

## Improvement of Methods for Establishing Baseline Data for Uranium Mines in Tanzania

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In order to monitor future environmental pollution and to enforce uranium mining regulations during and after mining, several efforts have been made to establish pre-mining baseline data at proposed uranium mines in Tanzania<sup>1-6</sup>. However, these attempts did not produce the desired baseline data because there was no clearly defined sampling area. The basis of the methods used for selection and reduction of sampling points used back then could not be justified, knowing that the boundaries of the study area were not demarcated to include potential areas that would be appreciably polluted by mining activities. In this regard, clearly defined methods for production of reliable baseline data are urgently needed for subsequent enforcement of uranium mining regulations in Tanzania. My study therefore, aims at improving the methods used for establishing baseline data in the proposed uranium mining areas and their vicinity in Tanzania.

Once these methods are improved and the areas to be sampled are clearly defined, radiological baseline data will be established at these areas in two ways. In the first way, gamma dose rates in air will be measured 1 m above ground using a radiation survey meter after calibration. In the second way, activity concentration of natural occurring radionuclides in soil will be determined and converted to absorbed dose rates in air. The soil samples will be collected and prepared using standard environmental sampling procedures recommended by the IAEA<sup>7</sup>. The samples analyses needed to obtain the activity concentration will be based on gamma-ray spectroscopy.

The information developed from my study will provide an improved method for establishing effective baseline data for uranium mines which are being established in various countries in Africa. It will also provide the public and the scientific community with the baseline data that will subsequently be used to evaluate the impact of uranium mining in terms of increased radiological risks during operation and after closure of the proposed mine.

### References

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