

# General Conference

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# Nuclear and Radiation Safety

## Resolution adopted on 22 September 2021 during the ninth plenary meeting

### The General Conference,

- (a) Recalling resolution GC(64)/RES/9 and previous General Conference resolutions on matters relating to measures to strengthen international cooperation in nuclear, radiation, transport and waste safety, and emergency preparedness and response,
- (b) Acknowledging the Agency's statutory functions with respect to safety and welcoming the activities of the Agency in establishing Safety Standards,
- (c) Recognizing the central role of the Agency in coordinating international efforts to strengthen nuclear safety globally, in providing expertise and advice in this field and in promoting nuclear safety,
- (d) Recognizing that strengthening nuclear safety globally requires the resolve of Member States to continuous improvement in the pursuit of high levels of safety,
- (e) Recognizing the increasing number of countries considering or introducing nuclear power or radiation technology, and the growing importance of international cooperation to strengthen nuclear safety in this regard, including among embarking countries, those with established nuclear power programmes, and industry organizations,
- (f) Recognizing the need to continue providing appropriate technical, human and financial resources for the Agency to implement its nuclear safety activities and to enable the Agency to provide, upon request, the support needed by Member States,
- (g) Recognizing that embedding and enhancing safety culture is a key element of the peaceful uses of nuclear energy, ionizing radiation and radioactive materials,
- (h) Recognizing that nuclear safety and security have the common aim of protecting people and the environment, while acknowledging the distinctions between the two areas, and affirming the importance of coordination in this regard,

- (i) Recognizing the prime responsibility of operators for nuclear safety,
- (j) Recognizing the importance of Member States establishing and maintaining effective and sustainable regulatory infrastructures,
- (k) Acknowledging that research, development, the introduction of innovative methods and technologies and the availability of research and testing facilities are of continuing and long term fundamental importance in improving nuclear safety worldwide,
- (l) Acknowledging the need to continue to enhance the safety of nuclear installations, including research reactors and nuclear fuel cycle facilities,
- (m) Recalling the objectives of the Convention on Nuclear Safety (CNS), the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (Joint Convention), the Convention on Early Notification of a Nuclear Accident (Early Notification Convention) and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (Assistance Convention) and the obligations of the respective Contracting Parties, and recognizing the need for effective and sustainable implementation of these conventions, and recalling the central role of the IAEA in promoting adherence to all international nuclear safety conventions concluded under its auspices,
- (n) Noting the actions agreed at the 7th review meeting to strengthen the participation in and effectiveness and transparency of the Convention on Nuclear Safety, the major common issues and good practices and areas of good performance identified by the President and the country groups and the challenges identified for Contracting Parties;
- (o) Recalling the objectives of the Code of Conduct on the Safety of Research Reactors as well as the Code of Conduct on the Safety and Security of Radioactive Sources and its Guidance on the Import and Export of Radioactive Sources and its Guidance on the Management of Disused Radioactive Sources,
- (p) Recalling that States, under international law, have the obligation to protect and preserve the environment, including the marine and terrestrial environment, and emphasizing the importance of the Secretariat's continued collaboration with the Contracting Parties of international and regional instruments aimed at protecting the environment from radioactive wastes, in particular the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (the London Convention) and Protocol and the Convention for the Protection of the Marine Environment of the North-East Atlantic (the OSPAR Convention),
- (q) Recognizing that, historically, the safety record of civilian transport, including maritime transport, of radioactive materials has been excellent, and stressing the importance of international cooperation to further enhance the safety and security of international transport,
- (r) Recognizing that denials of and delays in shipment of nuclear and radioactive materials can affect the provision of medical treatment and diagnosis, the selection of routes and modes of shipment, and the predictability of transport,
- (s) Noting the need for the Agency to continue to keep abreast of scientific and technological innovations, including with regard to transportable nuclear power plants (TNPPs) and small and medium sized or modular reactors (SMRs),
- (t) Noting that there are ongoing projects to construct and deploy transportable nuclear power plants and small and medium or modular reactors, and also noting that these installations should be developed and operated pursuant to the existing safety frameworks for nuclear power plants,

