



A pluralist expertise approach to the management of closed uranium mining sites in France

Le Groupe d'expertise pluraliste (**GEP**) sur les mines d'uranium du Limousin

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STATUS OF **GEP** AND ITS WORK

- ❑ **GEP at a glance**
 - Commitment, organisation and means
- ❑ **Scope**
 - Global approach and main issues
- ❑ **Work on transfers to the environment**
 - Overview and focus on some specific studies
- ❑ **Work on health and environmental impacts**
 - Overview and focus on some specific studies
- ❑ **Work on regulatory and long term issues**
 - Overview and focus on some specific studies
- ❑ **“Transverse” issues and generalization**



SPECIFICITY OF GEP

- ❑ **A “pluralist expertise group”**
A group commissioned by the authorities to develop **technical dialogue** bringing various experts together
- ❑ **Relevance**
 - contribute to solve **complex issues** with high **societal stake**
 - need to embed **contradictory analysis** / build **shared understanding**
- ❑ **Composition**
 - the **operator(s)** in responsibility to demonstrate safe risk management
 - **public expert bodies** committed to advise authorities
 - concerned **NGOs** and **independent experts** producing their own analysis and expertise
- ❑ **A specific kind of stakeholders involvement**
 - distinct from **local / national commissions** gathering all players, not replacing but completing them
 - in need of dialogue with these to answer their concerns



NATIONAL / LOCAL CONTEXT

Questions raised

- ❑ **Environmental impact / long term**
 - Mines closed, rehabilitation done but concerns with specific issues: contaminated sediments, reuse of waste rocks, long term management...
 - Local controversies, media and juridical cases
- ❑ **Specific government response**
 - Commissioning of the **Pluralist Expertise Group (GEP)** by the French Ministers of Industry, Health, Environment (2005) plus the French Nuclear Safety Authority (ASN, 2007)

Mill tailings disposal site after remediation (MCO 68 - 105, Bellezane)





GEP'S COMMITMENT

1^{ère} lettre mission
fin 2005



2^{ème} lettre mission
fin 2007



A global commitment (mid 2006-end 2009)

- ❑ **Contribute to the technical analysis** of documents produced by AREVA (BDE) and their third expertise by IRSN
- ❑ **Advise on management options:**
 - Recommendations to reduce the impacts of mining sites in Limousin
 - Mid to long term management strategies, including a methodology for generalizing to all French uranium sites
- ❑ **Participate in the information of local players and the public**

A part of a broader process

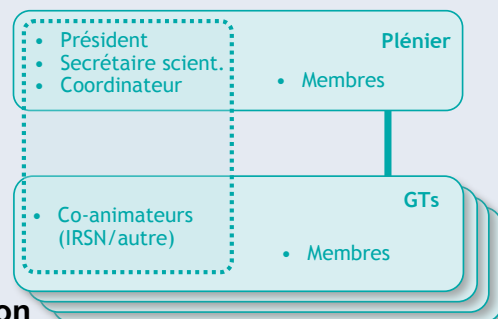
- ❑ **Existing remediation work and production of a doctrina**
- ❑ **Local authorities' work**, especially in Limousin
- ❑ **Link with the implementation of the 2006 law** on sustainable management of radwaste and nuclear materials



COMPOSITION OF GEP

Pluralistic composition and organisation

- ❑ **Diversity in two ways:**
 - Pluralism of competencies
 - Pluralism of points of view
- ❑ **Over 40 experts involved** (> 30 in plenary + working groups)
- ❑ **Working groups and principle of pluralist organisation**



Public Institutes and Administration	NGOs and independent	Industry	Foreign experts
- IRSN, InVS, INERIS, GEODERIS - Universities - Authorities	- Independent Experts - GSIEN, ACRO - Sources Rivières Limousin, Association Sauvegarde Gartempe	- Areva NC	- IAEA - UK, Switzerland, Belgium, Luxembourg, Israel
16 experts	5 experts	5 experts	6 experts



