

Application of UNFC 2009 in Uranium Deposits: Critical Assessment of Indian Scenario



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Assessment of Resources / Reserves: Indian Scenario

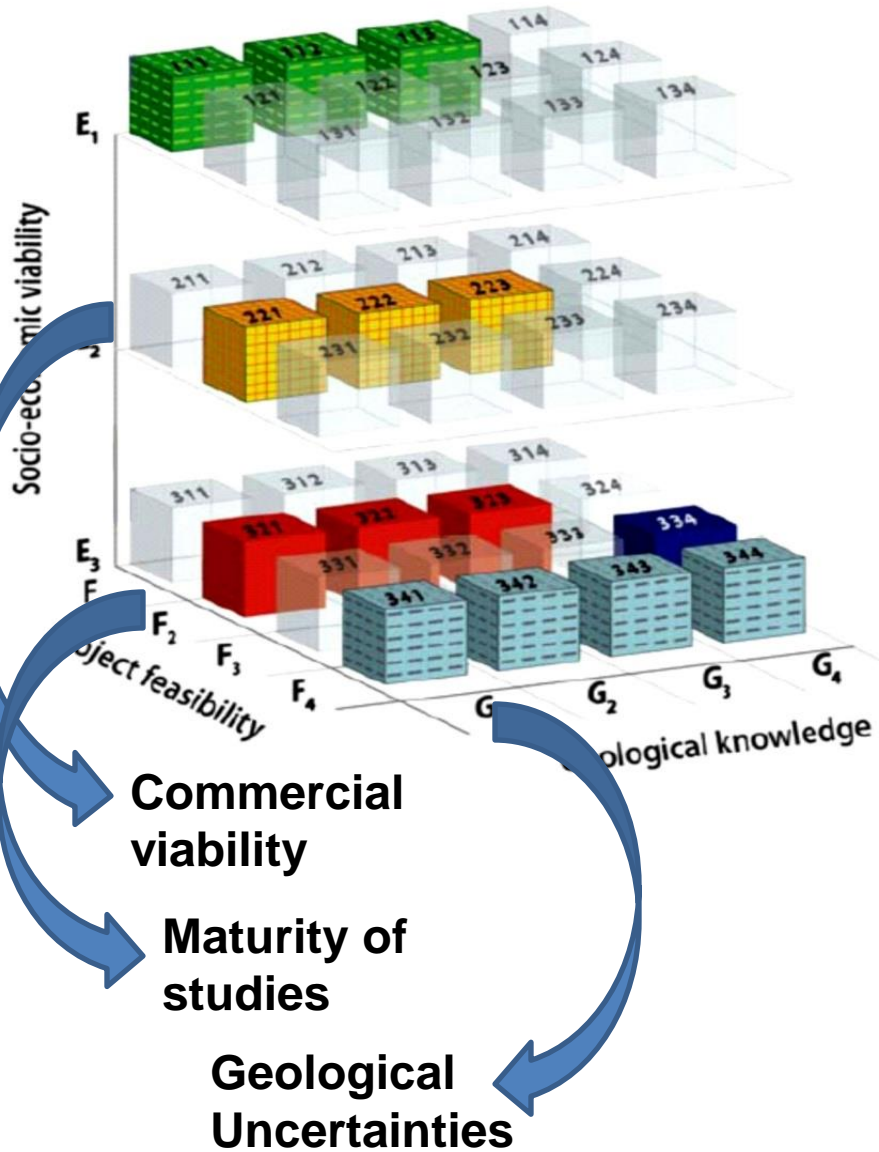
- Uranium is grouped under "Atomic Minerals" in Part B of The First Schedule of MMDR Act, 1957.
- Exploration details, estimation and other related aspects are considered classified under Atomic Energy Act, 1962.
- The estimation of reserves and preparation mining plan etc are carried out by RQP for Atomic Minerals (certified under special provision)
- Mining plans are approved (under special provisions)

Mineral Reserve	Proved
	Probable
Mineral Resource	Measured
	Indicated
	Inferred
Exploration Results	

Overseas Opportunities

Indian uranium industry to broaden the production base through participation in development of overseas properties

UNFC System



UNFC - 2009

Class	Categories		
	E	F	G
Commercial Projects	1	1	1, 2, 3
Potentially commercial Projects	2	2	1, 2, 3
Non-commercial Projects	3	3	1, 2, 3
Additional quantities in place associated with known projects	3	3	1, 2, 3
Exploration projects	3	3	4
Additional quantities in place associated with potential deposits	3	4	4

