IAEA
Atoms for Peace and Development

Information Circular

INFCIRC/1091
Date: 1 June 2023

General Distribution
Original: English

Communication dated 1 June 2023 received from the Permanent Mission of the People's Republic of China to the Agency

1. The Secretariat has received a Note Verbale dated 1 June 2023, together with an attachment, from the Permanent Mission of the People's Republic of China to the Agency.

2. As requested, the Note Verbale and its attachment are herewith circulated for the information of all Member States.

THE PEOPLE'S REPUBLIC OF CHINA
PERMANENT MISSION IN VIENNA
HOHE WARTE 3, 1190 VIENNA TEL: +43 1 4801222

CPM-P-2023-34

The Permanent Mission of the People's Republic of China to the United Nations and other International Organizations in Vienna presents its compliments to the Secretariat of the International Atomic Energy Agency, and has the honor to present to the latter the summary of the workshop "The AUKUS and Article 14: Challenges Ahead", which was organized by the Permanent Mission of China on May 18, at Vienna International Center.

It is the hope of the Permanent Mission of China that this Note, together with the attached summary, will be duly circulated to all Member States in a timely manner.

The Permanent Mission of the People's Republic of China to the United Nations and other International Organizations in Vienna avails itself of this opportunity to renew to the Secretariat of IAEA the assurances of its highest consideration.

PERMANENT MISSION OF THE PEOPLE'S REPUBLIC OF CHINA TO THE UNITED NATIONS AND OTHER INTERNATIONAL ORGANIZATIONS IN VIENNA

Vienna, 1 June 2023

The Secretariat of
International Atomic Energy Agency
VIC, Vienna 1400

Chair's Summary[1]

'The AUKUS and Article 14: Challenges Ahead'

Workshop organized by the Permanent Mission of China

VIC CR.2: 18 May 2023

Note: This summary has been prepared for information of the Board of Governors meeting in June, with the objective of enhancing the awareness of Member States regarding the sensitivity and complexity of the issues concerning any implementation of Article 14 of INFCIRC/153 (Corr.).

On May 18, a workshop entitled **'The AUKUS and Article 14: Challenges Ahead'** was organized by the Permanent Mission of China at the Vienna International Centre. The workshop was attended by more than 80 representatives from 31 Member States of the International Atomic Energy Agency (IAEA). The Head of the Non-Proliferation and Policy-Making Organs Section, Office of Legal Affairs, Mr. Ionut Suseanu, participated in the workshop as the representative of the IAEA Secretariat.

The discussion focused on various aspects of the AUKUS nuclear submarine cooperation and Article 14 of the Comprehensive Safeguards Agreement (CSA) – IAEA document INFCIRC/153 (Corr.). The event was moderated by Mr. Li Chijiang, Secretary General of China Arms Control and Disarmament Association. Three panelists made presentations and shared their views, which are:

- Dr. Tariq Rauf (Former Head of Verification and Security Policy Coordination, Office reporting to the Director General of IAEA), speaking on "The Looming Challenge to IAEA Safeguards: Naval Nuclear Propulsion";
- Ms. Laura Rockwood (Non-Resident Senior Fellow of the Vienna Center for Disarmament and Non-Proliferation, Former Section Head for Non-Proliferation and Policy in the Office of Legal Affairs of IAEA), speaking on "Fundamental Issues in Connection with Submarines and Safeguards"; and
- Mr. Anton Khlopkov (Director of the Center for Energy and Security Studies), speaking on "The AUKUS and Article 14".

There was a Q&A session in which intensive interactions were made. In this workshop the following views, *inter alia*, were expressed by the presenters and discussants (PDFs of full presentations are attached).

The AUKUS cooperation for acquisition of nuclear-powered submarines marks the first time in history

[1] This Chairs' Summary is solely for information purposes; it reflects the main topics raised and areas of discussion that were relevant to the announced theme, and it does not intend to seek agreement of all participants nor purport to be all inclusive and comprehensive.

for Nuclear-Weapon States under the NPT to transfer naval nuclear reactors that operate using weapons-grade highly enriched uranium as fuel to a Non-Nuclear-Weapon State (NNWS) party to the Non-Proliferation Treaty (NPT). This would set a precedent with significant challenges for the IAEA safeguards system in terms of verifying the correctness and completeness of declarations of nuclear activities by a NPT NNWS, and for the integrity of the international nuclear non-proliferation regime with the NPT as its cornerstone. The AUKUS project is expected to use about two or more tonnes of 93%-97.3% highly-enriched uranium as fuel for the naval nuclear propulsion reactors. Article 14 of INFCIRC/153 (Corr.) covers the "Non-application of Safeguards to Nuclear Material to be used in Non-proscribed Military Activities".

Thus far, there is no experience or track record for the "non-application" of comprehensive safeguards. The AUKUS project if it goes ahead to completion in its present form of secrecy would set a precedent in the absence of agreed parameters and agreed understandings of the Board of Governors and Member States. Also, thus far, more than eighteen months since the announcement of the AUKUS agreement there have not been any technical, policy or legal briefings or consultations on Article 14 involving the Secretariat, AUKUS parties and Member States. This is a significant break with past Agency practice of open-ended consultations on matters concerning interpretation, implementation or strengthening of Agency safeguards. Such open-ended consultations and committees of the Board were involved in the drafting, negotiation and finalization of safeguards frameworks including INFCIRC/153 (Corr.), the "93+2" safeguards strengthening measures, INFCIRC/540 (Model Additional Protocol), and amendment/recission of Small Quantities Protocols.

With regard to Article 14 of INFCIRC/153 (Corr.), it was noted that to the Secretariat's knowledge there is no formal definition of "non-proscribed military activity". Open-ended consultations would be useful and even required to reach a common agreed understanding of the provisions of Article 14. Furthermore, no State or States could assign the responsibility to themselves to determine the meaning and scope of Article 14 – that could only be done by Member States in open-ended consultations.

It was noted that a "military-to-military" transfer of naval nuclear fuel could not obviate the requirement to invoke Article 14 provisions as a legal and a policy matter. Another important observation was that whatever the arrangement pursuant to Article 14, it must be designed as fit for purpose regardless of who the partner States might be. Ultimately, the acceptability of any given arrangement should be judged on its non-proliferation merits, and be able to survive the following test: if the names of the parties involved are changed, is it still acceptable?

