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Report of the G7 Nuclear Safety and Security Group (NSSG) during the German Presidency in 2022

Introduction

1. The Nuclear Safety and Security Group (NSSG), established at the Kananaskis Summit 2002, and responsible to G7 leaders provides technically informed, strategic policy advice in the areas of nuclear safety and security.
2. On 24th February 2022, Russia has launched an unprovoked invasion of Ukraine and is using unnecessary and irresponsible rhetoric regarding the potential use of nuclear weapons. This has caused the people of Ukraine to experience unbelievable suffering and destruction. The G7 has strongly condemned Russia's military aggression. Russia has recklessly targeted and damaged nuclear and radiological facilities putting the safety of civilians at high risk, regardless of the potential nuclear dangers and implications. In particular, the Group is concerned by the current situation at the Zaporizhzhia nuclear power plant under Russian control that poses serious challenges to regulatory oversight and safeguards' implementation. Russia's military aggression demonstrates that the mandate and tasks of the NSSG remain extremely relevant.
3. This report provides for an overview on the activities by the G7/NSSG during the German G7 Presidency in 2022.

Summary/Highlights

4. G7 members acknowledge that the NSSG provides a useful platform for nuclear experts to discuss nuclear-related issues of common interest from different perspectives. It presents opportunities to coordinate G7 efforts concerning strategically relevant nuclear safety and security issues as well as contributions to ongoing international nuclear safety and security work.
5. International support to Ukraine to restore the Chernobyl site into an environmentally safe condition goes back to a commitment by the G7/EU Commission in 1997. Over the years, G7 donors, the European Commission

and the European Bank for Reconstruction and Development (EBRD), together with other donors to the Chernobyl Shelter Fund (CSF) and Nuclear Safety Account (NSA), contributed to the construction of the New Safe Confinement (NSC), the Intermediate Storage Facility (ISF-2) and the Liquid Radioactive Waste Treatment Plant (LRTP) at the Chernobyl site, and have made significant contributions to securing the financing for these projects.

While the G7 has fulfilled its commitment from 1997 to help make the Chernobyl site ecologically safe, the war in Ukraine and the consequences of the Russian attacks require renewed attention. We understand that in light of the current situation, in the short and medium term, it is not possible for the Government of Ukraine to commit the funds for the urgently needed dismantling of the unstable structures of the old Sarcophagus covering the nuclear reactor number 4 building of the Chernobyl nuclear power plant (NPP), currently residing inside the NSC, and for the operation of the NSC or the storage facilities. The G7/NSSG notes that it is necessary to closely monitor the situation in Chernobyl with regard to the safe operation of the NSC and the fuel storage facility.

The G7/NSSG welcomes the diverse efforts of international fora, in particular the IAEA, the EBRD (especially the new ICCA fund), the OECD-NEA, the Global Partnership and other bilateral assistance being provided to Ukraine and notes the need for coordination between the main stakeholders.

The G7/NSSG notes with appreciation that the IAEA is closely monitoring the situation of the nuclear facilities and implementing activities involving radioactive sources in Ukraine including through close contact with the State Nuclear Regulatory Inspectorate of Ukraine (SNRIU) to inform the international community by ongoing reports on safety and security of the nuclear and radiological facilities in Ukraine.

6. In addition, during the German Presidency, the G7/NSSG discussed several topics of interest such as the handling of the COVID-19 pandemic in the nuclear sector and building of resilience for potential future crises. The Group emphasized the importance of increased international cooperation including with the IAEA, in order to contribute significantly to the momentum in strengthening nuclear safety and security worldwide.
7. As another part of its NSSG program in 2022, Germany initiated discussions on lifetime extensions (LTE) of NPPs and the role of transboundary Environmental Impact Assessments (EIA) for enhanced transparency and participation. The discussion was held in light of a worldwide trend towards long-term operation (LTO) of NPPs. The Group affirms the sovereign right of each country to determine its energy mix, that there is no “one-size-fits-all” model for LTE and, that, therefore, there is a need for a case-by-case determination. The G7/NSSG highlights that LTE approaches should demonstrate and maintain the highest levels of standards of nuclear safety and security in accordance with respective national and international legal frameworks and agreements.

The G7/NSSG partners exchanged views and national experiences on their LTE decision-making processes and the role of public participation in this regard. As one tool, the United Nations Economic Commission for Europe (UN ECE) “Guidance on the Applicability of the Convention to the Lifetime Extension of Nuclear Power Plants, based on the Espoo Convention on Environmental Impact Assessment in a Transboundary Context”, or “Espoo LTE Guidance”, was seen as a constructive contribution regarding an early assessment in the decision-making process and of the potential impacts of their planned action on other countries and their public and the potential need for a transboundary EIA.

8. The G7/NSSG welcomes the successful Conference of the Parties to the Amendment to the Convention on the Physical Protection of Nuclear Material held on March 28th to April 1st 2022, which determined the Amended Convention remained adequate in light of the prevailing situation. States shared their experience in implementing the Convention and its Amendment and promoted universalization and implementation of the amended convention as key contributions to global nuclear security.

Outcomes

9. At the first G7/NSSG meeting, held virtually on 22nd February 2022, the presentations summarized the impressive work of the G7 States, the EU and the IAEA made in 2020 to mitigate the effects of the COVID-19 pandemic in the nuclear sector and to build resilience for potential future crises. Operations at nuclear facilities continued safely through the pandemic, and regulatory frameworks proved effective owing to existing business continuity plans.

