



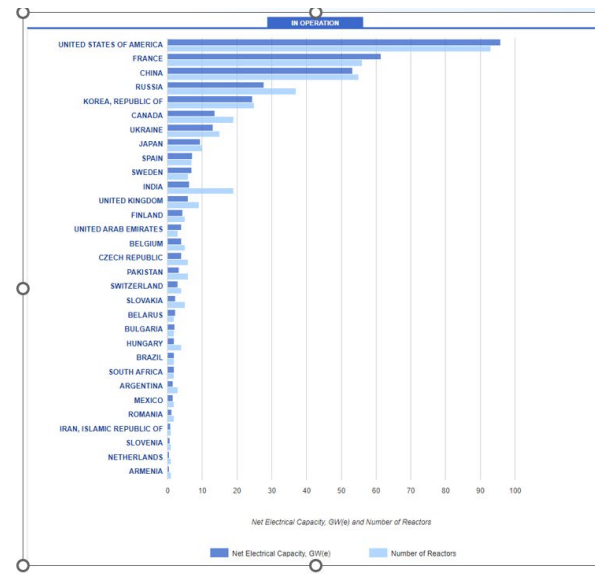
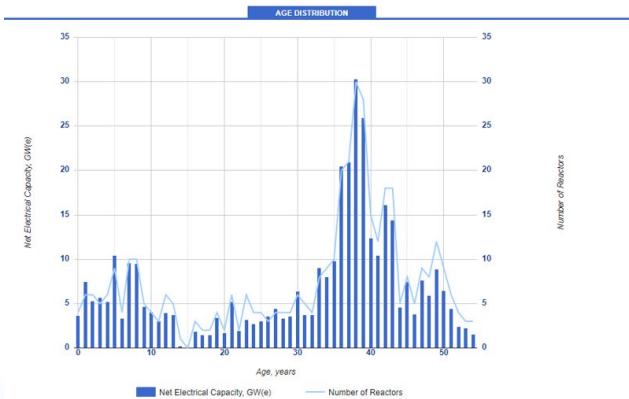
# REMPOR Web Application for Access to Site and Technology Information

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# Global Status of Radioactively Contaminated Site Remediation?

- If one asks about the situation regarding the number of nuclear reactors in the world, we know the answer.



- But what about the situation on sites that need remediation?
  - Nuclear or Radiological Accident
  - Test Sites
- Legacy Sites
  - I.e., without a regulatory framework and which led to the contamination of land, imposing present or potential radiological risks to the public
  - These include:
    - Sites affected by NORM industries
    - Uranium Mining and Milling operations
    - Nuclear Sites (related to nuclear fuel cycle operations, military operations, research operations)

# Why is This Information Important?

Multiple reasons:

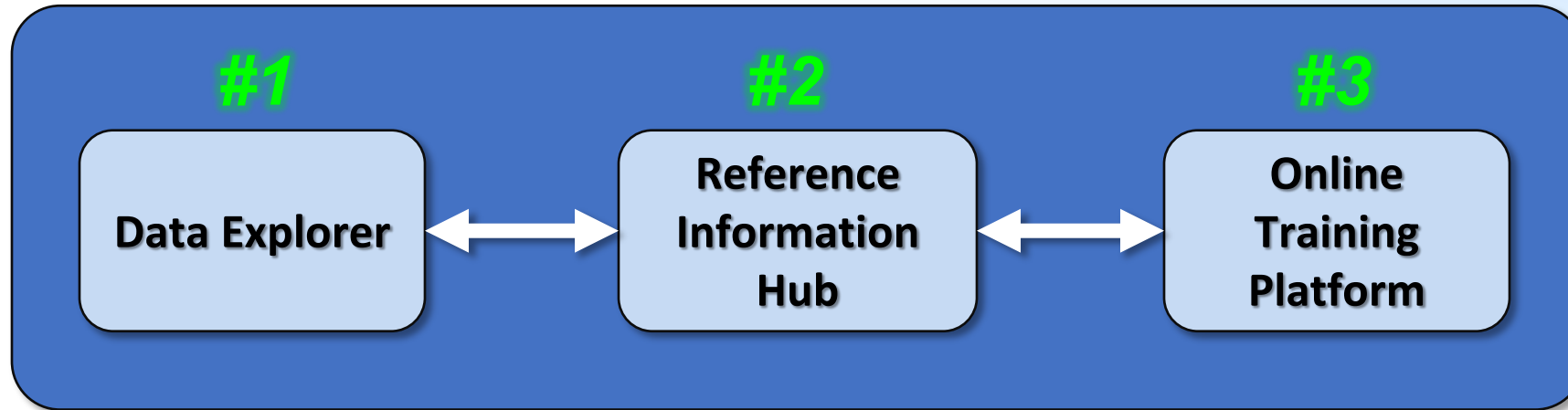
- **Follow-up the long-term progress** of the remediation of these sites
- **Enable communication and collaboration** efforts on all levels
- Facilitate the **prioritization of planning and implementation** (by national institutions and international organizations)
- **Raise awareness** of decision makers
- Assist in **driving global progress** in addressing environmental remediation issues and challenges

# REMPOR... Rationale

- Former nuclear fuel cycle activities have left significant environmental footprints (also called legacies)
- There is a need to document the extent of legacy sites worldwide
- Member States need resources/guidance on how to deal with legacy environmental liabilities

Main paradigm: No need to create new information. Rather, can make existing, authoritative information and data available from a central one-stop-shop source...