UNFC – 2009 Sub-class with sub-categories

Class		Sub-class	Categories		
			E	F	G
Known Deposit	Commercial Projects	On Production	1	1.1	1, 2, 3
		Approved for development	1	1.2	1, 2, 3
		Justified for development	1	1.3	1, 2, 3
	Potentially commercial Projects	Development pending	2	2.1	1, 2, 3
		Development on hold	2	2.2	1, 2, 3
	Non-commercial Projects	Development un-clarified	3.3	2.2	1, 2, 3
		Development not viable	3.3	2.3	1, 2, 3
	Additional quantities in place		3.3	4	1, 2, 3
Potential Deposit	Exploration projects	3.2	3	4	
	Additional quantities in place	3.3	4	4	

Flow of Exploration Results to Production

Exploration

Production

Exploration Results

Resources

Reserves

Development Pending

Justified for Development

Approved for Development

On Production

Extracted

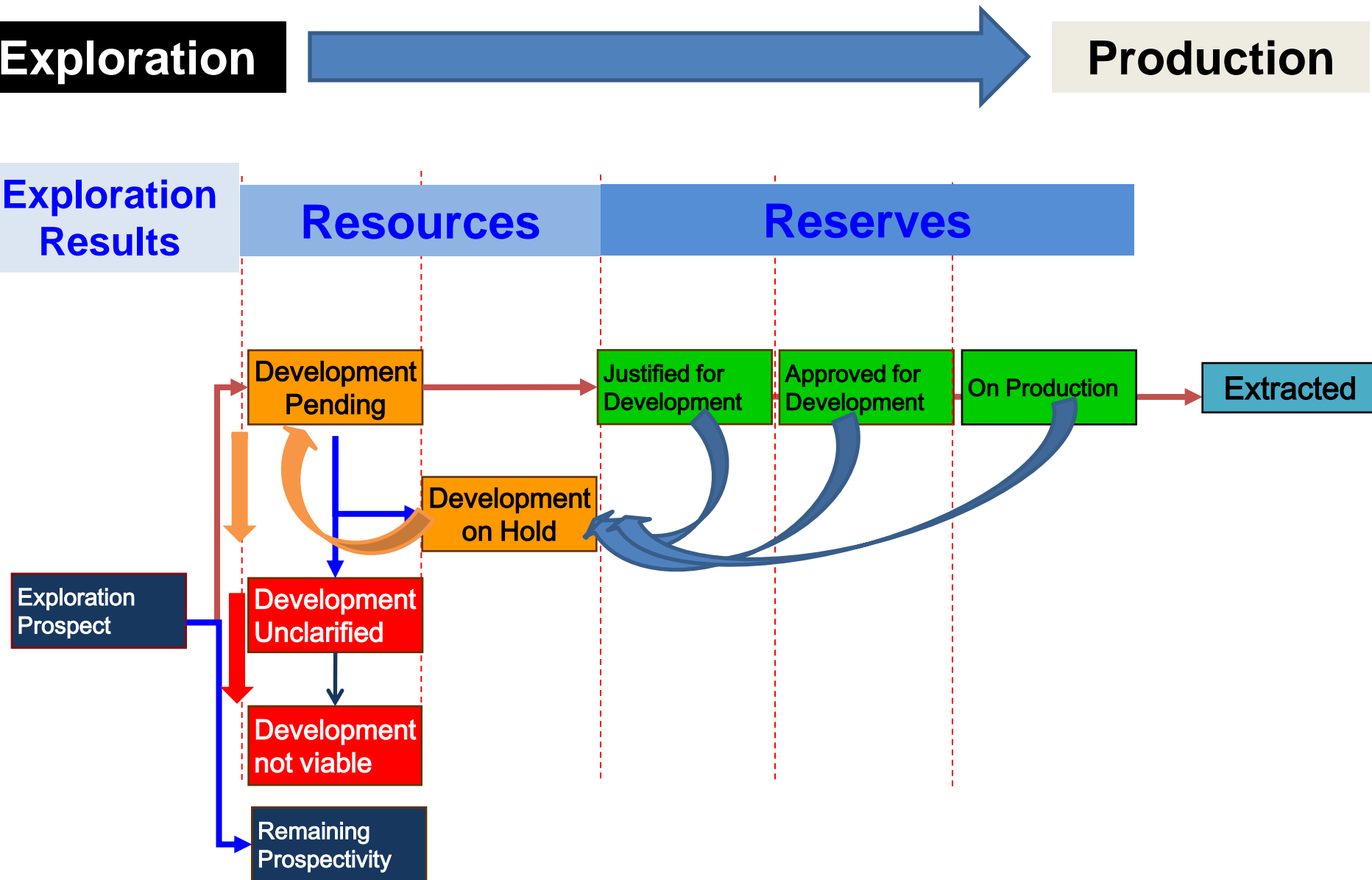
Development on Hold

Development Unclarified

Development not viable

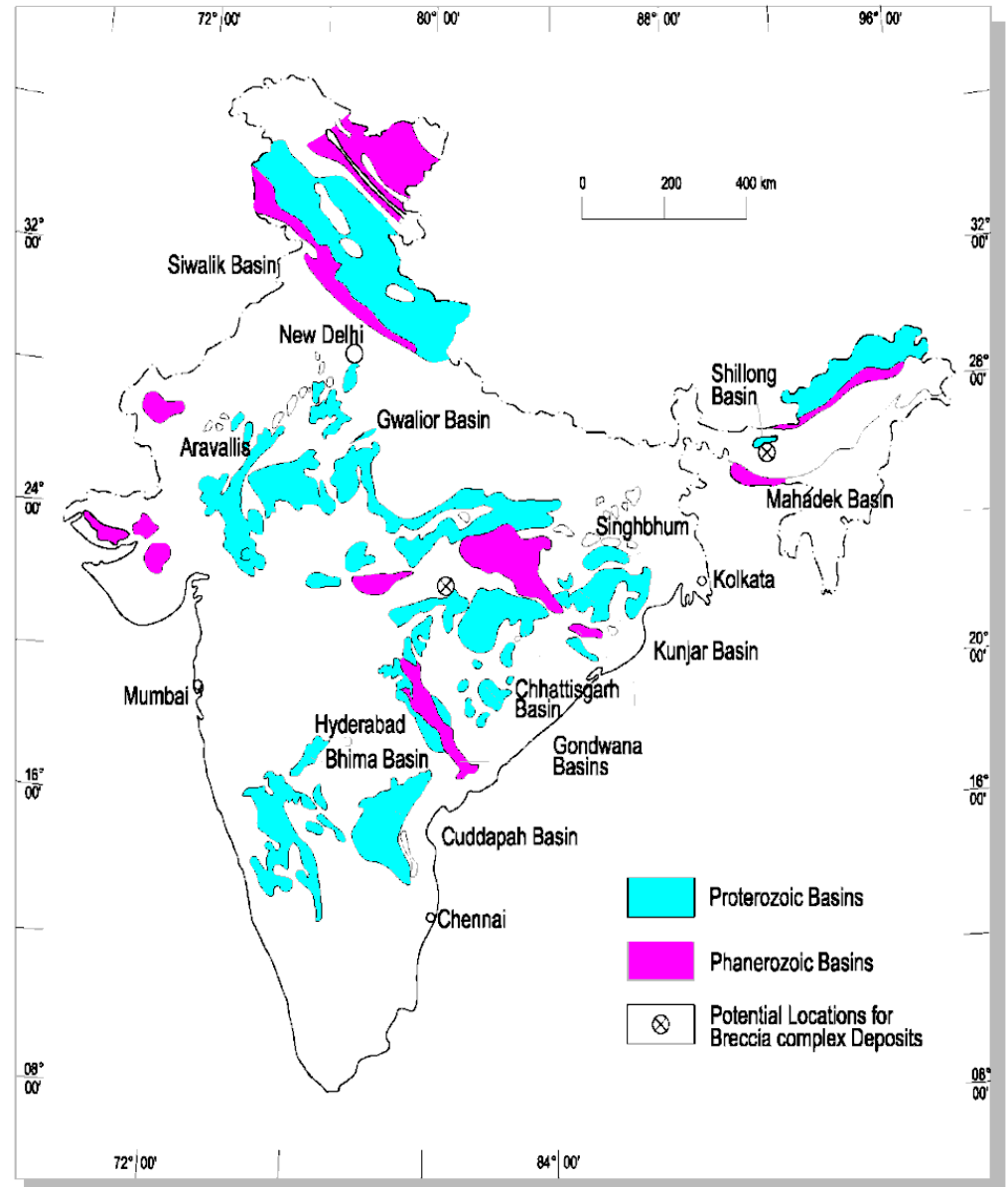
Remaining Prospectivity

Exploration Prospect



Indian Scenario

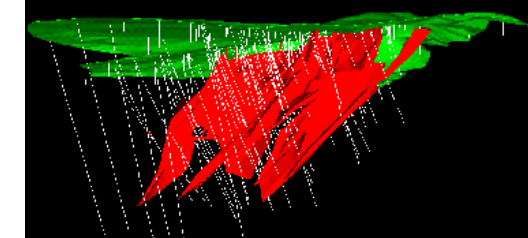
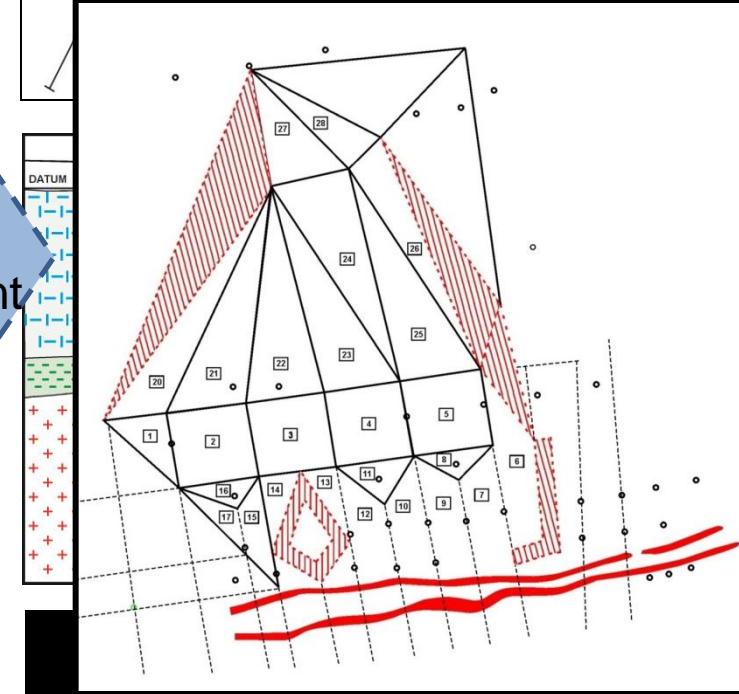
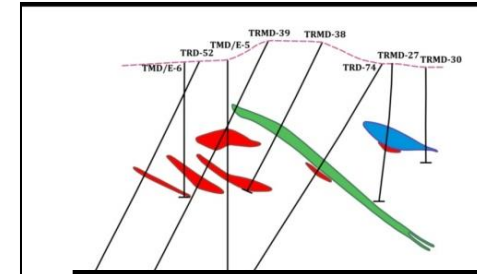
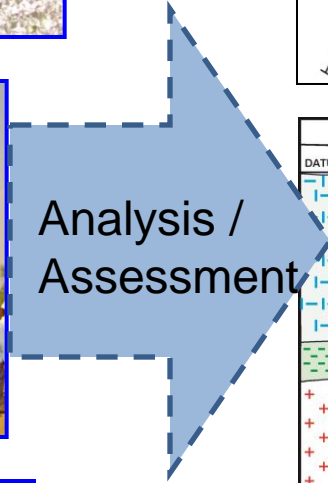
Exploration Results
G4