- (u) Welcoming the launch of the Agency-wide platform on SMRs to ensure a cross departmental approach and to provide integrated support to Member States on all aspects of their development, deployment and oversight,
- (v) Recalling maritime and air navigation rights and freedoms, as provided for in international law and as reflected in relevant international instruments,
- (w) Recalling resolution GC(64)/RES/9 and previous resolutions that invited Member States shipping radioactive material to provide, as appropriate, assurances to potentially affected States, upon their request, that their national regulations take into account the Agency's Regulations for the Safe Transport of Radioactive Material and to provide them with relevant information relating to shipments of such material,
- (x) Recalling the issuing of the Best Practices for Voluntary and Confidential Government to Government Communications on the Transport of MOX Fuel, High Level Radioactive Waste and, as appropriate, Irradiated Nuclear Fuel by Sea (INFCIRC/863) in 2014,
- (y) Recognizing that transparent communication with and outreach to the public and interested parties enhances public awareness regarding nuclear safety and benefits derived from and potential effects of ionizing radiation,
- (z) Recalling the outcomes of the International Symposium on Communicating Nuclear and Radiological Emergencies to the Public, convened by the IAEA in October 2018,
- (aa) Recognizing that nuclear and radiological incidents, accidents and emergencies may raise public concerns about nuclear energy and about the effects of radiation on present and future generations and the environment, and that some emergencies may have transboundary effects,
- (bb) Emphasizing the importance of Member States and relevant international organizations responding to nuclear and radiological emergencies, in a timely, effective and transparent manner,
- (cc) Recognizing the importance of well-developed communication arrangements and regular public information as an important component of effective planning and preparedness for and response to nuclear accidents and radiological emergencies,
- (dd) Acknowledging the Secretariat's role in response to nuclear or radiological incidents or emergencies and recognizing the need to ensure the timeliness of the collection, validation, assessment and prognosis, and dissemination by the Secretariat, in cooperation with the notifying State, of incident or emergency information to Member States and the public, as well as seeking effective facilitation and coordination of assistance by the Secretariat, upon request,
- (ee) Emphasizing the importance of capacity building, which should, among other things, take into consideration lessons learned and expertise, in establishing and maintaining an adequate nuclear, radiation, transport and waste safety and emergency preparedness infrastructure,
- (ff) Recalling the IAEA Fundamental Safety Principles, according to which radioactive waste must be managed in such a way as to avoid imposing an undue burden on future generations, and emphasizing the importance of the development of national long-term programmes or approaches for the safe management of spent fuel and radioactive waste, including for waste disposal and storage, where appropriate, containing outcomes which are achievable and timely,
- (gg) Reaffirming the importance of planning and implementing long-term safe management for spent fuel and radioactive waste, alongside ensuring that spent fuel and radioactive waste management practices are practicable, and adequately protect individuals, society and the environment against radiological hazards,

- (hh) Recognizing the importance of Member States voluntarily performing self-assessments and using the Agency's peer review services as effective tools for continued efforts to evaluate, maintain effective practices and further improve their respective nuclear safety,
- (ii) Recognizing that regional organizations of regulatory authorities strengthen regional efforts to improve safety through the exchange of information and experience, and recognizing also the transparent cross peer reviews among the respective members of the Ibero-American Forum of Radiological and Nuclear Regulatory Agencies (FORO) and the European Nuclear Safety Regulators Group (ENSREG) and the Western European Nuclear Regulators' Association (WENRA) of targeted reassessments of their nuclear power plants in the light of the Fukushima Daiichi nuclear accident, and further recognizing that such activities can be of interest to other organizations or regulatory authorities,
- (jj) Underscoring that medical uses of ionizing radiation constitute by far the largest source of artificial exposure, and emphasizing the need for enhanced efforts at national level to justify medical exposures, and to optimize radiation protection for patients and health workers,
- (kk) Recognizing the need to enhance cooperation and coordination between the Agency and the relevant organizations at the intergovernmental, national, regional and international levels on all nuclear safety-related matters,
- (ll) Emphasizing the importance of the establishment, implementation, regular exercise and continuous improvement of relevant national, bilateral, regional and international emergency preparedness and response mechanisms and arrangements, and contributing to the harmonization of national protective actions,
- (mm) Emphasizing the need to prepare for decontamination or remediation following a nuclear or radiological incident, accident or emergency, which may involve planning for the safe management of large volumes of waste or unusual waste forms,
- (nn) Noting the importance of decommissioning programmes and spent fuel and radioactive waste management activities as facilities reach end of life,
- (oo) Recalling United Nations General Assembly resolution A/RES/75/91 of 10 December 2020 related to the effects of atomic radiation, and the Board decision in March 1960 on health and safety measures (INFCIRC/18),
- (pp) Noting the guidance of the World Health Organization (WHO) for controlling radionuclides in drinking water, and the ongoing work of the Codex Committee on Contaminants in Food on radionuclides in food and drinking water in non-emergency situations, and also being aware of the recent discussion document "Radioactivity in Goods Supplied for Public Consumption or Use",
- (qq) Recalling the Paris Convention on Third Party Liability in the Field of Nuclear Energy, the Vienna Convention on Civil Liability for Nuclear Damage, the Brussels Convention supplementary to the Paris Convention, the Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention, the protocols amending the Brussels, Paris and Vienna Conventions, and the Convention on Supplementary Compensation for Nuclear Damage (CSC) and noting that these instruments can provide the basis for establishing a global nuclear liability regime based on the principles of nuclear liability,
- (rr) Stressing the importance of having in place effective and coherent nuclear liability mechanisms at the national and global levels to ensure prompt, adequate and non-discriminatory compensation for damage to — inter alia — people, property and the environment, including

actual economic loss due to a nuclear accident or incident, recognizing that principles of nuclear liability, including strict liability, should apply as appropriate in the event of a nuclear accident or incident, including during the transport of radioactive material, and noting that the principles of nuclear liability can benefit from the advances contained in the 1997 and 2004 instruments concerning broader definition of nuclear damage, expanded jurisdiction over nuclear incidents and increased compensation, and from recommendations made by the International Expert Group on Nuclear Liability (INLEX), to provide better protection to victims of nuclear damage, and

(ss) Recognizing the importance of coordination between the Agency and the OECD Nuclear Energy Agency (NEA), when appropriate, with respect to conventions concluded under their auspices related to civil nuclear liability,

