

**WORKSHOP ON RECENT DEVELOPMENTS IN EVALUATION OF
URANIUM AND THORIUM RESOURCES**

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**HISTORY AND CURRENT STATUS OF URANIUM
EXPLORATION IN CAMEROON**

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Introduction



- Cameroon is located in Central Africa. It is bounded by Chad in the North, East by the Central African Republic, South by Congo, Gabon and Equatorial Guinea, West by Nigeria.
- It covers an area of 475, 440 Km².
- The climate of Cameroon is varied: tropical wet in the South and tropical dry in the North, averaging 25°C to 32°C from South to North.
- Cameroon's population is almost 20 millions inhabitants. Cameroon has 250 ethnic groups, that implies the existence of 250 languages.

Geology

Three major morpho-structural features reflect the geology of Cameroon.

- **The Precambrian** includes the North Equatorial Pan-African fold belt, which is also called Mobile zone, and the Congo craton in the extreme south (Archean):
- **The Cameroon Volcanic Line** (Cenozoic to Current) crosses the country along the N30 direction and in its central part in the Adamawa. This is a domain of volcanoes and plutonic-volcanic complexes, where volcanic rocks are commonly associated with the plutonic rocks.
- The **sedimentary** (Mesozoic) is mainly represented by the bordering plains of Chad Lake and Atlantic coast, and some basins in the interior. The rocks are limestones, sandstones and conglomerates

History of Uranium Exploration in Cameroon

- Geological activities carried out from 1950 to 1988 revealed the existence of several geo-chemical anomalies: a hundred of mineral indices and 50 mineral substances.
- 1978, General reconnaissance campaigns and strategic prospection revealed the presence of **radiometric anomalies in the basement and in the alaskitic granites, associated to the presence of zircons and monazite**, as well as in the **nephelinitic syenites** where these anomalies are found to be related to the **rare earth minerals**.
- 1980, The discovery of uraniferous formations at Ngombas syenite facies, associated to sulphides, motivated the consideration of an airborne prospection campaign on the Akongo-Lolodorf axis.

- Between 1985 and 1986 follow-up exploration was conducted with some field checking in 1987 under a new cooperation agreement. This effort mainly focused on underground exploration and radiometric mapping of the Kogué-Mango batholiths area.

During the 1980's, limited drilling intersected significant uranium mineralisation in small portions of the Kitongo and Lolodorf, but since then, there has been no systematic exploration undertaken in all three project areas.

CURRENT STATUS



- Currently, in Cameroon, uranium exploration resources are known through the Kitongo (Poli, Salaki) and Lolodorf projects. The operator of these projects is **MEGA-URANIUM Corporation Cameroon** (Canadian Company). This company obtained its properties through the acquisition of **NU ENERGY Corporation** since august 2007. This Company holds 3 properties in Cameroon:
- **Kitongo** (Poli, Salaki, Gouma and Voko), **Lolodorf** and **Teubang**.

The Kitongo deposits

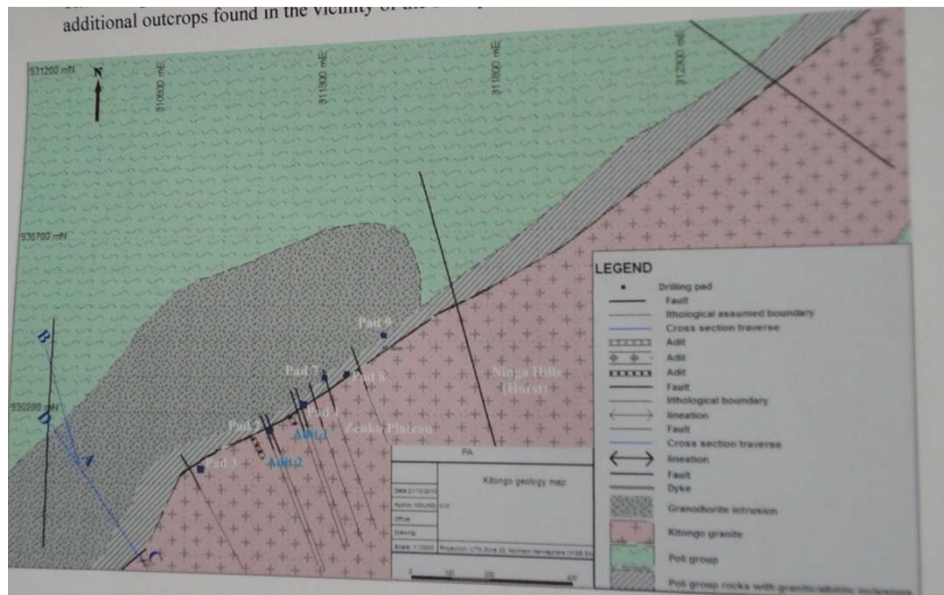


Fig 2: Geology map of the Kitongo drilling site showing the main structure units of the Kitongo deposit and major fault intersection (Mega Uranium, report 2011)