The observation was made that it is the Agency, not the IAEA Secretariat, meaning that the Member States of the Agency and its governing bodies, including the IAEA Board of Governors, should be

involved in discussing and approving the Article 14 arrangement. It is difficult to recall a conceptual safeguards document in the history of the IAEA that would have been approved by the Board of Governors by vote rather than by consensus. Establishing a precedent with an arrangement between Australia and the Agency could threaten the universal nature of the safeguards approach and could have a negative impact on the effectiveness and sustainability of the Agency's safeguards system in the long term.

The following account in brief summary form covers the discussion session.

Some viewpoints questioned why the Board of Governors has not taken more of a leading role in developing policy and technical understandings regarding Article 14. It is the Member States of the Agency and its governing bodies, including the IAEA Board of Governors, that should be involved in discussing and approving the arrangement. Establishing a precedent with an arrangement between Australia and the Agency with no active role of the IAEA Board of Governors could threaten the universal nature of the safeguards approach and could have a negative impact on the effectiveness and sustainability of the Agency's safeguards system in the long term. It is therefore important to discuss the arrangement beforehand with the IAEA Member States with a view to adopting it by consensus. Fundamentally, the history of safeguards has proven that inclusive consensus is a long-term solution that takes care of all the concerns.

It needs to be clearly understood that matters concerning the interpretation and implementation of the CSA (INFCIRC/153 (Corr.)) are inherently political and policy matters concerning all IAEA Member States and NPT States parties. The transfer of nuclear materials from Nuclear-Weapon States to Non-Nuclear Weapon States is neither clear nor present in Article 14.

From the negotiation of the history of the CSA (INFCIRC/153 (Corr.)), it is clear that the Agency and Member States should be consulted, and satisfactory administrative arrangements reached concerning the use of any nuclear material for a non-proscribed military purpose under the NPT whether or not the material was initially under safeguards. The arrangement that Australia seems to be requesting under Article 14 involves complicated legal and technical matters, which need careful and holistic analysis and in-depth discussion.

Since the AUKUS submarine cooperation is unprecedented, the safeguards approach to be chosen will define more commonly all future nuclear-powered submarine acquisition programmes, but also any future work on Article 14. Thus, both professional and governmental open-ended discussions between Member States should take place at the Agency to address it. It may make sense to consider creating an experts' mechanism (various forms possible) that would combine the knowledge and experience of

the Agency Secretariat, Member States and relevant experts.

The discussion on the AUKUS and Article 14 is only the beginning of a long intergovernmental process. During the workshop raised many if not all necessary questions but finding answers to all of these questions is not the purpose for now.

The following questions, *inter alia*, were asked during the workshop, which reflect some of the complexities of the AUKUS submarine cooperation project:

- Does the IAEA Secretariat have the authority or mandate to interpret the provisions of the NPT?
- Is the interpretation of the safeguards arrangement of AUKUS to be developed in accordance with Article 14 within the exclusive jurisdiction of the Secretariat and the Board?
- Why have the Board and Member States not taken a leading role in developing policy and technical understandings regarding INFCIRC/153 (Corr.) Article 14 implementation?
- What could be credible safeguards approaches and related technical objectives for HEU-fueled naval nuclear propulsion reactors and fuel?
- How will reaching a broader conclusion under the Additional Protocol be impacted in the case of a NPT NNWS implementing the INFCIRC/153 (Corr.) Article 14 non-application of safeguards to nuclear material to be used in non-peaceful activities?
- How would the comprehensive safeguards agreement deal with the matter of the transfer to a NPT NNWS of HEU-fueled naval nuclear propulsion reactors?
- Can application of safeguards to the AUKUS submarine project can be considered as technical "assistance", and whether this kind of "assistance" would violate Article II of the IAEA Statute?
- What safeguards measures would be required for implementation by Australia to ensure accountability and transparency of its nuclear-powered submarine project, especially given that two or more tonnes of weapons-grade highly enriched uranium will be in use?
- How to evaluate the challenges of the unprecedented AUKUS project to the existing IAEA safeguards system, especially with regard to the Agency's standard practice of inclusive, transparent, open-ended consultations involving all interested Member States on all matters of safeguards, safety and security?
- What support could be provided by interested Member States to the Director General and the Secretariat to facilitate open-ended consultations and technical briefings on matters concerning interpretation and implementation of Article 14?
- What role the Secretariat should play to facilitate the intergovernmental discussion process on AUKUS?

*****

Briefing for Governors and Permanent Representatives Accredited to the IAEA

THE LOOMING CHALLENGE TO IAEA SAFEGUARDS:

Naval Nuclear Propulsion

Tariq Rauf
Vienna: 18 May 2023
(tariqrauf@icloud.com)

IAEA International Atomic Energy Agency

1

Conflict of interest and Funding

- The author has declared no conflict of interest. No IAEA Member State has influenced the findings of this project.
- No financial support for this project has been sought nor received from any source whatsoever.

2

Notate bene

1) The views expressed in this presentation do ***not*** reflect those of the IAEA Secretariat – the views are those of the presenter for purposes of information and discussion …
2) The IAEA is a complex international technical organization with a broad Statutory mandate for nuclear verification supplemented by NPT mandate for CSAs in NNWS party to the Treaty …

3

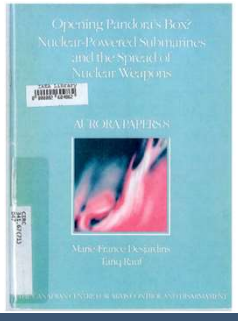
Notate bene

3. For your information, I and my then-colleague Marie-France Desjardins were the first to assess and report on the matter of nuclear-powered submarines (SSNs) and the spread of nuclear weapons in our 1988 publication > cover on the next slide. In 2003 and in 2006, I briefed the Conference on Disarmament on the challenges to safeguards posed by SSNs > references in following slides. Since the September 2021 AUKUS and June 2022 Brazil announcements on acquisition of SSNs, I have published a number of assessments on the challenges to IAEA safeguards of the proliferation of SSNs to NNWS and exemption of several SQs of weapon-usable nuclear material from safeguards due to loopholes in the NPT and INFC IRC/153. Corr.