## **1. General**

1. Urges the Agency to continue to strengthen its efforts to maintain and improve nuclear, radiation, transport and waste safety and emergency preparedness and response;
2. Encourages Member States to develop, maintain and improve their nuclear and radiation safety infrastructure and related scientific and technical capabilities, including through international nuclear cooperation; and both requests the Secretariat and encourages Member States in a position to do so, to assist in this regard, upon request, in a coordinated, efficient and sustainable manner;
3. Requests the Secretariat to provide Member States introducing research reactors, radiation technology or a nuclear power programme, upon request in a timely and efficient manner, with guidance on how to use the Agency's safety services in support of the development of their nuclear safety infrastructure;
4. Acknowledges the actions undertaken by Contracting Parties of the CNS, the Joint Convention, the Early Notification Convention and the Assistance Convention in response to the Fukushima Daiichi nuclear power plant accident; recalls the IAEA Action Plan on Nuclear Safety, the IAEA Report on the Fukushima Daiichi nuclear power plant accident, the Vienna Declaration on Nuclear Safety on Principles for the Implementation of the Objective of the CNS to Prevent Accidents and Mitigate Radiological Consequences, and the experience from their implementation by Member States; requests the Agency to continue to build upon them and use them for refining its nuclear safety strategy and programme of work, including priorities, milestones, timelines and performance indicators; and requests that the Secretariat continue to report periodically in this regard in the lead up to the March Board of Governors and the General Conference;
5. Encourages Member States to continue to enhance safety culture at all levels in their nuclear and radiation activities, and requests the Secretariat to support Member States, upon request, in promoting, assessing, and improving safety culture in all relevant organizations, including regulatory body oversight of licensee safety culture, and on practices to promote and sustain the regulatory body's own safety culture;
6. Requests the Secretariat, while recognizing the distinction between nuclear safety and nuclear security, to continue facilitating in close cooperation with Member States a coordination process to address their interfaces in a timely manner, and encourages the Agency to develop safety and security publications, ensure consistency and to foster culture accordingly;
7. Encourages the Secretariat to coordinate its programmatic activities in safety with other relevant activities of the Agency, and to ensure consistency of safety aspects of relevant IAEA publications;

8. Encourages Member States to join relevant regional safety fora and networks, and to participate and work in cooperation with other members so that the benefits of membership can be fully realized and requests the Secretariat to continue to assist Member States in the establishment, maintenance and functioning of such fora and networks;
9. Requests the Secretariat to strengthen its cooperation with the regional regulatory organizations or expert advisory groups, such as FORO and ENSREG, in areas of mutual interest, and further requests the Secretariat to promote wide dissemination of technical documents and outcomes of projects developed by these organizations, including the outcomes of the FORO Plenary sessions in 2020 and 2021 and the 5<sup>th</sup> European Nuclear Safety Conference held under the auspices of ENSREG in 2019;
10. Encourages Member States to continue sharing safety-relevant experiences, findings and lessons learned among regulatory authorities, technical and scientific support organizations, operators and industry, as appropriate with the assistance of the Secretariat to foster such sharing, and to benefit from, as appropriate, interaction within international organizations and fora such as the OECD/NEA and the World Association of Nuclear Operators (WANO);
11. Encourages Member States to continue to communicate effectively to interested parties, including to their general public, about regulatory processes and safety aspects, including health effects, and environmental aspects of facilities and activities, on the basis of scientific data as available, and encourages Member States to provide for consultation with their public as appropriate;
12. Encourages the Secretariat and Member States to continue to make effective use of the Agency's technical cooperation resources for the further enhancement of safety;
13. Encourages Member States to exercise effective supply chain management and to increase efforts in detecting non-conforming, counterfeit, fraudulent or suspect items received from suppliers and prevent them from being installed in the facilities;

## 2.

### **Conventions, Regulatory Frameworks and Supporting Non-Legally-Binding Instruments for Safety**

14. Urges all Member States that have not yet done so, especially those planning, constructing, commissioning or operating nuclear power plants, or considering a nuclear power programme, to become Contracting Parties to the CNS;
15. Urges all Member States that have not yet done so, particularly those managing radioactive waste or spent fuel, to become Contracting Parties to the Joint Convention;
16. Stresses the importance of CNS and Joint Convention Contracting Parties fulfilling their respective obligations stemming from these Conventions and reflecting these in their actions to strengthen nuclear safety and in particular when preparing National Reports, and actively participating in peer reviews for CNS and Joint Convention Review Meetings;
17. Requests the Secretariat to provide full support for the CNS and Joint Convention Review Meetings, and to consider addressing their outcomes in the Agency's activities, as appropriate and in consultation with Member States;
18. Urges all Member States that have not yet done so to become Contracting Parties to the Early Notification Convention and the Assistance Convention, and stresses the importance of Contracting Parties fulfilling the obligations stemming from these Conventions, and actively participating in regular meetings of the Representatives of Competent Authorities;