- The Kitongo U mineralization is intimately linked with a heterogeneously albitized granite, marking the transition between the primary non-albitized intrusion and its metamorphic basement. The most albitized and mineralized zone called the Transition Zone (TZ) is also parallel to a major shear zone called the basement contact.
- The **Salaki** prospect showed that the uranium mineralisation occurs mainly in zones hosted predominantly by **albitised microdiorite**.

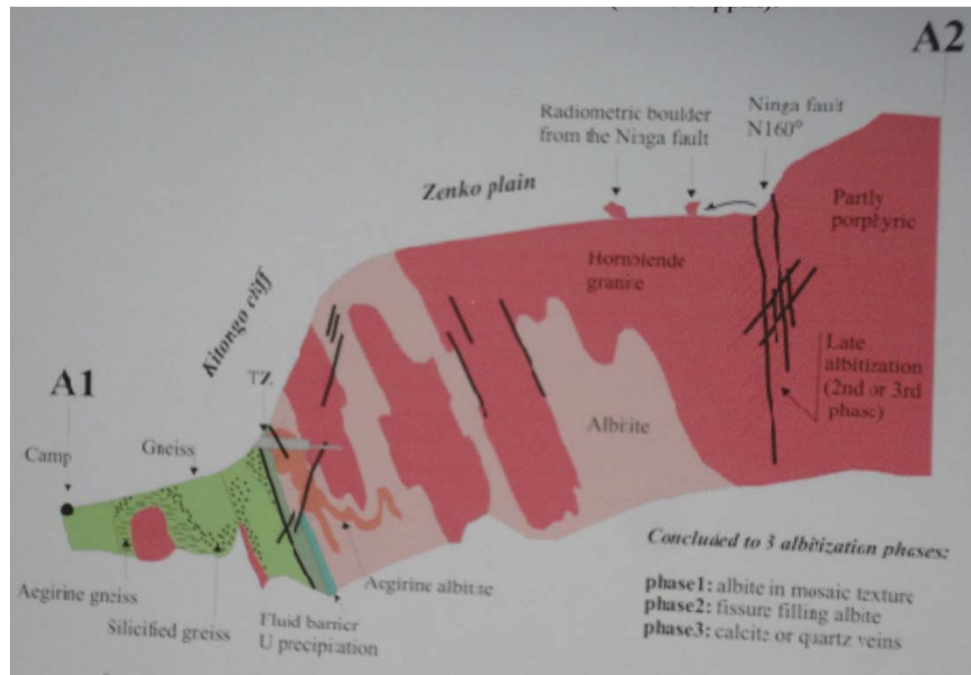
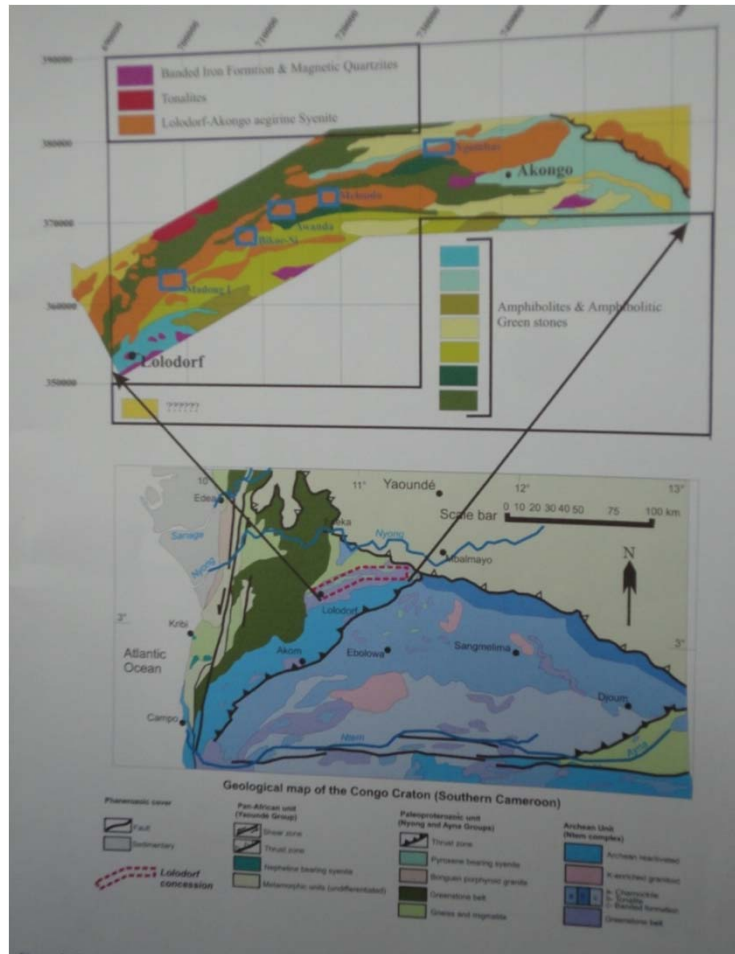