# REMPOR... Concept and Main Components



- **Integration...** Single portal to access data from different sources
- **Interactivity...** Users may share experiences and knowledge
- **Reliability...** Curated data and information collection will direct users to trusted sources, both internal and external to IAEA
- **Learning experience...** Capacity building could be done through high quality content and proper technological solutions

# REMPOR... What Is It?

- Portal for remediation related data and resources
- Designed to build Member State capacity for responding to environmental liabilities resulting from uranium mining/processing, nuclear facility operations, accidents, etc
- Envisioned as a multi-element interactive platform...
  - World map and database that can be queried for relevant sites and associated characteristics
  - Information on applied remediation technologies, techniques, costs, challenges, solutions, and supporting scientific information
  - Wide range of resources
    - Technical reports/publications, videos, mathematical models, etc.
  - Training platform with room for interactive exercises
    - eLearning material

# REMPOR Data and Linked Databases



**Selection**

**Layers on/off**

**Users comments**

**Charting**

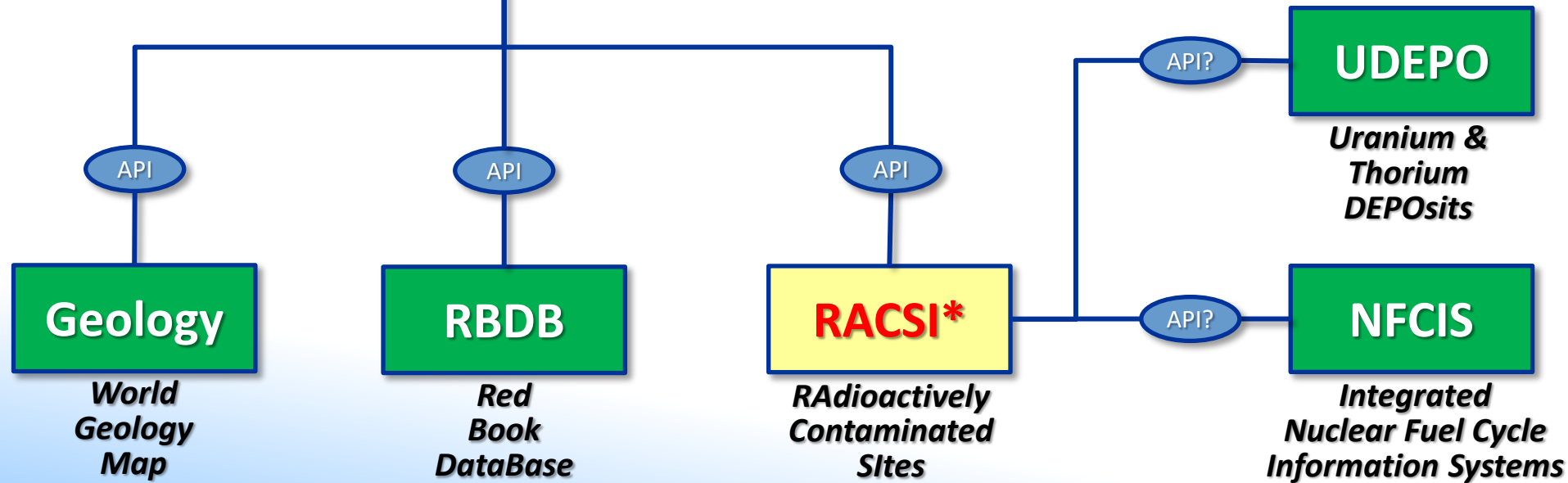
**Query**

**Cross-checking**

**Filtering**

**Exporting**

*Adding more databases might be considered (e.g. Safeguards)*



*\*In development (currently exist as an excel sheet)*

# Example of RACSI Data

Group	Parameter	SITE ID	ID IN UDEPO	ID IN URS	ID IN NFCIS	NAME	SYNONYM	REGION	COUNTRY	PROVINCE
Relation	Identification number in RACSI Identification number in UDEPO, if exists Identification number in NFCIS, if exists	67	242	256	210	Mounana mine		Central Africa	Gabon	Haut-Ogoué
Location	Region Country Province Latitude Longitude	LATITUDE	LONGITUDE	TYPE	STATUS	SIZE (KM2)	SIZE RANGE	START OF OPERATION	END OF OPERATION	
		-1.3995	13.1542	Uranium mine	Fully remediated	3.50	1-100km2	1956		1999
Basic information	Site Name Synonym Names Type Size Size range Start of operation End of operation Status									
Remediation data	Description of environmental contamination and impacts Description and comments on remediation strategies Contaminants of concern (COCs) Impact to environment Number of people potentially affected Remediation strategies Annual cost estimate of environmental remediation efforts Total cost estimate of environmental remediation efforts Cost range of environmental remediation efforts									

