in 2014 out of total worldwide production of 56,000 tons.

Slide 13: The uranium market



- We are currently in a situation of production overcapacity.
- Impact of the accident at Fukushima, which prompted a temporary shutdown of Japanese reactors, and the halt of Germany's nuclear program led to a decline in demand – about 3% until 2014 – while the supply increased by 11%.
- Market prices falling overall by one half since 2011 and long-term prices by more than one third.
- This situation has obliged AREVA, like all other uranium producers, to postpone certain projects (Imouraren in Niger)

The environment

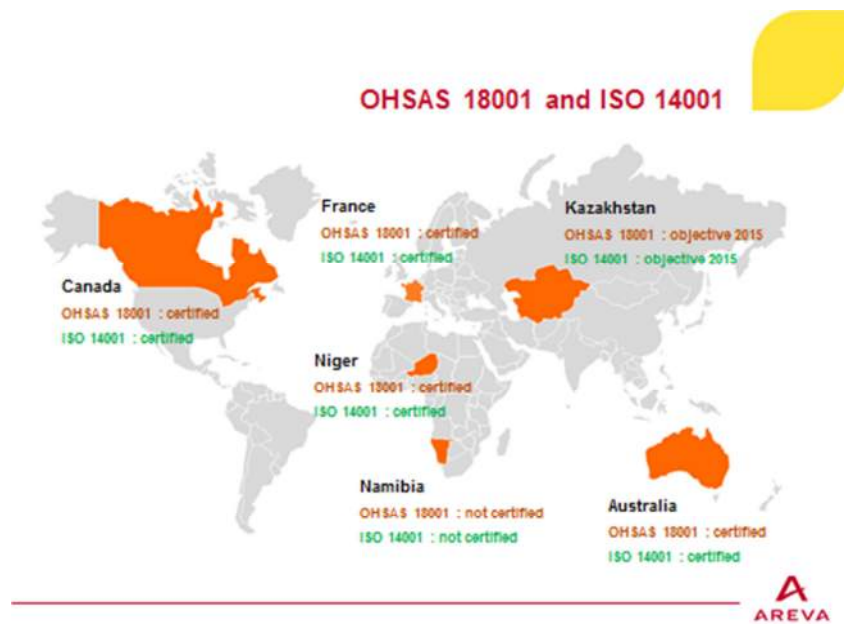
Slide 14: Mining and Key Environmental stakes



Major issues facing the mining industry are:

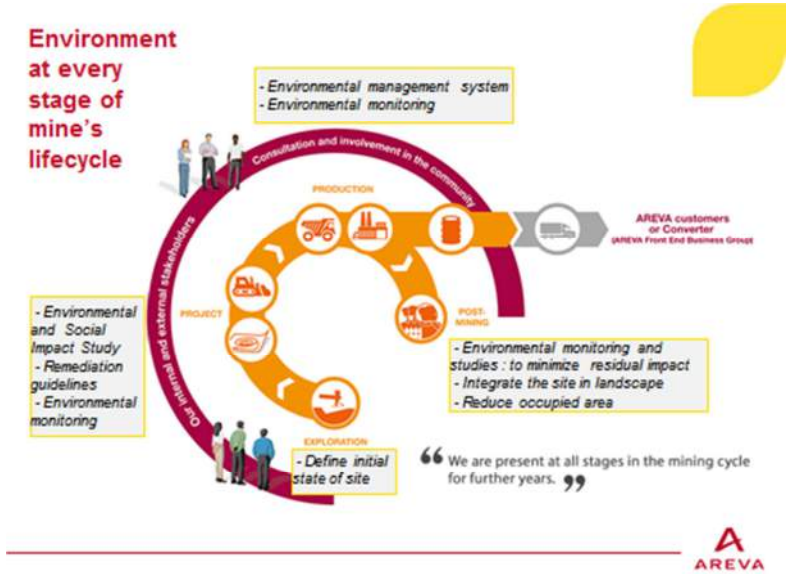
- Water, because of its vital importance to mankind and to biodiversity. Since our business is to extract ore from the geological subsoil, water is a major component of our activity and must be closely studied and preserved as much as possible.
- Biodiversity
- The quality of the air and soil
- Land use
- Management of waste and tailings from ore processing at the mill
- And last, climate change – an issue confronting us all that we must all do our part to curb

