

Groupe d' Expertise Pluraliste



GEP Mines:
a pluralistic expertise group to reassess
the legacy of French uranium mining

SITEX European workshop
Senec - 16 Sept. 2013
Case study presentation

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Outline

❑ Context

The issue of post-uranium mining remediation in France

❑ Organization

Mandate, structure and means of the pluralist expertise group

❑ Work performed

Methodology, scope and examples of pluralist inputs

❑ GEP's report

Main findings, major recommendations and key messages

❑ Follow-up mission

General frame and difficulties encountered

❑ Conclusions



Context: French uranium mining legacy

From scattered owners to a single operator Cogema (now AREVA)

1948



- Mining operation starts

1990s



- Activity declines
- Progressive closure under administrative control

2000s



- Monitoring and surveillance
- Concerns of local populations and environmental NGOs
- Controversies, juridical actions

National and territorial issues



- 220 sites covering 25 departments
- 17 disposal sites (tailings)
- 76 000 t of uranium
- 166 million tons of waste rocks
- 51 million tons of mill tailings



Context: rationale for a pluralist approach

A sensitive context

- link with the nuclear industry
- economic stakes
- political and media debate
- controversies, complaints filed (especially in Limousin)

A multiple and complex issue

- mining and radiological risks
- radioactive waste storage/disposal
- reuse of materials
- accumulation in sediments
- radon and natural radioactivity

A strong temporal dimension

- need to manage of current impacts
- persistence of long-term risk factors

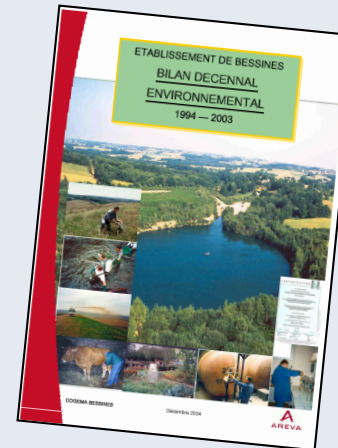
□ National and local response

▪ Nationally:

- national inventory of sites (MIMAUSA) started in 2004
- enhanced surveillance plan required by 2006 Act on RadWaste Managt

▪ Limousin:

- environmental assessment report of Crouzille sites by Areva (2005)



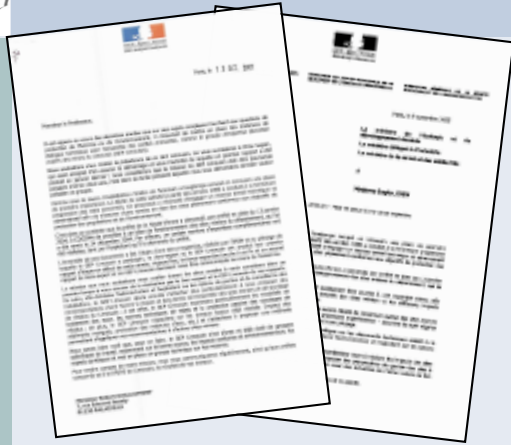
- critical review by IRSN (2006-2008)



- **GEP: pluralist expertise group** on uranium mining sites in Limousin



Context: mandate and objectives of GEP



Two commissioning letters

2005: Min. Ecology, Min. Industry, Min. Health

2007: Min. Ecology, Health, Nuclear Safety Authority

Three assigned objectives

→ to analyse

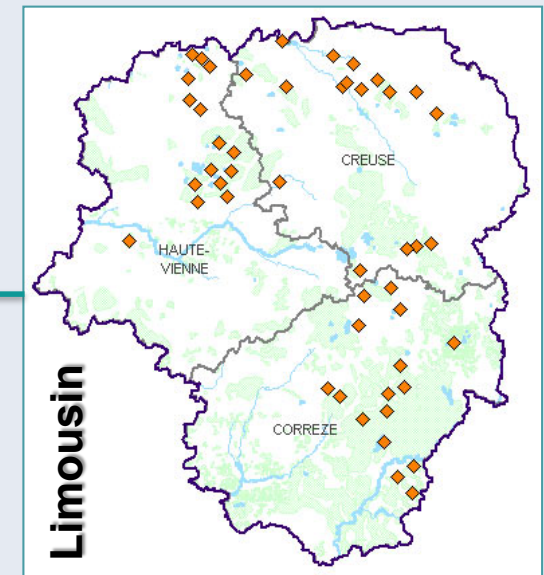
- to contribute to the technical assessment of current situations
- based on examples (in Limousin), to draw general conclusions