Fig 3: Geologic cross-section of the Kitongo deposit showing the structural links between the U mineralisation and the geology (Mega Uranium, report 2011)

- Minimum U grades recorded in all structural settings are in the same range (221-351ppm), the maximum grades are recorded in holes at fault intersections with the shear zone (1135-1548ppm) and the highest intersection length is also recorded in holes drilled across fault intersections (41.9m). This implies that the U mineralization in this zone is highly structurally controlled, that is, by both the shear zone and the intersecting faults.

The Lolodorf-Akongo deposits



- The Lolodorf-Akongo uranium mineralization is characterized as an **alkaline syenite-related Th-enriched** deposit
- The radiometric maps show three linear trends marking potential mineralized zones: the Ngombas trend, the Melondo trend and the trend near to Madong.
- All the uranium ore deposits described in Cameroon are of metasomatite type.

Fig 4: Geology and tectonic settings of the Lolodorf-Akongo syenite at the tectonic boundaries between the Archen, the paleoproterozoic and the Neoproterozoic units (Maga Uranium, report 2012)

Legal and Institutional framework

The enactment of a **mining code in 2001**, amended in 2010 and related regulations are a step forward in the process of development of mining in general and the whole process related to the uranium production cycle in particular.

- The **Ministry of Industry, Mines and Technological Development**, is in charge of the mining policy.
- The **Institute of Geological and Mining Research**, implements the research programs in geology, mining, hydrology and energy to support the socioeconomic development of Cameroon.
- The **National Radiation Protection Agency** develops the radiation protection measures applicable to the mining activities.

Conclusion

- Uranium exploration in Cameroon is still in progress.
- At Kitongo, the presently investigated deposit size and potentials are still insufficient to motivate the resource drilling and feasibility studies.
- The ongoing structural and radiometric mapping of some areas is expected to provide complementary data for this alternative model of the kitongo deposit.
- A classical geophysical methods applicable to faults detection is also needed.

Classification of Uranium Deposits in Cameroon according to UNFC: class 334

Concession Name	UNFC Class	Explanation
Lolodorf	334	<p>Project is still at exploration phase.</p> <ul style="list-style-type: none"> - Economic viability of extraction cannot be determined due to insufficient information. - Feasibility of extraction cannot be determined due to limited technical data. - Estimated quantities associated with a potential deposit based primarily on indirect evidence
Salaki	334	<p>Project is still at exploration phase.</p> <ul style="list-style-type: none"> - Economic viability of extraction cannot be determined due to insufficient information. - Feasibility of extraction cannot be determined due to limited technical data. - Estimated quantities associated with a potential deposit based primarily on indirect evidence
Poli	334	<p>Project is still at exploration phase.</p> <ul style="list-style-type: none"> - Economic viability of extraction cannot be determined due to insufficient information. - Feasibility of extraction cannot be determined due to limited technical data. - Estimated quantities associated with a potential deposit based primarily on indirect evidence

conclusion

- Uranium exploration in Cameroon still in progress and there is a need of techniques
- The prospecting is still ongoing in geological cartography, radiometric exploration of the soil and drilling. Note the fact that 60% of the national territory is not sufficiently explored.

*Thank you for your
attention*