GEP'S MEANS

Effective pluralism relies on convenient means

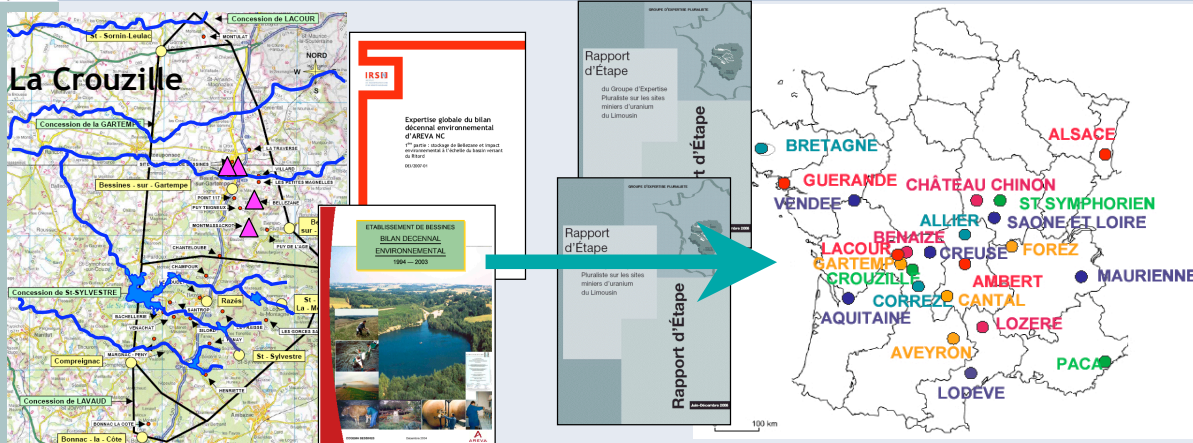
- **Availability of technical expertise**
 - Contribution of IRSN (third expertise...), contribution of AREVA (BDE...)
 - Access to other studies and potential for complementary studies commissioned
- **Financing Protocol**
 - Support to NGOs / independent / foreign expertise
 - Secretary and administrative support
 - Participation in exchanges at local, national and international levels
- **Workload**
 - Between 25 et 40 meetings per year (from plenary to small, specific)
 - Between 5 and 10 presentations given (local, national, international)

Année	Plénier	GT1	GT2	GT3	GT4	Local	National	Internatl
2006	4	3	3	2	0	0	0	0
2007	8	4	4	6 (+ 2*)	1**	2	1	2
2008	6	6	7 (+ 6*)	7	6***	3	1	5

* Réunion restreinte, ** Commune avec le GT1, *** Dont une commune avec le GT2



GEP'S GLOBAL APPROACH



- 24 mining sites (58 Mt waste rocks)
- 4 tailings disposal sites (20 Mt)
- 200 mining sites (>200 Mt waste rocks)
- 17 tailings disposal sites (52 Mt)

Detailed analysis of sites in one Mining Division (La Crouzille)

- understanding the systems, assessing the status, identifying the key points for evolution

Step-by-step approach towards methodology and generalization

- predicting the evolution of the sites based on the current status
- elaborating a global assessment / management approach applicable to all sites



GEP'S ORGANISATION OF WORK

❑ Transferts of radioactive / chemical materials from the sites to the environment

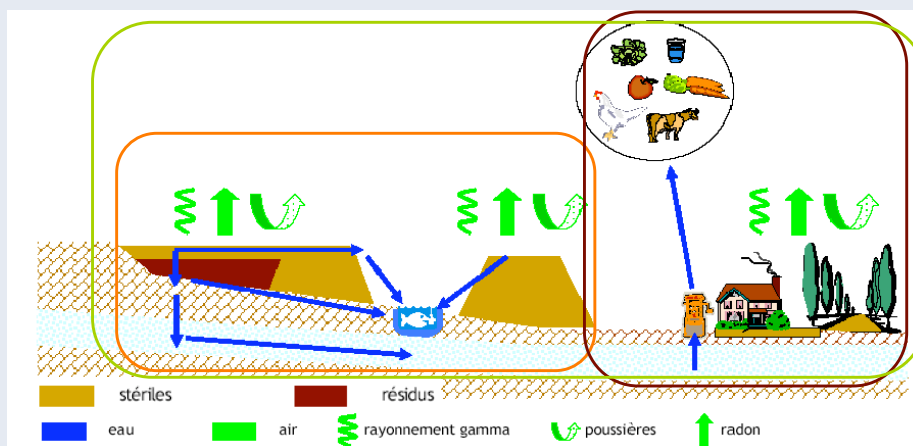
WG1

❑ Exposition of flora, fauna and populations, health and environmental impacts

WG2

❑ Regulatory framework, socio-economic context, and long-term concerns

WG3



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TRANSFERS TO THE ENVIRONMENT

An overview of WG1's work

❑ Themas

- Status of remediation on sites
- Status and evolution of transfers to the environment

❑ Identification of mechanisms in the physical sphere

- Sources of radioactive and chemical contamination
- The transfer modes from the sites to the environment (water, air...)