4

Canadian Centre for Arms Control and Disarmament (1988)

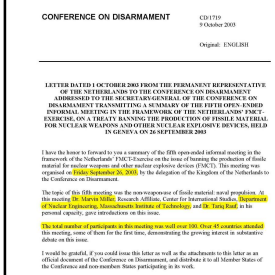
Opening Pandora's Box: Nuclear-Powered Submarines and the Spread of Nuclear Weapons
by
Marie-France Desjardins and Tariq Rauf (1988)



The first ever detailed assessment of the "loop hole" in INFCIRC/153 (Corr.) - comprehensive safeguards agreement – that could open the door for the non-application of Agency safeguards on naval nuclear propulsion reactors and nuclear fuel (HEU / LEU) amounting to 2 tonnes or more…

5

Conference on Disarmament: Summary of the Fifth Open-ended Informal Meeting on FMCT held in Geneva on 26 September 2003 (CD/1719)



CONFERENCE ON DISARMAMENT

CD/1719
9 October 2003

Original: ENGLISH

LETTER DATED 1 OCTOBER 2003 FROM THE PERMANENT REPRESENTATIVE OF THE NETHERLANDS TO THE CONFERENCE ON DISARMAMENT ADDRESSED TO THE SECRETARY-GENERAL OF THE CONFERENCE ON DISARMAMENT TRANSMITTING A SUMMARY OF THE FIFTH OPEN-ENDED INFORMAL MEETING IN THE FRAMEWORK OF THE NETHERLANDS' FMCT EXERCISE, ON A TREATY BANNING THE PRODUCTION OF FISSILE MATERIAL FOR NUCLEAR WEAPONS AND OTHER NUCLEAR EXPLOSIVE DEVICES, HELD IN GENEVA ON 26 SEPTEMBER 2003

I have the honour to forward to you a summary of the fifth open-ended informal meeting in the framework of the Netherlands' FMCT-Exercise on the issue of banning the production of fissile material for nuclear weapons and other nuclear explosive devices (FMCT). This meeting was organised on Friday September 26, 2003, by the delegation of the Kingdom of the Netherlands to the Conference on Disarmament.

The topic of this fifth meeting was the non-weaponwise of fissile material: naval propulsion. At this meeting Dr. Marvin Miller, Research Affiliate, Center for International Studies, Department of Nuclear Engineering, Massachusetts Institute of Technology, and Dr. Tariq Rauf, in his personal capacity, gave introductions on this issue.

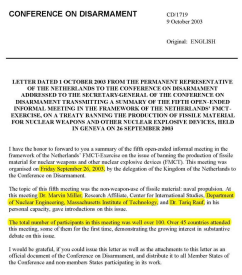
The total number of participants in this meeting was well over 100. Over 45 countries attended this meeting, some of them for the first time, demonstrating the growing interest in substantive debate on this issue.

I would be grateful, if you could issue this letter as well as the attachments to this letter as an official document of the Conference on Disarmament, and distribute it to all Member States of the Conference and non-members States participating in its work.

Dr. Rauf gave a presentation on the **problems arising from the use of fissile material as fuel for submarines in relation to non-proliferation implications**
He especially drew the attention of the meeting to the **lack of safeguards in this respect**
He added that **if a future FMCT would not cover naval propulsion, an important gap in the system of safeguards would remain**

6

Conference on Disarmament: Summary of the Fifth Open-ended Informal Meeting on FMCT held in Geneva on 26 September 2003 (CD/1719)



CONFERENCE ON DISARMAMENT

CD/1719
9 October 2003

Original: ENGLISH

LETTER DATED 1 OCTOBER 2003 FROM THE PERMANENT REPRESENTATIVE OF THE NETHERLANDS TO THE CONFERENCE ON DISARMAMENT ADDRESSED TO THE SECRETARY-GENERAL OF THE CONFERENCE ON DISARMAMENT TRANSMITTING A SUMMARY OF THE FIFTH OPEN-ENDED INFORMAL MEETING IN THE FRAMEWORK OF THE NETHERLANDS' FMCT-EXERCISE, ON A TREATY BANNING THE PRODUCTION OF FISSILE MATERIAL FOR NUCLEAR WEAPONS AND OTHER NUCLEAR EXPLOSIVE DEVICES, HELD IN GENEVA ON 26 SEPTEMBER 2003

I have the honor to forward to you a summary of the fifth open-ended informal meeting in the framework of the Netherlands' FMCT-Exercise on the issue of banning the production of fissile material for nuclear weapons and other nuclear explosive devices (FMCT). This meeting was organised on Friday September 26, 2003, by the delegation of the Kingdom of the Netherlands to the Conference on Disarmament.

The topic of this fifth meeting was the non-weapons use of fissile material: naval propulsion. At this meeting Dr. Marvin Miller, Research Affiliate, Center for International Studies, Department of Nuclear Engineering, Massachusetts Institute of Technology, and Dr. Tariq Rauf, in his personal capacity, gave introductions on this issue.

The total number of participants in this meeting was well over 100. Over 45 countries attended this meeting, some of them for the first time, demonstrating the growing interest in substantive debate on this issue.

I would be grateful, if you could issue this letter as well as the attachments to this letter as an official document of the Conference on Disarmament, and distribute it to all Member States of the Conference and non-members States participating in its work.

Dr. Miller outlined the **dangers of the diversion of HEU** (Highly Enriched Uranium), particularly WGU (Weapon Grade Uranium) with regard to **possible terrorist use to build a gun-type nuclear weapon**
By means of examples (the widely spread HEU research reactors and **nuclear powered submarines**) Dr. Miller gave an **overview of the difficulties in relation to a future FMCT and the present dangers of proliferation**

7

CONFERENCE ON DISARMAMENT

CD/PV.1037
24 August 2006

ENGLISH

Conference on Disarmament: CD/PV.1037 (24 August 2006)

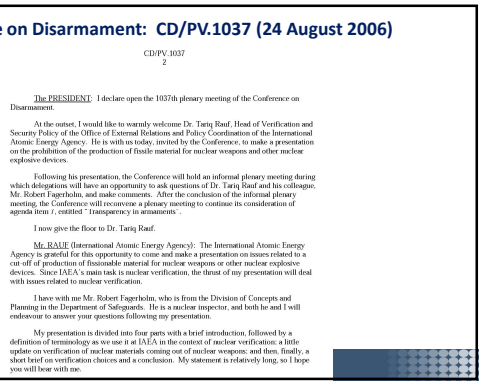
FINAL RECORD OF THE ONE THOUSAND AND THIRTY-SEVENTH PLENARY MEETING

Held at the Palais des Nations, Geneva,
on Thursday, 24 August 2006, at 10.25 a.m.

President: Mr. Anton PINTER (Slovakia)

8

Conference on Disarmament: CD/PV.1037 (24 August 2006)



CD/PV.1037
2

The PRESIDENT: I declare open the 1037th plenary meeting of the Conference on Disarmament.

