



## **ITALIAN G7 PRESIDENCY**

### **2017 REPORT**

#### **NUCLEAR SAFETY AND SECURITY GROUP (NSSG)**

1. The Nuclear Safety and Security Group (NSSG), established at the Kananaskis Summit in 2002 and responsible to Leaders, provides technically informed strategic policy advice on issues that could impact safety and security in the peaceful use of nuclear energy, in close cooperation with multilateral organizations and avoiding duplication of tasks or responsibilities that are being addressed adequately by existing organizations or entities.

#### **CHERNOBYL PROJECTS**

2. Under the Italian Presidency, the NSSG has continued to follow, in close coordination with the European Bank for Reconstruction and Development (EBRD), the progress of the two projects still under implementation at the Chernobyl site, the New Safe Confinement (NSC) and the Interim Spent Fuel Storage Facility (ISF-2), funded respectively by the Chernobyl Shelter Fund and the Nuclear Safety Account, to which G7 members and the European Union (EU) have already made major contributions.
3. The New Safe Confinement will enclose for at least 100 years the Chernobyl shelter housing the destroyed reactor and its radioactive inventory, and, when completed, it will represent an extraordinary feat of engineering. The huge arch structure was assembled at a safe distance from the damaged reactor and was slid into its final resting place in November 2016. Work is proceeding in compliance with the current cost estimate and time schedule, which provides for completion of the plant, with its commissioning and handing over to the owner of the Chernobyl Nuclear Power Plant (NPP) for future operations, by 30 November 2017. The NSC will prevent the release of contaminated material from the shelter and at the same time protect the structure from external impacts such as extreme weather. It will provide a safe working environment



equipped with heavy-duty cranes for the future dismantling of the shelter and management of the fuel containing materials.

4. The New Safe Confinement represents the most prominent and visible part of the Shelter Implementation Plan. The entire Shelter Implementation Plan is expected to cost 2.1 billion EUR, of which up to 1.5 billion EUR will be spent on the New Safe Confinement. The G7 and the EU contributed 1.2 billion EUR. To date the EBRD has provided 500 million EUR of its own resources to support the NSC.
5. The Interim Spent Fuel Storage Facility will process more than 20,000 spent fuel assemblies discharged from the Chernobyl NPP during its past operation, before enclosing them in concrete modules on site for at least 100 years. The ISF-2 construction programme is proceeding in accordance with the approved cost estimate. According to the current schedule, the ISF-2 facility construction will be completed in May 2017 followed by the cold tests. Retrieval of fuel from the current storage (ISF-1) and hot tests are scheduled to commence in November 2017. After regulatory approval of the Final Safety Analysis Report, the handover is scheduled for the summer of 2018, while the manufacturing of the fuel canisters will continue until early 2019. Once all the spent fuel has been transferred to the ISF-2, the old storage facility can be decommissioned. This will represent another major step forward in increasing nuclear safety at the site.
6. As of 2016 the Nuclear Safety Account has committed to ISF-2 and the Liquid Radioactive Waste Treatment Plant (LRTP) some 222 million EUR, of which 168 million EUR were contributed by the G7 and the EU. The ISF-2 is estimated to cost 400 million EUR. The EBRD has made available 215 million EUR.
7. The NSSG welcomes progress on the two projects, but notes that both still face considerable challenges in the completion of construction, testing and commissioning. In this connection the NSSG counts on the continuing commitment of the EBRD in providing effective management and in engaging the contracting parties and the authorities in Ukraine to complete the projects within the agreed cost estimates and current schedule. The NSSG emphasizes the importance and necessity of the Ukrainian Government adopting the required institutional, regulatory and funding measures to ensure the efficient and successful conclusion of NSC and ISF-2.
8. The completion in 2017 of the New Safe Confinement and the beginning of operation of the Interim Spent Fuel Storage Facility will mark a major milestone in the program funded by the international community to convert the Chernobyl site into a stable and environmentally safe condition. The NSSG expects Ukraine now to take all the necessary organizational and financial provisions to ensure



the successful implementation of the Chernobyl remediation program, through the best use of the infrastructure in place at the Chernobyl site, realized with the funding of some 3 billion EUR from the international community, including the NSC and the ISF-2 essential facilities. In particular the NSSG expects Ukraine to proceed without delay, after the handing over of the NSC, with the deconstruction of the unstable structures of the shelter, scheduled for completion by 2023.