→ to recommend

- to describe the options and make proposals in view of developing a strategy applying to all sites
- to focus on the management and the reduction of impacts, and on long term management

→ to inform

- to participate in the information of local players and the public



- 1st mine, last to close
- 55% of U production
- 60 mining sites
- 2 milling sites
- 6 tailings repositories



Organisation: composition and structure

A pluralist composition and organisation

❑ Doubly diverse:

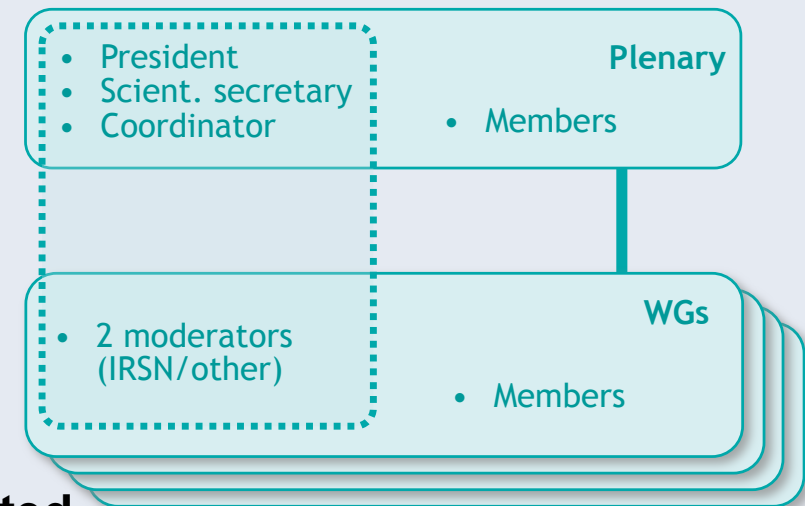
- Pluradisciplinary (competences)
- Plurality of points of view

❑ More than 40 experts involved

(> 30 in plenary discussions)

❑ Working groups

❑ Group discussions lead and moderated jointly by IRSN and another member (academic, non-institutional...)



Public Institutes & Administration	Environmental NGOs and independent experts	Operator	Foreign Experts
- IRSN, InVS, INERIS, GEODERIS - Academics - Authorities	- Independent Experts - GSIEN, ACRO - local NGOs (Springs & Rivers of Limousin, Protecting Gartempe)	- Areva	- IAEA - experts from UK, Switzerland, Belgium, Luxembourg, Israel
16 experts	5 experts	5 experts	6 experts



Organisation: available means

❑ **Developing expertise → in-depth & lasting work**

- around 40 experts regularly or occasionally involved over almost 5 years
- between 25 and 40 meeting / year (plenary and WG)
- internal workshops, hearings, technical visits
- technical exchange with Wismut (incl. a technical visit in Germany)

Year	Plenary	WG1	WG2	WG3	WG4
2006	4	3	3	2	0
2007	8	4	4	6 (+ 2*)	1**
2008	6	6	7 (+ 6*)	7	6***

* Restricted meetings, ** common meeting with WG1, *** incl. 1 common meeting with WG2

