

# **Why Jurisdiction and Uranium Deposit Quality are Essential Considerations for Exploration and Mining of Uranium**

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DECLAN RESOURCES INC.

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International Symposium on Uranium Raw  
Material for the Nuclear Fuel Cycle:  
Exploration, Mining, Production, Supply and  
Demand, Economics and Environmental Issues  
(URAM-2014)

# **Why Jurisdiction and Uranium Deposit Quality are Essential Considerations for Exploration and Mining of Uranium**

## **OUTLINE**

- 1. Jurisdiction Issues: Is the Government with you or against you?**
  - I. National Government, State Government, Local Government:**
    - a) Regulatory Agencies**
    - b) Legal System**
- 2. Deposit Quality: Grade is king? Brief review of historical and current production.**
  - I. High grade versus low grade: Why mine low grade?**
- 3. Comparison of top producing countries attributes, be they uranium deposit quality (grade, size) versus government involvement (government helpful or hurtful).**

# What is important in Exploration, Development and Mining of Uranium around the world?

- **Jurisdiction:** Is the government with you or against you?
- **Uranium Deposit Type and Grade of Deposit:**  
Grade does matter!

# JURISDICTION

Is the government with you or against you?

What is important?

- Government allows uranium mining?
- Government does not allow uranium mining?

Uranium mining banned:

1. Virginia, US.
2. British Columbia, CA.
- ~~3. Greenland, Removed ban last year!~~
- ~~4. Queensland, Removed ban 2 years ago.~~

# JURISDICTION

Is the government with you or against you?

Government does allow uranium mining.

Some governments are encouraging uranium mining. Permits are fast and efficient.

Examples:

Kazakhstan

Namibia

# JURISDICTION

Secondary considerations:

1. Permitting
  - Government controlled?
  - Government regulated?
2. Delays (US- Env. Lawsuits)
  - Time Value of Money
  - Missed Market Opportunity

Discussion: Some jurisdictions may not outright ban uranium mining but can make it onerous and costly to pursue. Sometimes governments change the terms of mining after discovery or even development of the mine.

Examples: New Mexico, US. Niger

# Grand Canyon uranium mining to be banned for 20 years

Environmental groups hail ban on new mining claims around the canyon, saying it will secure Obama's green legacy

Suzanne Goldenberg, US environment correspondent  
Follow @suzyji Follow @GuardianUS  
theguardian.com, Monday 9 January 2012 14.19 EST



# Queensland lifts uranium mining ban

22 October 2012

Uranium mining will be allowed in the Australian state of Queensland after the state government overturned 23 years of prohibition. The state has not produced uranium since 1982.

## THE WALL STREET JOURNAL. U.S.

TOP STORIES IN U.S.

1 of 12



Obama Makes Surprise Visit to Afghanist...

2 of 12



California Gunman Laid Out Plans in Vid...

U.S. NEWS

# Virginia Keeps Ban on Uranium Mining

By CAMERON MCWHIRTER

Jan. 31, 2013 6:39 p.m. ET

# CANADA: BAN ON URANIUM MINING IN BRITISH COLUMBIA

WORLD

# French nuclear company Areva reaches uranium mining deal with Niger after protests

Published May 26, 2014 · Associated Press

f 1   t 7   g+ 0

PARIS – French nuclear manufacturer Areva has reached a deal with Niger's government to continue uranium mining after promising to pay more taxes and invest in local development.

Critics say the country's uranium riches aren't translating into wealth for its citizen and have accused Areva of exploiting Niger since it began operations in 1971. Niger is the world's fourth-largest uranium producer.

## World Video



Malaysian government releases Flight 370 raw satelli



FRASER INSTITUTE ANNUAL

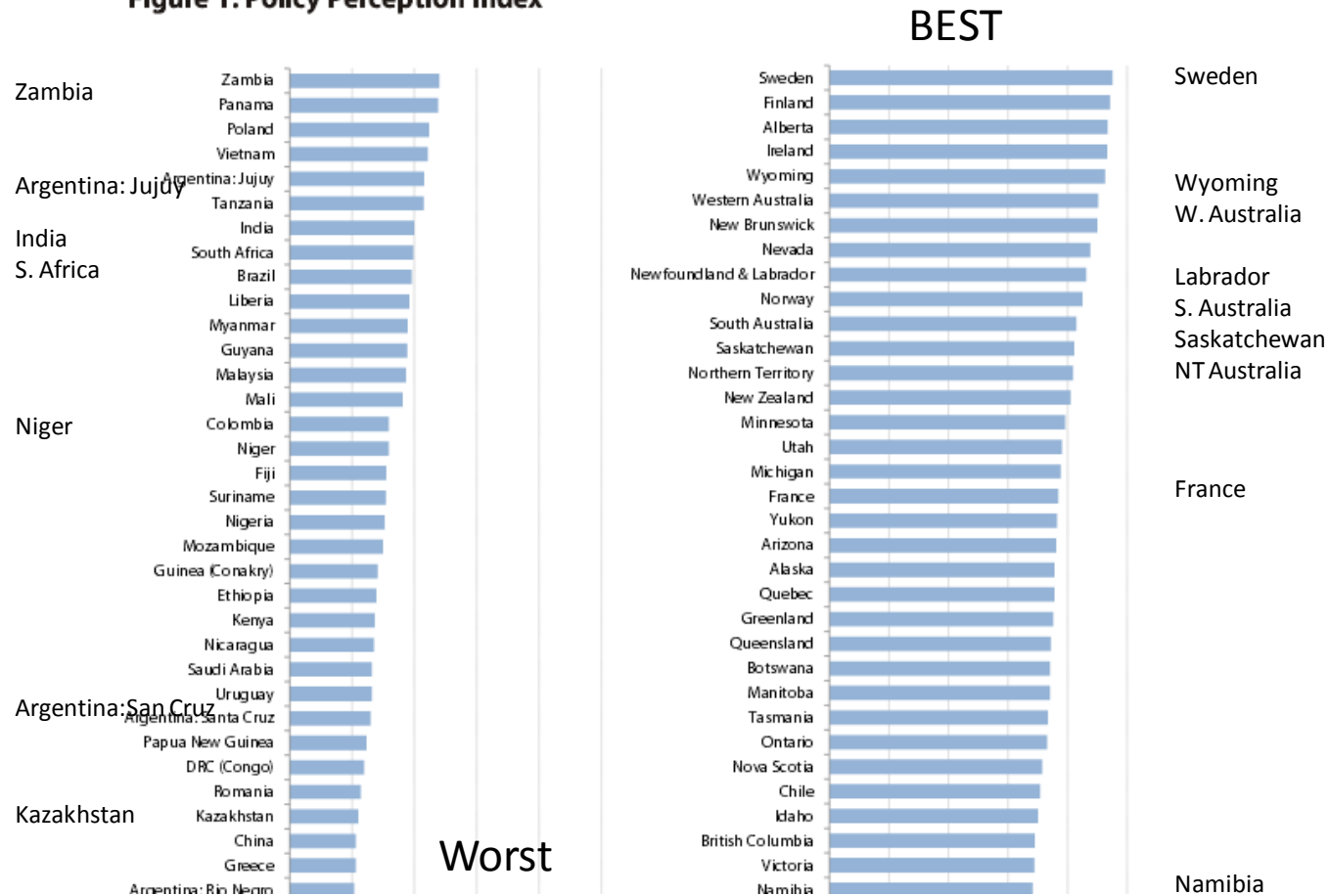
# Survey of Mining Companies 2013



# Fraser Institute: Ranking of Countries: 2013

The Fraser Institute's vision is a free and prosperous world where individuals benefit from greater choice, competitive markets, and personal responsibility. Our mission is to measure, study, and communicate the impact of competitive markets and government interventions on the welfare of individuals.