9. Ukraine intends to give special solemnity to the meeting of the Assembly of Donors of the Chernobyl Shelter Fund, which will take place in December of 2017 in Ukraine with the participation of leading representatives of the Ukrainian Government and Donors. A proposal is currently being examined to organize, on the same occasion, a high-level event to underline the relevance of the nuclear safety programmes funded by the Community of Donors, in particular by the G7 and the EU, to make the Chernobyl area environmentally safe and to benefit nuclear safety worldwide.

## **INDEPENDENCE OF THE UKRAINIAN REGULATOR**

10. The NSSG continues to follow the new developments on the independence of the Ukrainian regulator following detrimental legislative amendments introduced in 2015. The NSSG welcomes the fact that the Government of Ukraine recognised this as a challenge needing to be addressed following the 7th Review Meeting of the Convention on Nuclear Safety (CNS).

## **INTERNATIONAL INSTRUMENTS ON NUCLEAR SAFETY**

11. The strengthening of the international nuclear safety framework remains a central element of the NSSG Agenda. The NSSG will continue its efforts to increase the number of Contracting Parties (CPs) of the relevant safety conventions and to further promote an effective national implementation, taking into account lessons learned from the Fukushima Daiichi NPS accident. In addition the NSSG welcomes the initiative by the International Atomic Energy Agency (IAEA) to prepare an Action Plan to raise awareness about the safety conventions and the benefits of joining them.
12. The NSSG welcomes the outcomes of the Convention on Nuclear Safety (CNS) 7th Review Meeting and the adoption of measures based on a proposal initiated by the G7 during the Japanese Presidency, and expresses the commitment of G7 members to support the implementation of these new measures. The NSSG also recognizes that thanks to the intense efforts of the Canadian presidency of the Review Meeting and the cooperation of all G7 countries for coordinated



demarches, the number of national reports submitted has increased significantly, thus strengthening the review process. At the same time the NSSG emphasizes the importance of ratification and an effective implementation of the CNS in CPs, including the principles laid down in the Vienna Declaration on Nuclear Safety.

13. The NSSG recognizes the need to promote the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (Joint Convention) pursuing a further increase in the number of CPs and the fulfilment of the ensuing obligations, thus contributing to achieving higher levels of safety worldwide. To this effect, the NSSG agreed to carry out coordinated G7 demarches, also to enhance participation in the Joint Convention 6th Review Meeting in 2018.
14. The NSSG reaffirms the importance of establishing a global nuclear liability regime addressing the concerns of all states that could be affected by a nuclear accident by providing appropriate compensation for nuclear damage. The NSSG encourages all states to join an international nuclear liability instrument as a step toward establishing such a global regime.

## **INTERNATIONAL INSTRUMENTS ON NUCLEAR SECURITY**

15. Considering the importance assigned to maintaining a strong international nuclear security framework by the Nuclear Security Summit process, and recalling the role of the G7 at the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction, the NSSG underlines the continuing need to support and strengthen this framework and the role that the NSSG could play to this effect, while stressing the need to avoid duplication of work and efforts in order not to waste limited resources.
16. In this regard, the NSSG will work to promote the universalization of international nuclear security instruments and their implementation, with a view to conducting coordinated demarche actions for the Convention on the Physical Protection of Nuclear Material, its 2005 Amendment, and the International Convention for the Suppression of Acts of Nuclear Terrorism.
17. The NSSG welcomes the establishment of the Nuclear Security Contact Group, of which all G7 states are members. The Contact Group will help maintain the momentum generated by the Nuclear Security Summit process, and facilitate cooperation and sustained engagement on enhancing nuclear security worldwide.



