

Uranium exploration in Egypt past, current and future activities

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The Egyptian Nuclear Materials Authority (NMA), is the government body responsible for exploration of the nuclear raw materials in the country. The early NMA U-exploration activities has included training of exploration teams, conduction of airborne, ground follow up and preliminary geological mapping as well as execution of limited exploration drilling. A number of TC projects and expert missions were mainly executed in collaboration with the IAEA for this purpose. These efforts have resulted in the discovery of seven U-potential prospects. NMA has also exercised limited heap leaching on experimental scale and obtained small amounts of U-concentrates, utilized for R & D purposes. However, the exploration activities remained in the preliminary phases and did not succeed to reach either reliable evaluation of the discovered uranium resources or running productive U-exploitation.

By the end of the last decade, Egypt has declared the intention to adopt a peaceful program for electric power generation; this implied NMA to implement a twofold plan as described hereafter.

Regarding the conventional U-resources, occurring in the Eastern Desert, NMA focus the exploration activities on the younger granites of Pan African type, and the associated inter-mountain basins. The activities will be restricted to the evaluation of U-reserves in at least three of the most promising uranium prospects that still require extensive exploration drilling programs. NMA is now implementing an international bid announcement seeking for partnership of an experienced international firm, to assess the uranium resources in these sites, in addition to receiving relevant IAEA/TC programs.

Regarding non-conventional resources, the black sand project is mainly a resource of a titanium and zirconium minerals; however, NMA is now trying to process monazite to obtain mainly Th and minor U by-products. NMA has successfully completed an exploration study and the Government of Egypt has recently advertized an international bid to invest in a mining project in El Burullus mineral sand deposit on the Mediterranean coast. NMA is also planning to support the current purification of phosphoric acid, employing a semi- pilot plant supposed to be operated also for yellow cake extraction as bi-product. The uranium extraction cycle faced difficulties aroused since testing of this unit in 1997. The current NMA efforts, supported by receiving IAEA/TC, aiming to avoid the serious failures in the extraction cycle of uranium in this unit.