**Figure 1: Policy Perception Index**



# JURISDICTION

## Who Controls The Uranium?

*"The 'operator' should not start ... operations in a district which is oppressed by a tyrant, but should carefully consider if the overlord there be friendly or inimical."*

**-Georgious Agricola, 1556, De Re Metallica**

*inimical - "having the disposition of an enemy"*

# OUTLINE

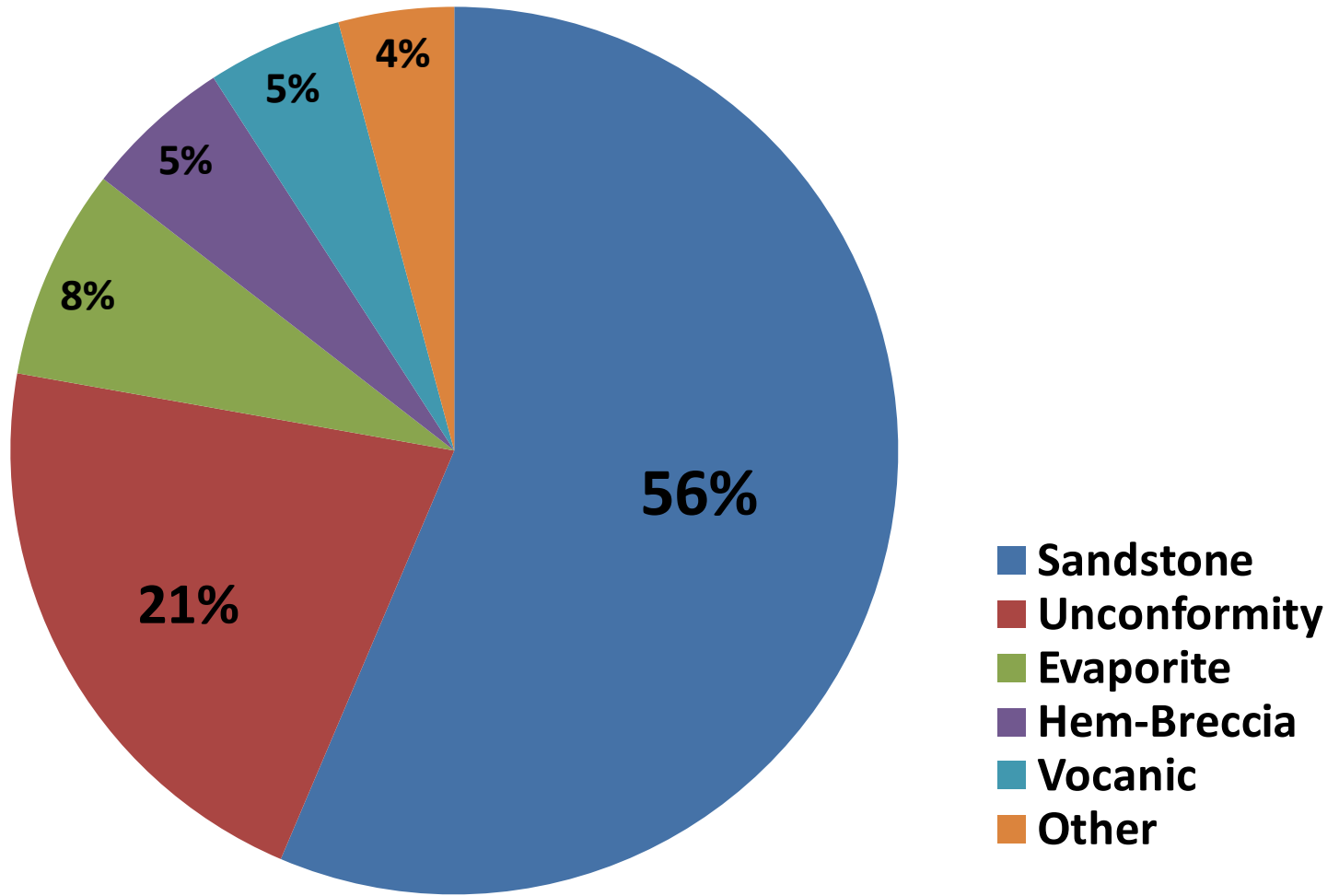
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# URANIUM DEPOSIT TYPES

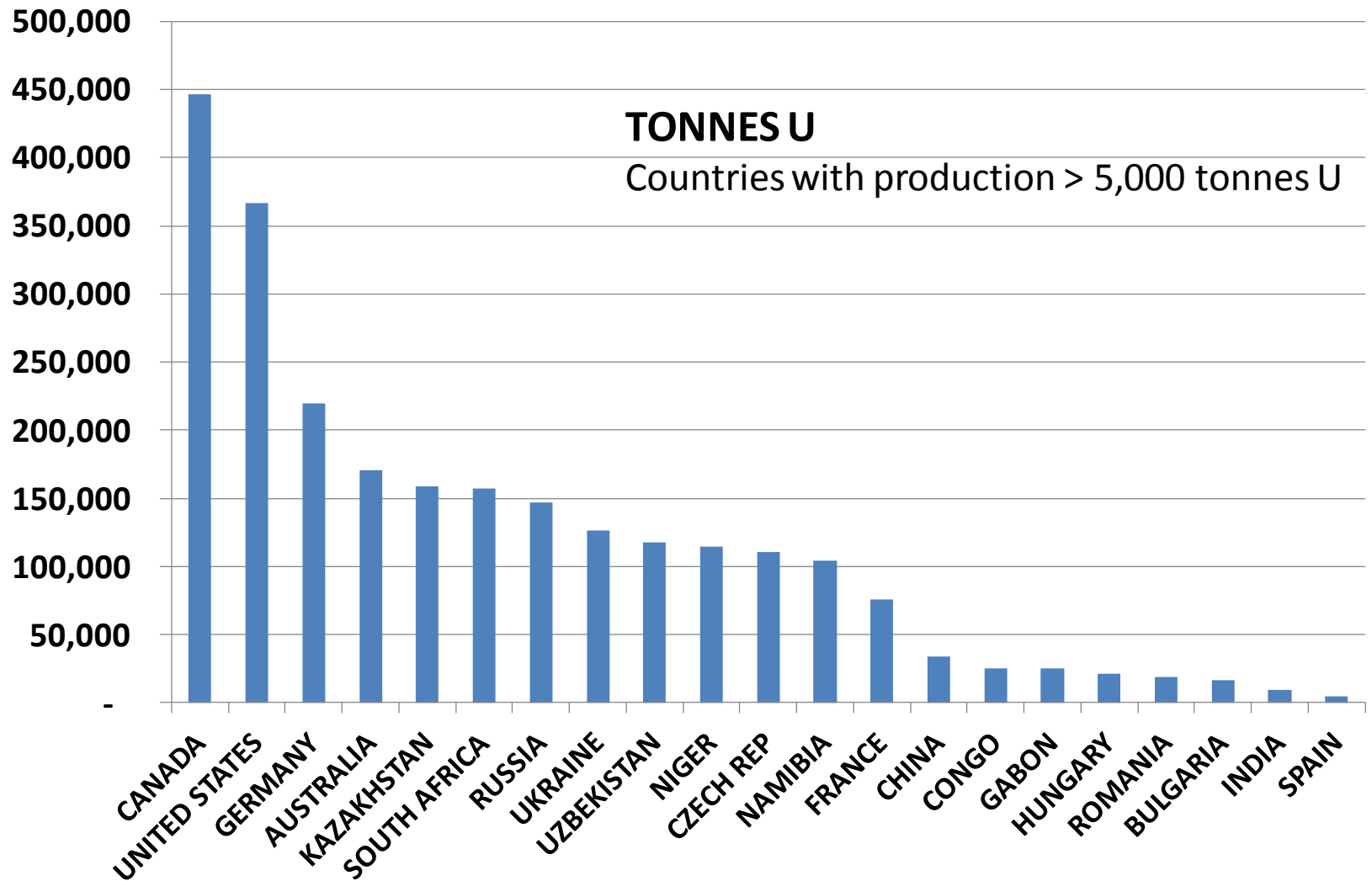
The International Atomic Energy Agency assigns the uranium deposits according to their geological settings to 15 main categories of deposit types, arranged according to their approximate economic significance [IAEA2004]:

- Unconformity-related deposits
- Sandstone deposits
- Quartz-pebble conglomerate deposits
- Vein deposits
- Breccia complex deposits
- Intrusive deposits
- Phosphorite deposits
- Collapse breccia pipe deposits
- Volcanic deposits
- Surficial deposits
- Metasomatite deposits
- Metamorphic deposits
- Lignite
- Black shale deposits
- Other types of deposits

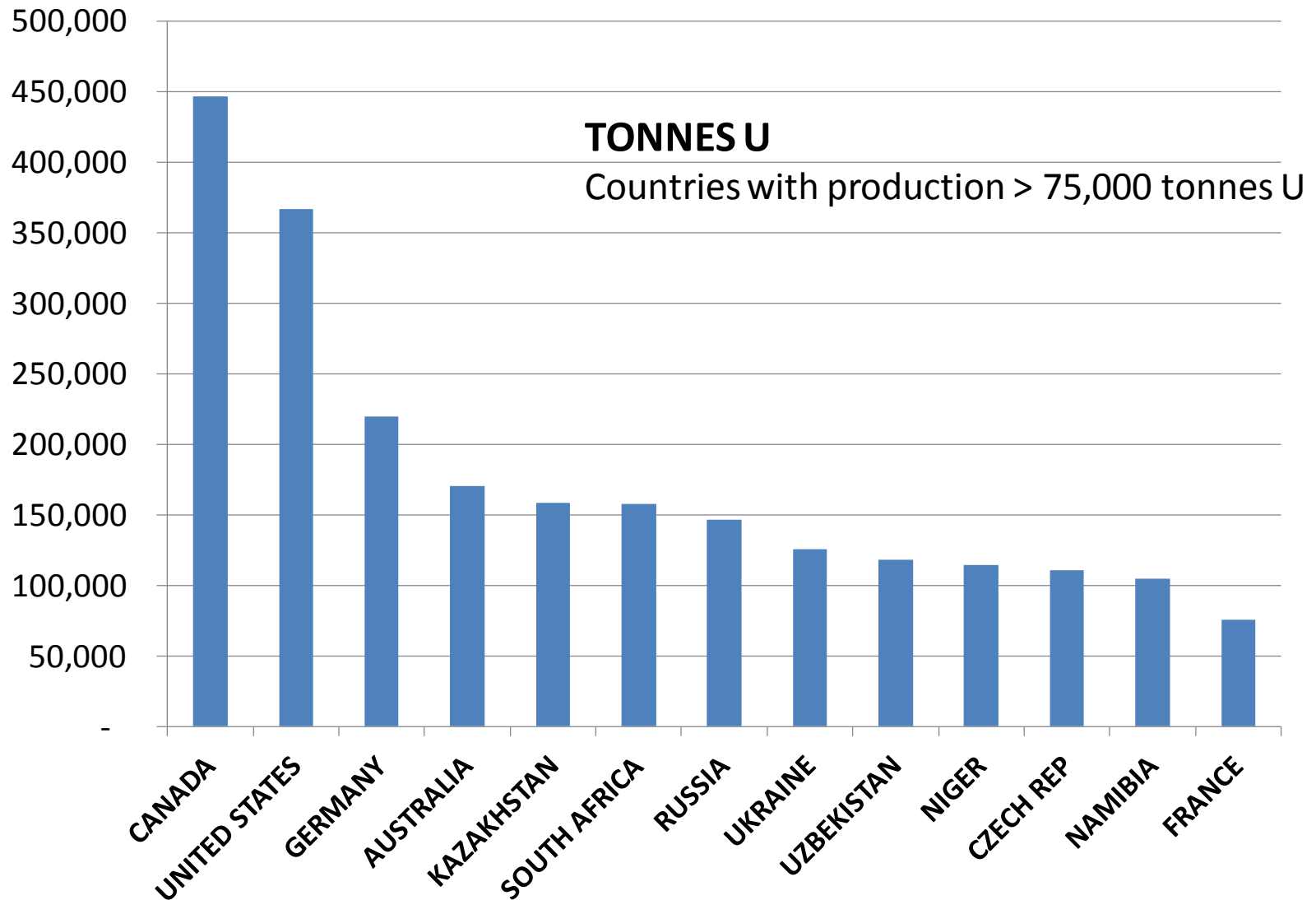
# 2012 World Uranium Production By Deposit Geology



