Relook into the Radiation Protection Philosophy

This thematic issue of BARC Newsletter encapsulates the vivid domain of basic research, in-house development and services executed by Health Safety & Environment Group (HS&EG) of BARC. By regular surveillance, Environmental Survey Laboratories of HS&EG ensure that the environments around the various nuclear facilities are safe and the radiation levels due to the operation of these facilities are negligible. Director, HS&EG also has a very important role as Emergency Response Director, to ensure proper monitoring and management of any radiological emergency in the country with support of the twenty six DAE Emergency Response Centres established in the country.

Over decades, HS&EG has gathered adequate scientific data to show that the radiation protection regulations are being adequately complied, so as to ensure that the risks due to radiation are negligible. However, it is to be pondered upon that the concept of Linear No Threshold Model (LNT) that is applied in radiation protection as a conservative measure, has resulted in undue efforts towards ALARA, thereby leading to increased financial implications at every stage. Additionally, the LNT model propagates the misconception that the risk of detrimental effects increases proportionately with increasing radiation dose, even at very low doses that are equivalent to the naturally occurring levels. This has made the public overly concerned and fearful about the biological effects of radiation, the recent example being the uncalled-for levels of panic in the event of Fukushima nuclear accident.

Data from many research studies have shown a lack of increased cancer rates in populations residing in high natural background-radiation areas (e.g., Kerala, India; Yangjiang China). On the contrary, there is an indication of the existence of hormesis. However, these are presently ignored by the policy making international bodies of radiation protection. Such preconceived concepts result in substantial medical, economic, and other societal impediments. Hence, it is important that radiation professionals and biologists should constantly review and publish research related to effects at low doses of radiation with a view of aiding a revisit to the concept of LNT.

Hearty congratulations to all the authors for their precious contributions that amplify the scientific and technological contents of the current issue. I also appreciate the focused approach of the Editorial Team members that has resulted in a time-bound compilation of this special HS&EG thematic issue which will be very informative for the readers.

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