

Activities undertaken by the International Atomic Energy Agency (IAEA) in 2003 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 disposal at sea of radioactive material is prohibited by the London Convention 1972. However, all materials, including those that can be disposed of at sea in accordance with the Convention, contain radionuclides both of natural and artificial origin. At the request of the London Convention 1972, the IAEA has developed definitions, criteria and guidance to determine minimum levels of radioactivity in these materials under which they would not be regarded as “radioactive”. In October 2003, the IAEA published IAEA-TECDOC-1375, entitled “Determining the suitability of materials for disposal at sea under the London Convention 1972: A radiological assessment procedures”, which elaborates further the IAEA’s advice on the subject and contains guidance on how to perform an assessment to determine if levels of radioactivity in materials to be disposed of at sea meet the exemption criteria established by the IAEA in support to the London Convention 1972.
- 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 2003 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 radionuclides in the world oceans, monitoring techniques, assessments of the radiological impact of radionuclides released into the marine environment and on international and regional conventions and regulations. It is expected to be launched early in 2004.
- 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 2003 the IAEA’s work in this area continued towards developing appropriate standards. An International Conference on Protection of the Environment from the Effects of Ionizing Radiation was held in Stockholm from 6 to 10 October 2003 – as a means of fostering information exchange on the subject and of promoting the efforts of international organizations in developing an agreed policy framework for environmental protection.
- IAEA’s Transport Safety Appraisal Service (TranSAS) missions help countries to assess and enhance their implementation of the Agency’s transport safety standards. In September 2003, the IAEA published a report on its TranSAS mission to Brazil as TranSAS-2. Further missions to Turkey and Panama were carried out in 2003, while a mission to France is scheduled for early 2004. The TranSAS missions represent a very

significant further development of the international safety regime in the area of transport of radioactive material.

- 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. In a further decision the CSS directed the Agency to publish these changes as corrigenda. The approved changes have been incorporated in the 2003 edition of the UN Model Regulations and are now being incorporated in the 2005 editions of international air, sea, road and rail regulations that will become effective as of 1 January 2005.
- 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 has made much of the International Maritime Dangerous Goods (IMDG) Code, now incorporating all the requirements of the Agency's Transport Regulations, mandatory for its Member States as of 1 January 2004.
- 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 (MARIS), a relational database on the distribution of radioactive and stable isotopes and other tracers in the

world oceans and seas. The MARIS will be available in 2004 to Member States via IAEA web site and CD-ROMs. 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.
- IAEA has continued to support various activities of The Joint Group of Experts on Scientific Aspects of Marine Environmental Protection (GESAMP), in particular its suitability and credibility in carrying out periodic assessments of the state of the global marine environment. In response to a call from the UN CSD, an in-depth, independent review of how the GESAMP mechanism might be improved took place in 2000. The review, completed in 2001, strongly recommended that GESAMP should be continued but with changes in its *modus operandi*, products and product delivery in order that GESAMP could become the world's first choice for advice and guidance on marine environmental protection. As a measure of its support for a New GESAMP, IAEA has offered to host the proposed GESAMP office at its Marine Environment Laboratory (IAEA-MEL) in Monaco, the only marine laboratory in the UN system. Such a close collaboration should help establish a more efficient, transparent and regular mechanism of inter-agency coordination of marine affairs.