# WORLD CUMULATIVE URANIUM PRODUCTION

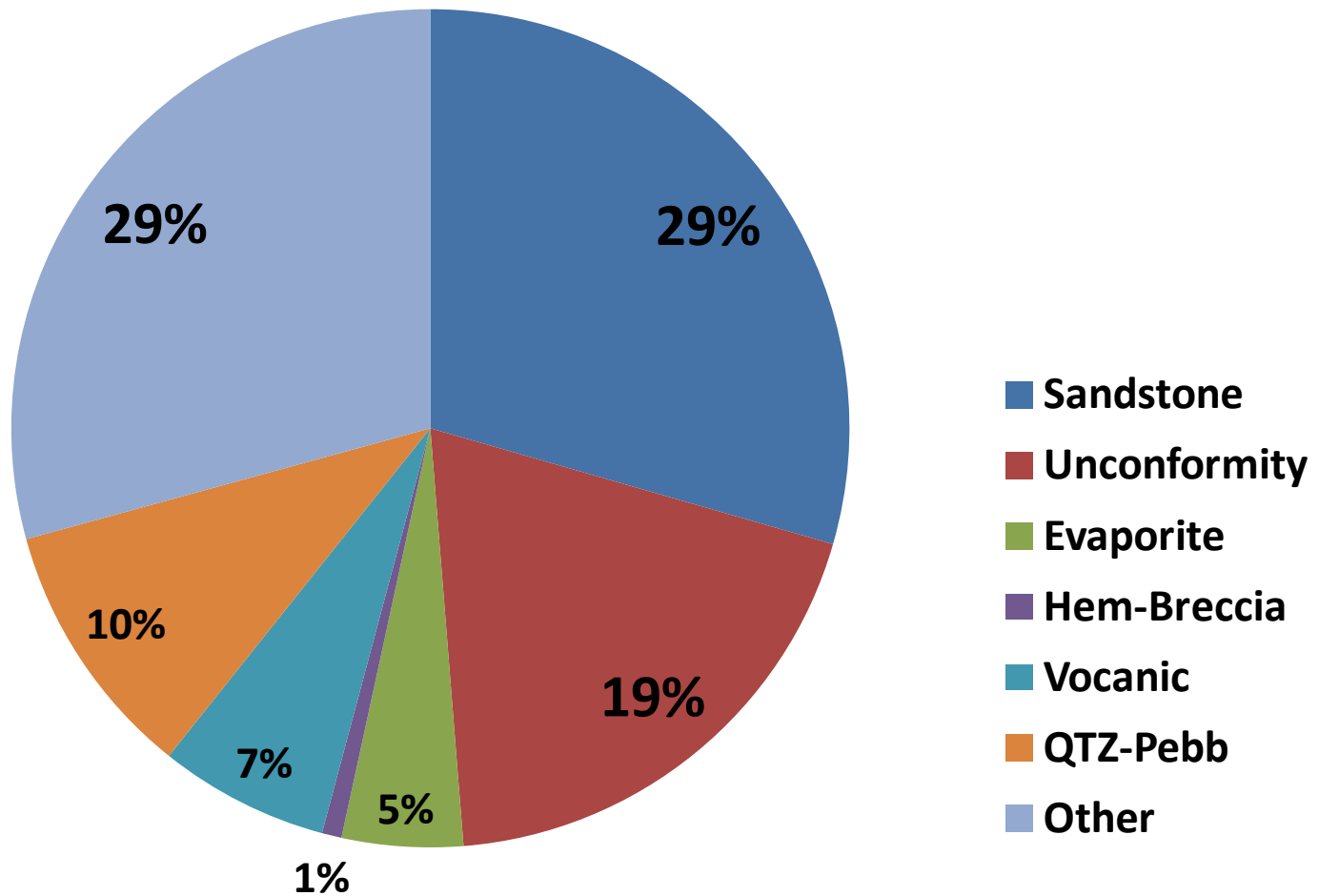


# WORLD CUMULATIVE URANIUM PRODUCTION



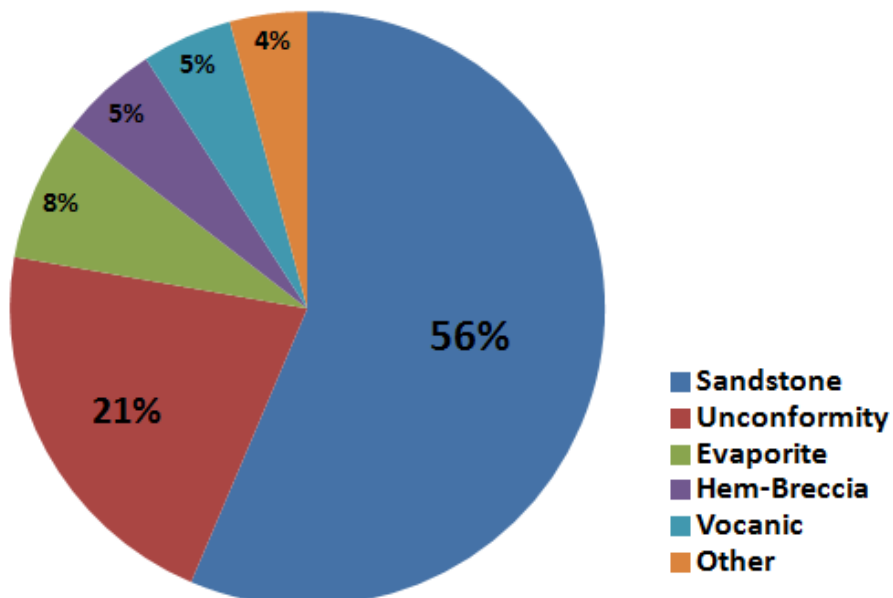


# World Cumulative Uranium Production By Deposit Geology

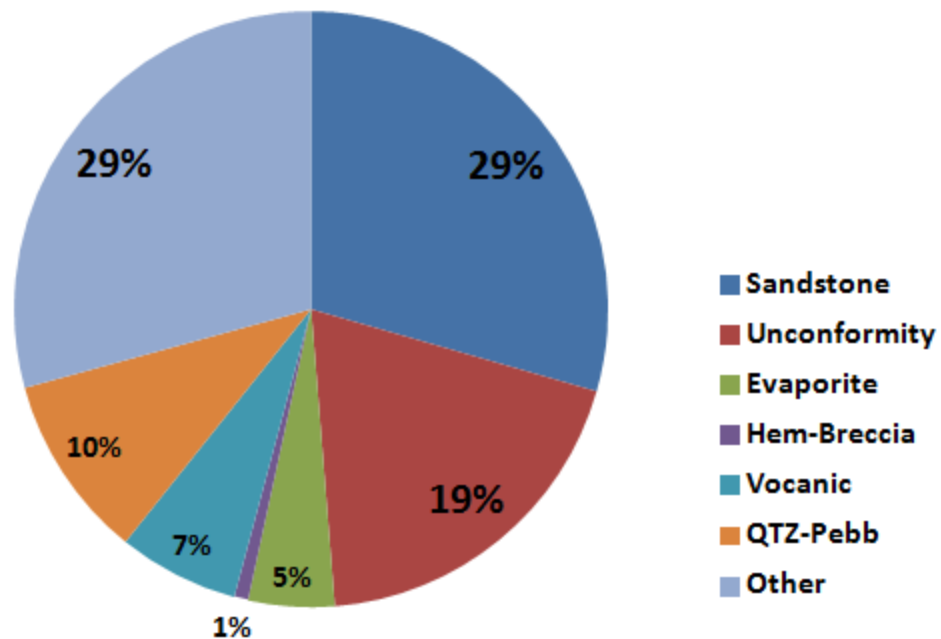


# 2012 versus World Cumulative Uranium Production By Deposit Geology

2012



Cumulative

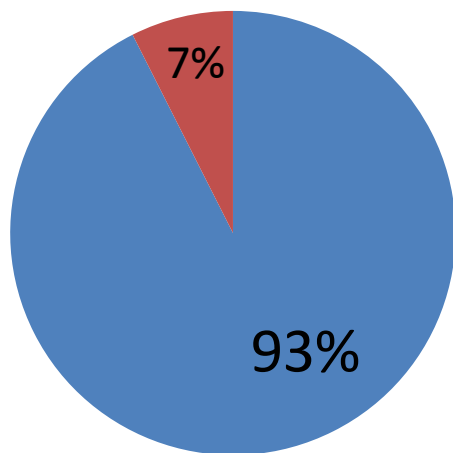


# URANIUM RESOURCES

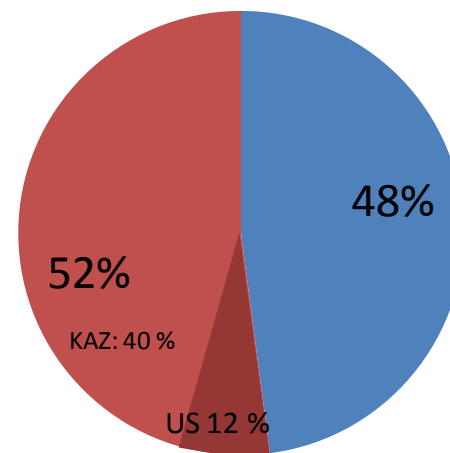
## Reasonably Assured Resources

### Tonnes U

	< \$40/kg				< \$80/kg			
	US	Canada	Kazakhstan	Total	US	Canada	Kazakhstan	Total
Unconformity	-	237,927	-	237,927	-	292,527	-	292,527
Sandstone	0	0	19,177	19,177	39,064	-	278,875	317,939
Hem. Breccia	0	0	0	-	0	-	0	-
Quartz Pebble	0	0	0	-	0	-	0	-
Vein	0	0	0	-	0	-	0	-
Other	0	0	0	-	0	-	0	-