## TYPE:

- Uranium mine
- Other mine
- Uranium mining region
- Other mining region
- Ore processing plant
- Nuclear power plant
- Other NFC facility
- Defence-related facility
- Nuclear testing site
- Radiological accident site
- Landfill
- Research Facility
- Others

## STATUS:

- In operation
- Operational stand by
- Closed
  - Under Decommissioning
  - Decommissioned
  - Under remediation
  - Partially remediated
  - Fully remediated
  - No actions taken
- Orphan

# Example of RACSI Data

Group	Parameter				
Relation	Identification number in RACSI				
Location	<table><tr><th>DESCRIPTION</th><th>COCS</th></tr><tr><td>Between 1961 and 1999, in the mining district of Mounana in South-East Gabon, the Uranium Mining Company of Franceville, "COMUF", extracted 7.5 Million tonnes of uranium ore with an average grade of 0.38%, from opencast and underground mines. The dynamic processing of this ore in two plants brought into service successively in 1961 and in 1982, produced about 28,000 tonnes of uranium and generated about 7.5 million tonnes of tailings stored in one of the opencast mines (Mounana) after extraction, and in a valley (Gamambougou) and a thalweg near the factory.</td><td>uranium-239, thorium-230, radium-226</td></tr></table>	DESCRIPTION	COCS	Between 1961 and 1999, in the mining district of Mounana in South-East Gabon, the Uranium Mining Company of Franceville, "COMUF", extracted 7.5 Million tonnes of uranium ore with an average grade of 0.38%, from opencast and underground mines. The dynamic processing of this ore in two plants brought into service successively in 1961 and in 1982, produced about 28,000 tonnes of uranium and generated about 7.5 million tonnes of tailings stored in one of the opencast mines (Mounana) after extraction, and in a valley (Gamambougou) and a thalweg near the factory.	uranium-239, thorium-230, radium-226
DESCRIPTION	COCS				
Between 1961 and 1999, in the mining district of Mounana in South-East Gabon, the Uranium Mining Company of Franceville, "COMUF", extracted 7.5 Million tonnes of uranium ore with an average grade of 0.38%, from opencast and underground mines. The dynamic processing of this ore in two plants brought into service successively in 1961 and in 1982, produced about 28,000 tonnes of uranium and generated about 7.5 million tonnes of tailings stored in one of the opencast mines (Mounana) after extraction, and in a valley (Gamambougou) and a thalweg near the factory.	uranium-239, thorium-230, radium-226				
Basic information	Latitude				
	Longitude				
	Site				
	Syn				
	Type				
	Size				
	Size				
	Start of operation				
	End of operation				
	Status				
Remediation data	Description of environmental contamination and impacts				
	Description and comments on remediation strategies				
	Contaminants of concern (COCs)				
	Impact to environment				
	Number of people potentially affected				
	Remediation strategies				
	Annual cost estimate of environmental remediation efforts				
	Total cost estimate of environmental remediation efforts				
	Cost range of environmental remediation efforts				

REMEDIAL MEASURES

- Ex-situ
- 
- 
- 
- 
- 
- In-situ
- 
- 
- In-situ
- 
- 
- 
- 
- Other
-

IMPACT TO ENVIRONMENT:

- Soil
- Surface water and sediments
- Marine and seabed
- Groundwater
- Air
- Fauna and flora
- Under analysis
- Biodiversity loss