Indian Scenario

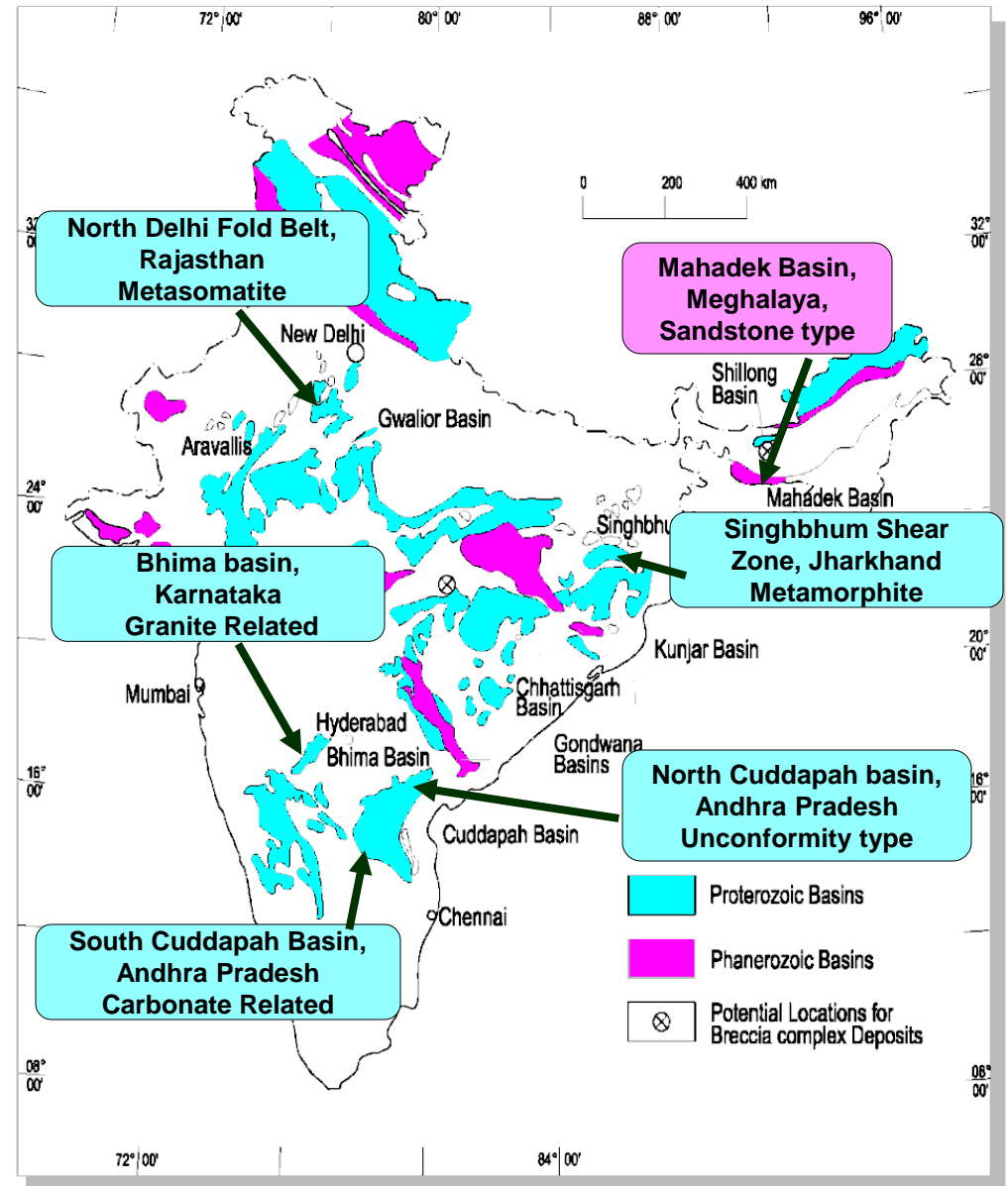
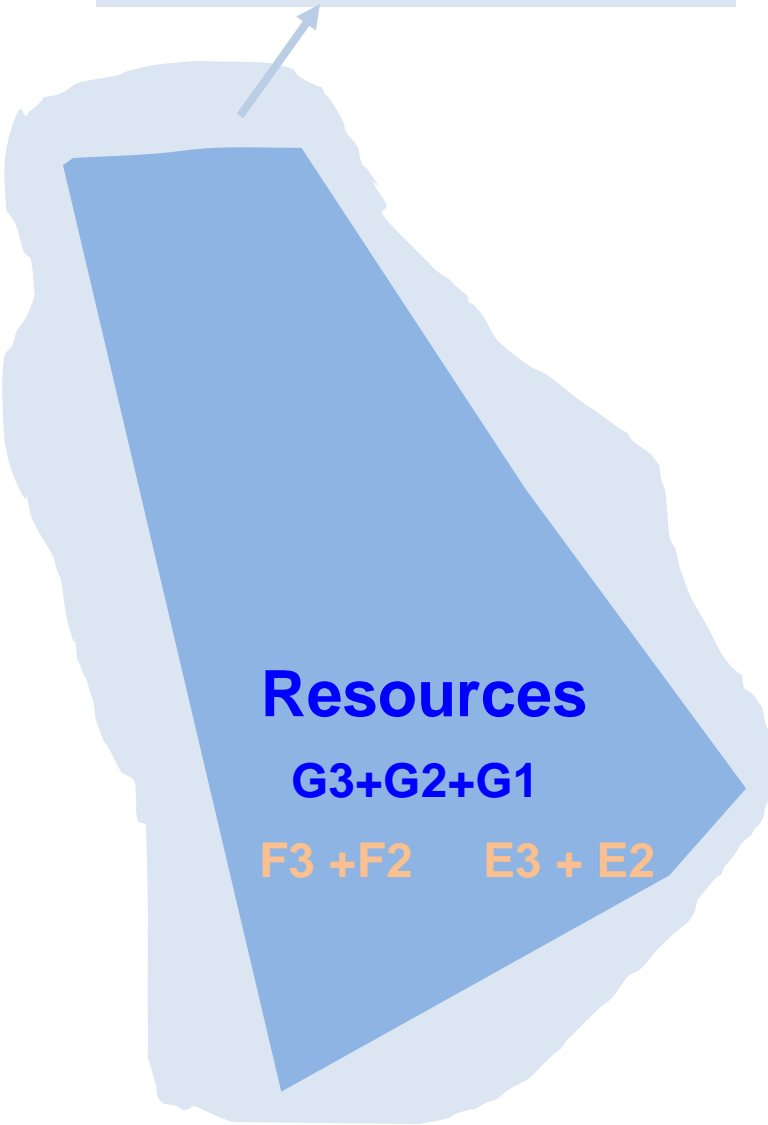
Exploration