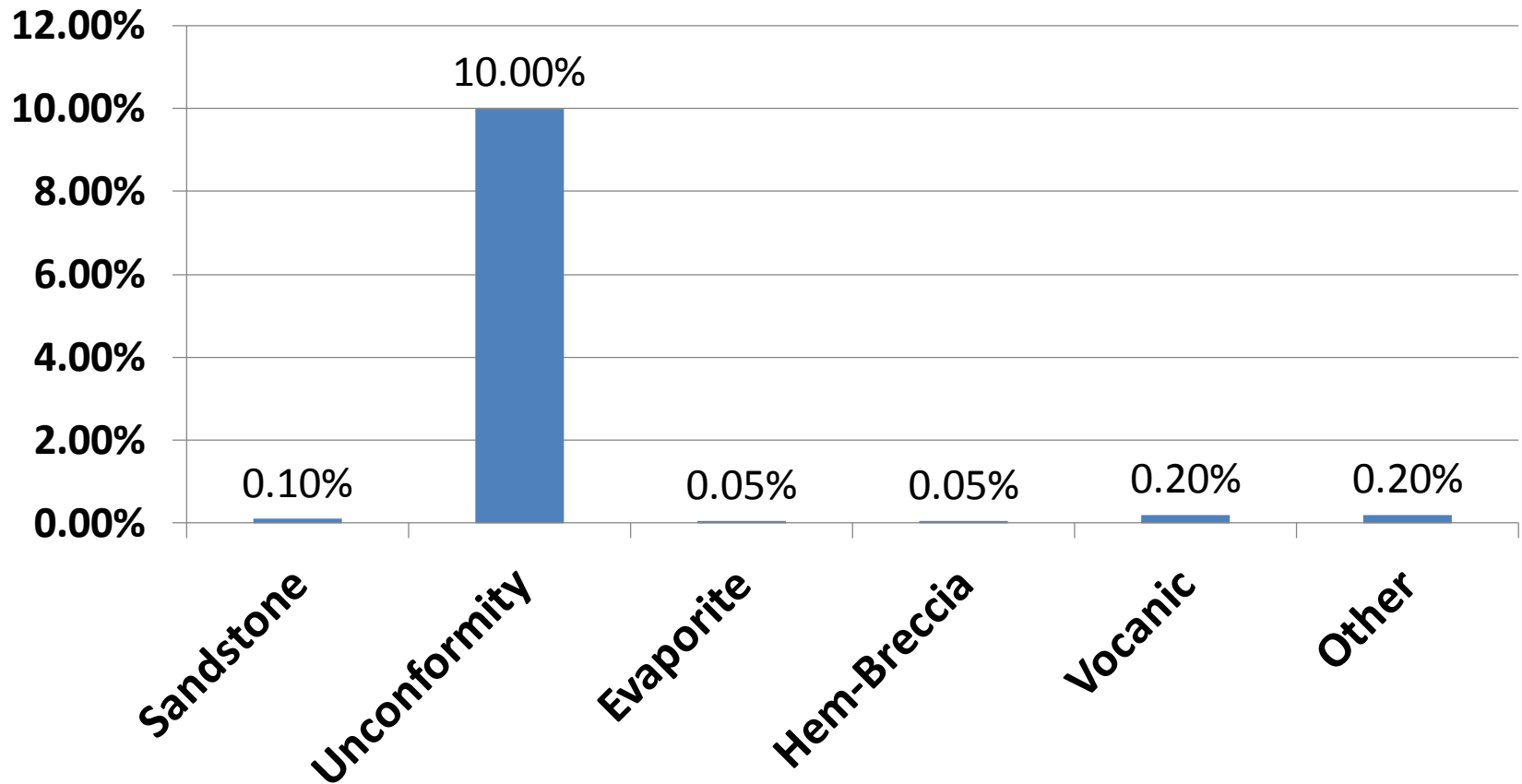


■ Unconformity  
■ Sandstone



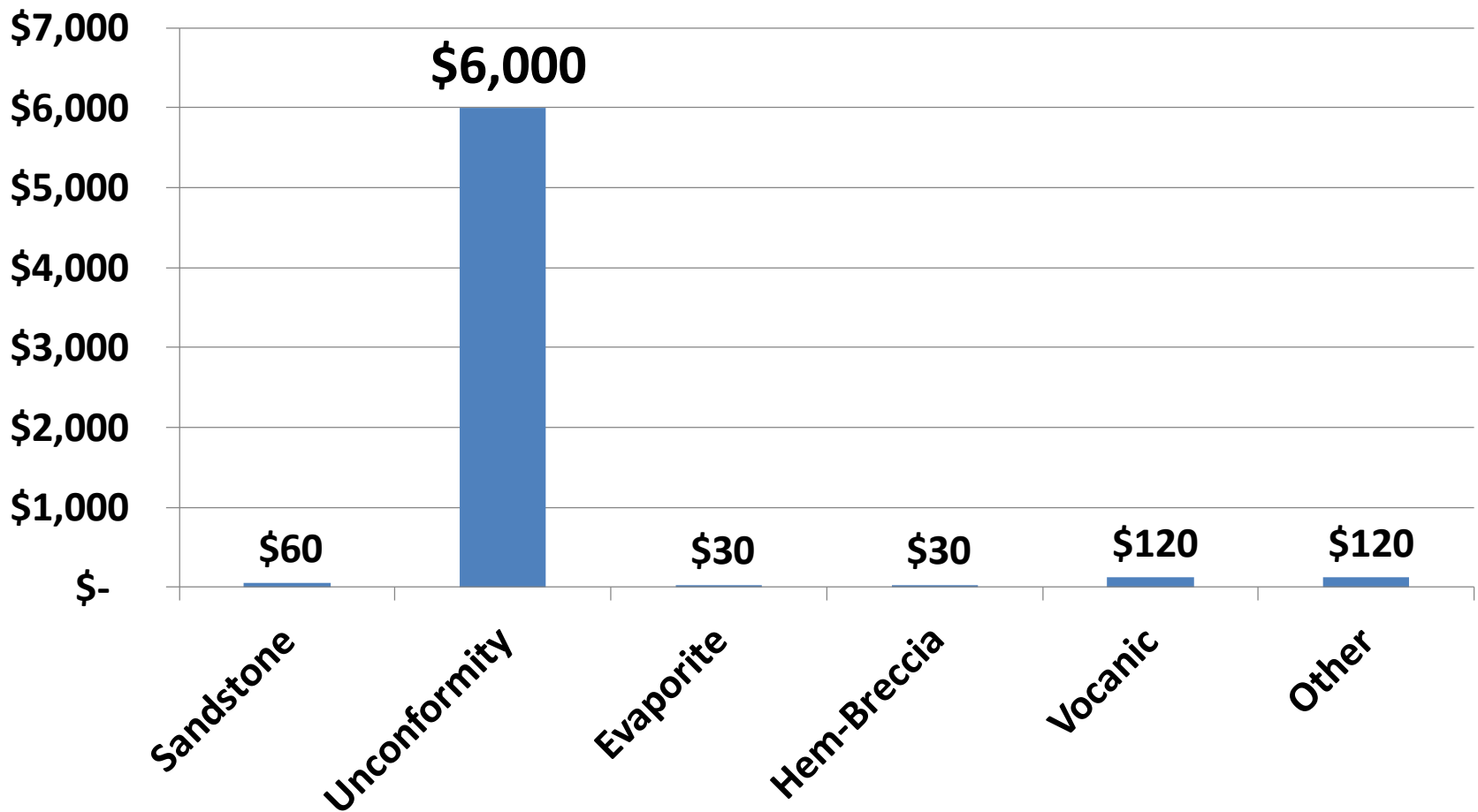
# 2012 World Uranium Production

## Approximate Grade of Deposit Types



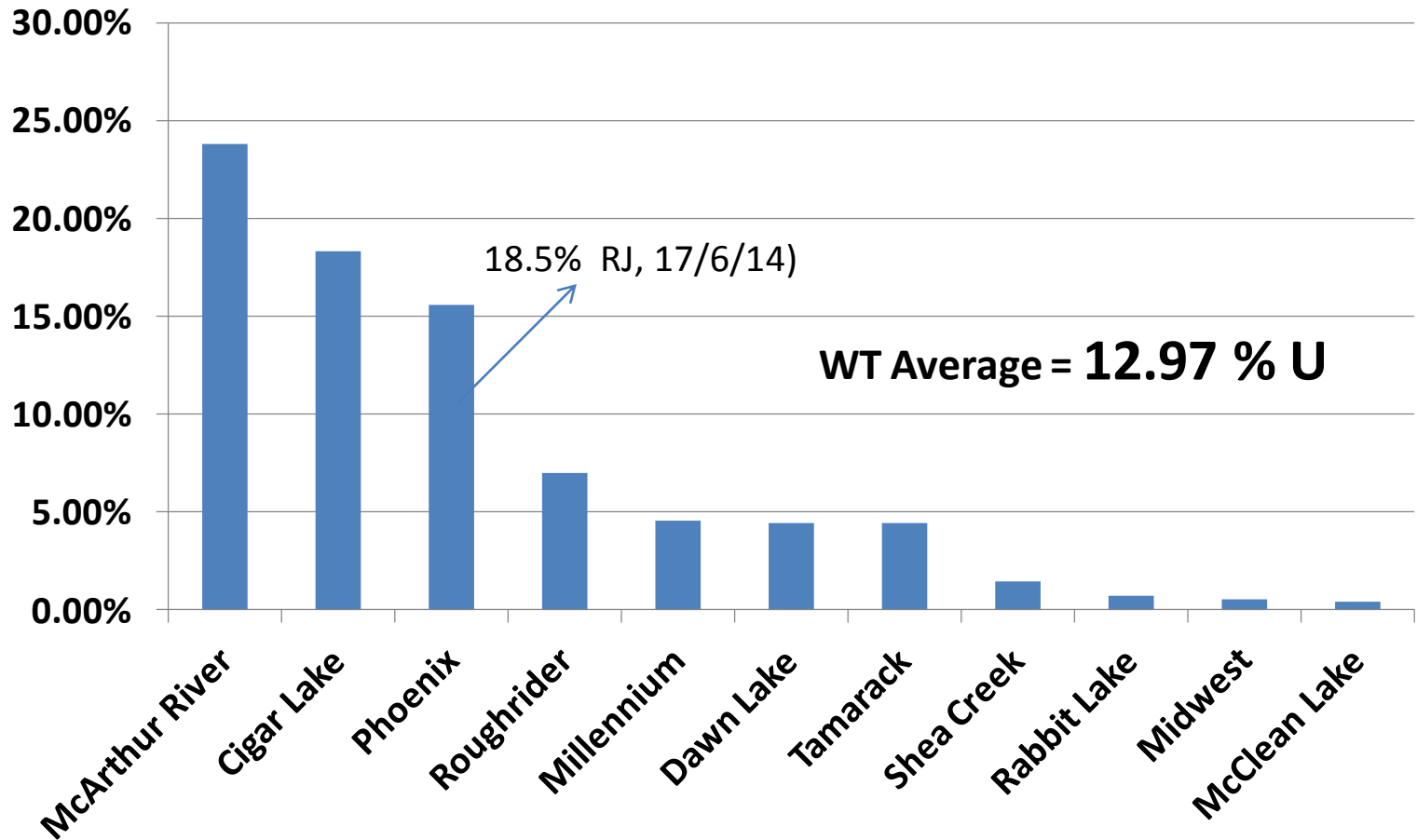
# 2012 World Uranium Production

## Value of 