## IMPACT TO ENVIRONMENT:

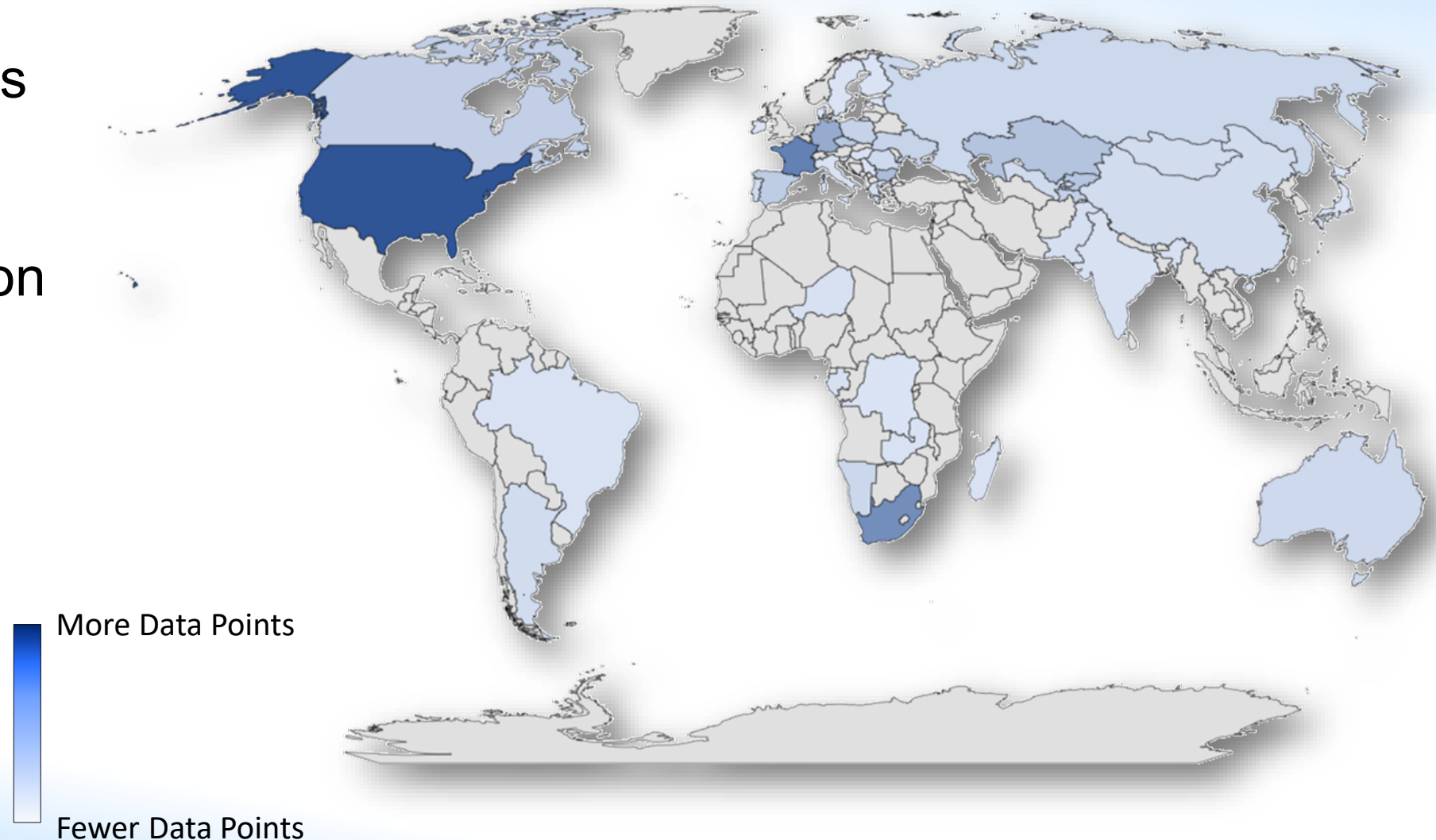
- Soil
- Surface water and sediments
- Marine and seabed
- Groundwater
- Air
- Fauna and flora
- Under analysis
- Biodiversity loss

## REMEDIATION STRATEGY:


- Ex-situ (Physical/Chemical)
  - sediment capping
  - surface capping
  - dredging
  - soil washing
  - groundwater pump and treat
- In-situ (Biological)
  - monitored natural attenuation
  - phytoremediation
- In-situ (Physical/Chemical)
  - permeable barriers
  - in-situ pH control
  - monitored natural recovery
  - solidification and stabilization
  - soil flushing
  - soil mixing
- Other
  - excavation and off-site disposal

# REMPOR... Density of Data Sites Per Country

- Currently, the database includes over 500 site entries, with ongoing expansion



# Interface Mock-up – Site Information Query

 IAEA | REMPOR

REMEDATION PORTAL

JOHNSON, Christian

Site Information

AboutSite DetailsTechnology InformationGlossary

Site Name Search/Filter

Query/Filter Fields

Filter on Characteristic(s)

CountryAll Countries

RegionAll Regions

Site TypeAll Types

Site SizeAll Site Sizes

Remediation TechnologyAll Technologies

Contaminants of ConcernAll Contaminants

Remediation StatusAll Statuses

Cost RangeAll Cost Ranges

Impacted MediaAll Media

APPLY

RESET

Dashboard

CharacteristicSite Types

Site Types

Region

Remediation Technologies

Remediation Status

Site Size

Waste Site 16

Power Plant 8

Mill 12

Mine 43

Map

Indian Ocean

500 km

The boundaries and names shown on the map do not imply official endorsement or acceptance by the United Nations nor the IAEA.

