

Mapping and Testing UNFC for Nuclear Fuel Resources

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IAEA

International Atomic Energy Agency

IAEA – The Atoms for Peace Agency

- Support peaceful uses of nuclear energy in 151 Member States.
 - Safety
 - Safeguards
 - Science & Technology
 - Nuclear Power
 - In 30 Member States, produces 15% world's electricity
 - ~62 'new comer' states
 - Nuclear applications
 - Human health, food & agriculture, fresh water resources evaluation etc etc



Fuel is the key

- Uranium fuel supply has to be assured for ~100 years for reactor life
- Thorium is the future of nuclear energy
- Alternate sources of uranium such as phosphoric acid and waste streams can augment the resources and clean up the environment.
- IAEA supports Member States in sustainable uranium production.
- Jointly works with OECD-NEA in many of the activities.

World distribution of uranium resources

Red Book 2009

tU

	Australia	1 679 000	26.6%
	Kazakhstan	832 000	13.2%
	Russia	565 000	9.0%
	Canada	544 000	8.6%
	United States	472 100	7.5%
	South Africa	295 600	4.6%
	Namibia	284 200	4.5%
	Brazil	278 700	4.4%
	Niger	275 500	4.3%
	Total	6 306 000	100%

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UDEPO World Distribution of Uranium Deposits

Deposits | Statistics | Country Report | Help

List of Uranium Deposits (*)

Deposit Type: All | Deposit Status: All | Country: All

Name contains: Go Reset All Filters

Total 1176 records found in 59 pages. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 Export To Excel

Country	Deposit Name	Deposit Type	Deposit Status
Gabon	Moundana	Sandstone - Tectonic/Lithologic	Depleted
France	Vendée District	Vein	Depleted
Niger	Abakorum	Sandstone - Tabular	Dormant
Algeria	Abanior	Vein	Dormant
United States of America	Abbe	Sandstone - Tabular	Depleted
Canada	Abeta	Quartz-pebble Conglomerate	Dormant
Egypt	Abu Tartur	Phosphrite	Dormant
United States of America	Acadia Claim Group	Sandstone - Roll Front	Exploration
Canada	Ace-Fay-Verna	Vein	Depleted
Spain	Acehuche-Cedavin	Vein	Dormant
Ukraine	Adamovskovo	Other	Dormant
Tajikistan	Adrasman	Vein	Depleted
Kazakhstan	Anaashike		Dormant
Russian Federation			Dormant
Canada			Depleted
Uzbekistan			operating
Kyrgyzstan			dormant
Iraq			dormant
Kazakhstan			dormant
Niger			dormant

Data of 1 352 uranium deposits from 75 countries

Total Resources Identified

Total 25 982 894 tU

Recoverable Resources Identified \$260

Undiscovered Resources: 10 400 000 tU

IAEA /OECD NEA Uranium 2009: Resources, Production and Demand

<http://www-nfcis.iaea.org>

Mapping and testing UNFC

- Consultancy meeting 4-5 April
 - Robert Vance, OECD-NEA
 - Ian Lambert, Australia
 - Yanis Miezitis, Australia
 - Bradley Van Gosen, USA
 - Roberto Villas-Bôas, Brazil
 - Mingkuan Qin , China
 - Prem Maithani, India
 - Julian Hilton, UK
 - Marat Alimov, Kazakhstan
 - Ferdi Camisani, CRIRSCO
 - Michael Lynch-Bell, Chair EGRC
 - James (Jim) Ross, Vice Chair, EGRC
 - Charlotte Griffiths, Secretary, EGRC

Outcome

- Review of existing nuclear fuel resource classification scheme vis-à-vis UNFC-2009 and formulating a preliminary mapping scheme, which will be discussed in the Joint IAEA-NEA Uranium Group
- Agreement on mapping and testing of UNFC for nuclear fuel resources in the national environments
- Recommended to organize regional workshops and training courses on UNFC;
- Agreed to provide feedback to EGRC on improvement to UNFC-2009 and in the formulation of generic guidelines applicable for nuclear fuel resources; and
- Recommended to publish UNECE-IAEA mapping report based on application of UNFC-2009 for nuclear fuel resources.

Higher level mapping

UNFC	CRIRSCO	IAEA-NEA	E	F	G
Commercial Projects	Mineral Reserves	Identified Resources <\$ 80/KgU	1	1	1,2,3
Potentially commercial projects	Mineral Resources		2	2	1,2,3
Non-commercial projects	Discovered not economical	Identified Resources \$80 – 130; >\$130/KgU	3	2	1,2,3
Exploration projects	Exploration results	Undiscovered Resources	3	3	4

Planned activities

- **2011**

- Regional Workshop on Uranium Production from Phosphates, 2-6 May, 2011, Amman, Jordan
- CYTED-IAEA-CNEA Regional Workshop on Nuclear Fuel Resources, 1-3 June 2011, Buenos Aires, Argentina
- Technical Meeting on Uranium Provinces and Mineral Potential Modeling, 20-22 June 2011, Vienna, Austria
- Technical Meeting on World Thorium Resources, 17-21 October 2011, India.
- Technical meeting on Production of uranium from phosphoric acid, 22-25 November 2011, Vienna, Austria

- **2012**

- Technical Cooperation Inter-regional project on Uranium production - Regional workshops, training programmes, fellowships etc.; ~40 participating Member States
- Technical Cooperation national projects; ~ 10 Member States

UNFC ...

Thank you