At the outset, I would like to warmly welcome Dr. Tariq Rauf, Head of Verification and Security Policy of the Office of External Relations and Policy Coordination of the International Atomic Energy Agency. He is with us today, invited by the Conference, to make a presentation on the prohibition of the production of fissile material for nuclear weapons and other nuclear explosive devices.

Following his presentation, the Conference will hold an informal plenary meeting during which delegations will have an opportunity to ask questions of Dr. Tariq Rauf and his colleague, Mr. Robert Fagerholm, and make comments. After the conclusion of the informal plenary meeting, the Conference will reconvene a plenary meeting to continue its consideration of agenda item 1, entitled "Transparency in armaments".

I now give the floor to Dr. Tariq Rauf.

Mr. RAUF (International Atomic Energy Agency): The International Atomic Energy Agency is grateful for this opportunity to come and make a presentation on issues related to a cut-off of production of fissionable material for nuclear weapons or other nuclear explosive devices. Since IAEA's main task is nuclear verification, the thrust of my presentation will deal with issues related to nuclear verification.

I have with me Mr. Robert Fagerholm, who is from the Division of Concepts and Planning in the Department of Safeguards. He is a nuclear inspector, and both he and I will endeavour to answer your questions following my presentation.

My presentation is divided into four parts with a brief introduction, followed by a definition of terminology as we use it at IAEA in the context of nuclear verification; a little update on verification of nuclear materials coming out of nuclear weapons; and then, finally, a short brief on verification choices and a conclusion. My statement is relatively long, so I hope you will bear with me.

9

(Photo: (Left) Alvaro Alberto, Brazil's first nuclear-powered attack submarine (SSN) concept, courtesy of Serviços e Informações do Brasil; (Right): US Navy Virginia-class SSN, courtesy of General Dynamics Electric Boat Public Affairs, Creative Commons Licence (082720-N-1234E-002))

Left: US Navy (Virginia-class SSN, courtesy of General Dynamics Electric Boat Public Affairs, Creative Commons Licence (082720-N-1234E-002)) Right: Royal Navy (Astute-class SSN, courtesy Royal Navy MoD) Center: A Rendering of SSN-AUKUS (BAE Systems).

NUCLEAR SUBMARINES AND THE NON-PROLIFERATION TREATY: BRAZIL GETS A JUMP ON AUSTRALIA?

Tariq Rauf*

VIENNA, 8th AUGUST 2022

Originally scheduled for April-May 2020, due to postponements because of the Covid-19 pandemic, the Tenth Review Conference of the Nuclear Non-Proliferation Treaty (NPT) finally convened in these turbulent times at the United Nations in New York on 1st August and will conclude its deliberations on 26th August.

NPT review conferences are held every five years to assess the implementation of the NPT across its three "pillars": nuclear disarmament, nuclear non-proliferation, and cooperation in the peaceful uses of nuclear energy.

In addition to the usually contentious and oftentimes bad tempered discourse in previous review conferences on the failure of the five nuclear-weapon States – China, France, Russia, UK and USA – to eliminate their nuclear arsenals as well on the failure to establish a zone free of nuclear and other weapons of mass destruction in the Middle East; this review conference has a new problematic issue on its agenda.

The problem relates to the 15 September 2021 announcement that the United States would provide Australia eight nuclear-powered submarines (SSNs) fuelled by weapon-grade highly-enriched uranium (HEU), under the AUKUS agreement. On the same date in September, the Director General of the International Atomic Energy Agency, received a communication from the United States concerning "an enhanced trilateral security partnership called 'AUKUS'" to "support Australia's acquisition of a conventionally armed, nuclear-powered submarine capability".

This programme would seek to exploit a "loophole" or "grey area" in the nuclear safeguards (verification) system of the IAEA in connection with the non-proliferation of nuclear weapons under the NPT. This concerns exempting the nuclear fuel and the nuclear propulsion

PANDORA'S BOX OPENED!
RUN SILENT! RUN DEEP!
SINK IAEA SAFEGUARDS?

Tariq Rauf*

VIENNA, 17th MARCH 2023 (Updated)

Run Silent, Run Deep

Coming up to the eighteen month mark following the announcement of the AUKUS agreement on the supply of nuclear-powered submarines (SSNs) to the Royal Australian Navy (RAN), the International Atomic Energy Agency (IAEA) continues to struggle to deal with the challenge put up by naval nuclear propulsion to the implementation, efficacy and credibility of the Agency's nuclear safeguards (verification) system.

Nearly two months after the 15 September 2021 announcement of the launch of AUKUS, Kurt Campbell, then-US Assistant Secretary of State responsible for the somewhat fictional geostrategic concept of the "Indo-Pacific", was quoted as saying that AUKUS would bring about "*almost a multiple of our synergy*" referring to the projected new collaboration of the nuclear navies of the UK and US with the Australian Navy.

In an unwitting hark back to the ill-fated US proposal in the 1960s of a "Multilateral Force" (MLF) that envisaged multi-national (NATO) crewed nuclear-armed ships and submarines, Campbell talked about, "*We will have British sailors serving on our naval vessels, Australians and the like on more of our forward-deployed vessels in Australia*". To be clear, unlike the MLF, AUKUS at present does not envisage Australian nuclear-powered submarines to be deployed with nuclear weapons – they would carry sea-launched conventionally-armed cruise missiles.

Following up on Kurt Campbell's comments, former US undersecretary for defence for policy, Jim Miller, stated that the US will within eighteen months "*basically design an architecture about how these three countries will work more proactively on defence …[and will] do whatever possible to provide the Royal Australian Navy with options to build nuclear*

10

Organization of the Briefing

11

- CSA INFCIRC/153 Corr. > paragraph 14 on non-proscribed nuclear military activities
- Safeguards exception under NPT and CSA (para. 14)
- AP INFCIRC/540 > broader conclusion
- Definitions, starting point of safeguards exception
- Implications for strengthened IAEA safeguards
- Role of the DG, Secretariat, Board, Member States
- Proliferation of Nuclear-Powered Submarines

Tariq Rauf 01/06/2023

11

Naval Nuclear Propulsion: NPT and IAEA Safeguards

INF

International Atomic Energy Agency
INFORMATION CIRCULAR

INFCIRC/217
13 December 1974
GENERAL Distr.
Original: ENGLISH

THE TEXT OF THE AGREEMENT BETWEEN AUSTRALIA AND THE AGENCY FOR THE APPLICATION OF SAFEGUARDS IN CONNECTION WITH THE TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS

1. The text[1] of the Agreement between Australia and the Agency for the application of safeguards in connection with the Treaty on the Non-Proliferation of Nuclear Weapons[2] is reproduced in this document for the information of all Members.

