PART B

ESTABLISHMENT OF INTERNATIONAL SAFETY STANDARDS

Background

1. Under Article III.A.6 of its Statute, the Agency is authorized "To establish or adopt, in consultation and, where appropriate, in collaboration with the competent organs of the United Nations and with the specialized agencies concerned, standards of safety for protection of health and minimization of danger to life and property". Since soon after the Agency's inception the Secretariat has been involved in developing and establishing such standards.

2. In 1996, the Secretariat introduced a uniform preparation and review process for safety standards. To this end, it created a set of advisory bodies with harmonized terms of reference to assist it in preparing and reviewing all documents, namely the *Advisory Commission for Safety Standards* (ACSS), the *Nuclear Safety Standards Advisory Committee* (NUSSAC), the *Radiation Safety Standards Advisory Committee* (RASSAC), the *Waste Safety Standards Advisory Committee* (WASSAC) and the *Transport Safety Standards Advisory Committee* (TRANSSAC). It assigned to each of these bodies a Scientific Secretary, who co-ordinates the work of the body with the relevant Agency policies and programmes, and appoints a Technical Officer for the preparation of each document in accordance with recommendations made.

International basis for the Agency's safety standards

3. The Agency establishes its safety standards on the basis of advice provided by its International Nuclear Safety Advisory Group (INSAG), of studies by the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) and of recommendations made by a number of international bodies, principally the International Commission on Radiological Protection (ICRP).[1]

---

[1] In *The Agency's Health and Safety Measures*, INFCIRC/18, it was stated that "The Agency's basic safety standards will be based, to the extent possible, on the recommendations of the International Commission on Radiological Protection (ICRP)".

4. INSAG — an independent advisory group to the Director General of the IAEA — has four reports either recently published or close to publication. A new publication entitled "The Safe Management of Sources of Radiation: Principles and Strategies" (INSAG-11) addresses the fundamental objectives and principles of nuclear, radiation and waste safety. This publication will be used as one of the primary references for the revision of the IAEA's Safety Fundamentals, starting next year. An updated version of an earlier report on the basic safety principles for nuclear power plants (INSAG-3 Rev. 1) and new reports on the management of operational safety at nuclear power plants and on the safe management of the operating lifetimes of nuclear power plants have been approved and will be issued in the near future.

5. As reported in the Nuclear Safety Review for the Year 1998 (GC(43)/INF/4), the UN General Assembly adopted a Resolution A/RES/53/44 indicating that UNSCEAR's existing functions and role should continue. UNSCEAR's major areas of current interest include: estimating worldwide exposures from natural sources; global doses and trends in medical exposure; exposure of the local population from the Chernobyl accident; doses from natural sources in workplaces; the total doses received by people who are occupationally exposed; effects of radiation on children and on the developing brain in utero; mechanisms involved in oncogenesis and hereditary effects; dose and dose rate effects; the adaptive response; epidemiology; and interactions between the effects of radiation and other carcinogens. It is expected that, at its meeting in 2000, UNSCEAR will approve its latest report to the UN General Assembly on sources and effects of ionizing radiation.

6. The ICRP issued a report on genetic susceptibility to cancer (Publication 79) and a database of dose coefficients (on CD-ROM), and also published a special report summarizing the Commission's history, policy and procedures. At its October 1998 meeting, the Main Commission adopted a report on risk estimation for multifactorial disease, which will be ICRP Publication 80. At its April 1999 meeting, Committee 4 adopted a report on protection of the public in prolonged exposure situations, which has been forwarded to the Main Commission. Another Committee 4 Task Group, on the disposal of long-lived solid radioactive waste, is also close to completing its report. Looking to the future, the Commission has circulated a text, through the International Radiation Protection Association, requesting views on some suggestions for the evolution of ICRP recommendations towards a system based on the concept of 'controllable dose'.

The hierarchy of Agency safety standards documents

7. In 1989, following a major expansion of the Agency's safety related activities, the Secretariat introduced a hierarchical structure for IAEA Safety Series publications, which were divided into Safety Fundamentals, Safety Standards, Safety Guides and Safety Practices. In order to clarify the status of the different documents, this structure was modified in 1996, the single Safety Series being replaced by:

- the **Safety Standards Series**, comprising those safety standards issued by the Agency pursuant to Article III.A.6 of its Statute; and
- the **Safety Reports Series**, to contain more descriptive documents of the type previously issued as Safety Practices, which are issued by the Agency for the purpose of safety related information exchange.

8. The Safety Standards Series documents fall into three categories:

- **Safety Fundamentals**, which state the basic objectives, concepts and principles involved in ensuring protection and safety;
- **Safety Requirements**, which specify requirements that must be satisfied in order to ensure safety for particular activities or application areas, these requirements being governed by the basic objectives, concepts and principles stated in Safety Fundamentals; and
- **Safety Guides,** which supplement Safety Requirements by presenting recommendations, based on international experience, regarding measures to ensure the observance of safety requirements..

