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Why jurisdiction and uranium deposit type are essential considerations for exploration and mining of uranium

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Uranium is a relatively abundant element, being 25 times more common than silver, and having the same crustal abundance as tin. Economically minable uranium grades vary greatly, from a low of .01% U to over 20% U. What are the factors that allow mining of these very low grade ores that are only 50 times background concentrations? Why don't the high grade deposits of the world exclusively supply all of the worlds newly mined uranium needs? There are two main reasons that the high grade deposits of the world do not exclusively supply all of the worlds newly mined uranium needs: 1) Jurisdictional issues, the favorability or lack thereof of governmental policies where the deposit is located and the delays caused by an ineffective or corrupt policy and 2) The deposit type, which has a great influence on the recovery cost of the uranium. The quality of a deposit can override more difficult political jurisdictions if recovery of the investment occurs quickly and in an environmentally friendly way.

1. Political Jurisdiction:

a. Some political jurisdictions around the world are unstable. Because of instability it would not be smart to begin an exploration program or an actual uranium mine in a politically volatile area.

b. Multiple political jurisdictions do not allow mining of radioactive materials. There exists a law or a ban on exploration and/or mining of radioactive materials. Some jurisdictions that currently fall into this category is the State of Virginia, U.S. and British Colombia, Canada. Some past examples that have recently changed laws are Queensland, Australia and Greenland (Denmark).

c. Permitting uncertainties. While many areas of the world allow uranium mining, the permitting process can delay a project for years. Nearly all of the Western Countries would fall under this scenario; U.S., Canada, Australia and Western Europe. There are two related principle issues that affect permitting and the economics of a uranium deposits.

i. Time Value of Money: Delays cost money.

ii. Lost market opportunity: Market prices move up and down.

2. Mining Cost:

a. Open Pit Mining: Large, economy of scale projects, mining 50,000 tonnes/day of uranium ore can operate at very low unit cost, in the order of 1 US$/tonne.

b. Small Scale Underground Mining: Small, extremely high grade deposits mining <100 tonnes/day but at grades of 10-20% U.

c. "In-Situ"Recovery (ISR): Has multiple variables, acid leach, alkaline leach, depth to orebody, among others, that affect the recovery cost. Basically, water wells do the mining in ISR.

In conclusion one should consider the jurisdiction, stability of the government, and permitting regulations when considering an investment in uranium exploration, mining, or signing a long term contract for the delivery of uranium. In an uncertain world with changing political dynamics it would be wise to have a mix of jurisdictions and sources for a countries future uranium supply.

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