← Dashboard for data summary

Search results

Data Table

Site Name	Region	Country	Type	Size	Contaminants	Impacted Media	Remediation Technology	Remediation Status	Cost
Hanford	North America	USA	Defense-related facility	> 1000 km <sup>2</sup>	Uranium, I-99, I-129, tritium	Groundwater, Soil/Sediment	Pump-and-treat	Undergoing Remediation	over 100 Billion
Shiprock	North America	USA	Ore processing plant	< 1 km <sup>2</sup>	Nitrate, Uranium, Strontium...	Groundwater, Tailings, Evaporation Ponds	Pump-and-treat	Undergoing Remediation	100-500 Million
Chernobyl	Eastern Europe	Ukraine, Belarus, Rus...	Nuclear accident site	> 1000 km <sup>2</sup>	Cs-137, Sr-90	Groundwater, Surface Water, Facilities...	Soil cleanup	Partially Remediated	
La Hague	Western Europe	France	Other NFC facility		Plutonium, Tritium, Stront...	Groundwater, Tailings, Evaporation Ponds	Unknown	Unknown	
Bikini Atoll	Oceania and Pacific	The Marshall Islands	Nuclear test site		Radionuclides (general)	Fallout, Seabed, Soil/Sediment, General...		Closed	
Sellafield	Western Europe	United Kingdom	Nuclear power plant		Tc-99, Pu-239, Cs-137	General Environmental Impacts	Unknown	Operating Facility	10-50 Billion
Santa Susana	North America	USA	Defense-related facility	1-100 km <sup>2</sup>	Radionuclides (general)	General Environmental Impacts	Unknown	Undergoing Remediation	
Mounana Mine	Central Africa	Gabon	Uranium mine	1-100 km <sup>2</sup>	U-238, Th-232, Ra-226	Tailings, Evaporation Ponds, General...	Unknown	Closed	
Wismut GmbH	Western Europe	Germany	Uranium mining region	1-100 km <sup>2</sup>	Uranium, Radium	Tailings, Evaporation Ponds, Facilities	Impermeable cover, Pump...	Undergoing Remediation	

## Key features:

- ✓ **Filtering/query function**
  - Select sites via map (e.g. rectangular selection area)
  - Filter based on characteristics
- ✓ **Map**
  - Site locations displayed as bubbles to indicate the nominal location
  - Pop-up with key summary info
- ✓ **Table of site summary information and links to site details**
- ✓ **Dashboard to summarize site characteristics**

# Interface Mock-up – Site Details (from RACSI)

## RACSI dataset

Group	RACSI column name	Parameter for Mock-up
Relation	ID_REMPOR	Identification number in RACSI
	ID_UDEPO	Identification number in UDEPO, if exists
	ID_NFCIS	Identification number in NFCIS, if exists
Location	REGION	Region
	COUNTRY	Country
	PROVINCE	Province
	LATITUDE	Latitude
	LONGITUDE	Longitude
Basic information	NAME	Site Name
	SYNONYM	Alternate Name(s)
	TYPE	Site Type
	SIZE	Site Size *actual data
	SIZE_RANGE	Site Size *range
	OP_START	Operation Started
	OP_END	Operation Ended
	STATUS_RS	Site Status
Remediation data	DESC_CONT	Contamination (descriptions)
	DESC_REM	Remedy Activities (descriptions)
	COCS	Contaminants of concern (COCs)
	IMP_ENVIRO	Impacted Media
	IMP_PPL_AFF	Number of people potentially affected
	REM_STRAT	Selected Remedies
	COST_YEAR	Estimated Annual Cost
	COST_TOTAL	Estimated Remedy Cost (Total) * actual data
	COST_RANGE	Estimated Remedy Cost (Total) *range

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REMEDATION PORTAL

AboutSite InformationSite DetailsTechnology InformationGlossary

Site Name: Stráž pod Ralskem

Alternate Name(s) Straz pod Ralskem, Demoname, Examplename

Region Eastern Europe

Country Czech Republic

Province Česká Lípa

Site Type Uranium mining region

Site Size 1-100 km<sup>2</sup>

Operations Started 1966

Operations Ended 1990

Site Status Undergoing remediation

Contaminants uranium, sulphates, ammonium, aluminum

Impacted Media Groundwater, Surface water

Selected Remedies Pump-and-treat

Est. Remedy Cost<sup>1</sup> 1 - 10 Billion USD

Contamination Mining by [in situ leaching](#) has resulted in contamination of [groundwater](#) with uranium-bearing fluids and sulphuric acid. Approximately 186 million m<sup>3</sup> in the Cenomanian [aquifer](#) and 80 million m<sup>3</sup> in the Turonian [aquifer](#) is impacted by this [chemical mining](#) of uranium.

Remedy Activities Groundwater [remediation](#) is being carried out using a [pump-and-treat remedy](#). Aboveground treatment takes place at the Desalination plant and the Neutralization and Decontamination plant, operating at a capacity of 5.5 m<sup>3</sup>/minute, using [evaporation](#) followed by [crystallization](#), re-crystallization (crystal sulfate of ammonium aluminate) for removal of salts and metals. The resultant solids are further processed into both usable and non-usable products while treated water is [disch](#)


UDEPO Reference(s) 197

URECSO Reference(s) 489 490 491 492

NFCIS Reference(s) 549

Document Searches<sup>2</sup>

References/Links<sup>2</sup>



Nominal location (see [map disclaimer](#))

Internal links (inside REMPOR) for specific basic technical terms (e.g. Technology Information and Glossary tabs)

Links to external information (outside REMPOR)

of the total cost of site remediation efforts, in billions of U.S. dollars (where billion = 1E9 [short scale]) s to external resources and search engines as examples for user convenience. The IAEA does not uments, or opinions therein. Users are expected to use professional judgement as to the usefulness ources to their own situation. Users are also expected to use these example links as a starting point ily relevant literature.