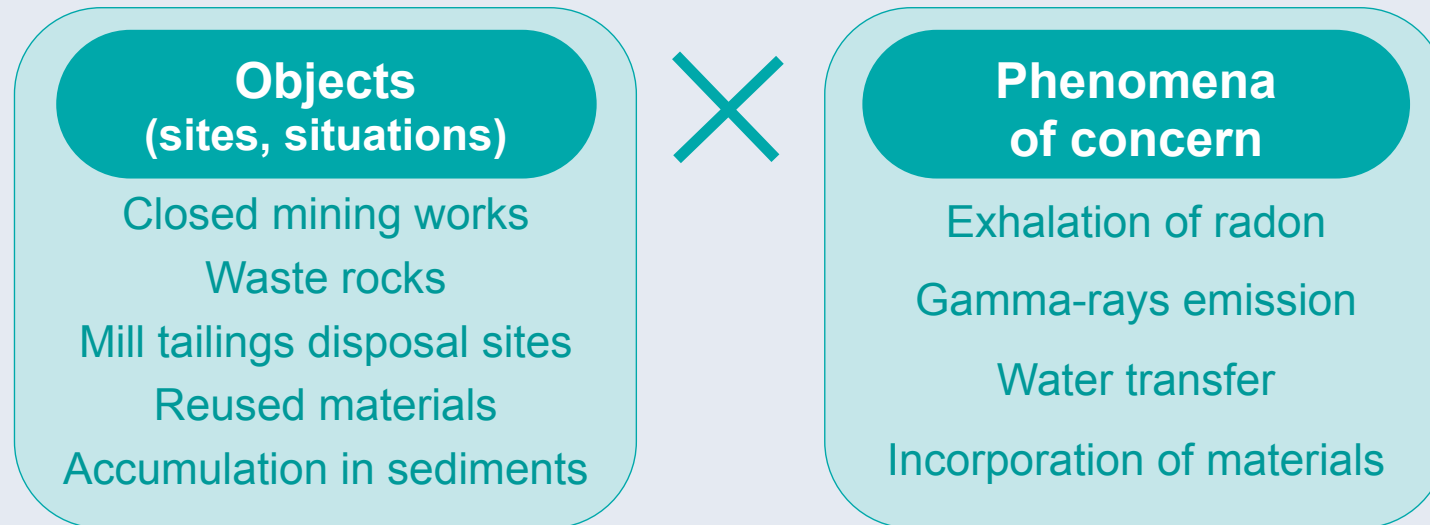
❑ **Acting independently → capacity of action & dedicated means**

- autonomous structuration of its rules, its field and its methods
- technical support of IRSN, strong participation of Areva
- easy access to data and ability to commission additional public expertise
- public funding to support active participation of non institutional members
- dialogue with local stakeholders through established local commissions



GEP's work: methodology and approach

Systemic and phenomenological analysis



Organizing in technical working groups (WG)

- **WG1** : situations on the sites and transfers to the environment
- **WG2** : environmental and health impacts, health monitoring
- **WG3** : regulatory framework, long term management issues
- **WG4** : collection and intercomparison of data

➔ **characterization, assessment, compensatory measures, monitoring and surveillance, long-term management**



Work performed: fields of investigation

Examples of studies and results

Transfers

- Change of methodology for verifying and monitoring **covers** [ex. Bellezane]
- Methodology **for hydrogeological characterization** of sites (link to "dynamic containment") [ex. Bellezane]
- Recommendations for focused studies on water releases and **accumulation of sediments** [ex. Ritord]

Impacts

- Validation of a graduated method to assess radiological and chemical **impacts on ecosystems** [ex. Ritord]
- Evolution of the method for **dosimetric impact assessment**
- Validation of tools for **health monitoring** and survey [ex. Limousin]

Management

- **Legal qualification** of the materials and sites and appropriateness of the **regulatory framework** for long-term management
- Reassessment of **long term hypothesis and scenarios** to be used for setting rehabilitation objectives
- Emphasizing the role of **stakeholders involvement and social sciences** to increase the **robustness** of solutions to long term degradation