## IAEA ACTIVITIES ON NUCLEAR SAFETY AND SECURITY

18. The NSSG recognizes that the considerable worldwide progress in strengthening nuclear safety since the Fukushima Daiichi NPS accident is the result of measures taken at national level and of the many activities undertaken by the IAEA Secretariat, the IAEA Member States and other relevant organizations. At the same time, maintaining this progress will require the continuing efforts and commitment of all.
19. Considering the global use of nuclear power, the NSSG supports the role and activities carried out by the IAEA through its technical cooperation programme and peer review missions in assisting countries that have decided to embark on nuclear power programmes to develop a robust safety, security and non-proliferation infrastructure, while stressing the importance of the G7 playing a leading role in engaging embarking countries in these activities.
20. The NSSG welcomes the commitment of the IAEA Secretariat to build on the observations and lessons learned from the Fukushima Daiichi NPS accident and the implementation of the IAEA Action Plan on Nuclear Safety. These observations and lessons, together with the lessons from other relevant sources, will be the basis for priorities in the new IAEA programme of work across a range of areas. The NSSG appreciates the fact that this comprehensive approach is intended to better assist all Member States in their efforts to strengthen nuclear, radiation, transport and waste safety and emergency preparedness and response.
21. The NSSG encourages the IAEA to further advance the internal process to assess and streamline peer review and advisory services to Member States, one of the major IAEA activities relevant to safety and security, with reference in particular to the Integrated Regulatory Review Service (IRRS), and requests the IAEA to update the NSSG on a regular basis.
22. The NSSG welcomes the progress of the Global Nuclear Safety and Security Network, initially developed jointly by the IAEA and the NSSG in 2007, as an instrument to share information and knowledge, to facilitate multilateral cooperation and coordination and to build capacity for the safe, secure and sustainable use of nuclear technologies.
23. The NSSG emphasizes the IAEA's central role in coordinating nuclear security activities among international organizations and initiatives, including the United



Nations, INTERPOL, the Global Initiative to Combat Nuclear Terrorism, and the G7-led Global Partnership Against the Spread of Weapons and Materials of Mass Destruction, in order to ensure efficiencies and effectiveness, avoid overlap, and maximize the impact of respective efforts towards achieving strong and resilient nuclear security worldwide.

## **COORDINATION OF EMERGENCY PREPAREDNESS AND RESPONSE**

24. The NSSG takes note of the progress in the international efforts on coordination of emergency preparedness and response approaches in the case of a nuclear or radiological emergency, irrespective of its cause. This progress includes the approach developed jointly by the Heads of the European Radiological Protection Competent Authorities (HERCA) and the Western European Nuclear Regulators Association (WENRA) to avoid differences in response to emergencies involving neighbouring States, and the recently published Safety Standard Series No. GSR Part 7, with common criteria, and the IAEA Response and Assistance Network (RANET) Guideline for the coordination of response and assistance during a nuclear or radiological emergency. The prompt publication of the associated Safety Guides being developed by the IAEA and its Member States is seen as a priority.
25. The NSSG recognizes that cross-border coordination in emergency situations is a key factor in crisis management, together with training programmes and national, bilateral and international exercises (such as the ConvEx and INEX series) and agreements. In particular, the NSSG underlines the fact that coordination should involve all stakeholders, especially the Civil Protection authorities.
26. The NSSG recognizes, in particular, the contribution of the designated IAEA RANET Capacity Building Center in Fukushima Prefecture in enhancing the emergency preparedness and response capacity of Member States.