1 tonne of Ore at \$30/pound



# ATHABASCA PROJECTS

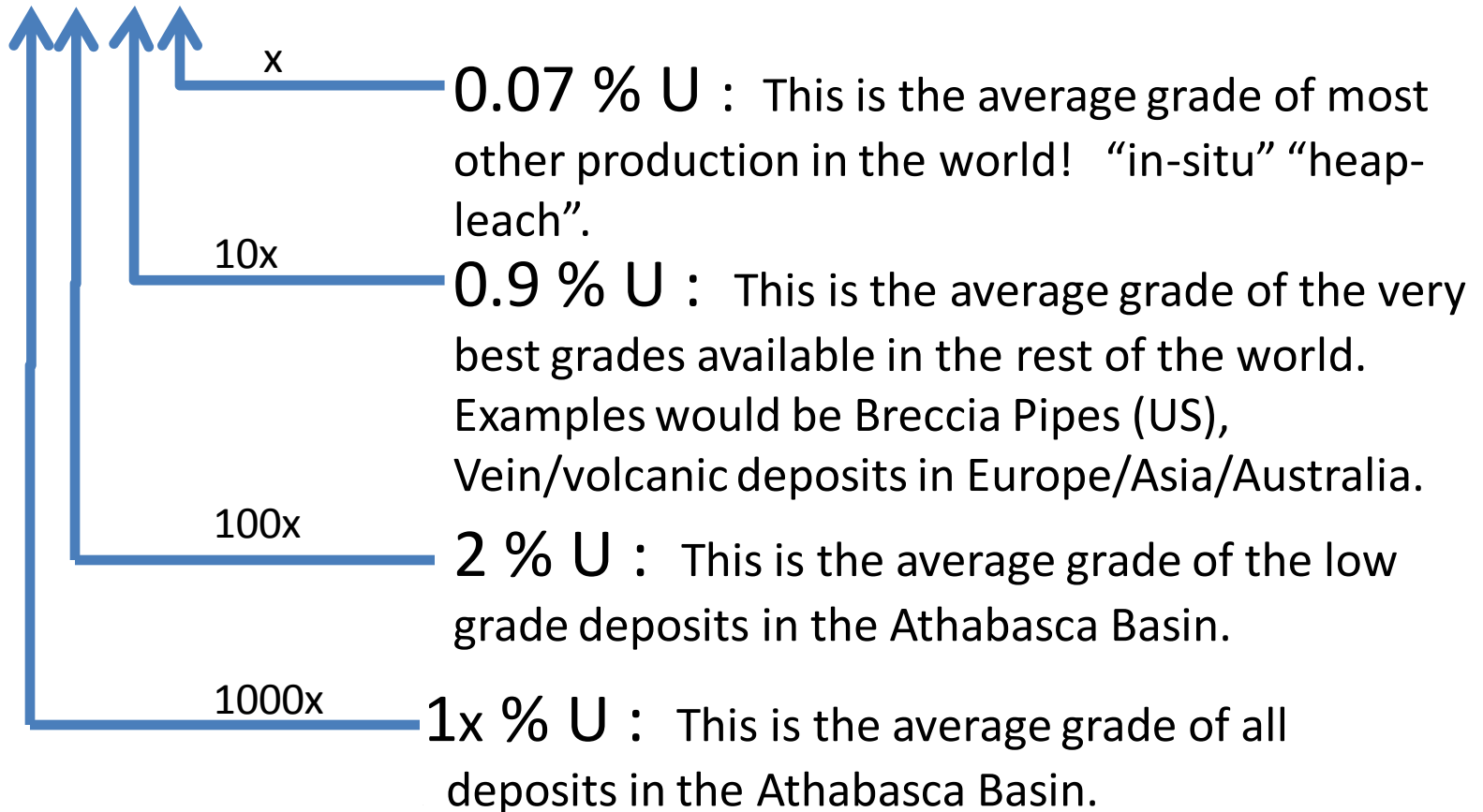
## By GRADE



# ATHABASCA PROJECTS

Weighted AV= 12.97 % U

12.97 % U



# OUTLINE

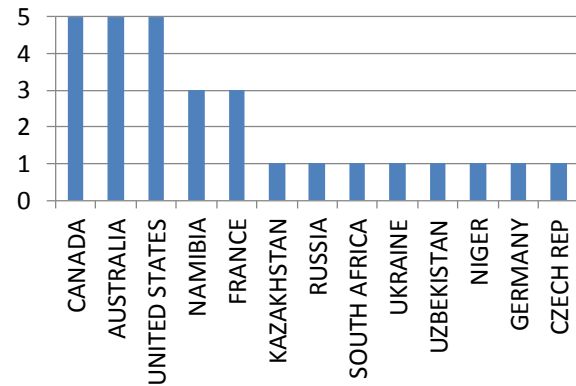
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