19. Requests the Secretariat, in collaboration with regional and international organizations and Member States, to continue its activities to promote the importance of conventions concluded under the auspices of the IAEA and to assist Member States upon request with adherence, participation and implementation as well as strengthening of their related technical and administrative procedures;
20. Encourages all Member States to make political commitments to the non-legally binding Code of Conduct on the Safety and Security of Radioactive Sources, and its Guidance on the Import and Export of Radioactive Sources, and its Guidance on the Management of Disused Radioactive Sources, and to implement these, as appropriate, in order to maintain effective safety and security of radioactive sources throughout their life cycle, and requests the Secretariat to continue supporting Member States in this regard;
21. Encourages Member States to apply the guidance of the Code of Conduct on the Safety of Research Reactors at all stages in their life, including planning, and encourages Member States to freely exchange their regulatory and operating information and experience with regard to research reactors;
22. Requests the Secretariat to continue to support Member States, upon request, in application of the guidance of the Code of Conduct on the Safety of Research Reactors;
23. Urges Member States that have not already done so to establish and sustain a regulatory body that is effectively independent in its regulatory decision-making, competent, and has the legal authority, and the appropriate human, financial and technical resources organized as necessary for fulfilling its responsibilities, and encourages Member States, who have not already done so, to take the appropriate steps to ensure an effective separation between the functions of the regulatory body and those of any other body or organization concerned with the promotion or utilization of nuclear energy;
24. Urges Member States to strengthen regulatory effectiveness in the field of nuclear, radiation, transport and waste safety, and emergency preparedness and response, and to continue promoting cooperation and coordination among regulatory bodies within a Member State, as appropriate, and among Member States;
25. Requests the Secretariat, in collaboration with Member States, to continue identifying actions to improve regulatory effectiveness and to report regularly about the progress of actions taken;
26. Encourages Member States' regulatory bodies to consider establishing systematic regulatory experience feedback and requests the Secretariat to further support Member States in this activity;
27. Encourages Member States to continue to enhance their national regulatory inspection programmes, including, as appropriate, by applying a risk-informed, performance-based and graded approach;
28. Encourages Member States to consider establishing organizations to provide technical and scientific support to regulatory functions, as appropriate, and requests the Secretariat to promote cooperation between Member States, including through the Technical and Scientific Support Organization Forum (TSO Forum) and regional TSO networks, and to assist, upon request, in this regard;
29. Urges Member States to establish or maintain systematic and robust regulatory decision-making processes that take into account scientific knowledge and expertise, including, where appropriate, from TSOs and other relevant institutions;
30. Encourages the International Nuclear Safety Group (INSAG) Chairperson to improve communication with Member States on a regular basis about major outcomes and recommendations of INSAG to the Director General;

31. Encourages Member States to give due consideration to the possibility of joining the international nuclear liability instruments, as appropriate, and to work towards establishing a global nuclear liability regime;

32. Requests the Secretariat, in coordination with the OECD/NEA when appropriate, to assist Member States, upon request, in their efforts to adhere to any international nuclear liability instruments concluded under the auspices of the IAEA or the OECD/NEA, taking into account the recommendations of the INLEX in response to the IAEA Action Plan on Nuclear Safety;

33. Recognizes the valuable work of INLEX, and takes note of its recommendations and best practices on establishing a global nuclear liability regime, including through the identification of actions to address gaps in and enhance the existing nuclear liability regimes, encourages the continuation of INLEX, especially for its support for the IAEA's outreach activities to facilitate the achievement of a global nuclear liability regime, and requests that INLEX, via the Secretariat informs Member States on a regular and transparent basis about the work of INLEX and its recommendations to the Director General;

### **3. IAEA Safety Standards**

34. Encourages Member States to implement measures nationally, regionally and internationally to ensure nuclear, radiation, transport and waste safety, as well as emergency preparedness and response, taking into account IAEA Safety Standards;

35. Encourages Member States to use the IAEA Safety Standards in their national regulatory programmes, as appropriate, and to periodically review national legislation, regulations and guidance taking into account the latest revision of the IAEA Safety Standards and report on progress in appropriate international fora;

36. Requests the Agency to continue to support the work of the Commission on Safety Standards (CSS) and the Safety Standards Committees;

37. Urges the Secretariat to address delays in the publication process, in particular in the editing of drafts, and improve the coherence of the translation of Safety Standards into all IAEA official languages, and further urges the Secretariat to address the under-resourced editing services in the Department of Management, as contained in recommendation 23 in GOV/2019/6, so that the Safety Standards endorsed by the Commission on Safety Standards are published in a timely manner;

38. Requests further efforts of the Secretariat to enable representatives of all Member States, including those considering introducing nuclear power or radiation technology, to participate in the work of the Commission and Committees;

39. Requests the Agency to continuously review, strengthen, promulgate and implement as broadly and effectively as possible the IAEA Safety Standards, and to strengthen education and training programmes aimed at increasing awareness of the IAEA Safety Standards;

40. Encourages the Agency to keep up to date with the latest relevant findings of research supporting nuclear safety expertise as well as scientific and technological innovations, to enhance technical capabilities accordingly and to strengthen IAEA Safety Standards as appropriate;

41. Requests the Secretariat to continue its close cooperation, where appropriate, with the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), the International Commission on Radiological Protection (ICRP) and other relevant organizations in the development of IAEA Safety Standards;