Resources



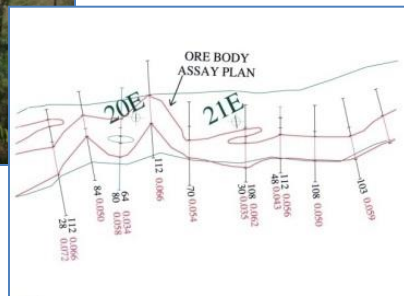
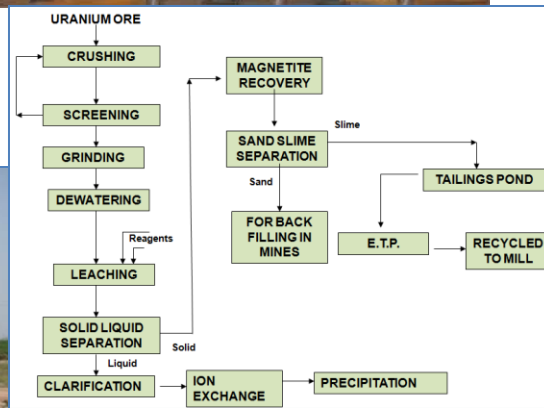
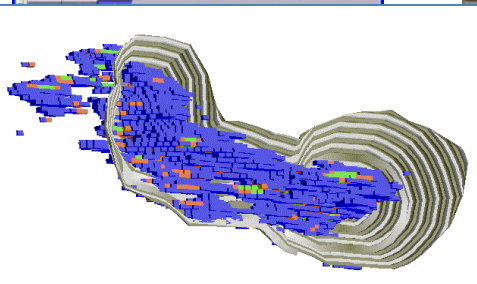
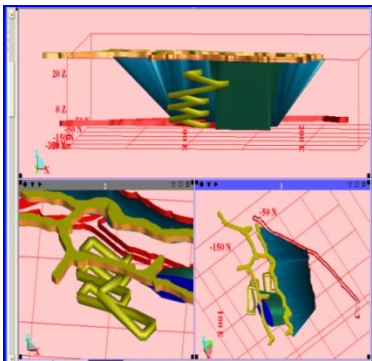
Indian Scenario