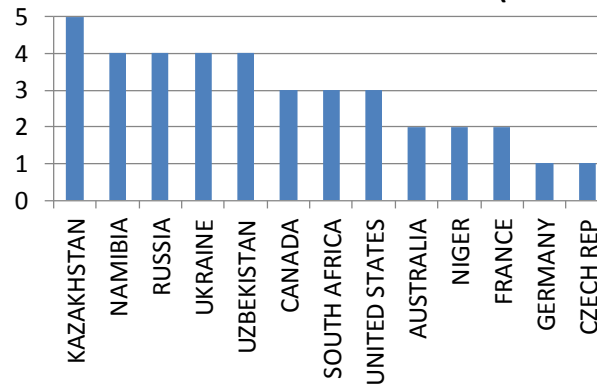
# JURISDICTION VERSUS U DEPOSIT ATTRIBUTES

## Comparison of 6 POLITICAL AND GEOLOGIC ATTRIBUTES

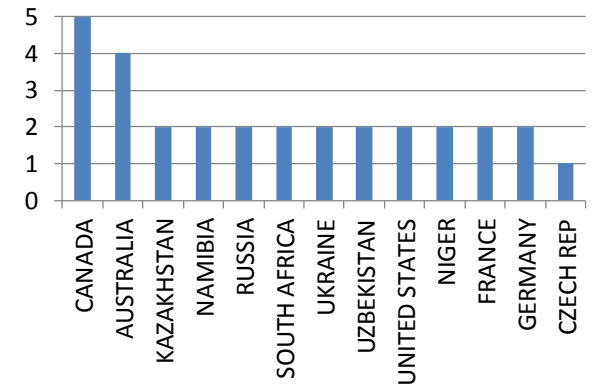
### FRASER INSTITUTE



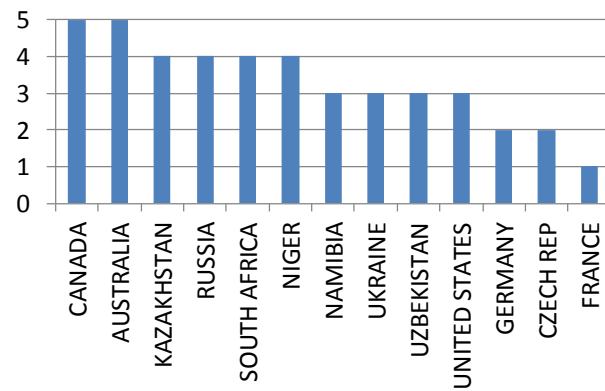
### GOVERNMENT WITH (NOT)