## **RADIOACTIVE WASTE LONG-TERM MANAGEMENT AND DECOMMISSIONING CHALLENGES**

27. The NSSG emphasizes the essential role of a safe and secure long-term management of radioactive waste, a role which is destined to become increasingly important, together with the issue of decommissioning. The NSSG also acknowledges the progress in the national implementation of G7 countries and the international initiatives by the IAEA and the Organisation for Economic Co-operation and Development's (OECD) Nuclear Energy Agency (NEA).



28. The long-term management of radioactive waste and decommissioning present challenges common to G7 countries, such as the treatment of specific materials like irradiated graphite, cost evaluation and physical monitoring methods, the qualification of sites for disposal, interaction with the public, stakeholder engagement and transparency. Public participation in the decision-making processes for the disposal of high level waste or spent fuel is an important consideration for a successful implementation of disposal facilities. In this regard, the NSSG encourages international cooperation and welcomes joint initiatives.
29. Bearing in mind that comprehensive radioactive waste and spent fuel management policy and strategies have to be developed and implemented as early as possible when using nuclear technologies, the NSSG appreciates the role of the IAEA in assisting states through the development and application of IAEA Safety Standards and dedicated peer review services (e.g. the integrated review service on radioactive waste management, decommissioning and remediation – ARTEMIS).
30. The NSSG welcomes the steady progress on the decommissioning and management of contaminated water at the Fukushima Daiichi NPS, taking place in an open and transparent manner in close communication with the international community.

## HUMAN DIMENSION AND SAFETY AND SECURITY CULTURE

31. The NSSG emphasizes that qualified human resources and a robust nuclear safety and security culture are fundamental to ensure safe, secure and sustainable nuclear and radiological applications and their potential benefit for society. To this end, the NSSG encourages national and international initiatives supporting capacity building and knowledge preservation for the development of relevant technical skills, including radiation education, and the establishment of sound safety and security cultures.
32. The NSSG expresses its appreciation for the IAEA programmes supporting capacity building in Member States and, in this regard, underlines the importance of the Peaceful Uses Initiative (PUI). In addition, the NSSG welcomes initiatives aimed at building capacity for safety such as the OECD/NEA project Nuclear Education Skill and Technology (NEST) aimed at building a strong, safety-oriented and talented workforce.
33. The NSSG encourages the strengthening of international efforts to promote and implement approaches to safety and security culture, acknowledging their





differences and interfaces. Practical learning based on experience in these areas should be part of the training programmes for future generations.

34. While the NSSG recognizes that the responsibility for nuclear safety and security within each State rests entirely with that State, the NSSG underlines the responsibility of customer countries and the role of exporting countries in giving due consideration to nuclear safety, security and non-proliferation in a transparent manner. In this regard, the NSSG also recognizes the important role played by international organizations such as the IAEA and OECD/NEA, as well as regional and international cooperation frameworks.
35. The NSSG encourages all nuclear facility- and equipment-exporting countries to follow the “OECD Common Approaches for Export Credit Agencies” with regard to the transfer of nuclear facilities, and to ensure that the recipient countries host relevant IAEA peer review missions.
36. In addition, the NSSG takes note of the importance of the activities of the World Association of Nuclear Operators (WANO) and the Nuclear Power Plant and Reactor Exporters’ Principles of Conduct (NuPOC), a voluntary code of conduct developed by the world’s leading nuclear power plant vendors.

## URANIUM MINES LEGACY SITES IN CENTRAL ASIA

37. The NSSG continues to follow the progress and development of the projects for the environmental remediation of uranium legacy sites in Central Asia and welcomes the completion of a Comprehensive Strategic Master Plan, elaborated by the Coordination Group for Uranium Legacy Sites under the auspices of the IAEA and presented at the Second NSSG Meeting in April 2017. The NSSG also takes note of the establishment of the dedicated multilateral fund at the EBRD, the Environmental Remediation Account for Central Asia (ERA). These developments provide a solid basis for further remediation work. The NSSG takes note of plans to organize a high-level pledging conference in 2018.