#### 4.

### Self-assessments and the Agency's Peer Review and Advisory Services

42. Encourages Member States to ensure regular self-assessments of their domestic nuclear, radiation, transport and waste safety, as well as their emergency preparedness and response measures, taking into account the Agency's self-assessment tools and, on a voluntary basis, to make the outcomes publicly available;
43. Further encourages Member States, including those considering introducing nuclear power or radiation technology, on a voluntary basis, to regularly use advisory services, to host Agency peer review and associated follow-up missions, at appropriate phases, to make findings and outcomes publicly available and to implement recommended actions in a timely manner;
44. Encourages Member States in a position to do so to continue making the necessary expertise available to the Secretariat for IAEA safety peer reviews and advisory services;
45. Requests that the Secretariat continues to provide for and promote the regular interaction of the Peer Review and Advisory Services Committee with Member States and, in close consultation and coordination with Member States, continues to assess and strengthen the overall structure, effectiveness and efficiency of services within the purview of the Committee, and to report to the Board of Governors on the outcomes of this common effort;
46. Requests the Secretariat to continue improving the effectiveness and efficiency of Integrated Regulatory Review Service (IRRS) and Integrated Review Service for Radioactive Waste and Spent Fuel Management, Decommissioning and Remediation (ARTEMIS) peer review missions, including the combined IRRS-ARTEMIS missions which take place when requested by a Member State, using lessons learned from relevant past experiences, in close cooperation with Member States and encourages Member States to request these services as appropriate;
47. Requests the Secretariat to continue to cooperate with Member States and the World Health Organization (WHO) to ensure that the IAEA's Emergency Preparedness Review (EPREV) service coordinates with the WHO's Joint External Evaluations for the International Health Regulations in the area of radiation emergencies;

#### 5.

### Nuclear Installation Safety

48. Encourages all Member States to contribute to the realization of CNS objectives, including those enshrined in the Vienna Declaration on Nuclear Safety on Principles for the Implementation of the Objective of the CNS to Prevent Accidents and Mitigate Radiological Consequences, inter alia through the implementation of the relevant provisions of this Resolution and calls upon all Contracting Parties to the CNS to address the Challenges and Suggestions from their review process in a timely manner;
49. Renews the request to the Secretariat, in consultation with all Member States, using the safety issues highlighted in the summary report of the 7th Review Meeting of the Contracting Parties of the CNS, to identify issues of particular relevance for civilian nuclear reactors not covered by the scope of the CNS;
50. Calls upon all Member States with nuclear installations that have not yet done so to establish effective operational experience feedback programmes including identifying safety-related precursors, and to share freely their experience, assessments and lessons learned, including through the submission of incident reports, including via the Agency's web-based reporting systems related to operational experience;

51. Requests the Secretariat to continue efforts in support of long term safe operation of nuclear installations, and encourages Member States to make use of IAEA safety peer review services on long-term safe operation of nuclear power plants and research reactors;
52. Encourages Member States to address ageing management, including physical ageing and obsolescence, throughout the lifetime of nuclear installations, and to share lessons learned from available international experience, as appropriate, and further requests the Secretariat to support Member States in this regard;
53. Renews its calls upon Member States to ensure that comprehensive and systematic safety assessments are carried out periodically and regularly for existing installations throughout their lifetime in order to identify safety improvements that are oriented to meet the objective of preventing accidents with radiological consequences and mitigating such consequences should they occur, and that reasonably practicable or achievable safety improvements are implemented in a timely manner and requests the Secretariat to continue to facilitate information exchange on experiences and lessons learned in this regard;
54. Encourages Member States that have not already done so to perform safety assessments, including at multi-unit sites, to evaluate the robustness of nuclear power plants and other installations against multiple extreme events, and encourages the Secretariat to continue supporting Member States in this regard by considering updating technical guidance for site and design evaluation to protect nuclear installations against external hazards, in consultation with Member States;
55. Encourages the Agency to continue, as appropriate, activities relating to the safety of multi-unit sites, in a manner which facilitates Member States' development and application of new technologies;
56. Further encourages Member States to exchange regulatory information and share experiences with regard to new nuclear power plants and advanced reactors, including small and medium, or modular reactors (SMRs) and Generation IV reactors, taking into account that new nuclear power plants are to be designed, sited, and constructed consistent with the objective of preventing accidents in the commissioning and operation and, should an accident occur, mitigating possible releases of radionuclides causing long-term off-site contamination and avoiding early radioactive releases or radioactive releases large enough to require long-term protective measures and actions;
57. Encourages the Secretariat to provide for the exchange of information and experience of conducting the safety assessment of the digital Instrumentation and Control system;
58. Encourages the Agency to facilitate the exchange of results of research and development on severe accident management strategies for nuclear power plants;
59. Encourages Member States to share information on research programmes needed to ensure availability and durability of scientific expertise to support nuclear safety;
60. Encourages Member States to develop as necessary and implement severe accident management guidelines taking into account, inter alia, lessons learned from the Fukushima Daiichi Nuclear Power Station accident, and requests the Secretariat to support their efforts through training workshops;
61. Requests the Secretariat, in close cooperation with Member States, to continue to support the IAEA Fuel Incident Notification and Analysis System (FINAS), the International Reporting System for Operating Experience (IRS) and the Incident Reporting System for Research Reactors (IRSRR), and invites Member States to benefit from participation in these systems;
62. Requests the Secretariat to continue considering the safety and security aspects of TNPPs and SMRs throughout their life cycle, including through the International Project on Innovative Nuclear