9. **Safety Reports** give examples and descriptions of methods which can be applied in implementing both Safety Requirements and Safety Guides. They are documents for fostering information exchange.

Activities of the advisory bodies

10. A brief summary is given below of the main activities of the ACSS and the four Advisory Committees since the last session of the General Conference. A document outlining the current status of all of the Agency's safety standards is available from the Secretariat, and will soon be on the Agency's web site at www.iaea.org/ns/coordinet/.

11. Safety Requirements on near surface disposal of radioactive waste, which had previously been endorsed by ACSS, were approved for publication by the March 1999 session of the Board of Governors, and have now been published. Six Safety Guides — one on safety assessment for near surface disposal, three on occupational radiation protection and two on decommissioning — have been approved by the IAEA Publications Committee, and will be published shortly.

Advisory Commission for Safety Standards (ACSS)

12. The Advisory Commission for Safety Standards (ACSS) is a standing body of senior government officials holding national responsibilities for establishing standards and other documents relevant to nuclear, radiation, waste and transport safety. The ACSS has a special overview role with regard to the Agency's safety standards and provides advice to the Director General on the overall safety-standards-related programme.

13. The members of the ACSS were appointed by the Director General for a four-year term, which runs until the end of 1999. The Agency is inviting Member States with major nuclear programmes to nominate senior experts to serve on the ACSS; on the basis of these nominations, the Director General will select members for the 2000–2003 term.

14. The ACSS, chaired by Dr. A. Bishop of the Atomic Energy Control Board, Canada, met in May–June 1999. The Commission endorsed the submission of three Safety Requirements to the Board of Governors for approval, on:

- legal and governmental infrastructure for nuclear, radiation, radioactive waste and transport safety (a General Safety publication);
- safety of nuclear power plants: operation; and
- pre-disposal management of radioactive waste including decommissioning.

15. Four Safety Guides were also endorsed by the ACSS for publication, covering:

- regulatory control of radioactive discharges to the environment;
- preventing, detecting and responding to illicit trafficking in radioactive materials;
- decommissioning of medical, industrial and research facilities; and
- decommissioning of nuclear power plants and research reactors.

**Nuclear Safety Standards Advisory Committee (NUSSAC),
Radiation Safety Standards Advisory Committee (RASSAC),
Waste Safety Standards Advisory Committee (WASSAC) and
Transport Safety Standards Advisory Committee (TRANSSAC)**

16. Each of the four Advisory Committees is a standing body of senior regulatory officials with technical expertise in the relevant area of safety. They provide advice to the Secretariat on the overall safety programme in their respective areas of expertise, and have the primary role in the development and revision of the Agency's safety standards in that area.

17. The original members of the four Advisory Committees — NUSSAC, RASSAC, WASSAC and TRANSSAC — were appointed by the Director General for a three-year term from 1996 to the end of 1998. Since the last session of the General Conference, therefore, these committees have been reconstituted, taking account of nominations from Member States. Each of the Advisory Committees met for the first time with its new membership in the first half of 1999.

18. The Chairmen of NUSSAC (Mr. P. Govaerts of AIB-Vinçotte Nucléaire, Belgium) and WASSAC (Mr. P. Metcalf of the Council for Nuclear Safety, South Africa) were reappointed for the 1999–2001 term. Mr. G.C. Mason of the Australian Radiation Protection and Nuclear Safety Agency was appointed as Chairman of RASSAC to succeed Mr. S.L. Creswell (Health and Safety Executive, United Kingdom), and Mr. C.N. Young of the United Kingdom Department of the Environment, Transport and the Regions succeeded Mr. W. Collin (Bundesamt für Strahlenschutz, Germany) as Chairman of TRANSSAC.

19. Each of the outgoing Advisory Committees prepared reports summarizing the main achievements and issues of their three-year terms. These reports were of value both to the Secretariat in assessing the effectiveness of the new preparation and review process, and to the incoming Committees as a historical record. Notable themes in the reports from the different Committees included the need for coherence and consistency between safety standards on different topics (and hence for co-ordination between the advisory bodies), a wish for greater transparency in the process whereby the Secretariat takes account of Member States' comments on draft safety standards, and, ultimately, the importance of feedback from Member States on the value of the safety standards being produced.

20. All four of the Advisory Committees were involved in reviewing the draft Safety Requirements on legal and governmental infrastructure for nuclear, radiation, radioactive

waste and transport safety, which were also endorsed by the ACSS for submission to the Board of Governors for approval (see above).