3. The Agreement entered into force on 10 July 1974, pursuant to Article 26.

12

Naval Nuclear Propulsion: NPT and IAEA Safeguards

Non-application of safeguards to nuclear material used in non-peaceful activities

"Loophole" in INFCIRC/153 (Corr.)?

NON-APPLICATION OF SAFEGUARDS TO NUCLEAR MATERIAL TO BE USED IN NON-PEACEFUL ACTIVITIES

Article 14

If Australia intends to exercise its discretion to use nuclear material which is required to be safeguarded under this Agreement in a nuclear activity which does not require the application of safeguards under this Agreement, the following procedures shall apply:

(a) Australia shall inform the Agency of the activity, making it clear:

(i) That the use of the nuclear material in a non-proscribed military activity will not be in conflict with an undertaking Australia may have given and in respect of which Agency safeguards apply, that the nuclear material will be used only in a peaceful nuclear activity; and

(ii) That during the period of non-application of safeguards the nuclear material will not be used for the production of nuclear weapons or other nuclear explosive devices;

(b) Australia and the Agency shall make an arrangement so that, only while the nuclear material is in such an activity, the safeguards provided for in this Agreement will not be applied. The arrangement shall identify, to the extent possible, the period or circumstances during which safeguards will not be applied. In any event, the safeguards provided for in this Agreement shall apply again as soon as the nuclear material is reintroduced into a peaceful nuclear activity. The Agency shall be kept informed of the total quantity and composition of such unsafeguarded nuclear material in Australia and of any export of such nuclear material; and

(c) Each arrangement shall be made in agreement with the Agency. Such agreement shall be given as promptly as possible and shall relate only to such matters as, inter alia, temporal and procedural provisions and reporting arrangements, and shall not involve any approval or classified knowledge of the military activity or relate to the use of the nuclear material therein.

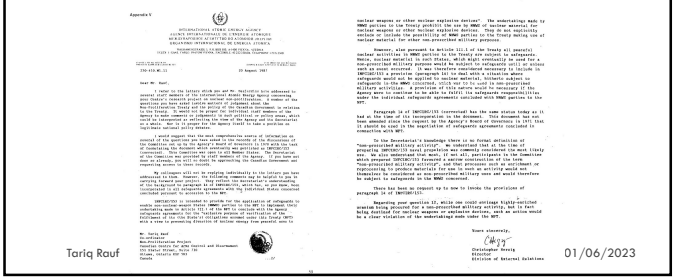
13

Questions: NPT, INFCIRC/153

- Is the negotiating history of the NPT clear regarding "peaceful" and "non-prohibited nuclear military activities > what is the evidence in negotiating records, background and working papers, interpretive statements and understandings?
- The NPT is silent on non-proscribed nuclear military activities > non-application of safeguards to nuclear material to be used in non-peaceful activities > NPT foresees exclusively peaceful uses of nuclear energy > on what basis can it be claimed that naval nuclear propulsion technology is possible outside of safeguards?

14

Questions: NPT, INFCIRC/153
20 Aug 1987: Secretariat letter addressed to me:



15

Questions: NPT, INFCIRC/153

20 Aug 1987: Secretariat letter addressed to me:

- The undertakings made by NNWS parties to the Treaty prohibit the use by NNWS of nuclear material for nuclear weapons or other nuclear explosive devices. They do not explicitly exclude or include the possibility of NNWS parties to the Treaty making use of nuclear material for other non-proscribed military purposes
- How may one interpret this IAEA statement?

16

Questions: NPT, INFCIRC/153

20 Aug 1987: Secretariat letter addressed to me:

- To the Secretariat's knowledge there is no formal definition of 'non-proscribed military activity'. We understand that at the time of preparing INFCIRC/153 naval propulsion was commonly considered the most likely use. We also understand that most, if not all, participants in the Committee which prepared INFCIRC/153 favoured a narrow construction of the term 'non-proscribed military activity', and that processes such as enrichment or reprocessing to produce materials for use in such an activity would not themselves be considered as non-proscribed military uses and would therefore be subject to safeguards in the NNWS concerned".
- **How may one interpret this IAEA statement?**

17

Questions: NPT, INFCIRC/153

- Is INFCIRC/153 paragraph 14 inconsistent with the NPT?
- Should not this matter be considered at the NPT PrepCom in August this year to seek the views of NPT States parties?
- Are the derestricted ORs of proceedings of Committee 24 clear regarding non-proscribed military activities > meaning, definitions, specific activities > should not the Board / Secretariat now derestrict the entire records of Committee 24 > which now are more than 50 years old and make available on iaea.org?
- What is the specific authoritative record that para.14 concerns non-proscribed military activities? What are the working papers and background documents concerning this matter?

18

Questions: NPT, INFCIRC/153

19

- Why not derestrict materials regarding Canada's request for para.14 exemption during 1988-1990 (excluding commercially relevant information such as costs)?
- Did Committee 22 (Safeguards Committee) exceed its mandate in drafting and including para. 14 in INFCIRC/153 as non-application of safeguards is not mentioned in Article III.1 of the NPT?

Tariq Rauf 01/06/2023

19

Questions: NPT, INFCIRC/153

20

- While NPT Article III.1 obliges NNWS to "accept safeguards in accordance with the Statute of the IAEA and the Agency's safeguards system, for the exclusive purpose of verification of the fulfilment of its obligations assumed under this Treaty with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices" > there is no provision in the IAEA Statute to exempt nuclear material from safeguards in "non-proscribed nuclear military activities" and how can the NPT States parties be assured that such an exemption from safeguards will not lead to diversion of unsafeguarded nuclear material in non-proscribed nuclear military activities to nuclear weapons or other nuclear explosive devices?

Tariq Rauf 01/06/2023

20

Questions: NPT, INFCIRC/153

21

- Should not have Committee 22 (Safeguards Committee) sought the advice and consent of NPT States parties on INFCIRC/153 fulfilling the requirements of NPT Article III and have sought their views on para. 14?
- NPT States parties made no reference to INFCIRC/153 in relation to it at review conferences until 2000?
- The sovereign of the NPT is its States parties, should not they be asked for their views on para. 14 and its implications for the Treaty?
- Is INFCIRC/153 para. 14 ultra vires as regards the NPT?
- Does the IAEA Secretariat have the authority or mandate to interpret the provisions of the NPT?