Reactors and Fuel Cycles (INPRO) and the Small Modular Reactor Regulators' Forum and, to draw upon the knowledge and experience of other international organizations renews its request to the Secretariat to continue to organize meetings and activities on TNPPs and SMRs, with a view to using their findings to consider, under the common existing requirements and legal instruments, the various safety aspects of such power plants, including their transport, as well as identifying, understanding and addressing regulatory challenges related to their lifecycles;

## 6.

### **Radiation Safety and Environmental Protection**

63. Encourages Member States to align their national radiation protection programmes to the revised International Basic Safety Standards (GSR Part 3), and requests the Secretariat to support its effective implementation, in relation to occupational, public and medical exposure, as well as protection of the environment, and further requests the Secretariat to continue to organize national workshops on implementing GSR Part 3, upon request;

64. Invites Member States operating nuclear power plants and those considering introducing nuclear power, to encourage their utilities and authorities to become members of the IAEA-OECD/NEA Information System on Occupational Exposure (ISOE) programme, and requests the Secretariat to assist in this regard and to continue supporting the ISOE programme;

65. Requests the Secretariat to promote the Information System on Occupational Exposure in Medicine, Industry and Research (ISEMIR) programme to strengthen the safety of workers who risk exposure to ionizing radiation in the fields of medicine and industry and recommends that Member States provide data on occupational exposure to the ISEMIR programme;

66. Requests the Secretariat to make recommendations and assist Member States, upon request, to enhance radiation safety of workers by utilizing efficient and effective dosimetry techniques;

67. Requests the Secretariat to assist Member States, upon request, to strengthen their capabilities for the realistic assessment of radiological impacts of material containing enhanced levels of naturally occurring radioactive materials (NORM);

68. Urges Member States receiving assistance from the Agency to update information in the IAEA Radiation Safety Information Management System (RASIMS) so as to enable the Secretariat to identify the technical assistance needed to strengthen radiation safety infrastructure;

69. Requests the Agency, in cooperation with the WHO and in coordination with other international organizations, to continue implementation of the Bonn Call for Action, as reviewed at the follow-up IAEA conference in Vienna in 2017, to strengthen the radiation protection of patients and health professionals and to enhance the safety of radiological procedures;

70. Requests the Secretariat to promote regional technical cooperation projects on medical exposure and encourages Member States to use safety reporting and learning systems developed by the Agency for radiological procedures and radiotherapy;

71. Requests the Secretariat to promote the implementation of forthcoming radiation protection guidance for the regulatory control of the use of human imaging techniques for non-medical purposes;

72. Encourages Member States to assess the extent of public exposure to radon in homes, schools and other buildings, and where relevant, to take appropriate actions to reduce exposure, and requests the Secretariat, in cooperation with Member States, the WHO and other relevant international organizations, to assist Member States in this regard;

73. Urges the Secretariat, as part of the ongoing work of the Codex Committee on Contaminants in Foods, to continue to collaborate with the Food and Agriculture Organization of the United Nations (FAO) and WHO and interested Member States on preparation of a discussion paper on radionuclides in feed and food, including drinking water, with the aim to develop principles for harmonized guidance which would result in an increased understanding of the presence of radionuclides in food and drinking water in non-emergency situations;

74. Requests the Secretariat to continue work to develop a technical document to set out radionuclide activity concentration values for contaminated non-food commodities, in consultation with Member States and relevant international organizations;

75. Requests the Secretariat to explore the possibility of developing a discussion paper on radionuclides in all consumer goods with the aim of developing principles for harmonized guidance, in consultation with Member States, which would result in an increased understanding of the presence of radionuclides in different consumer goods in non-emergency situations;

76. Requests the Secretariat to continue updating the “Inventory of Radioactive Materials Resulting from Historical Dumping, Accidents and Losses at Sea (for the Purposes of the London Convention 1972 and Protocol 1996)” as appropriate;

## 7.

### Transport Safety

77. Urges Member States that do not have national regulatory documents governing the safe transport of radioactive material to adopt and implement such documents expeditiously and calls upon all Member States to ensure that such regulatory documents are in conformity with the applicable edition of the IAEA’s Regulations for the Safe Transport of Radioactive Material (SSR-6);

78. Stresses the importance of having effective liability mechanisms to ensure prompt compensation for damage incurred during the transport of radioactive material, including maritime transport, and in this context notes the application of the principles of nuclear liability, including strict liability;

79. Encourages efforts to avoid and address problems related to denials of and delays in the shipment of radioactive material, particularly shipment by air and calls upon Member States to facilitate the transport of radioactive material, and to identify, if they have not done so, a national focal point on denials of shipment of radioactive materials to achieve a satisfactory and timely resolution of this issue;

80. Welcomes the Agency’s efforts to establish a Working Group, with full participation of interested Member States and relevant experts, to consider the options for addressing denials of and delays in shipment, including a code of conduct on facilitation;

81. Encourages the Agency to continue to strengthen and widen efforts to make available relevant education and training on the safety of radioactive material during transport, and acknowledges the progress made in that regard, including the preparation and translation of training materials into IAEA official languages;

82. Welcomes the practice of some shipping States and operators of providing timely information and responses to relevant coastal States in advance of shipments in order to address concerns regarding nuclear safety and security, including emergency preparedness, and notes that the information and responses provided should in no case be contradictory to measures of nuclear security and safety of the shipment or of the shipping State;

