

Waste management advisory missions to developing countries

Teams of international experts have reviewed practices in 29 countries

by K.T. Thomas

Over the past 4 years, international experts have reviewed the radioactive waste management programmes of 29 developing countries. Missions have been conducted within the framework of the IAEA's Waste Management Advisory Programme (WAMAP), which was initiated in 1987.

Ten of these countries have nuclear power plants in operation or under construction or have nuclear fuel cycle facilities. Altogether, 23 have research reactors or centres, eight have uranium or thorium processing programmes or wastes, and nine essentially have only isotope applications involving the use of radiation sources.

To date, 34 international experts in radioactive waste management have participated in regular WAMAP missions. They included 24 experts from 10 IAEA Member States and 10 IAEA staff members. Additionally, a special mission was arranged at the request of Brazil to provide a comprehensive assessment for the safe management and disposal of wastes that arose as a result of the Goiânia accident in September 1987. (The accident involved a radioactive source from abandoned radiotherapy equipment.)

Results and recommendations

WAMAP missions have identified a number of areas needing national attention for the implementation of sound waste management programmes. Countries must not only recognize the need for safe management of

radioactive wastes, but they also must have policies and plans for short- and long-term integrated programmes based on modern practices and criteria. One necessity is the application of up-to-date safety criteria in waste management so that proper safety assessments can be made. Other areas needing emphasis are the safe management of used radiation sources and the storage and disposal of radioactive wastes, especially with respect to proper siting of repositories.

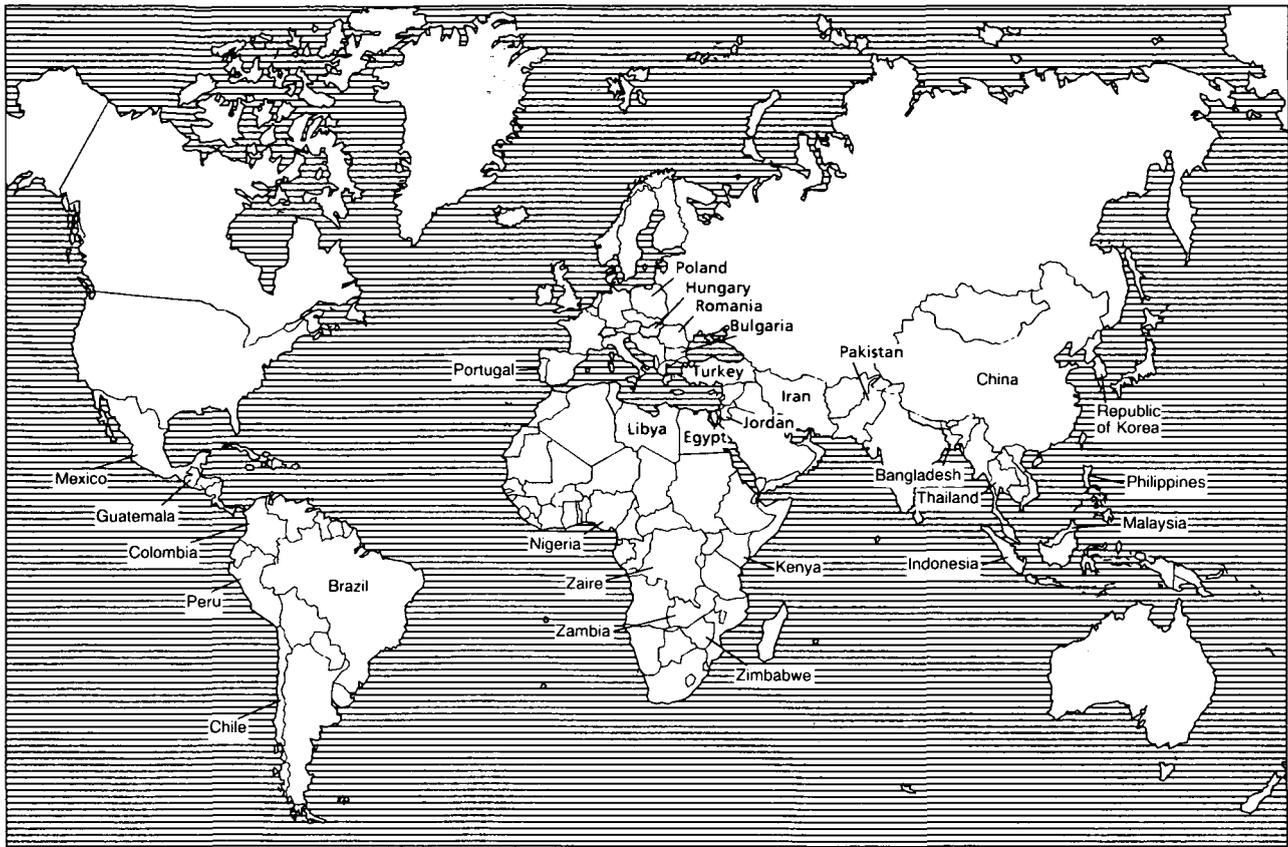
In many developing countries, radioactive waste management has not been given due importance. Most of the time, it is reasoned that wastes are safely taken care of as long as some radiation measurements are made. Even in cases where more importance is attached to radioactive waste management, considerable improvements are required with respect to old practices that are still being used, and with respect to a number of other aspects.