# UDEPO – Uranium/Thorium Deposits

Example: Mounana Mine (ID: 242)

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NFCFDB UDEPO PIEDB NFCSS ASAHARA, Akira

WORLD DISTRIBUTION OF URANIUM AND THORIUM DEPOSITS

About Deposits Deposit Models Uranium Provinces Reports

Filter Deposit ☐ All ☒ Uranium ☐ Thorium

Uranium Deposits (\*)

Deposit Type: All Types Country: Gabon Conventional Deposit Type: All FILTER

DOWNLOAD SPREADSHEET

Country ↑	Deposit Name	Deposit Type	Deposit Sub-type	Resource Range	Grade Range
Gabon	Bagombé	Sandstone	Tectonic-lithologic	≥5000 - <10000	≥0.01 - <0.05
Gabon	Boyindzi	Sandstone	Tectonic-lithologic	≥1000 - <2500	≥0.20 - <0.50
Gabon	Kiene	Sandstone	Tectonic-lithologic	≥300 - <1000	≥0.10 - <0.20
Gabon	Mabounié	Intrusive	Plutonic	≥25000 - <50000	>0 - <0.01
Gabon	Mikouloungou	Sandstone	Tectonic-lithologic	≥1000 - <2500	≥0.20 - <0.50
Gabon	Mounana	Sandstone	Tectonic-lithologic	≥5000 - <10000	≥0.20 - <0.50
Gabon	Okélobondo Nord	Sandstone	Tectonic-lithologic	≥1000 - <2500	≥0.20 - <0.50
Gabon	Okélobondo Sud	Sandstone	Tectonic-lithologic	≥1000 - <2500	≥0.20 - <0.50
Gabon	Oklo	Sandstone	Tectonic-lithologic	≥10000 - <25000	≥0.20 - <0.50

Deposits per page 20 1-9 of 9

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NFCFDB UDEPO PIEDB NFCSS ASAHARA, Akira

WORLD DISTRIBUTION OF URANIUM AND THORIUM DEPOSITS

About Deposits Deposit Models Uranium Provinces Reports

Gabon: Mounana

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DEPOSIT DETAILS DEPOSIT REFERENCES IMAGES

General Information

Deposit Id: 242

Country: Gabon

Political Province: Franceville

Deposit Name: Mounana

Synonym Names:

Site Type:

Modified On: 3/24/2023

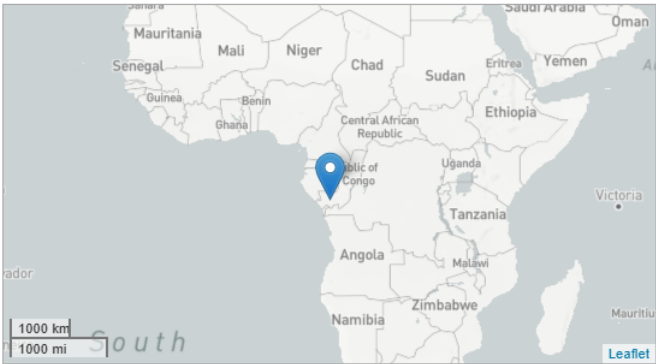
Deposit associated with Nuclear Fuel Cycle Facilities Database

General Remark: Exploration for uranium started in 1955 in the Franceville Basin. Mounana was the first discovery in 1956. The Compagnie des Mines d'Uranium de Franceville (COMUF) was created in 1958. 25635 t of uranium were produced from 1962 to 1999 from open pit and underground mining.. A strongly mineralised showing was present on surface.

Year of Discovery:

Modified By System

Deposit is mentioned in Red Book



# NFCIS – Nuclear Fuel Cycle Facilities

Example: Mounana Mine (ID: 210)

IAEA | NFCIS

NUCLEAR FUEL CYCLE FACILITIES DATABASE

About Facilities Statistics Country Reports Help

List of Nuclear Fuel Cycle Facilities (\*)

Search facility..

Country: All Facility Type: Uranium Ore Processing Facility Status: Decommissioned Facility Scale: All