Tariq Rauf 01/06/2023

21

Questions: NPTRC 2020(2022)

22

- WP.77 (para 36): *The Conference notes that the topic of naval nuclear propulsion is of interest to the States Parties to the Treaty. The Conference also notes the importance of transparent and open dialogue on this topic. The Conference further notes that non-nuclear-weapon States that pursue naval nuclear propulsion should engage with IAEA in an open and transparent manner* > Should this be followed up at the PrepCom in August, and in what manner? And, at the Agency?

Tariq Rauf 01/06/2023

22

Notate bene

4) The usual practice at the Agency in drafting and interpreting its fundamental obligatory and guidance documents is through open-ended consultations involving all Member States. Examples (following slides re 2020 Commission and MNAs):

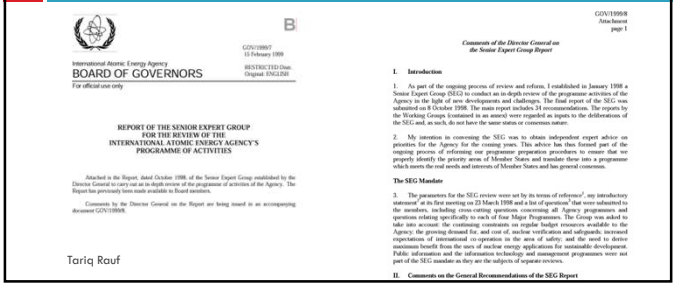
- *Committee 22 (1970-1972) for INFCIRC/153 Corr.*
- *Committee 24 (1993-1995) for 93+2 and INFCIRC/540*
- *MNA Expert Group (2004-2005) for INFCIRC/640*
- *Amendment or Rescission of SQPs (2005)*
- *Committee 25 on safeguards (2005-2006)*
- *CPPNM Amendment (2006)*
- *Technical meetings (ongoing)*

Tariq Rauf: 01/06/2023 23

23

REPORT OF THE SENIOR EXPERT GROUP FOR THE REVIEW OF THE IAEA'S PROGRAMME OF ACTIVITIES

24



International Atomic Energy Agency
BOARD OF GOVERNORS
For official use only

GOV/1999/7
15 February 1999
RESTRICTED Distr.
Original: ENGLISH

B

REPORT OF THE SENIOR EXPERT GROUP
FOR THE REVIEW OF THE
INTERNATIONAL ATOMIC ENERGY AGENCY'S
PROGRAMME OF ACTIVITIES

Attached is the Report, dated October 1998, of the Senior Expert Group established by the Director General to carry out an in-depth review of the programme of activities of the Agency. The Report has previously been made available to Board members.

Comments by the Director General on the Report are being issued in an accompanying document GOV/1999/8.

GOV/1999/8
Attachment
page 1

Comments of the Director General on the Senior Expert Group Report

I. Introduction

1. As part of the ongoing process of review and reform, I established in January 1998 a Senior Expert Group (SEG) to conduct an in-depth review of the programme activities of the Agency in the light of new developments and challenges. The final report of the SEG was submitted on 8 October 1998. The main report includes 34 recommendations. The reports by the Working Groups (contained in an annex) were regarded as inputs to the deliberations of the SEG and, as such, do not have the same status or consensus nature.

2. My intention in convening the SEG was to obtain independent expert advice on priorities for the Agency for the coming years. This advice has then formed part of the ongoing process of reforming our programme preparation procedures to ensure that we properly identify the priority areas of Member States and translate these into a programme which meets the real needs and interests of Member States and has general consensus.

The SEG Mandate

3. The parameters for the SEG review were set by its terms of reference[1], my introductory statement[2] at its first meeting on 23 March 1998 and a list of questions[3] that were submitted to the members, including: cross-cutting questions concerning all Agency programmes and questions relating specifically to each of four Major Programmes. The Group was asked to take into account: the continuing constraints on regular budget resources available to the Agency; the growing demand for, and cost of, nuclear verification and safeguards; increased expectations of international co-operation in the area of safety; and the need to derive maximum benefit from the uses of nuclear energy applications for sustainable development. Public information and the information technology and management programmes were not part of the SEG mandate as they are the subjects of separate reviews.

II. Comments on the General Recommendations of the SEG Report

Tariq Rauf

24

REPORT OF THE COMMISSION OF EMINENT PERSONS ON THE FUTURE OF THE AGENCY

25

IAEA
Atoms for Peace

Board of Governors
General Conference

GOV/2008/22-GC(52)/INF/4
Date: 23 May 2008

General Distribution
Original: English

For official use only
Item 8 of the Board's provisional agenda
(GOV/2008/20)

Report of the Commission of Eminent Persons on the Future of the Agency

Note by the Director General

- During the General Conference in September 2007, the Director General announced that he was establishing an independent Commission of Eminent Persons to reflect upon the nature and scope of the Agency's programme up to 2020 and beyond. Membership of the Commission was drawn from a wide range of expertise — public policy making, management, finance and technology. The Commission was chaired by Professor Ernesto Zedillo, former President of Mexico. The Commission's report addresses the many challenges and opportunities which the Agency faces in the coming years and sets out concrete recommendations. The Director General trusts that the report will receive thorough consideration by Member States.
- A background document prepared by the Secretariat in February 2008 for the work of the Commission is attached as an annex.

Commission members

Ambassador Oluyemi Adeniji (Nigeria) – former Minister of Foreign Affairs, Nigeria; former Member of the Board of Governors of the IAEA

Lajos Bokros (Hungary) – Professor of Economics and Public Policy, and Chief Operating Officer of the Central European University, Budapest, Hungary

Lakhdar Brahimi (Algeria) – Visiting Scholar at the Institute for Advanced Study, Princeton; former UN Under-Secretary-General, Special Adviser to the Secretary-General, and Chair of the UN Panel on Peace Operations

Dr. Rajagopala Chidambaram (India) – Principal Scientific Advisor to the Government of India, and DAE-Homi Bhabha Professor; former Chairman of the Atomic Energy Commission; former Director of the Bhabha Atomic Research Centre

Senator Lamberto Dini (Italy) – President of the Foreign Affairs Committee of the Italian Senate

Gareth Evans (Australia) – President and Chief Executive Officer, International Crisis Group; former Australian Foreign Minister; former Minister for Resources and Energy