❑ Analysis of the systems on the sites

- mining works
- waste rocks piles
- mill tailings disposals
- water collecting and treatment
- deposits of contaminated sediments
- re-used waste rocks

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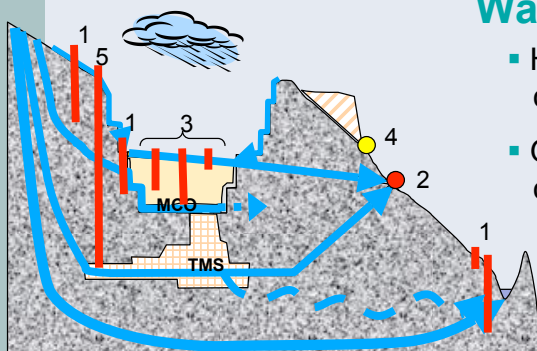
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FOCUS: ISSUES FOR WG1

Air transfer (Bellezane)

- Efficiency of the cover / radon, gamma, dust...



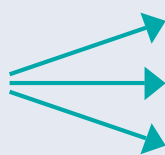
Water transfer (Bellezane)

- Hydrogeological characterization of water flows through the site
- Geochemical characterization of influence of materials on waters

Water treatment (Augères)

- Improvement of treatment efficiency, exploration of "passive" options
- Concern for contaminated sediments

Understanding current transfers



Demonstrate efficiency of systems

Identify corrective actions where needed

Develop a predicting capacity



HEALTH AND ENVIRONMENTAL IMPACTS

An overview of WG2's work

- Go beyond health and environmental impact assessment set forth in regulations
- Identify and discuss available tools for health monitoring

1 Environmental Impact
radiological and chemical

2 Health Impact
radiological and chemical

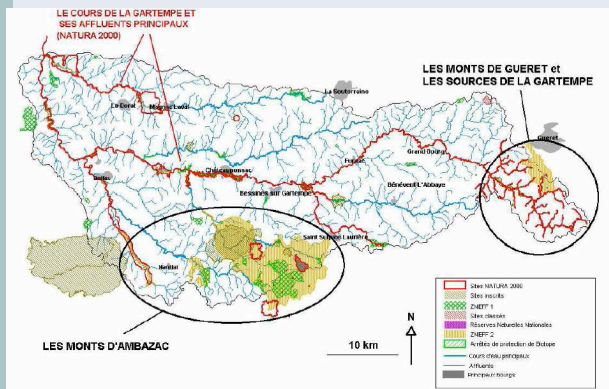
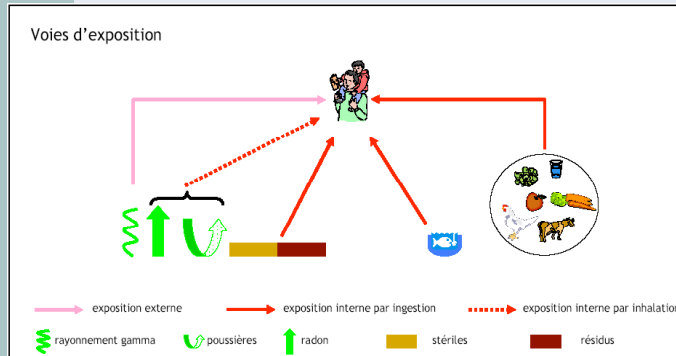
3 Health monitoring

- Specific assessment to address concern for **local ecosystems**
- Discussion of method to address concern for **dose assessment**
- Development of specific assessment of the **chemical risk**
- Health **monitoring**: reviewing public health surveillance

- Develop capacity to assess evolution of impacts according to various scenarios (short, medium, long term)



FOCUS: ISSUES FOR WG2



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Dosimetric impact

- Proposal of a revised methodology for the assessment of **added effective dose** (shift from reference groups to scenarios)

Health monitoring

- Ongoing study of available health data (cancers) with geo-localisation of cases

Environmental impact

- Test of new methods to assess radiological and chemical impacts on **ecosystems** (e.g. ERICA)
- Recommandations on specific monitoring tools (e.g. Natura 2000)



REGULATORY FRAMEWORK AND LONG TERM

An overview of WG3's work

□ Link between technical analysis and societal concerns:

- Changing priorities in the area of environmental protection
- Sustainability of rehabilitation works
- Long term liability (transfer from the operator to the state)
- Stakeholders involvement

□ Working themes:

“Organisational” field

- ✓ Regulatory status of concerned materials and sites
- ✓ Responsibility over sites and memory
- ✓ Financing the long term
- ✓ Control, expertise, stakeholders involvement

“Operational” field

- ✓ Scenarios to take into account (hazards, timeframe)
- ✓ Scope and nature of «active/passive» technical options (monitoring, ...)
- ✓ Long term and health impact
- ✓ Long term and environmental impact

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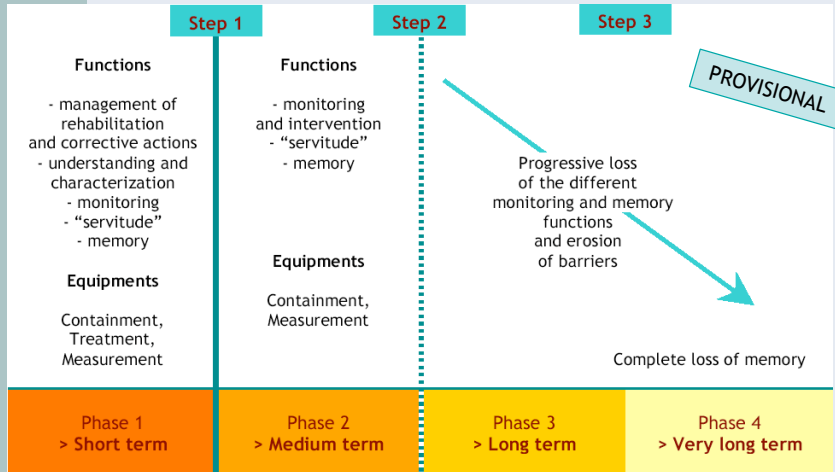


FOCUS: ISSUES FOR WG3

Comparison with existing long term doctrina

- Compared to concepts for long-lived radioactive disposal sites, inherited situations derogatory to the basic containment principle
- Need to consider long-term impacts in a very specific way
- Proposals to broaden the scope of scenarios considered