DOWNLOAD SPREADSHEET

Country ↑	Facility Name	Facility Type	Fuel Type	Facility Status	Scale	Design Capacity	Start of Operation
Canada	Stanrock	Uranium Ore Processing		Decommissioned	Commercial	300 t U/year	
Czech Republic	MAPE Mydlovary Processing Plant	Uranium Ore Processing		Decommissioned	Commercial	0 t U/year	1962
France	Bessines	Uranium Ore Processing		Decommissioned	Commercial	300 t U/year	1958
France	L'Ecarpiere	Uranium Ore Processing		Decommissioned	Commercial	650 t U/year	1957
France	Le Cellier	Uranium Ore Processing		Decommissioned	Commercial	300 t U/year	1977
France	Le Bernardan (Jouac)	Uranium Ore Processing		Decommissioned	Commercial	600 t U/year	1979
France	St. Martin Du Bosq (L'Arbre)	Uranium Ore Processing		Decommissioned	Commercial	1000 t U/year	1981
Gabon	Mounana	Uranium Ore Processing		Decommissioned	Commercial	1500 t U/year	1977
Germany	Crossen Uranium Ore Processing Plant	Uranium Ore Processing		Decommissioned	Commercial	2000 t U/year	1951
Germany	Seelingstaedt Uranium Ore Processing Plant	Uranium Ore Processing		Decommissioned	Commercial	3000 t U/year	1960

Facilities per page 10 11-20 of 60

(\*) Please note that the list might not include all of the facilities in the world due to the unavailability of the data.

IAEA | NFCIS

NUCLEAR FUEL CYCLE FACILITIES DATABASE

About Facilities Statistics Country Reports Help

Mounana

DOWNLOAD PDF

FACILITY DETAILS REFERENCES ATTACHMENTS

General Information

Country: Gabon IAEA Ref No: 210 - MILL

Province: Haut Ogooue Site: Franceville

Last updated data source: 01 January 2002 Last Update: 31 December 2003

Data Source: OECD/IAEA Uranium 2001: (Redbook)

Technical Information

Facility Category Type: Mining and Milling Facility Type: Uranium Ore Processing

Scale: Commercial Status: Decommissioned

Operation Start Year: 1977 Operation End year: 1999

Remark:

Design Capacity: 1500 t U/year

Process: Open Pit and Underground, Acid Leaching / SX Feed Material: Uranium Ore

Product Material: Yellow Cake By Product:

# URECSO – Reclaimed Uranium Inventories

(e.g. Waste rock, Mill tailings, Sludges etc.)

Example: Mounana Mine (ID:256)

Database ID	Region	Country	No.DataPnt	MineSite	UDEPODepName	UDEPODepID	MineSiteStatus	Details
256	Africa	Gabon	1	Mounana	Mounana	242	Remediation Ongoing	Open pit, Underground

Mass	Unit (mass)	TailingMax	HeapLeachVol	OtherWast	UWasteInfo	UCntnt	Unit	UraniumStoc	Mineralogy	Source	FurtherRef	Initial Database ID
6.5	10 <sup>6</sup> tons				NO					WISE (2020)	<a href="http://www.wise-uranium.org/uddafr.html#CDTAILINGS">http://www.wise-uranium.org/uddafr.html#CDTAILINGS</a>	

OreGrade(%)	ProdTot [tU]	ProdDets	WasteSite	GPS coordinates (	GPS coordinates	WasteStatus	WasteStatusDetails	RprtdWasteType
0.37	5760			-1.24306	13.093085	Remediation Ongoing		Mill Tailings

# Interface Mock-up – Technology Information & Glossary



## Technology Information

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REMEDIATION PORTAL

About Site Information Site Details **Technology Information** Glossary

Remediation Technology Search

### Remediation Technology Information

This page provides information on remediation technologies. The information here is intended as a summary to help inform the user and point to potentially useful resources external to the IAEA.

The IAEA is providing links to external resources and search engines as examples for user convenience. The IAEA does not endorse specific tools, documents, or opinions therein. See full [Disclaimer](#).

**Technology Name:** Pump-and-Treat

**Description**

Pump-and-treat (P&T) is a widely applied remedy for groundwater remediation at many types of sites for multiple types of contaminants. Decisions regarding major changes in the remediation approach are an important element of environmental remediation management for a site using P&T. While existing guidance documents provide information on design, operation, and optimization for P&T systems, these documents do not provide specific technical guidance to support remedy decisions regarding when to transition to a new remedy or to initiate closure of the P&T remedy. A structured approach for P&T performance assessment was developed and is described herein, using analysis of three example P&T systems. These examples highlight key aspects of the performance assessment decision logic and represent assessment outcomes associated with optimizing the P&T system, transitioning from P&T to natural attenuation, and supplementing P&T with another technology to hasten transition to natural attenuation.

**REMPOR Site Database**

See a list of sites that use this technology: [Site Query](#)

**Publications and Publication Searches**

Searches: [IAEA INIS](#) [Google Scholar](#) [Semantic Scholar](#) [Science Direct](#)

- J.W. Mercer, D.C. Skipp, and D. Giffin (1990). *Basics of Pump-and-Treat Ground-Water Remediation Technology*, U.S. Environmental Protection Agency, EPA/600/8-90/003. <https://semspub.epa.gov/work/11/174485.pdf>
- M. Truex, C. Johnson, T. Macbeth, D. Becker, K. Lynch, D. Gaudrone, A. Frantz, and H. Lee (2017), "Performance Assessment of Pump-and-Treat Systems," *Groundwater Monitoring & Remediation*, 37(3):28-44. <https://doi.org/10.1111/gwmr.12218>
- ITRC (2023), *Performance-Based Optimization of Pump and Treat Systems*. <https://pt-1.itrcweb.org/introduction/>
- ScienceDirect Topic Overview, "Pump and Treat." <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/pump-and-treat>

**Web Pages**

- FRTR, "Groundwater Pump and Treat," <https://frtr.gov/matrix/Groundwater-Pump-and-Treat/>
- Public Services and Procurement Canada, "Fact sheet: Pump and Treat," <https://post.tpsgc-pwgsc.gc.ca/tfs.aspx?ID=44&lang=eng>

What sites use this technology?