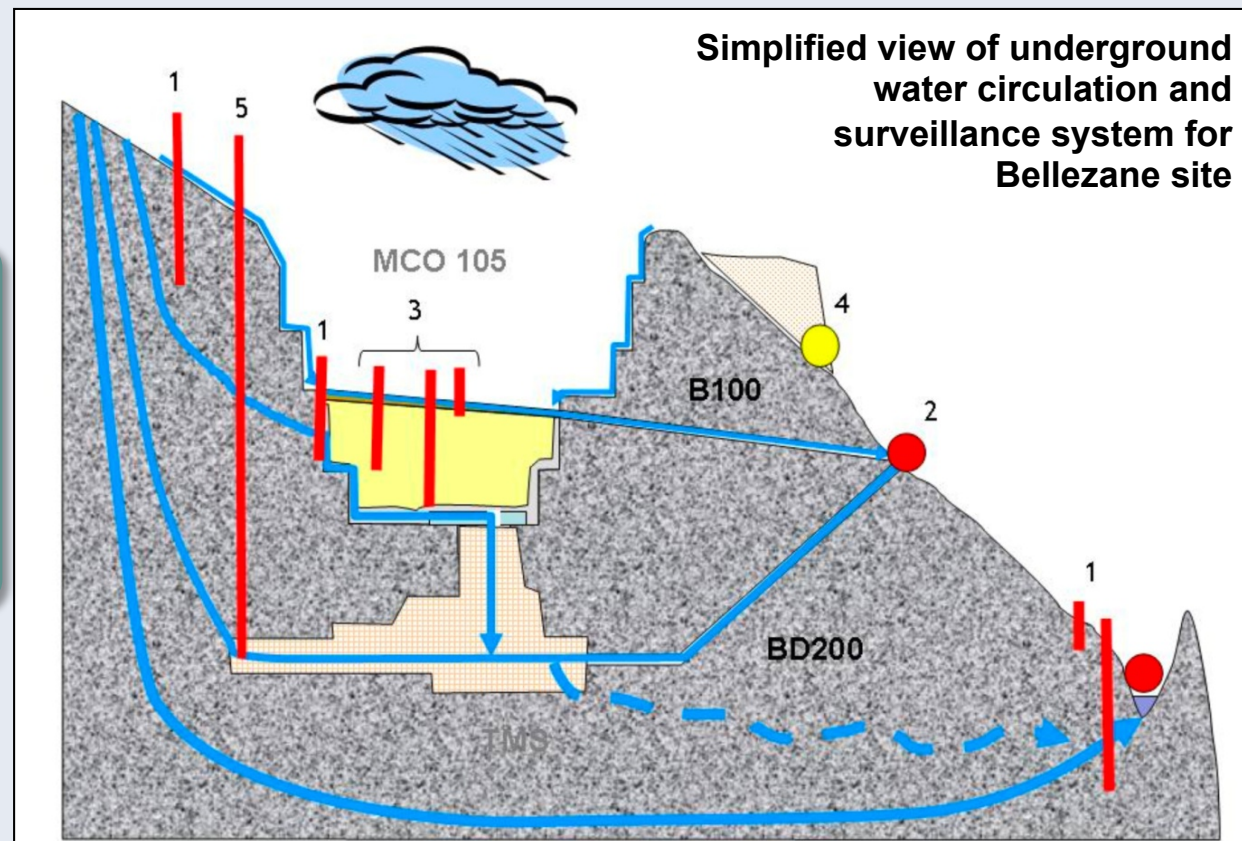
Work performed: examples of pluralistic inputs (1/3)

Hydrogeological model of Bellezane site

- Assessment of underground water flow model associated to the « dynamic confinement » of the tailing repository
- Characterization of the Geochemical print of the various sources of water contributing to the discharges into environment

➔ **General methodology applicable to most of the sites**

In depth discussions
stirred by GEP
members
(senior academic
hydrogeologist
and IRSN)





Work performed: examples of pluralistic inputs (2/3)

