

Activities undertaken by the International Atomic Energy Agency (IAEA) in 2002 in the context of radioactive waste management and the oceans

- The International Atomic Energy Agency is an organization within the UN family with unique statutory responsibilities relating to the safety of persons and property from the effects of ionizing radiation. Specifically, it has been mandated to establish standards of safety for protection of health and to provide for the application of these Standards, at the request of a Member State. Its role in providing authoritative international advice on matters related to radioactive materials in the marine context has been formally recognized by the Contracting Parties to the Convention on the Prevention of Marine Pollution by Dumping of Waste and Other Matter (the London Convention 1972).
- The IAEA has worked for some years on assembling information on all inputs of radioactive materials into the world oceans. In 2002 the IAEA continued to collect information and data to be included in its computerized database of radioactive discharges from land-based sources into the marine environment. During the year the IAEA established contact with national organizations in 33 countries nominated by their Governments as counterparts for the provision of data for the IAEA's database. In November 2002 the first meeting of these national contact points was held in Vienna.
- The information gathered on the inputs of radioactive material into the oceans will be incorporated into the IAEA's Clearing House on Radioactive Substances which is being developed as part of the IAEA's commitment to the UN Global Programme of Action (GPA) for the Protection of the Marine Environment from Land-Based Activities. In 2002 work continued at the IAEA towards the development of the first full version of the internet based IAEA's Clearing House on Radioactive Substances which will replace the current prototype. The Clearing House will also contain information on the levels of natural and artificial radioactivity in the world oceans, monitoring techniques, assessments of the impact of radioactivity released into the marine environment, international and regional conventions and regulations. The development is expected to be completed in 2003.
- International standards of radiation protection provide for the protection of humans from the effects of ionizing radiations but do not specifically address the protection of other species in the environment. In response to growing interest in the issue the IAEA has promoted in recent years discussion at international level on the definition and application of standards for the protection of the environment against the effects of ionizing radiation. In 2002 the IAEA's work in this area continued with the aim of stimulating discussion on the subject towards developing a consensus on appropriate standards; its activities have focused on fostering information exchange by holding a series of Specialists Meetings, symposia and conferences, the most recent of which was held in Darwin (Australia) in July 2002. The next significant IAEA meeting on this subject will be an International Conference in Stockholm from 6 to 10 October 2003.
- In 1993 the IAEA set up the International Arctic Seas Assessment Project (IASAP) in order to assess the radiological consequences associated with the radioactive wastes dumped by the Former Soviet Union in the Arctic Seas. In 1998 the IAEA published the main report of IASAP, entitled "Radiological Conditions of the Western Kara Sea, Assessment of the Radiological Impact of the Dumping of Radioactive Waste in the Arctic Sea". In 2002 the IAEA brought the IASAP study to a conclusion by completing the report of IASAP's Modelling and Assessment Working Group, established by the IAEA within the framework of IASAP to model the dispersal and transport of the radioactive waste potentially released from the dumped objects and assess the radiological impact. The

report, entitled "Modelling of the radiological Impact of radioactive waste dumping in the Arctic Sea", will be published as IAEA-TECDOC-1330 in 2003.

- In 2002, two Transport Safety Appraisal Service (TranSAS) missions, which help transporting countries to assess their effectiveness in applying Agency transport standards, were carried out in Brazil (April) and the United Kingdom (June). Further missions to Turkey, Panama and France are planned for 2003. These missions represent a very significant development in the establishment of an international safety regime in the area of transport of radioactive material. France and United Kingdom are two of the major shippers of radioactive material, while Panama and Turkey control two important waterways for international maritime transport: the Panama Canal and the Dardanelles respectively.
- In June 2002 the IAEA's Commission on Safety Standards (CSS) endorsed an "as amended" version of the 1996 edition of the Agency's Transport Regulations, which, although containing some substantial changes vis-à-vis the 1996 edition, will not affect the certification of package designs. The Agency's Transport Regulations will accordingly be issued in 2003 as an "as amended 2003" publication.
- The IAEA has also continued to work closely with the International Maritime Organization (IMO), which is preparing to publish new emergency response guides that incorporate detailed inputs provided by the Agency. The IMO is in the process of making much of the International Maritime Dangerous Goods (IMDG) Code, now incorporating all the requirements of the Agency's Transport Regulations, mandatory for them.
- The IAEA Marine Environment Laboratory (IAEA-MEL) in Monaco has been responding regularly to requests for technical assistance in marine radioactivity monitoring and assessment from many other UN agencies, international organizations, and governments. IAEA-MEL has been engaged in deepening scientific understanding of marine radioactivity since its beginnings. Over the decades, moreover, research has broadened to include marine process studies and analysis of a wide range of non-radioactive pollutants in the marine environment, using nuclear and isotopic techniques.
- IAEA-MEL has continued to develop strategies to apply nuclear techniques for addressing coastal zone management issues. In particular, projects using nuclear techniques have focused on quantifying the rates of coastal ocean processes and understanding the distribution and transport of contaminants in the near-shore environment. For example, alpha, beta, gamma and mass spectrometric techniques are routinely employed to assess the impact of artificial radionuclides as well as metal and organic contaminants that have entered marine waters and are transported by oceanic processes resulting in transboundary exposures. Furthermore, a wide variety of radioisotopes of heavy metals, particularly those which are gamma-emitters, are also being used under-controlled laboratory conditions to trace the transfer, behaviour and fate of heavy metal pollutants in water, sediments and edible marine organisms. In addition, the radioactive decay characteristics of certain natural radionuclides make them excellent geochronological tools for dating the time sequence of sedimentation and hence the history of pollutant inputs into coastal seas.
- Three new technical cooperation projects, a national, a regional and an inter-regional were initiated which will have great impact on assessing the worldwide problem of Harmful Algal Blooms (HABS) and their impact on aquaculture and the overall consequences on public health and international seafood trading. For example, the use of tritiated saxitoxin has been instrumental in enabling Member States to develop and employ a rapid assay technique for measuring toxicity in marine food suspected of harbouring these algal toxins. Radionuclide sediment dating techniques in combination with algal cyst

determinations in bottom sediments have also proven useful for establishing the frequency of HAB events in enclosed coastal areas and their correlation with environmental parameters which promote their occurrence.

- IAEA-MEL has been developing Marine Information System, a relational database on the distribution of radioactive and stable isotopes in the world oceans and seas. The data stored in the radionuclide database (GLOMARD) has been recently used in the EU project MARINA II, assessing the impact of marine radioactivity in the Northern European Seas on the population of the European Union.
- IAEA-MEL has been running the Analytical Quality Control Services (AQCS) programme for radionuclides in the marine environment with the aim to assist laboratories in data quality management by organizing intercomparison exercises, proficiency tests, production of certified reference materials and provision of training. The intercomparison exercise on IAEA-414 (Irish Sea and North Sea fish) has recently been completed.