83. Calls upon Member States to further enhance mutual confidence, such as through the use of guidelines, voluntary communication practices and tabletop exercises, and relevant outcomes thereof,

and requests the Secretariat to provide appropriate support to interested Member States upon their request;

84. Encourages the continuation of the positive dialogue process between coastal and shipping States, which has improved mutual understanding, confidence building and enhanced communication in relation to the safe maritime transport of radioactive material, and takes note that other interested Member States are invited to join in this informal dialogue process and to implement, as appropriate, the best practices as contained in document INFCIRC/863, subject to confidentiality and security constraints;

## 8.

### **The Safety of Spent Fuel and Radioactive Waste Management**

85. Encourages Member States to plan, develop and implement national long-term programmes or approaches for the safe management of radioactive waste and spent fuel, containing outcomes which are achievable and timely, and put mechanisms in place to ensure adequate resources are available, and to share experience and lessons learned in this regard;

86. Takes note of the outcomes of the 6th Review Meeting of the Contracting Parties to the Joint Convention, including the actions taken to promote adherence and active participation in the Joint Convention, the overarching issues and good practices and areas of good performance identified by the President and the country groups and challenges and suggestions identified for Contracting Parties, and notes the importance of further topical discussion in the Joint Convention on the safety of the back-end of the nuclear fuel cycle;

87. Encourages the Agency to continue its activities relating to the safety of predisposal management, near-surface, bore-hole and geological disposal of radioactive waste and, where appropriate, spent nuclear fuel, and further encourages the early engagement of regulatory bodies before the licensing process is launched;

88. Requests the Secretariat to foster information exchange on safety-related aspects of long-term storage of spent nuclear fuel and radioactive waste;

89. Encourages Member States to plan for the management of all kinds of wastes arising from a nuclear or radiological emergency, including damaged nuclear fuel, where routine strategies are impractical or less than optimal, and where the potential exists for large volumes of radioactive waste resulting from the emergency and/or environmental remediation;

## 9.

### **Safety in Decommissioning, Uranium Mining and Processing, and Environmental Remediation**

90. Encourages Member States to plan for the safe decommissioning of facilities during the facility design phase, and update as appropriate, and to put mechanisms in place to ensure human and financial resources are available so that decommissioning can start as soon as justified at a national level;

91. Encourages Member States to benefit from the exchange of lessons learned and good practices from decommissioning and remediation activities, and to take them into account in their own activities, as appropriate;

92. Requests the Secretariat to continue supporting the exchange of information on safety-related aspects of decommissioning;

93. Requests the Secretariat to assist Member States, upon request, in developing plans for the safe decommissioning and remediation of facilities involving NORM residues;

94. Requests the Secretariat to continue supporting efforts relating to technical coordination for multilateral initiatives to remediate legacy uranium production sites, notably in Central Asia, through the Coordination Group for Uranium Legacy Sites, and encourages the Secretariat to consult relevant Member States in Africa, upon request, with a view to implementing similar initiatives; and encourages Member States, in a position to do so, to provide support to this end;

95. Requests the Agency to continue implementing activities through the International Working Forum on Regulatory Supervision of Legacy Sites;

## **10. Capacity-building**

96. Encourages Member States to develop national strategies for capacity-building in nuclear safety including through education and training, promoting gender equality and workforce diversity, human resource development, knowledge management and knowledge networks and requests the Secretariat to provide support, upon request, and further encourages Member States to ensure that resources are made available for capacity building of this kind;

97. Requests the Secretariat to strengthen and expand its programme of education and training activities, focusing on building institutional, technical, managerial and leadership capabilities in Member States;

98. Requests the Secretariat to support Member States' efforts to identify and implement knowledge management measures, and to continue efforts to acquire, update and preserve knowledge and institutional memory relating to nuclear safety, to mitigate lost experience, and welcomes in this regard the IAEA service for Knowledge Management Assist Visits (KMAV);

99. Requests the Secretariat to support and coordinate regional and inter-regional efforts for the sharing of knowledge, expertise and experience on safety-relevant issues, and to continue to strengthen its effort in maintaining and developing the Global Nuclear Safety and Security Network (GNSSN), including the development of the knowledge platforms, and encourages Member States to actively participate in the GNSSN;

100. Encourages Member States to utilize, as appropriate, the IAEA Systematic Approach to Training (SAT) and other relevant tools for the self-assessment of capacity building programmes at national and organizational level;

101. Requests the Secretariat support the knowledge management activities of Member States, upon request, and in particular the sustainability of competence and skills in their regulatory bodies;

## **11. Safe Management of Radioactive Sources**

102. Calls upon all Member States to ensure that their legislative or regulatory framework includes specific provisions for the safe management of radioactive sources through all stages of the life cycle;

103. Calls upon all Member States to ensure that there is adequate provision, including financial arrangements, as appropriate, for safe and secure storage and disposition pathways for disused sources so that such sources within their territories remain under regulatory control, and encourages all Member States to develop arrangements, as practicable, to permit the return of disused sources to the supplier

States or consider other options including the reuse or recycling or disposal of sources wherever possible;

104. Encourages the Secretariat and Member States to strengthen national and multinational efforts to recover orphan sources and maintain control of disused sources, and invites Member States to establish radiation detection systems, including at international borders, as appropriate;