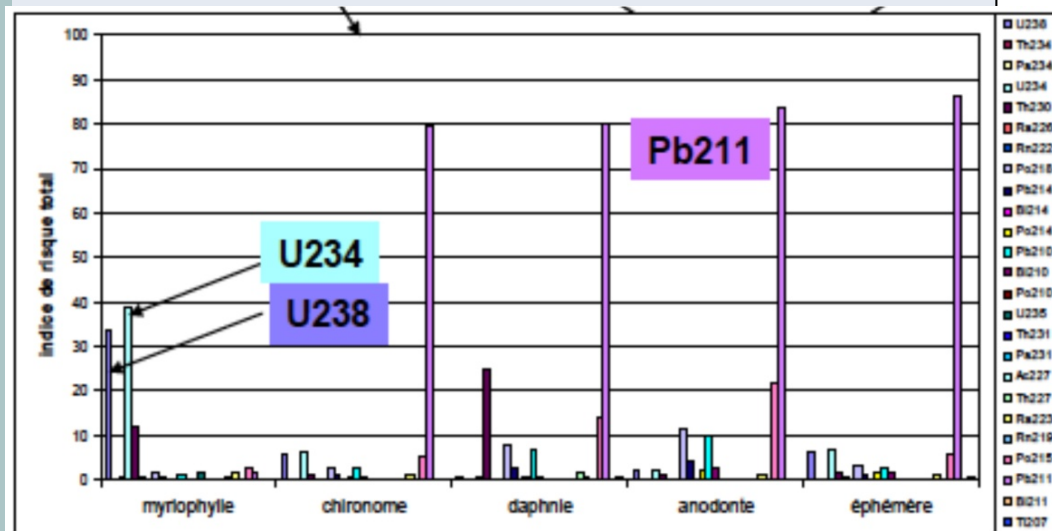
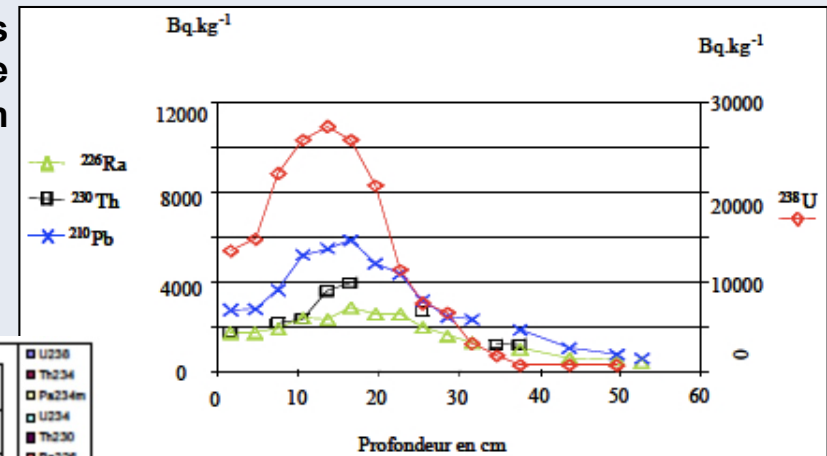
Origin and fate of U accumulation in sediments

- Analysis of the characteristics of the sediments and their relation to the characteristics of water discharged from the mining sites
- Implementation and test of a graded approach for environmental risk assessment on the Ritord watershed

➔ **Promotion of new methods and emergence of new questions**

Conjunction between environmental concerns brought up by environmental NGOs and IRSN capabilities

Concentrations in sediments from St-Pardoux Lake as a function of depth



Total Risk Index for different radionuclides and species
Ritord Watershed
(1994, water compartment)



Work performed: examples of pluralistic inputs (3/3)