Louise Fréchette (Canada) – Distinguished Fellow, The Centre for International Governance Innovation; former Deputy Minister and former UN Deputy Secretary-General

Anne Lauvergeon (France) – Chief Executive Officer of AREVA

Kishore Mahbubani (Singapore) – Dean, Professor in the Practice of Public Policy, Lee Kuan Yew School of Public Policy, National University of Singapore; former Ambassador to the UN, and former President of the UN Security Council

Ambassador Ronaldo Mota Sardenberg (Brazil) – President of the National Telecommunication Agency of Brazil; former Permanent Representative of Brazil to the UN; former Minister of Science and Technology, Brazil

Ambassador Pius Yasebasi Ng'Wandu (Tanzania) – former Minister of Science, Technology, and Higher Education, and Minister of Water, United Republic of Tanzania

Senator Sam Nunn (United States) – Co-Chairman and Chief Executive Officer of the Nuclear Threat Initiative; former United States Senator

Ambassador Karl Theodor Paschke (Germany) – former UN Under-Secretary-General for Internal Oversight Services; former Permanent Representative of the Federal Republic of Germany to the IAEA

Dr. Wolfgang Schüssel (Austria) – former Federal Chancellor of Austria; Leader of the Parliamentary Group of the Austrian People's Party

Academician Evgeny Velikhov (Russia) – President of the Russian Research Centre Kurchatov Institute; Academician and Secretary of the Russian Academy of Sciences

Professor Wang Dazhong (China) – Honorary Chairman of Tsinghua University Council; Member of Chinese Academy of Sciences; former President of Tsinghua University; Director of the Institute of Nuclear Energy Technology (INET) of Tsinghua University

Dr. Hiroyuki Yoshikawa (Japan) – President of the National Institute of Advanced Industrial Science and Technology, Tokyo; former President of the University of Tokyo

Ernesto Zedillo, *Chair* (Mexico) – Director of the Yale Center for the Study of Globalization; former President of Mexico

25

REPORT OF THE COMMISSION OF EMINENT PERSONS ON THE FUTURE OF THE AGENCY

26

Fuel for Thought

by Tariq Rauf and Zoryana Vovchok

A multilateral approach to the nuclear fuel cycle would help cope with the expected expansion of nuclear power use and strengthen the nuclear non-proliferation regime.

The increase in global energy demand is driving a potential expansion in the use of nuclear energy and over the last few years there has been a growing interest in the possible development of a new, multilateral approach to the nuclear fuel cycle. This is widely believed to be a key measure to cope with the expected expansion of nuclear power use and, at the same time, strengthen the nuclear non-proliferation regime.

reactors — and, as needed, assurance of supply for the acquisition of such reactors. The second step would be to have future enrichment and reprocessing through multilateral operations. The third step would be to convert existing enrichment and reprocessing facilities from national to multilateral operations. In this context, it will be crucial to negotiate and implement a global, internationally verifiable treaty on the prohibition of fissile material pro-

A Secure Nuclear Future

by Tariq Rauf and Zoryana Vovchok

Several mechanisms are under consideration to guarantee assurances of supply of nuclear fuel to States.

Early in the nuclear age, in 1946, the US diplomat Bernard Baruch called for States to transfer ownership and control over civil nuclear activities and materials to an international atomic development agency. Ultimately, however, it was the 1953 Atoms-for-Peace plan that provided the principles underlying international cooperation in the field of nuclear technology and the establishment of both the International Atomic Energy Agency (IAEA) and later the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). In so doing, it became not only the forbearer of international nuclear cooperation and non-proliferation efforts in an overarching sense, but also of recent efforts of possible multilateral approaches to the nuclear fuel cycle.

The line between the peaceful and the military atom is, in some cases, merely a reflection of the intentions of those making use of the technology. It remains essential that nuclear energy is used responsibly under the highest standards for non-proliferation, security and safety.

regional fuel-cycle facilities and prospects for multilateral cooperation on plutonium storage. Both studies came to similarly positive technical conclusions, however, due in large part to diminishing concerns over the likelihood of a "plutonium economy," the disinclination of some countries to give up national control over reprocessing, and the general lack of political will, neither the RFCC or INFCE studies resulted in any further pursuit of multilateral approaches.

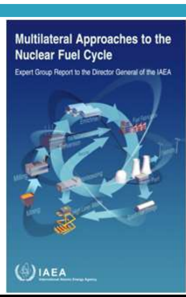
The IAEA *Expert Group on International Plutonium Storage (IPS)* in 1978-1982, the next initiative in the field, moved away from the discussion of regional fuel-cycle centres to examine instead the prospects for IAEA-supervised management, storage, and disposition of spent nuclear fuel. Once again, no consensus was reached, as States were unwilling to renounce sovereign control over nuclear technology and fuel. The same fate met the studies undertaken by the IAEA *Committee on Assurances of Supply (CAS)* in 1980. The efforts that began in the 1970s in the area of multilateral approaches finally ended with the *UN Conference for the Promotion of International Cooperation in the Peaceful Uses of Nuclear Energy (UNCPICPUNE)* in 1987, but like its predecessors, it yielded little in the way of concrete results in this regard.

All of these initiatives failed for a variety of politi-

26

Multilateral Approaches to the Nuclear Fuel Cycle Expert Group Report to the Director General of the IAEA (2005)

27



Annex II
PARTICIPANTS AND CONTRIBUTORS

Expert Group members[a]

Bruno Pellaud (*Chairman*)	Former IAEA Deputy Director General for Safeguards; President, Swiss Nuclear Forum, Switzerland
Sergey Andropenkov	Deputy Director, Department of Labour and Environment, Kazatomprom, National Atomic Company, Kazakhstan
Javier Arnáiz de Guezala	Uranium Procurement Manager, ENUSA Industria Avanzadas, SA, Spain
Patrice Bernard	Director of Nuclear Development and Innovation, DEN/DDIN, France
Raffaele Di Sapia	Deputy Director, External Relations, ENEA, Italy
Mel Draper	Director, Non-Proliferation, Department of Trade and Industry, United Kingdom
Tetsuya Endo	Special Assistant to the Minister for Foreign Affairs, Japan
Gideon Frank	Director General, Israel Atomic Energy Commission, Israel
Ravi B. Grover	Director, Strategic Planning Group, Department of Atomic Energy, India
Hwang Yong Soo	Principal Researcher Korea Atomic Energy Research Institute, Republic of Korea

