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Monitoring and Dose Assessment of Occupational Exposure in Nepal

The use of ionizing radiation is ubiquitous in the field of medicine, industry, agriculture etc, however the hazardous aspects of those radiations should be addressed during their use. In Nepal, the use of ionizing radiation is mainly focused on medical sectors and the equipment in use include X-Ray machine, Computerized Tomography (CT), Cobalt-60 therapy, linear accelerator (LINAC), fluoroscopy, mammography, nuclear medicine facilities, high dose rate brachytherapy sources, etc. However, the status of individual monitoring for the implementation of radiation protection has not been satisfactory here. With the radiation related law in place in the country recently in 2020, the radiation protection related issue can be expected to intensify in near future. An initiation on the radiation protection of individuals has been carried out at Nepal Academy of Science and Technology (NAST) with the establishment of Individual Monitoring Service (IMS) laboratory at Physical Science Unit of NAST. This laboratory has been established in Dec. 2015 in collaboration with Ministry of Education, Science and Technology, Government of Nepal and IAEA under the technical cooperation project NEP9001 "Developing and Establishing National Infrastructures for Radiation Safety". The IMS laboratory currently hosts a 6600 plus Harshaw TLD reader along with 1050 TLD-100 cards. The reader is calibrated annually by exposing calibration cards to known dose at SSDL, Nuclear Malaysia/ IAEA. The individual monitoring service is being provided to almost 800 radiation professionals from more than 100 health institutions of the country. The monitoring period is of three months. The year wise expansion of dosimetry service of NAST since its establishment has been shown in the Figure 1. The dosimetry service has gained serious attention from the stake-holders with numerous request received for personal dosimetry. The IMS however currently is not able to address the entire received request due to limited resources. The IMS laboratory plans to expand dosimetry network all over Nepal in near future.

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