Health monitoring and survey

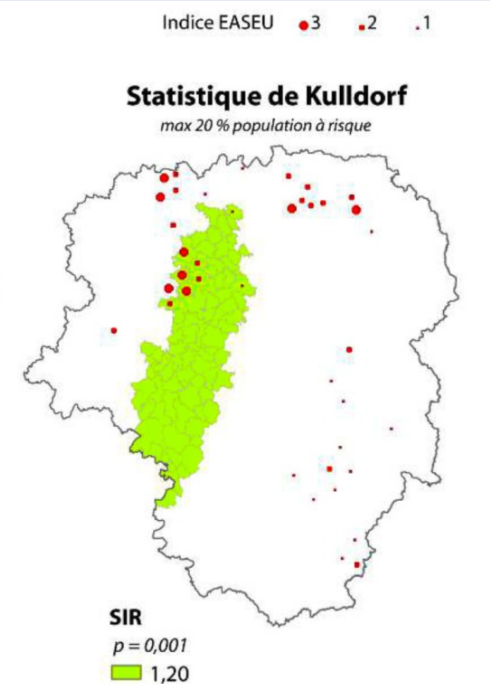
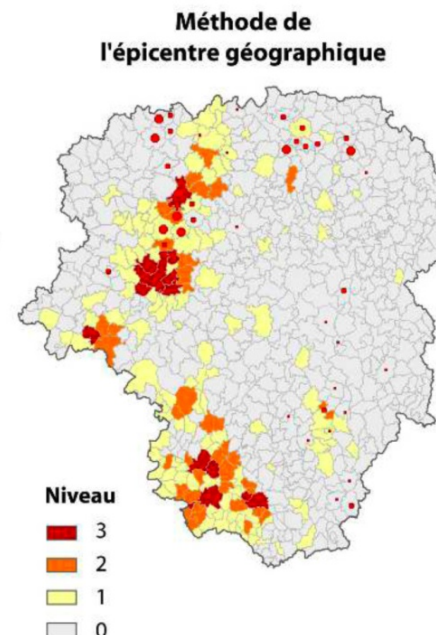
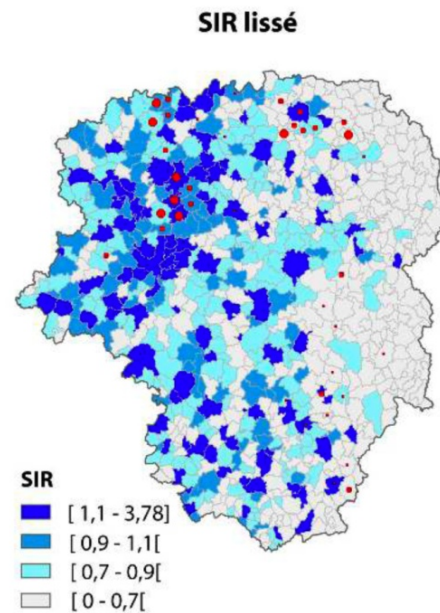
- Qualification of the Limousin cancer registry
- Test and first step of implementation of a health survey methodology based on geolocation of local environmental risk factors (incl. U mines)

➔ Test and promotion of tools and approaches

Questions raised by GEP members and handled through a dedicated study entrusted to a local university lab



Représentations spatiales





GEP's report: main findings

Final report

handed to Minister of Ecology and president of ASN, 15 Sept. 2010

Findings on the situation at uranium mining sites:

- no state of alarm... but no comprehensive impact assessment yet
- concerns for managing current impacts on some sites
- concerns for potentially unacceptable impacts in the long term due to the insufficient robustness of existing protections

→ **need for vigilance and comprehensiveness**

Findings on the implementation of sustainable management

- weight of past rehabilitation work on current options
- growing openness and progress
- still lacking a comprehensive framework and clear long term commitment

→ **need for generalization and institutionalization**

Conclusions and recommendations

→ **6 areas, 15 recommendations, over 100 detailed proposals**



GEP's report: 15 major recommendations

A. Institutional perspective and regulatory framework	1. Transition to institutional post-mining management
	2. Modernizing and adapting the regulatory framework
3. Comprehensive census and characterization of sites	B. Knowledge of sites, studies and research
4. Research programme to establish a predictive capacity	
C. Relevance and field of evaluation of impact, public health	5. Evolution of dosimetric impact assessment
	6. Chemical impacts, impacts on ecosystems
	7. Health monitoring and survey tools
8. Adaptation of surveillance systems to situations	D. Surveillance of the sites and the environment
9. Dedicated monitoring of ecosystems	
E. Robustness of remediation works and long term considerations	10. Realistic representation of long term scenarios
	11. Technical and social balance of long term options
	12. Decision-making process for reinforcement
13. Access to information, signs and archives	F. Information and participation for sustainable management
14. Participation process for local stakeholders	
15. Pursuing of the pluralist approach as appropriate	



GEP's reports: key messages

An original and useful - but not all-inclusive - approach

- Tool-kit to broaden the scope and build minimal consensus
- Strong platform for all actors to develop further action
- But neither substituting local action on sites nor lifting all uncertainties