21. **NUSSAC** met twice during the past year, once with the original membership and once with the new, and has provided advice on the revision and updating of the existing NUSS documents in the areas of nuclear power plant operation, design and siting and on research reactors. In addition, as the nominated lead Committee for the legal and governmental infrastructure standards, NUSSAC considered drafts of the series of Safety Guides for nuclear facilities, covering organization of the regulatory body, review and assessment, inspection and enforcement, and documentation.

22. The aim is to have completed the redrafting of all priority documents by the end of the year 2000 and the programme is now at the stage where a large number of documents are under preparation and review at any time. A small number of documents are approaching the end of this process, most notably the three Safety Requirements documents on operation, design, and legal and governmental infrastructure. These Safety Requirements, which will replace the existing Codes, are important for identifying assistance needs and for updating the safety review services, such as OSART, IRRT and the Design Safety Review Service (see Annex C-6). The first of the nuclear Safety Requirements, that on operation, was approved for forwarding to ACSS (and subsequently endorsed by ACSS — see above).

23. **RASSAC** met in September 1998 — the last meeting with the 1996–1998 membership — and in May 1999 with the new membership. RASSAC's main priority remains the development of radiation safety guidance in support of the International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources. The September 1998 meeting approved a draft Safety Guide on preventing, detecting and responding to illicit trafficking in radioactive materials for forwarding to ACSS (and subsequently endorsed by ACSS — see above). The Committee also approved, subject to the incorporation of some revisions, the distribution of a draft Safety Guide on radiation protection in the medical exposure of patients to Member States for comment.

24. The May 1999 meeting approved, subject to the incorporation of some comments, the forwarding to ACSS of a draft Safety Guide on regulatory control of radioactive discharges to the environment and the distribution to Member States for comment of a draft Safety Guide on source and environmental monitoring for public protection. The Committee discussed a draft Safety Guide on application of the radiological concepts of exclusion, exemption and clearance — a subject of interest to both RASSAC and WASSAC. They

concluded that guidance was much needed, but that further internal development to clarify (and, if possible, simplify) the concepts and advice was needed. It was noted that the developments on exclusion, exemption and clearance would also affect a draft Safety Guide on consumer products containing radioactive substances, and that other draft safety standards would need to be checked for consistency. RASSAC also considered a discussion document on protection of the environment against ionizing radiation, which addressed some issues concerning the possibility of developing safety standards in this area.

25. Exclusion, exemption and clearance will be one of the topics for discussion at an 'overlapping' meeting of RASSAC and WASSAC planned for April 2000. This opportunity for joint discussions is intended to help in the continuing efforts to improve coherence and consistency in the Agency's safety standards.

26. **WASSAC** met twice since the last session of the General Conference: in November–December 1998 with the 1996–1998 membership; and in June 1999 with the new membership. The November–December meeting approved — subject to RASSAC approval — a draft Safety Guide on regulatory control of radioactive discharges to the environment. A draft Safety Guide on decommissioning of nuclear facilities was approved for distribution to Member States. The meeting also approved the development of a Safety Guide on the safe storage of radioactive waste.

27. The June 1999 meeting of WASSAC approved Safety Requirements on the pre-disposal management of radioactive waste (which were also endorsed by ACSS — see above). The meeting also considered the draft Safety Requirements and Safety Guides on legal and governmental infrastructure, and concluded that concerns which had previously been expressed by WASSAC about the balance of these General Safety documents had now been satisfactorily addressed. The Committee also discussed and commented on the issues of exclusion, exemption and clearance, in the light of RASSAC's discussions (see above) and with particular reference to a draft Safety Guide in the waste safety area, on removal of controls from materials from regulated activities.

28. WASSAC considered a discussion paper on geological disposal, intended to point the way forward towards consensus safety standards on the subject. The Committee also discussed the issue of formalizing the status of the Working Group on Principles and Criteria for Radioactive Waste Disposal and its 'task groups' in relation to WASSAC, and proposed that the Working Group should in future operate under the direction of, and report to, WASSAC.

29. **TRANSSAC** met in April 1999, with a new membership and Chairman. The main achievement of the meeting was to approve a new review cycle for the IAEA Regulations for the Safe Transport of Radioactive Material. Proposed revisions will be reviewed every two years, and a revised version of the Regulations will be produced when there are sufficient changes to warrant one. The new cycle will be better synchronized with the two-year review cycle used by the UN Committee of Experts on Transport of Dangerous Goods, and by modal organizations such as the International Maritime Organization, the International Civil Aviation Organization and the European Agreements concerning the International Carriage of Dangerous Goods by Rail (RID) and by Road (ARD), for their regulations. This change should help to speed up the process of incorporating the Agency's Regulations into those of other organizations.

30. Two Safety Guides — "Advisory Material for the Regulations for the Safe Transport of Radioactive Materials" and "Planning and Preparing for Emergency Response to Transport Accidents involving Radioactive Material" — have been approved by TRANSSAC and will be transmitted to the ACSS for consideration at its meeting in November 1999.