Links to select publications, publication searches (e.g., IAEA INIS, Science Direct), 'reliable' external websites (e.g., FRTR, CLU-IN, Nuclear Wiki) and e-learning resources (e.g., IAEA CONNECT, YouTube)

## Glossary

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REMEDIATION PORTAL

About Site Information Site Details Technology Information **Glossary**

### Glossary

This page provides a glossary of terms related to environmental remediation in the context of IAEA. Terms are taken from the following sources.

- IAEA Nuclear Safety and Security Glossary, 2022 (Interim) Edition
- External sources were used for this term, such as the Federal Remediation Technologies Roundtable (<http://www.frtr.gov>), the U.S. Environmental Protection Agency CLU-IN (<https://www.clu-in.org/>), Enviro Wiki (<https://www.enviro.wiki>), and other similar resources.

**Remediation**<sup>1</sup>

Any measures that may be carried out to reduce the radiation exposure due to existing contamination of land areas through actions applied to the contamination itself (the source) or to the exposure pathways to humans.

- Complete removal of the contamination is not implied.
- The use of the terms cleanup, rehabilitation and restoration as synonyms for remediation is discouraged. Such terms may be taken to imply that the conditions that prevailed before the remediation is used to restore land areas to conditions suitable for limited use under institutional control.
- Remediation can entail activities that are similar to decommissioning; both remediation and decommissioning activities are typically performed under an authorization. Abandoned and presently unauthorized industrial sites, such as former uranium mines and mills and former radium processing facilities, may have buildings and structures that are taken down by actions consistent with the decommissioning process (e.g. decontamination and dismantling); however, such activities are considered to be a part of site remediation. In some contexts (e.g. the wider chemical industry), the terms remediation and restoration are used to describe different parts of overall recovery.
- The term cleanup is used in the context of decommissioning.

**Federal Remediation Technologies Roundtable (FRTR)**<sup>2</sup>

The FRTR was established in 1990 to provide a forum for the exchange of information and experiences among federal agencies and the public regarding the remediation of contaminated sites. The FRTR is a voluntary organization that provides a platform for the exchange of information and experiences among federal agencies and the public regarding the remediation of contaminated sites. The FRTR is a voluntary organization that provides a platform for the exchange of information and experiences among federal agencies and the public regarding the remediation of contaminated sites.

# Ongoing Tasks and Future Plans

## 1) Compiling and cleaning data for current and additional sites

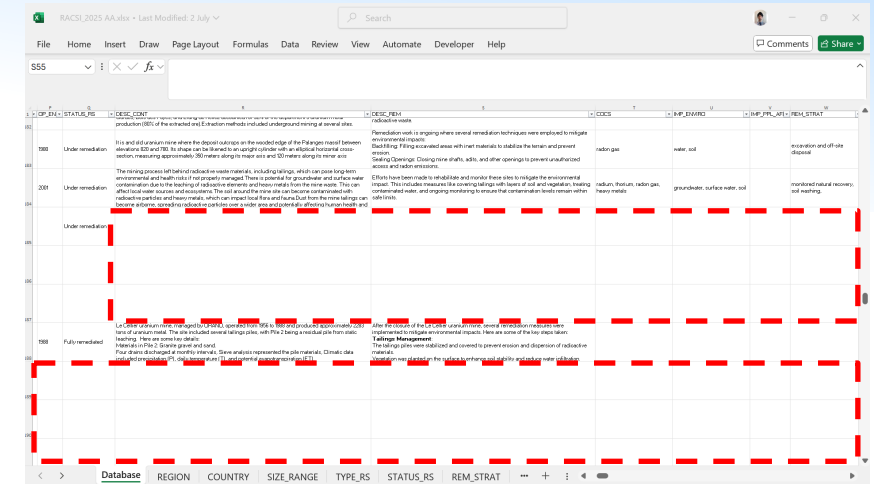
- Adding more sites, using AI to help collect data, with human data curation
- Improving quality of current dataset with respect to completeness and consistency

## 2) Developing the Prototype Web Application

- IAEA IT infrastructure team is developing the web application based on the design, requirements, and database structure

## 3) Conceptualization of AI/ML applications

- Refined collection of site information
  - Customizable retrieval augmented generation
  - Semantic filters and decision trees for site comparisons



Site ID	Region	Country	Size Range	Type	Status	Remediation Strategy
555						
1000						
200						
100						