A mobilizing message to all French stakeholders

*To build and implement, in around ten years time,
a clear strategy for the sustainable management of uranium mining sites*

**Generalize
to all sites
and to all
situations**

**Deepen
knowledge
and predictive
understanding**

**Fix the
institutional
perspective and
regulatory frame**

**Anchor in society
through
information and
participation**

- **Effort to appropriate the work achieved and willingness to implement recommendations are now required from all the stakeholders**



Follow-up mission: general frame

Principal Mission

- **9th Nov. 2005** - 1st Commissioning letter / Min. Ecology, Industry, Health
Analysis, recommendations, information -Limousin's Sites
- **Mid-June 2006** - Kick-off meeting
- **12th Oct. 2007** - 2nd Commissioning letter / Min. Ecology, Health, ASN
General methodology applicable to all sites
- **15th Sept. 2010** - Final report officially released
15 main recommendations covering 6 areas
- **16th Dec. 2010** - Presentation of the report to the HCTISN*
- **18th Feb. 2011** - Presentation of the report to the PNGMDR** WG



Follow-up Mission

- **16th May 2011** - Commissioning letter / Min. Ecology, ASN

1st Part: Information to CLIS***

Dissemination of GEP results and recommendations to local information commissions

2nd part: Implementation Review

Evaluation of the implementation of GEP recommendations

*: High Committee for Transparency and Information on Nuclear Safety

**: National Plan for the Management of Radioactive Wastes and Nuclear Materials

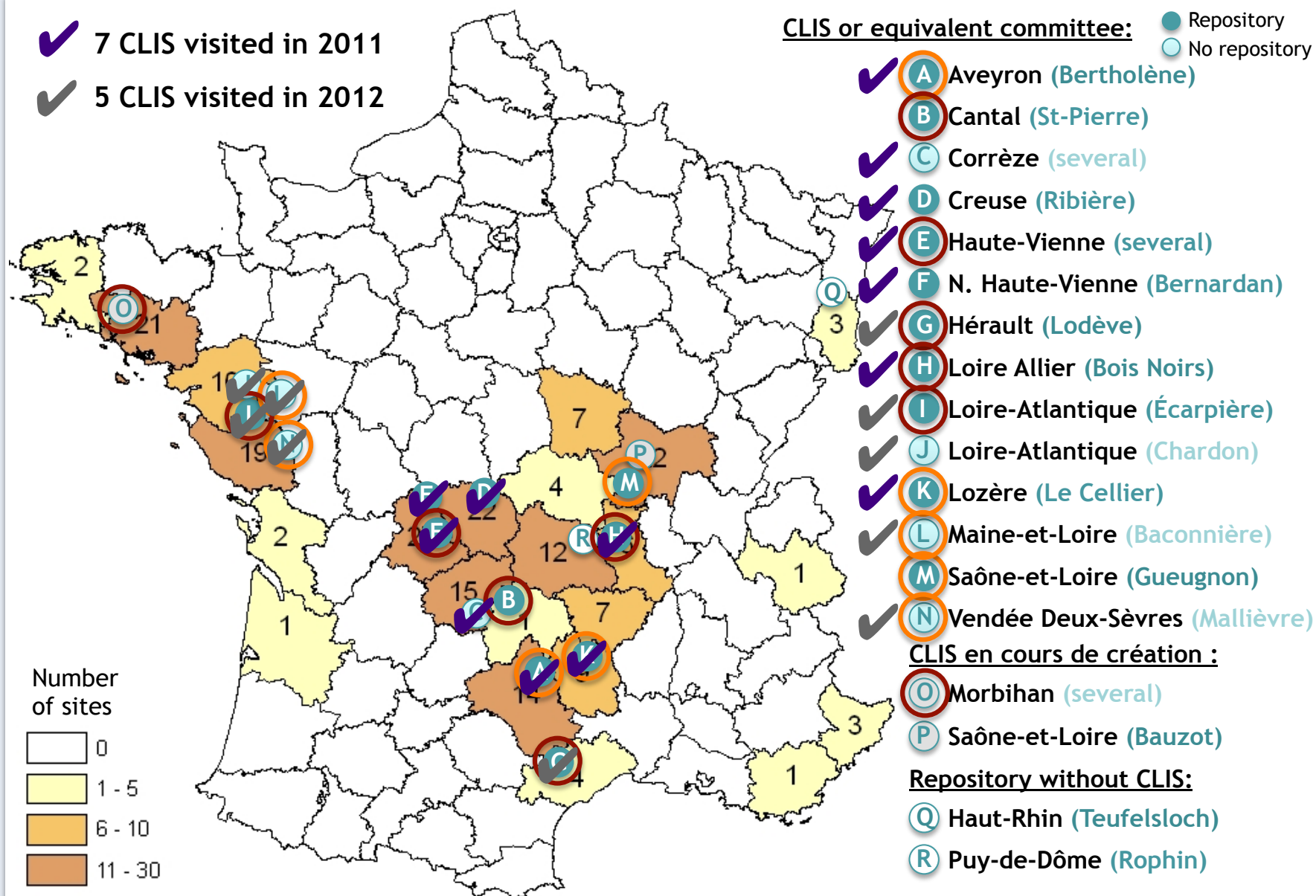
***: Local Commissions for Information and Follow-up



