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Uranium resources potential of Thailand and the Lao PDR

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There are a number of uranium deposits in Thailand. In the past, when tin mining was once the major mining activity in Thailand, uranium deposits had been found along with tin exploration in granite terrain. Department of Mineral Resources (DMR) together with help from national and international organizations started uranium exploration since 1960. In 1977, IAEA's International Uranium Resources Evaluation Project (IUREP) had suggested some areas in the northern and eastern parts of Thailand to have significant uranium potential. The speculative resource estimate in the report was in the range of 1,500 to 38,500 tons U.

However, not until 1976 was systematic exploration for uranium ore carried out nationwide, with some airborne geophysical survey as well as drilling programs. Airborne geophysical survey over the whole country was completed by 1987. The results demonstrated that there are a few uranium deposits located in the north and northeastern region of Thailand.

This paper will summarize past exploration results. Those information from uranium exploration will be re-evaluated and modelled by using a sophisticated mining software since at that time DMR used only an old method. Some pictures will be redrawn with an aid of GIS system. The purpose of this work is not only to verify past projects but also to delineate new target area for future exploration. In addition, the possibility for sustainable recovery of uranium as a by-product from unconventional sources such as tin ores and heavy mineral sands holds a good prospect for Thailand. Those unconventional sources will be illustrated as well. Finally, the summary will be provided for the IAEA's UDEPO database.

Right next to Thailand, there are some potential areas for uranium exploration in the Lao People's Democratic Republic (Lao PDR or Laos). Some of the geological units of Thailand extended into Lao PDR. Thailand and the Lao PDR, being close and having shared language and culture, are increasing collaboration, in geological and mineral exploration activities. The Lao PDR, joining IAEA since 2011 as one of the newest Member States, has opened new opportunities for closer collaboration between the two countries in uranium exploration and resource assessment. In the Lao PDR, the population is much smaller than in Thailand. In addition, the government of the Lao PDR strongly encourages both local and foreign investment in mineral exploration and mining activities. In 1977, the IUREP study, based on sparse data, assessed that uranium potential exists in some parts of the country, especially associated with Precambrian metamorphic rocks. The Lao PDR is known to have tin deposits, and the possibility of uranium associated with tin mineralization is another potential to be investigated. Various models of uranium deposits will be compared with the Lao PDR's geology and a uranium potential map will be presented.

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