Exploration Results G4



Indian Scenario

Resources



Reserves



Testwork /
Feasibility
studies

APPROVED



Indian Scenario

Exploration Results G4

Resources

G3+G2+G1

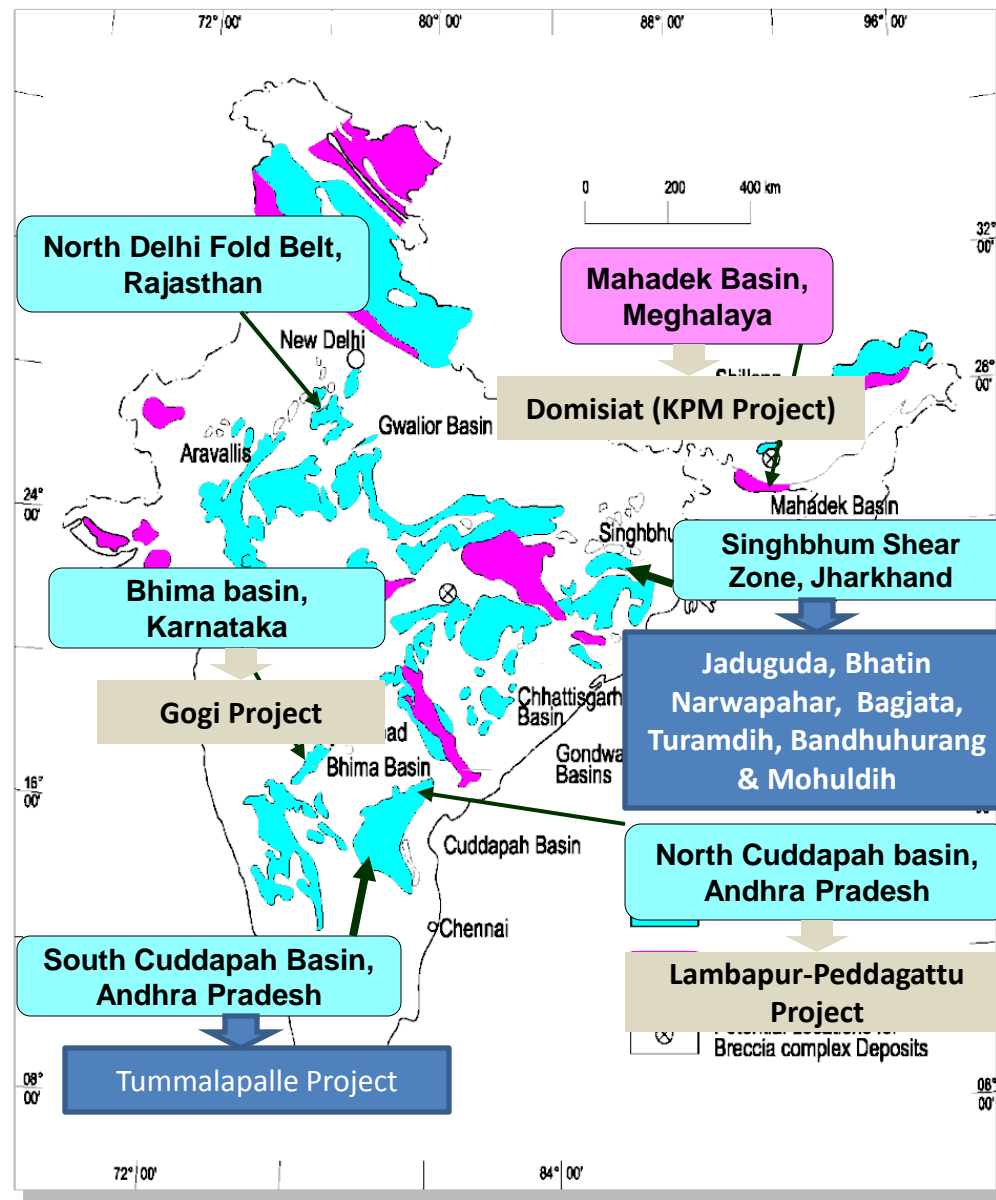
F3 +F2, E3 + E2

Reserves

G1

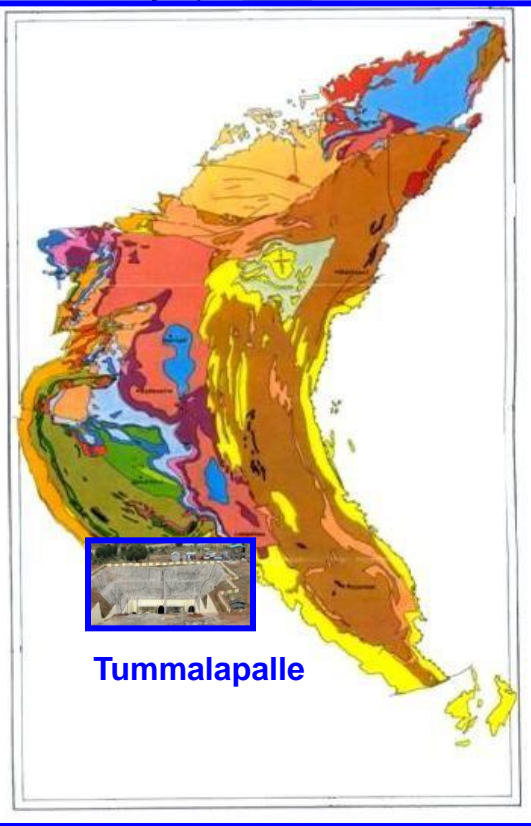
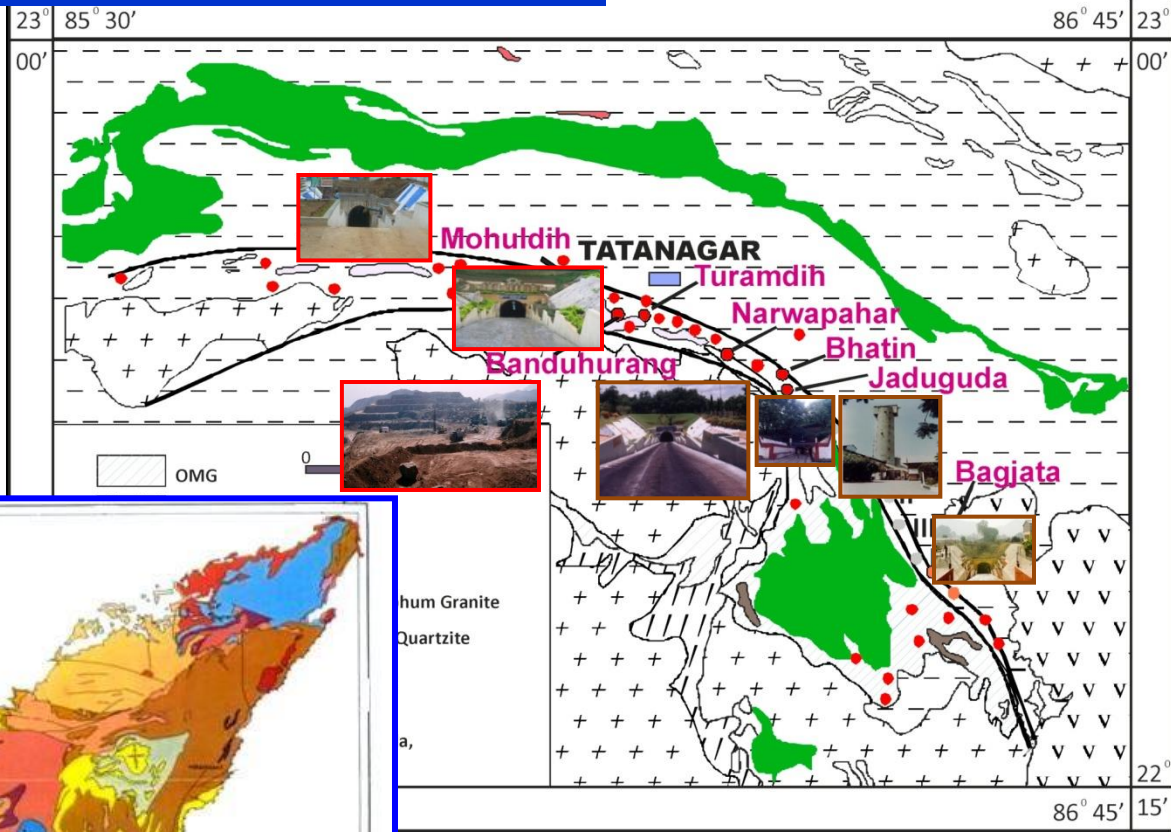
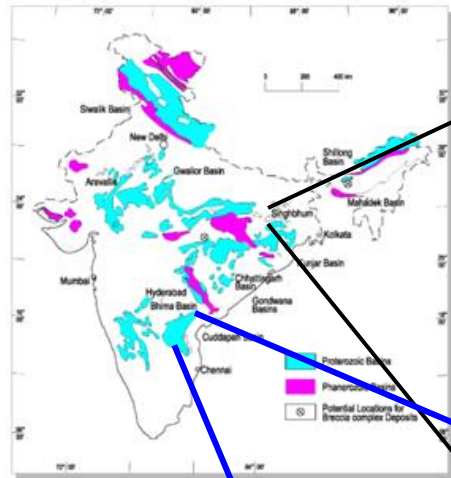
F1

E1



Class		Sub-class	Indian uranium deposits	Categories
Known Deposit	Commercial Projects	On Production	Bagjata, Jaduguda, Bhatin, Narwapahar, Turamdih, Banduhurang and Mohuldih	1,1,1
		Approved for development	Tummalapalle	1,1.2,1
		Justified for development		
	Potentially commercial Projects	Development pending	Tummalapalle Extension, Lambapur, Peddagattu, KPM, Gogi and Rohil.	2, 2.1, 1 2, 2.1, 2
		Development on hold	Banadungri-Sinidungri, Extension of Narwapahar and Jaduguda, Kanampalle and Chitrial	2, 2.2, 1 2, 2.2, 2 2, 2.2, 3
	Non-commercial Projects	Development un-clarified	Bangurdih, Garadih, Nimdih, Rajgaon, Kanyaluka, Lostoin, Wahkyn and Kuppunur	3.2, 2.2, 1 3.2, 2.2, 2 3.2, 2.2, 3
		Development not viable	Bodal, Wahkut, Umthongkut, Gomaghat, Phlangdiloin and Tyrnai	3.3, 2.3, 2 3.3, 2.3, 3
	Additional quantities in place		Walkunji-Yelakki, Jajawal, Dhumath-Dhabi, Umra, Bhandaritola, Mogarra, Naktu, Rajpura, Kasha-Kalandi, Tileli, Pokhri-Tunji.	3.3, 4, 2 3.3, 4, 3
Potential Deposit	Exploration projects			
	Additional quantities in place			

Indian Scenario



- Reserves available (after depletion as on 1st April of every year)
- Includes quantities potentially recoverable

Conclusion

- **Indian Uranium Mining Industry has been attempting to align with UNFC**
 - Well-structured
 - Well regulated
- **A large base of experts / professionals to address complex issues on uranium exploration and mining in the country**

Thank you