Follow-up mission: information to the CLIS

✓ 7 CLIS visited in 2011

✓ 5 CLIS visited in 2012





Follow-up mission: information to the CLIS

Difficulties encountered and lessons learned

Organization issues

- Rigidities to overcome (finding dates, adapt meeting agendas...)
- Discussions sometimes too formal or controversial
- Importance to initiate contacts ahead (site visits, DREAL, NGOs...)

Difficulty to build constructive interaction

- Contrasted degree of satisfaction about available information
- GEP report appreciated but very diverse comprehension and sharing
- Difficulty to enter technical discussions and constructive follow-up
- Concerns focused on ongoing issues, with low ability to think global

Gap between current and expected role

- Current CLIS performance is not up to an effective follow-up of sites
- NGOs set the pace and determine the CLIS' momentum
- Embracing Long-term perspective is not spontaneous

Outcomes Part 1

GEP work was presented to most of the CLIS (and HCTISN & PNGMDR)
Interactions enabled GEP to draw a national picture of functioning of the CLIS

-> elements recorded in a mission report to be issued



Follow-up mission: implementation review

Difficulties encountered

- Dynamic**
 - Pace of implementation and deadline of the review process
 - ➔ Difficulty to feed GEP work and maintain its momentum
- Efficiency**
 - Interface between actions initiated based on GEP recommendations, implementation review process and follow-up by PNGMDR WG
 - ➔ Difficulty to delimit the scope
 - ➔ Difficulty to schedule the review
- Openness**
 - Involvement of the various stakeholders in the definition and planning of actions
 - ➔ Difficulty to expand a pluralistic dimension to the whole process

Outcomes Part 2

1st assessment based on available documents (Environmental Assessment Reports issued by Areva, PNGMDR studies)

-> elements recorded in a mission report to be issued



Conclusion

High profile initiative with...

- evidence of added value

- Playground for broader technical and scientific dialogue
- Enhanced and innovative methodology
- Interlinking technical and societal analysis to address long term issues

- in-depth influence

- interim outputs included in Limousin prefect decisions and in a ministerial circular issued in 2009
 - environmental assessment reports for every concerned department
 - creation or reactivation of CLIS to cover all sites
- actions inserted in PNGMDR to cover some of the issues raised
- additional actions included by Areva in its research strategy (Environmental risk assessment)

- but a modest public visibility



Conclusion

Key factors of success

- 4 years of intensive work; 7 years of continuous existence
- available means to get an active participation
- creation of a playing field with stakeholders having some expertise
- duty to be constructive (to overpass confrontational attitudes)
- freedom to (re)define the content of its work and further develop specific issues
- ability to alternate between an overall/strategic view and in depth technical analysis
- sensitivity among the top management of involved public bodies

But success remains fragile

- GEP has now to pass on the baton
- maintain a pluralistic process is necessary but cannot be taken for granted
- temptation to come back to a logic of confrontation is high



Thank you for your attention

More information:

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