105. Calls upon all Member States to establish and maintain national registers of high-activity sealed radioactive sources;

106. Encourages Member States to make use of the Agency's services when dealing with issues related to the control or regaining of control over orphan sources and encourages the Secretariat to advise Member States on how to formulate such assistance requests;

107. Requests the Secretariat to continue to foster information exchange on implementation of the Code of Conduct on the Safety and Security of Radioactive Sources and its Guidance on the Import and Export of Radioactive Sources and its Guidance on the Management of Disused Radioactive Sources;

108. Requests the Secretariat to further facilitate, as appropriate, information exchange between interested Member States on radiation safety aspects of the management of movement of scrap metal or materials produced from scrap metal that may inadvertently contain radioactive material;

109. Encourages the Agency to support research efforts on the safety of nuclear and radiation technologies, including on options for safe, economically viable and technically feasible technologies, respecting each Member State's choice in nuclear technology;

## 12.

### **Nuclear and Radiological Incident and Emergency Preparedness and Response**

110. Encourages Member States to develop and strengthen national, bilateral, regional and international emergency preparedness and response mechanisms and arrangements, including protective measures; to cooperate closely on precautionary measures to minimize long-term consequences, as appropriate; to facilitate timely information exchange during a nuclear or radiological emergency and enhancing transparency among licensees, authorities, the public and the international community; and to continue to improve bilateral, regional and international cooperation among national experts, competent authorities and regulators to that effect, including through the organization of joint training exercises, as appropriate;

111. Requests the Secretariat, in close cooperation and upon consultation with Member States and appropriate relevant international organizations, to continue to prioritize a programme of exercises emphasizing the importance of large-scale exercises, such as ConvEx-3;

112. Encourages Member States to ensure that radiation protection strategies are developed, justified and optimized to enable effective protective actions to be taken in a timely manner, during a nuclear or radiological emergency; and requests the Secretariat to provide assistance to Member States in this regard, upon request;

113. Requests the Secretariat to work with Member States to maintain and raise awareness of the Agency's arrangements for assessment, prognosis and communication, including arrangements for the timely sharing of relevant technical parameters, while making effective use of Member States' capabilities, and continuing to refine the role of the Incident and Emergency Centre (IEC), during an emergency;

114. Requests the Secretariat to support Member States, upon request, to develop, strengthen and build the capacity of national emergency preparedness and response mechanisms and arrangements;

115. Encourages Member States to establish and maintain effective communication channels between the responsible national authorities at all times, to ensure respective responsibilities are clear and to improve coordination and decision-making process for all types of accident scenarios;

116. Encourages Member States and the Secretariat to continue utilizing the IAEA Unified System for Information Exchange (USIE) as a web portal for Contact Points of States Parties to the Early Notification Convention and the Assistance Convention, and of IAEA Member States to exchange urgent information during nuclear and radiological incidents and emergencies, and for officially nominated International Nuclear and Radiological Event Scale (INES) national officers to post information on events rated using INES, and further encourages Member States to exchange information on nuclear and radiological incidents and emergencies, which includes national and transnational emergencies as defined in GSR Part 7 as being of actual or potential or perceived radiological significance for more than one State;

117. Encourages Member States to consider sharing this information with the general public, as appropriate, including through the USIE mechanism;

118. Requests the Secretariat to work with Member States to improve the IAEA Response and Assistance Network (RANET) to ensure that, if and when requested, timely and effective assistance can be provided, further requests the Secretariat to work with Member States to facilitate, as appropriate, bilateral and multilateral arrangements, and to enhance efforts to establish technical compatibility for international assistance, and encourages Member States to register and update, on a regular basis in RANET, national capabilities that could be made available to States requesting international assistance;

119. Recalls the 10th Meeting of the Representatives of Competent Authorities identified under the Early Notification Convention and the Assistance Convention, and requests the Secretariat, in consultation with Member States, to continue to facilitate information exchange between interested Member States and Competent Authorities;

120. Requests the Secretariat, in close cooperation with Member States, to continue to develop an effective public communication strategy and to maintain and further develop arrangements to provide Member States, international organizations and the general public with timely, clear, factually correct, objective and easily understandable information during a nuclear or radiological emergency;

121. Encourages the Secretariat to continue utilizing the International Radiation Monitoring Information System (IRMIS), to work with national contact points towards a public version of the system in a timely manner, and further encourages Member States in a position to do so to provide data to the system;

122. Encourages Member States to consider providing information to the Emergency Preparedness and Response Information Management System (EPRIMS) and encourages the Secretariat to promote the benefits of EPRIMS to Member States;

123. Requests the Secretariat, in close consultation with Member States, to review the Agency's arrangements for reporting nuclear and radiological incidents, accidents and emergencies, with a view to identifying potential improvements in these arrangements, and calls on all Member States, in a position to do so, to contribute to the effectiveness of these arrangements;

124. Requests the Secretariat, in coordination and consultation with Member States, to continue to strengthen cooperation with other relevant international organizations in the area of emergency

preparedness, including through the Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE);

### **13.**

#### **Implementation and Reporting**

125. Requests the Secretariat to implement the actions called for in this resolution in a prioritized, efficient manner within available resources; and

126. Requests the Director General to report in detail at the sixty-sixth (2022) regular session of the General Conference on implementation of this resolution, and on other relevant developments in the intervening period.