

Meeting report

Nepal's single individual monitoring service for assessment of external exposure is in progress to extend the service for all occupationally exposed workers in the country

Kathmandu, 1-3 July 2019



Currently, only a few dosimetric methods are widely used for individual monitoring purposes. They differ in the technology used to detect radiation. As a consequence, they also differ with regard to such characteristics as the ability to measure radiation of various types and energies, the detector size, sensitivity, technological complexity, ease and degree of automation, and robustness with respect to climatic conditions. In selecting a dosimetry system, these characteristics should be carefully considered in the light of the local circumstances.

One of largely used dosimetric method is Thermoluminescence dosimetry (TLD) which is based on the excitation (followed by subsequent trapping) of electrons by ionizing radiation and the subsequent release of the trapped electrons by heating. This results in the emission of light, the amount of which is directly related to the radiation dose initially received by the material. The relationship between the amount of light emitted during readout and the quantity to be measured is determined by means of calibration. After readout, the detector can be reused, normally following an annealing procedure.

Through a Technical Cooperation project, the individual monitoring service (IMS) with a TLD dosimetric method was established in December 2015 at Physical Science Laboratory, Nepal Academy of Science and Technology (NAST) and the very first dose report was issued in March 2016. The IMS operates a TLD (Harshaw-6600 Plus) Reader and 825 occupationally exposed workers from 85 organization (all medical facilities) are monitored with 3 months monitoring period.

An expert mission to review the occupational radiation protection arrangements in the country and to make suggestions for possible improvements in the individual monitoring service laboratory operated by the Nepal Academy of Science and Technology (NAST) was conducted from 1 to 3 July 2019. During discussions and observations through operation, a user guideline on proper use of TLDs by end-users, contract with the customers for commencing the use of TLD in their institutions, and basic quality documentation including information on calibration traceability was recommended.