WG3 view - evolution of tailings disposal sites through time

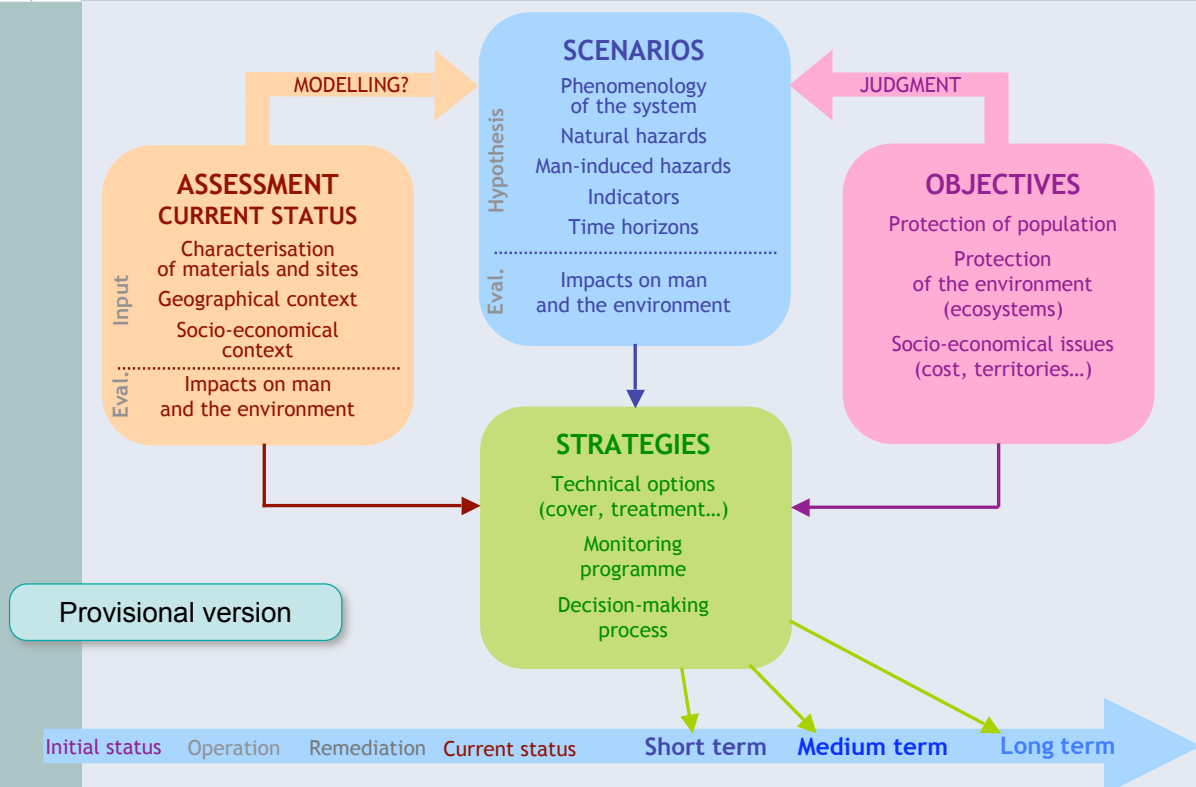


Long-term issues

- Perennial vs. "active" systems (e.g. water collecting and treatment)
- Re-use of sites and materials (e.g. housing on residues, use of waste rock piles)
- Memory and archive
- Need for **short-term** actions to address **long-term** impacts



GLOBAL APPROACH





ONGOING WORK

Developing “transverse” work (between WGs)

- ❑ **“Surveillance”**
 - What is at stake: evolution of the sites, of their potential impacts...
 - Phasing from characterisation to routine monitoring
 - Better identify things to monitor, and define indicators and criteria
- ❑ **Water discharges (collecting / treatment / limits...)**
 - Capacity to develop predicting models for the evolution of waters on sites?
 - Feasibility of better adapting discharge limits to receiving areas
 - Status of alternatives to current chemical treatment
 - Pending issue of perennial treatment vs. evolution of waters / limits
- ❑ **Long term protection**
 - Evolution of inherited situations over medium and long term
 - Criteria for assessing the impacts, objectives of protection
 - Actions to be taken to reduce long term hazards



PREPARATION OF FINAL REPORT

Aim for final report

- ❑ **Deadline: end 2009**
- ❑ **Synthetic report**
 - Based on sites specific detailed studies carried on
 - Developing a global approach for assessing the status and management options on existing sites
- ❑ **An operational objective**
 - Recommendation directly applicable (already in interim reports)
- ❑ **A willingness to pursue at least for information**

Projet de plan de rapport final

Introduction

Rappel des objectifs / lettres de mission
Objet du rapport
Champ d'application du document

1. Contexte

- 1.1. Histoire des mines en Limousin
- 1.2. Objectifs de la gestion des sites

2. Situation actuelle : état des lieux et impacts

- 2.1. Etat des lieux (sources et flux)
- 2.2. Contexte socio-économique
- 2.3. Evaluation des impacts
- 2.4. Transposition de la méthode à d'autres sites

3. Situation à long terme : évolutions et impacts

- 3.1. Scénarios d'évolution des sites
- 3.2. Evaluation des impacts
- 3.3. Transposition de la méthode à d'autres sites

4. Gestion des sites miniers

- 4.1. Options techniques
- 4.2. Surveillance
- 4.3. Gouvernance

5. Synthèse des recommandations du GEP



INTERNATIONAL CONCERN

International Perspective

□ International return of experience

- Large REX... but very few specific lessons regarding long term issues
- Less shaped international doctrina than expected
- Need to connect with evolution of radiation protection concerns

□ International openness

- Participation of IAEA and foreign experts
- Regular exchanges with WISMUT (Germany)
 - Different in size and context
 - Convergent in general options, with some technical differences
 - Confronted to similar issues mostly linked to long term
 - Step-by-step discussion from the comparison of general approaches down to specific issues

□ Interest in further input from international experience



ACHIEVEMENTS / PROSPECTS

Interim “Balance Sheet”

□ Operational

- work in progress, published in interim reports
- first operational and local recommendations implemented
- ongoing dialogue with local commissions in Limousin
- website on-line: www.gep-nucleaire.org

□ Added value

- playground for broader technical and scientific dialogue
- multiple approach, enhanced methodology
- interlinking technical and societal analyses to address long term issues

□ Challenge / final delivery (end of 2009)

- from analysis of current situation to prospective options
- from site-specific analysis to a global approach
- from experts discussion to relevant recommendations



Thanks for your attention

More information:

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www.gep-nucleaire.org

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