Slide 15: OHSAS 18001 and ISO 14001 Worldwide certification -



- AREVA Mines seeks to eliminate environment impacts at the source whenever possible, minimize them in other cases, and control them through monitoring and surveillance networks.
- Common approach to better anticipate the risks and reduce the environmental footprint of our operations : same environmental and safety standards on all our sites, and we have long made it a practice to apply French regulations in countries where local regulations are not sufficiently stringent in these areas.
- Robust and shared Integrated Management System that involves audits and certifications, as shown in this slide. We also recently obtained the renewal of our certifications for our two mining sites in Niger and the one in Kazakhstan.

Slide 16: Taking the environment into account at every stage of a mine's life -



- Environmental risks in each phase and in the subsequent ones are identified and assessed. Several key words sum up this policy: proactivity, risk prevention, a thorough understanding of the issues, and last, responsibility.

Slide 17: Mining and Water

Focus on Water



Consumed water, ratio
806 m³/tU
2014

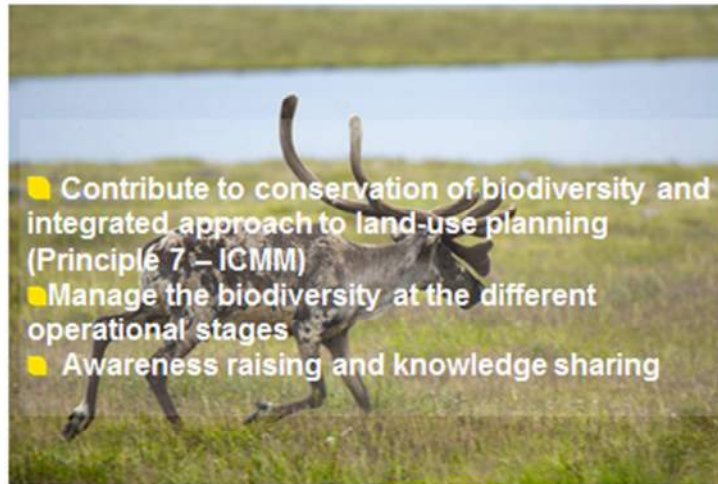
● Preserve water resources
● Optimize water consumption of our mines by adequate technologies and innovation
● Sustainable local water management

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- Water is a basic human right that is crucial to mankind and its environment.
- Water is needed in mining to extract, transport and process the ore. Without water and energy, mining is impossible.
- Some of our operations are located in areas under hydrological stress, where water is even more precious than elsewhere in the world. The first is to conserve water resources.
- We must optimize our use of groundwater. For example, by applying eco-design in the development of our new projects and by making improvements during the course of our operations.
- In 2014, AREVA Mines consumed 806 m³ of water to produce each ton of uranium, or 54 m³ less than in 2013.
- Studying the potential impact we can have on the quality of aquifers – environmental programs on the evolution of aquifers during and after mining with the in situ recovery method in Kazakhstan and Mongolia.

Slide 18: Mining and Biodiversity

Focus on
Biodiversity



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- Understand the ecosystems where we are operating,
- Identify the impacts, stage after stage
- Put in place an appropriate monitoring system and propose adequate mitigation measures.
- Minimizing our impact on the ecosystems thus requires managing biodiversity throughout the entire mining cycle and planning ahead for the remediation of the sites and the conservation of the lands where our operations were located.
- For example, in Namibia we rerouted the pipelines for our installations to protect an endemic species of lichen, and in France, we have put in place a system to protect amphibians during excavation at a former mining site in the Limousin.
- We are also installing an environmental monitoring network on our sites to check the quality of the air, soil and water as well as the conditions of plant and animal life with the assistance of ecologists and naturalists

- In Niger, a biodiversity study was done in 2014 to characterize the condition of pasturelands near mining pits.