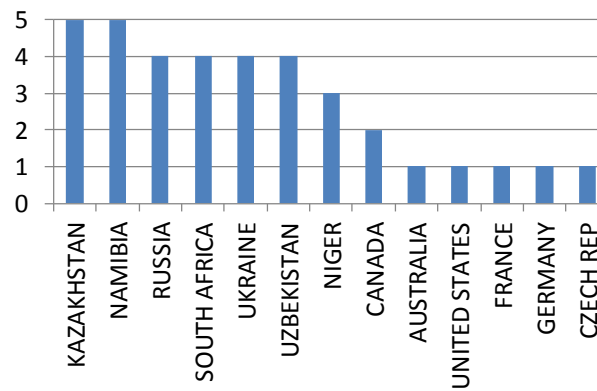
### GRADE



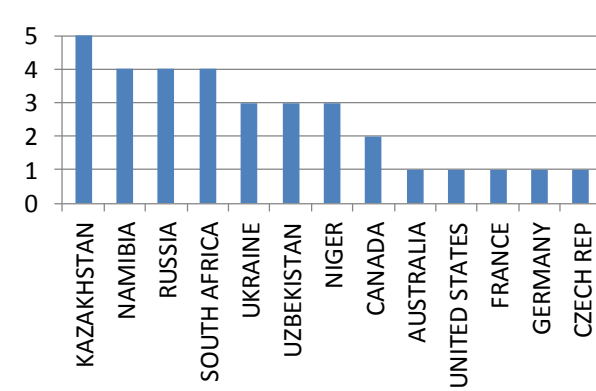
### DEPOSIT SIZE



### PERMITTING

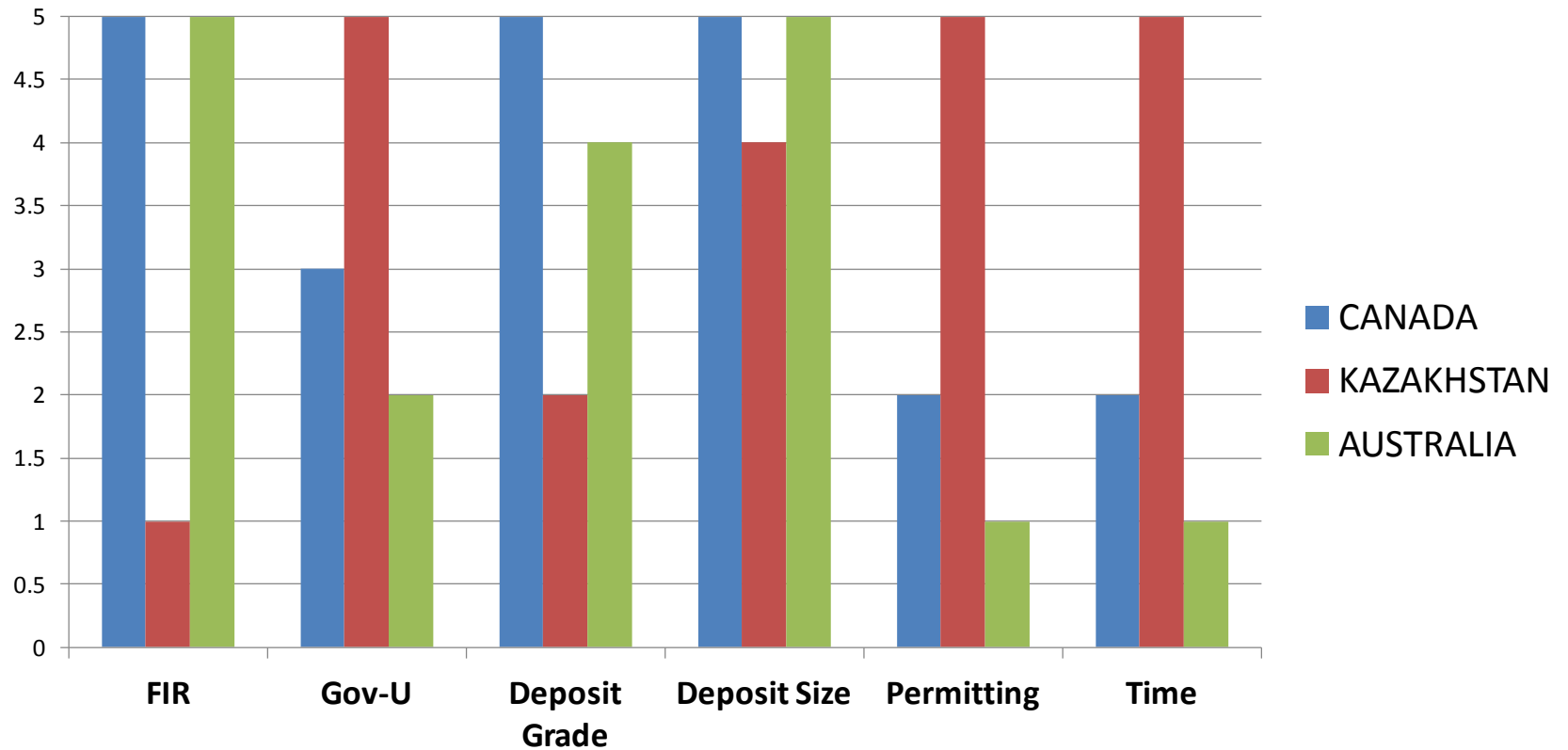


### TIME



# JURISDICTION VERSUS U DEPOSIT ATTRIBUTES

Comparison of the Three Major World Uranium Producing Areas



# **CONCLUSION**

## **JURISDICTION versus GRADE**

**Grade is King! But government policy can and does affect the ability to mine.**

**Government can and does help get projects into production by:**

- Streamlining Permit Process**
- Favorable Royalty and Infrastructure Support**
- And by default, faster approval allows a better economic return by hitting peak price and utilizing the time value of money factor.**

Survey of Mining Companies  
2013



# JURISDICTION

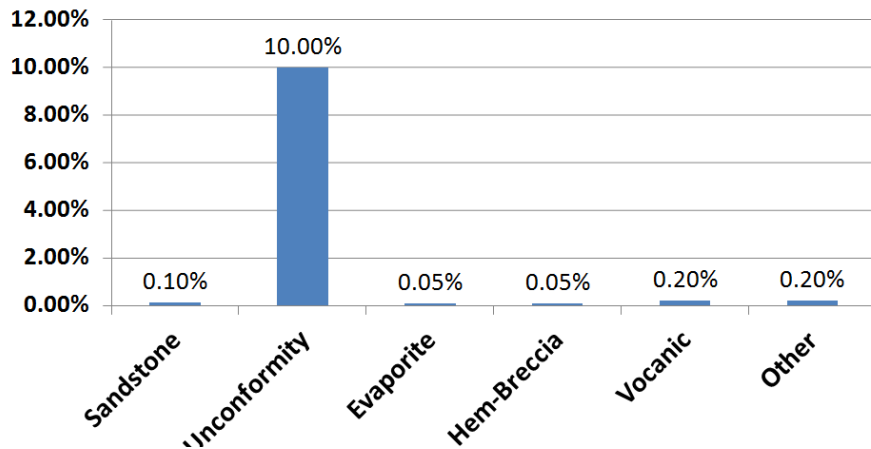
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# THANK YOU - QUESTIONS

2012 World Uranium Production  
Approximate Grade of Deposit Types



JURISDICTION VERSUS U DEPOSIT ATTRIBUTES  
Comparison of the Three Major World Uranium Producing Areas

