

**RADIATION PROTECTION ACTIVITIES AND STATUS IN ASIA**

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The Agency is continuously giving great importance to establish and strengthen radiation protection infrastructures in its Member States, through technical assistance and regular programmes, and by actively supporting relevant regional and UNDP-funded programmes. To facilitate this cooperation, the Agency also promotes the application of the Basic Safety Standards and conducts systematic surveys of the status of radiation protection in Member States. Based on these data, as well as proposals from national authorities of Member States concerned, the IAEA supports the establishment of national and regional radiation protection programmes, and provides technical assistance.

**Technical Cooperation Activities in the Asia Region**

The status of radiation protection practices in Asian countries is monitored by different means, e.g. the IAEA technical cooperation activities, by an overall assessment of conditions in a country by RAPAT missions, and on the basis of data collected through various regional activities. An integrated approach is being applied to attain the objectives and efforts have been made to make use of multiple combinations. Through the Agency's technical cooperation programme, expert services, fellowships and equipment are made available to Asian developing Member States. To-date, RAPAT missions visited 11 Asian countries (Bangladesh, China, DPR Korea, Hong Kong, Indonesia, Republic of Korea, Malaysia, Mongolia, Philippines, Thailand and Viet Nam). The purpose of the RAPAT programme is to assess *the national radiation protection status, to identify needs and priorities of the country visited and propose directions for a long term development programme on radiation safety control.* Another programme which facilitate strengthening radiation protection in Asia is a Regional Cooperative Agreement (RCA) project in which 14 countries participate : Australia, Bangladesh, China, India, Indonesia, Japan, the Republic of Korea, Malaysia, Pakistan, Philippines, Singapore, Sri Lanka, Thailand and Viet Nam. The objectives of the project is to strengthen radiation protection capabilities in the RCA region with emphasis on the establishment and development of the infrastructure, in particular manpower development in dosimetry, dose and risk assessment, protection practices, emergency countermeasures, regulatory provisions, and educational and training systems.

In addition to these activities, there are some UNDP supported programmes and bilateral programmes to improve radiation protection practices.

### Radiation Protection Practices in Asia

The radiation protection situation in Asia has always been described as "very heterogeneous", and problems encountered in trying to improve it were taken as guidelines in creating a new programme. On one hand, there is a group of countries with very well developed radiation protection practices and advanced in the application of the Basic Safety Standards; contrary to that, the majority of Asian Member States still need improvement, several lacking the necessary fundamental infrastructure for radiation protection. Special attention should be given to these few Member States, such as Bangladesh, Myanmar, Sri Lanka and Viet Nam, which still have not an adequate control over radiation sources.

Without a regulated use of ionizing radiation, one cannot expect any progress in applying radiation protection measures. Even more so, the existence of a regulatory mechanism should be the basis for participation in international activities in the area of peaceful uses of ionizing radiation. Radiation protection is an interdisciplinary issue with transboundary effects; therefore, countries need to be aware that the non-regulated use of radiation sources is also slowing down the general level of radiation protection in the region.

A very brief description of the present state of the art is reported by the participants from Asian countries who attend the RCA regional expert meetings or workshops. This practice allows continuous updating of improvements made in Member States and assist the ones which might face certain difficulties.

Speaking about particular tasks of radiation protection practices in Asia, it needs to be noted that the general radiation protection law and/or relevant regulations are not yet promulgated in a few countries (e.g. Bangladesh, Sri Lanka, Thailand, Viet Nam), that licensing and inspection of radiation sources need to be established and/or improved in about 50% of countries; only a limited number of countries has an updated and complete registry of radiation sources; there are several Member States where all workers occupationally exposed to ionizing radiation are not included in a regular external personnel monitoring system; and adequate internal personnel dosimetry is not yet available in the majority of Asian Member States; emergency planning and preparedness activities are lacking in the majority of countries of the region, etc. However, environmental monitoring, food contamination control and transport of radioactive materials are established

practically in all countries, but quality control and programmes should be reviewed occasionally.

Safe handling and disposal of radioactive sources and wastes need special attention since there are still many sources in the region which are out of the control of the respective national authorities. Recent overexposure accidents in some Asian countries are the best proof for such statement. Radiation protection practices in medical institutions, especially in those operating X-ray diagnostic machines need improvement. There are still several countries in the region where such practices are neither licensed nor are they under the supervision of a national authority. Radon, and generally naturally enhanced radioactivity, is a problem for specific installations in some countries; radon in dwellings seem to be a task of concern only in a few countries having colder climatic conditions.

In summing-up, one may state that there is evidence that radiation protection activities in Asian Member States are improving. It is also evident that "software" should be given priority over "hardware". This is to say that in most cases, instrumentation is available, but national radiation protection programmes, effective legislation and standards, enforcement mechanisms for enabling application of the regulations through notification, registration and licensing of radiation sources, and manpower development, are primarily needed. This constitutes what is often called radiation protection infrastructure.

The extent of any national infrastructure needs to be commensurate with the degree and volume of nuclear technological activities requiring safety efforts, ranging from electricity production by nuclear power plants to traditional fields of applications of ionizing radiation in food and agriculture, human health, industry, earth sciences and physical and chemical sciences. Each country ultimately must itself determine the extent of such infrastructure, since the protection of people and their environment from radiation hazards ultimately is a national responsibility.

The IAEA will continue to support upgrading of radiation protection practices in Member States, and we believe that this Congress will also indicate areas in which such support is primarily required.

**TABLE 1**

**Main Priority Tasks for Upgrading  
Radiation Protection in Asia**

<b>TASK</b>	<b>TYPICAL EXAMPLES OF COUNTRIES NEEDING IMPROVEMENT</b>
<b>Law and/or Regulations</b>	<b>Bangladesh, Sri Lanka, Thailand, Viet Nam, Myanmar</b>
<b>Licensing/Inspection</b>	<b>Bangladesh, China, Mongolia, Myanmar, Sri Lanka, Thailand, Viet Nam</b>
<b>Registry of Sources</b>	<b>Majority of Countries</b>
<b>Personnel Dosimetry</b>	<b>Bangladesh, Myanmar, Sri Lanka, Viet Nam</b>
<b>Radiological Emergency (including lost sources)</b>	<b>Majority of Countries</b>
<b>Medical X-ray Diagnostic</b>	<b>Majority of Countries</b>
<b>Radiotherapy (including Brachytherapy)</b>	<b>Majority of Countries</b>