Slide 19: Mining and Climate change

**Focus on
Climate Change**



- Manage the risks linked to a changing climate
- Ensure the efficient use of natural resources
- Eco design and Emissions reduction strategy

Greenhouse gas emissions
24 t CO₂_{eq}/tU
2014



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- The impact of a changing climate is one of the foremost challenges of the 21st century – a challenge we are all confronting.
- We are well aware that the mining sector will also be affected by the consequences of climate change.
- Many of our operations are located in deserts and on steppes, areas that are subject to hydrological stress and particularly vulnerable to this phenomenon.
- This involves using natural resources in a reasonable manner, reducing our greenhouse gas emissions, and optimizing our energy requirements.

Slide 20: Mining and Remediation

**Remediation:
a critical stage in the mining cycle**



- Proactive approach as far upstream as possible
- Stable and self-sustaining landscape, safe environment, minimal future land use constraints
- Mining is a temporary use of the land
- Acceptability of mining sites in the environment



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- A mining operation is a temporary use of land. By demonstrating very early on its technical expertise in every aspect of remediation, a mining company can integrate into a country and establish a long-term presence, thus enabling it to develop new projects acceptable to all stakeholders and by doing so, ensure the company's future.
- By planning the phases of remediation, mining companies can minimize the restrictions on future use of a site following its closure and help give a second life to the portions not subject to these restrictions.
- The objective of remediation is not to restore the site to its exact initial state, but to create a safe and sustainable environment.
- AREVA has remediated a number of sites around the world (France, Canada, Gabon) and has recognized expertise in this area.
- In France, the French government has called on AREVA to perform a public service mission consisting of the management of former uranium

mining sites, of which there are 237.

Remediation : some examples



Slide 22: A responsible mine operator.

A responsible mine operator

- A proactive approach to risk management
- Monitoring the environment
- Development of scientific knowledge
- Preservation of natural resources
- Investment in Research and Development
- Engagement with local stakeholders



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- Key ideas:

- Adopt a proactive approach to risk prevention and environmental impact
- Have a thorough, scientific understanding of the potential impacts of our activities and put in place adequate prevention and mitigation measures
- Monitor potential changes in the environment
- Invest in environmental research to continue to improve and innovate
- Take into account the expectations of our stakeholders and the social and cultural issues having a direct connection to the environment

In short: Be a responsible mine operator.

Slide 23: CSR

AREVA, a responsible mining player

The fundamentals of our approach to responsibility

- **Seven AREVA values set ethical standards for our activities**
 - + Safety
 - + Transparency
 - + Integrity
 - + Profitability
 - + Responsibility
 - + Customer satisfaction
 - + Partnership
- **Responsible industry practices**
 - + Member of the **International Council of Mining and Metals**
 - + Commitment to the **Extractive Industries Transparency Initiative**



On-line CSR report
www.csr-mines.aveva.com

Responsible development of AREVA's mining activities

- In accordance with the Global Reporting Initiative (GRI) // Note A+ en 2014
- external audit process in place

Commitment, Transparency, Continuous Improvement



- Our Group seven values : safety, transparency, integrity, profitability, responsibility, customer satisfaction, and partnership.
- Member of the International Council on Mining and Metals (ICMM).

Slide 24: ICMM at a glance



- ICMM was founded in 2001 to improve the performance of the mining industry.
- The ICMM’s role is to encourage mining companies to work together and with others to enhance their contribution to sustainable development.
- Like all ICMM members, AREVA is required to report on its sustainable development performance, and thus its environmental performance, each year.
- In 2014 it received the highest possible rating, an A+, meaning that our performance, based on the publicly reported information that had been verified by an independent auditor, met the highest standards. In the environmental area, it is important to report on one’s actions, and you can learn about ours by going to the website:

www.rse-mines.areva.com

Slide 25: Conclusion

Conclusion



AREVA and its mining activities:

- World's leading uranium producer present on 5 continents
- Responsible and respectful of people and the environment
- Constantly renewing its resources & reserves through its portfolio diversification strategy



- Working in the mining industry and in particular the uranium mining industry, is to live a true adventure.
- An adventure that requires large investments, the efforts of many people, often over very large areas.
- An adventure that, because it extends over such a long period, cannot be pursued without firmly held values.
- The attention paid to the environment, the desire to minimize the effects of our activities without denying that there are any, since every human activity has an impact, are among our values.
- Environmental management is an integral part of our activity as a mining company, as are the relations we develop with communities that welcome us to their lands.