In a number of countries, required legislation is not in place and there are no adequate regulations to cover waste management. In cases where regulations exist, they form a small part of radiation protection regulations and sometimes use old radiation protection criteria. In a few countries, there are no national authorities that effectively are responsible for radioactive waste management, and, in some cases, there are more than one, which adds to the complications.

In most countries, the short- and long-term planning that is essential for adequate waste management is lacking. This is mainly because there are no national policies on the matter. In a few countries, there are no estimates of waste production. No earnest efforts are made to minimize the production of wastes, or to make a reasonable assessment of waste arisings, classification, and characterization.

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International missions of the IAEA's Waste Management Advisory Programme (WAMAP)



About WAMAP...

The IAEA's Waste Management Advisory Programme (WAMAP) was initiated in 1987 as an interregional technical co-operation project to complement other activities in radioactive waste management. Its creation gave greater recognition to the importance of the safe management of radioactive wastes and promotion of long-term waste management technical assistance strategies for developing countries.

WAMAP in particular helps developing countries to learn about and share international experience in the assessment and practical development and implementation of waste handling, processing, storage, and disposal projects. Assistance is chiefly provided through expert missions that are conducted in a country at the government's request.

Subject areas that are covered in planning WAMAP assessments and missions include:

- Legislation, such as enabling acts and regulations;
 - National competent authority;
 - National policies, programmes;
 - Waste segregation, collection, storage;
 - Waste treatment, conditioning;
 - Waste disposal;
 - Uranium mining and milling waste management;
 - Decontamination and decommissioning of nuclear facilities;
 - Management of used, and unused, radiation sources;
 - Research and development activities;
 - Safety assessment;
 - Staff and training; and
 - Regional, international co-operation.
- Overall, WAMAP recommendations provide the evaluation and technical background for follow-up activities, including technical co-operation and waste management projects.

In many countries, there is no national programme for waste management. Activities often are part of radiation protection programmes, with the same people doing both jobs. This is not a correct policy, since the protector should not be responsible for the safe handling of wastes, which involves different technologies.

In a majority of countries, there is an acute shortage of finances to get the required equipment and instruments for radioactive waste management programmes. Staffing problems are also common, particularly in obtaining people who have adequate background and knowledge in waste management. Problems involve finding the resources to employ enough people, training them, and keeping them, once they have been trained abroad. There is a strong need for adequate training in waste management as distinct from training in radiation protection.

How WAMAP helps

In terms of international assistance, the correlation between the needs and strategies of national programmes and technical assistance through IAEA programmes is being strengthened through WAMAP missions. Often, technical assistance is provided based upon requests from individual national laboratories or scientists; consequently, the country's overall programme goals and needs may not be fully appreciated.

A major contribution of WAMAP is that it creates an awareness in the countries about the institutional and human requirements for safe radioactive waste manage-

ment programmes. On-the-spot discussions are held on a range of topics between the international experts and national authorities throughout the mission. Strengths and weaknesses are pointed out, and follow-up actions are recommended to promote sound practices, and to build up the confidence of those that are nationally responsible for waste management activities so that potential incidents can be prevented. Overall, the missions take into account each country's technological resources and stage of development. The regulatory, scientific, technical, and organizational recommendations are thus made with a view that they can, in fact, be implemented.

Missions have given special emphasis to the safe handling and disposal of radioactive sources that have been used in industry, medicine, and other fields. Experts have given practical advice on the immobilization of such used sources and, in one country, actually demonstrated the process.

Follow-up actions

After each mission, a number of follow-up actions are taken which directly benefit each country. They include distribution of the official WAMAP mission report, as well as other regulatory and technical reports, directly to national scientists and officials concerned with the specific subjects. In addition, answers to specific technical questions raised during missions are sent directly to the scientists concerned.

WAMAP recommendations further have resulted in a number of IAEA technical co-operation projects in waste management, as well as expert services to countries identified as needing them.

Another follow-up action that will be taken by the Agency is the arrangement of regional training courses to provide "hands on" training on the safe immobilization and storage of used radioactive sources. The first course will be held in Africa, and others are being planned for Latin America, Asia and the Pacific, and other regions.



Guatemala is one of 29 countries that have hosted WAMAP missions of the IAEA.