The G7/NSSG exchanged information on short-term pandemic mitigation measures such as contact minimization, health requirements of the staff in emergency cases, the switch to virtual telephone and video conferences, to remote work and inspections. Other measures included gap analysis and good practice guidance, the creation of networks, increased exercises for the safe operation of NPPs and research reactors, singular technical support of the Agency and lately an IAEA project for enhanced safety standards based on “lessons learnt”. Participants also discussed fostering international cooperation regarding the handling of pandemic situations, in the framework of respective conventions and with relevant UN and international bodies in the nuclear area.

The G7/NSSG, furthermore, reviewed the impacts of the pandemic for future strategic considerations. This included rapid decision-making and communication, adaptive action *via* robust remote/hybrid management and monitoring, improved, if not mandatory, training, and the assessment of key drivers with clarification of roles and responsibilities. Moreover, the search for common technologically neutral standards and the need for monitoring supply chains were mentioned as useful.

Nationally, the NSSG countries adapted to a “new normal” by delivering on their mandates for a high degree of nuclear safety and security and a well-functioning

emergency preparedness and response system. Those activities showed encouraging signs despite the remaining challenges for effective future crisis-related management such as mobility limitations or cyber security attacks. The Group felt that further consideration could also be given to adapting regulatory processes with remote safe inspections using assisting cameras, weekly reports or a deeper analysis of nuclear safety and security standards.

10. Given the worldwide trend towards LTO of NPPs, partly accompanied with public concerns, the G7/NSSG, at its second meeting on 24th/25th May 2022, considered the issue of LTE, transparency and public participation.

The G7/NSSG affirms that the term “lifetime extension” is used by international fora such as the IAEA, the OECD NEA or the Western European Nuclear Regulators Association (WENRA) in different ways than terms such as “long-term operation” or “planned lifetime extensions”. In addition, not all NSSG members have a policy of “lifetime extension” as their licensing systems work differently. The Group notes that the expression “long-term operation” is generally used when the operation of a plant is conducted beyond the postulated operating period at design stage (30 or 40 years) or the originally approved operating period.

The G7/NSSG shared national experiences with regard to individual LTE decision-making processes, including design factors for the facility at stake, changes to the surrounding environment in the meantime as well as the need to ensure public involvement throughout the LTE process, recognizing, regardless of the differing national regulatory approaches and terms used, that LTE are linked to nuclear safety and security considerations. Furthermore, given there is no “one-size-fits-all” approach to LTE, and given existing national legal frameworks and international (including environmental) commitments, the G7/NSSG recognizes that, when assessing possible cases of LTE, an early case-by-case determination on the potential need for a transboundary environmental impact assessment (EIA) should be undertaken.

The German G7/NSSG Chair had prepared a background paper with questions and references to the Espoo LTE Guidance as practical approach to LTE and transboundary EIA in the decision-making process. Some delegations indicated their view that applying the Espoo LTE Guidance would provide for a valuable contribution to environmental protection and transparent involvement of the concerned neighbourhood.

11. Concerning the Chornobyl site, during the G7/NSSG May meeting, participants exchanged information on the support being provided to Ukraine for nuclear safety and security at Chornobyl and other nuclear facilities in Ukraine. Support has already been provided through the new International Chernobyl Cooperation Account (ICCA), established by EBRD, as well as through IAEA. Due to Russia’s aggression against Ukraine and budgetary constraints, no progress has been made on the dismantling of unstable structures of Unit 4. The Group felt that there is an urgent need for a reassessment of the stability of the Shelter Object to avoid a collapse inside the NSC. Ukraine, supported by the EBRD and

the IAEA, requested international financial assistance for Chernobyl. Participants discussed the role of the G7/NSSG in contributing to the safety and security of nuclear and radiological facilities in Ukraine. The Group emphasizes the importance of close cooperation between EBRD, the IAEA and the Global Partnership to help to coordinate and deconflict the assistance. The G7/NSSG also discussed the importance of the independence of the SNRIU and its ability to conduct regulatory oversight at all nuclear facilities in Ukraine. The Group decided to keep the multi-layered situation in Ukraine on its agenda.

12. Moreover, the G7/NSSG discussed whether any further actions of the G7/NSSG might be needed in view of the G7/NSSG's mandate and core principles. The G7/NSSG takes note, with appreciation, of the wide range of international fora and organizations that have already offered help within their different mandates. The G7/NSSG commits to closely coordinating with those fora and organizations to help provide the Ukrainian authorities with assistance, as needed, in a timely and efficient manner.
13. The G7/NSSG notes with appreciation the results of the Conference of the Parties to the Amendment to the Convention on the Physical Protection of Nuclear Material held March 28th to April 1st, 2022, including the successful initiative to call for a further review conference as well as the enhancement of cooperation on nuclear security and building of synergies to strengthen global nuclear security. The G7/NSSG decided to further collaborate on ways to advance global nuclear security, including outreach to increase universalization and implementation of nuclear security legal regimes and to leverage upcoming nuclear security conferences, such as the International Conference on Computer Security in the Nuclear World: Security for Safety (CyberCon23), the International Conference On Nuclear Security (ICONS, 2024) and the twentieth anniversary of the Code of Conduct on the Safety and Security of Radioactive Sources.
14. For the third and last G7/NSSG meeting under the German Presidency, planned to be virtual in the second half of November 2022, the NSSG Chair intends to announce information on the German phase out of nuclear power by the end of 2022 together with an outlook on the future German cooperative role in the G7/NSSG and beyond. Furthermore, the NSSG Chair suggests inviting the IAEA to attend its next meeting to report on the progress of the international support activities to Ukraine.