



## **PRESENT ACTIVITIES OF THE NUCLEAR ENERGY COMMISSION IN THE FIELD OF SAFETY OF RADIATION SOURCES AND SECURITY OF RADIOACTIVE MATERIALS IN MONGOLIA**

N. OYUNTULKHUUR

Nuclear Energy Commission, Ulaanbaatar, Mongolia

**Abstract.** The Radiation Safety Department of the Nuclear Energy Commission (NEC) is a regulatory body in Mongolia established in 1997. The paper gives a general overview of the main activities of the NEC on regulatory control of radiation sources in Mongolia. Mongolia declared itself a nuclear-weapon-free zone in 1992. Legal framework and waste management issues are described. The regulatory authority's co-operation with other agencies in radiation protection is also presented in this paper.

### **INTRODUCTION**

Mongolia is a land-locked country in Central Asia, with 1.5 million km<sup>2</sup> territory and 2.4 million people. It borders the Russian Federation to the north and the People's Republic of China to the south.

Since there are no nuclear power plants or research reactors in Mongolia, the application of nuclear technology is limited to the increasing uses of radiation sources and radioactive substances, radiotherapy, medical diagnostics, industrial technological processes, geology, mining and research. Mongolia is participating in the IAEA's technical co-operation model project on upgrading radiation protection infrastructure and the first project milestone aimed at bringing about a system for notification, authorization and control of radiation sources has been reached. An action plan for the implementation of the project provides for the development of legal basis for radiation protection and safety, the establishment of a body responsible for radiation monitoring, revision of radiation safety standards, management of radioactive waste substances and some other measures. This model project has played an important role in improving the radiation protection infrastructure in our country, especially in regulatory control and establishment of radiation protection legislation. Also, it has provided appropriate training for professional staff and supplied necessary equipment and expert services, which has produced valuable recommendations for our future activities. Now we are waiting for the final report of a peer review mission after completion of its on-site assessment, at the beginning of September 2000, of the effectiveness of a regulatory programme for radiation safety in Mongolia.

### **MONGOLIA'S NUCLEAR-WEAPON-FREE STATUS**

Mongolia declared itself in 1992 a nuclear-weapon-free zone. Recently, the United Nations General Assembly adopted its resolution on Mongolia's international security nuclear-weapon-free status. A law enacted in Mongolia institutionalizes this status.

### **INTERNATIONAL LEGAL FRAMEWORK**

Mongolia has ratified the Treaty on Non-Proliferation of Nuclear Weapons, and a few international agreements relating to the uses of nuclear material, namely:

- the Convention on the Physical Protection of Nuclear Material
- the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- the Convention on Early Notification of a Nuclear Accident.

Currently, Mongolia is considering signing the Convention on Nuclear Safety and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management. Some of the necessary arrangements have been made.

## **LEGAL FRAMEWORK**

The Radiation Safety Law was drafted and approved by the Government, and in June 2000 submitted to the Parliament for its enactment. The July 2000 election established a new Parliament, so we are preparing to resubmit the law to the Government for approval. The relevant ministries and agencies have provided their views in accordance with the established procedure.

The Government Decree No.56. dated 12 April 2000, is the most important act for ensuring radiation protection and safety. This regulates the activities related to radiation sources and will be replaced by the above-mentioned law.

## **REGULATORY AUTHORITY**

The first radiation control unit was established in 1973 under the Ministry of Health and has started to carry out inspection of X-ray rooms in hospitals as an acting regulator. The Radiation Safety Department of the Nuclear Energy Commission is the regulatory body in Mongolia, established in 1997. We have a national inventory of radiation sources and small calibration sources are also registered. Most radiation sources are used in medicine for radiodiagnosis and in industry for NDT and gauging. In Mongolia there are four licensed radiotherapy facilities, four nuclear medicine units, 222 X-ray units, 5 NDT facilities and 168 gauges or well logging sources. An electron accelerator Microtron, neutron generators and Californium-252 sources are being used for research purposes. All institutions which use radiation sources are licensed and all sources inventoried. We use radiation sources relatively little in our country. Inspectors from the regulatory authority carry out routine inspections of the users. New application forms and inspection checklists for different practices were prepared in 2000 using IAEA guidance.

## **RADIOACTIVE WASTE MANAGEMENT**

As far as the issue of safety of radioactive waste management and safe transport of radioactive material is concerned, the Isotope Bureau of the Nuclear Energy Commission, located about 30 km from Ulaanbaatar, is responsible for the safe storage of radioactive waste and the safe transport of radioactive material. A basic regulation on radiation sanitation regulates the activities related to radioactive waste management since Mongolia does not have specific legislation for waste management. New regulations on waste management and transport of radiation sources have been drafted.

Mongolia does not produce radioactive material, so the amount of the radioactive waste is respectively low and is mostly generated from the spent sources of medical and industrial

practices. Spent sources, as waste or disused sources, are stored in the Isotope Bureau, which is under guard 24 hours a day. In 1997, abandoned caesium gauges were found in a storehouse and transferred to the Isotope Bureau.

## **CO-OPERATION WITH OTHER GOVERNMENT AGENCIES**

The Nuclear Energy Commission (NEC) has made specific arrangements with the Customs Department, the State Security Department, civil defence, the criminal police, the Ministry of Health and the Ministry of Environment to ensure radiation protection and emergency response, and has good collaboration. For example, the regulatory authority has a specific arrangement with the customs organization to prevent unauthorized import of radiation sources into the country. The State Security Department is responsible for security control of radiation sources in co-operation with the regulatory authority to prevent unauthorized use or theft of radioactive sources. Civil defence is responsible for emergency planning, response and preparedness and co-operates with the NEC in a radiation accident or radiological emergency. The criminal police should investigate cases described in the criminal code and prevent trafficking or smuggling of radioactive material. The NEC has good co-operation with the Ministry of Health on QA and QC for medical diagnostic equipment and with the Ministry of Environment on environmental radiation monitoring network.

There is a need for more uniform and more effective checks at the frontiers. In order to achieve more targeted customs controls, the NEC is endeavouring to develop appropriate risk analysis techniques and needs to support special training and education for customs on radiation protection aspects. There is a need for supporting, assisting, and improving the close co-operation between national and international organizations, Government authorities and regulatory bodies and also for more staff and funding for the regulatory authority.