

The Potential of Thorium Deposits.

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The most recent review of world uranium reserves and resources indicates a significant increase compared to the 2005 levels. Increased uranium prices are continuing to impact resource totals. Many countries have developed ambitious programs for their future energy supply and the use of nuclear energy is regarded a secure option. As a consequence, future uranium demand will probably grow. Uranium, however, is mined in only 20 countries worldwide, and a number of industrialized and rapidly developing countries (e.g., India, Brazil, South Africa, Indonesia) lack major uranium resources. In these countries, the alternative use of thorium in the fuel cycle is envisaged and research programs exist for the further development of thorium-based fuel cycles. Up to now thorium has had a limited market and there has been little incentive to explore or to develop detailed information on known thorium deposits. The worldwide thorium resources are estimated to total about 6.1 t Th. Highest resources are reported from Brazil, followed by Turkey, the United States, Australia and India. Important resources occur in Norway and South Africa where thorium is associated with carbonatite, pegmatite and placer deposits. Madagascar is largely unexplored with respect to metallic and energy deposits. Current mapping programs have led to the identification of potential sites for U and Th deposits, besides many other commodities. Thorium as well as rare earth metals are a major component in placer deposits which are currently mined for titanium. Thorium also occurs as a main component in uraniferous skarn-type deposits. Current exploration focuses not only on resource classification for uranium and thorium but also on the effects of natural radiation in rural communities.