Tariq Rauf 01/06/2023

27

BRIEFING FOR MEMBER STATES

28

Multilateral Approaches to the Nuclear Fuel Cycle and other proposals

Tariq Rauf

Head, Verification and Security Policy Coordination

(Scientific Secretary of the Expert Group on Multilateral Nuclear Approaches (MNA) and of the 50th IAEA General Conference (Special Event): New Framework for the Utilization of Nuclear Energy in the 21st Century: Assurance of Supply and Non-Proliferation)

Vienna, 6 February 2007

IAEA
International Atomic Energy Agency

Tariq Rauf 01/06/2023

28

29

Assurance of Supply
GOV/2009/30 and GOV/2009/31

Tariq Rauf

(Head, Verification and Security Policy Coordination, Office of External Relations and Policy Coordination)

Informal Technical Briefing
Vienna: 28 May 2009

IAEA
International Atomic Energy Agency

BRIEFING FOR MEMBER STATES

Note

- ***This is an informal technical briefing on the reports of the Director General***

  GOV/2009/30 and GOV/2009/31

IAEA 2

Tariq Rauf 01/06/2023

29

30

IAEA
Atoms for Peace: The First Half Century
1957–2007

Board of Governors

GOV/INF/2007/11
Date: 13 June 2007

Restricted Distribution
Original: English

For official use only

Possible New Framework for the Utilization of Nuclear Energy: Options for Assurance of Supply of Nuclear Fuel

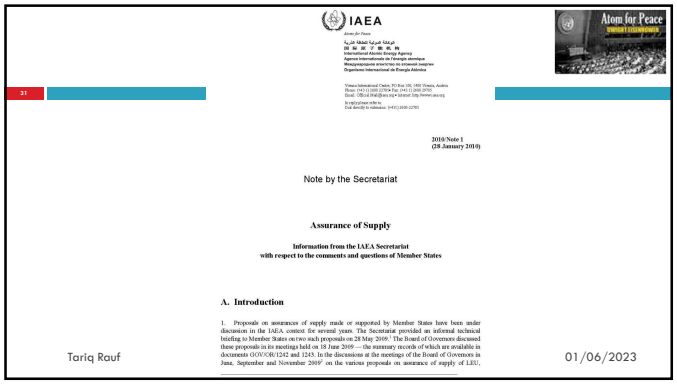
Report by the Director General

1. Following the September 2006 Special Event on Assurances of Supply and Assurances of Non-Proliferation, held during the 50th regular session of the General Conference, the Director General indicated at the November 2006 meeting of the Board of Governors that the Secretariat would prepare a report for the information of Member States outlining possible approaches for assurance of supply of nuclear fuel.

2. This report provides background information including the evolution of proposals received by the Secretariat to date concerning assurance of supply and international nuclear fuel centres, and describes some common themes for assurance of supply of nuclear fuel and fuel fabrication services and lists possible criteria for assurance of supply. In addition, the report provides a commentary concerning possible international nuclear fuel centres and suggests ideas for further work. The annexes to the report contain an outline of the relevant provisions of the IAEA Statute, describe the current international nuclear fuel market, provide an analysis of some common themes within the proposals that have been received and reproduce copies of these proposals for ease of reference.

Tariq Rauf 01/06/2023

30



IAEA

Atoms for Peace

International Atomic Energy Agency

Agence internationale de l'énergie atomique

Международное агентство по атомной энергии

Organismo Internacional de Energía Atómica

Vienna International Centre, PO Box 100, 1400 Vienna, Austria
Phone: (+43 1) 2600-0 Fax: (+43 1) 2600 7
Email: Official.Mail@iaea.org • Internet: http://www.iaea.org

In reply please refer to:
Dial directly to extension: (+43 1) 2600-22705

2010/Note 1
(28 January 2010)

Note by the Secretariat

Assurance of Supply

Information from the IAEA Secretariat with respect to the comments and questions of Member States

A. Introduction

1. Proposals on assurances of supply made or supported by Member States have been under discussion in the IAEA context for several years. The Secretariat provided an informal technical briefing to Member States on two such proposals on 28 May 2009.[1] The Board of Governors discussed these proposals in its meetings held on 18 June 2009 — the summary records of which are available in documents GOV/OR/1242 and 1243. In the discussions at the meetings of the Board of Governors in June, September and November 2009[2] on the various proposals on assurance of supply of LEU,

Tariq Rauf 01/06/2023

31

Questions: Open-ended consultations

- INFCIRC/153 relates to the NPT and is a universal standard for all NNWS: can individual States unilaterally with Secretariat cooperation implement provisions the meaning and application of which are not clear (for example, INFCIRC/153 para.14?
- If so, how should this be done: exclusively involving concerned State(s) and the Secretariat – transparency, accountability?
- Do all CSA States have an interest or right to be transparently informed and involved in non-case specific consultations on the generic technical and legal aspects of para.14 implementation?

Tariq Rauf 01/06/2023

32

Questions: Open-ended consultations

- Is interpretation of para.14 within the exclusive jurisdiction of the Secretariat and the Board?
- What is the role and responsibility of NPT States parties in this regard?

Tariq Rauf 01/06/2023

33

Questions: Role of the Board

- What is the role of the Board regarding matters of interpretation of application of safeguards?
- Why has the Board not taken a leading role regarding developing policy and technical understandings regarding INFCIRC/153 para. 14 implementation?
- Does the Board have the technical and legal competence to adequately address the implications of para. 14 (CSA)?

Tariq Rauf 01/06/2023

34

Questions: Role of the Board

Statute Article VII.B

The **Director General** shall be responsible for the appointment, organization, and functioning of the staff and **shall be under the authority of and subject to the control of the Board of Governors.** He shall **perform his duties in accordance with regulations adopted by the Board**

- Why has the Board not requested the Secretariat for technical briefings on safeguards approaches and technical objectives for naval nuclear propulsion?

Tariq Rauf 01/06/2023

35

Questions: Role of the Board and Technical

- Why has not the Board requested SAGSI for a technical report on implementation of para.14? Does SAGSI have the technical competence?
- Why has not the Board requested the DG to set up an international panel of experts to assess matters pertaining to non-proscribed nuclear military activities and naval nuclear propulsion and make policy and technical recommendations regarding safeguards on NPNRs?
- Regarding the **non-proliferation standard** for non-proscribed nuclear military activities (naval nuclear propulsion) > that standard can only be complete transparency and full application of safeguards?

Tariq Rauf 01/06/2023

36

Questions: Role of the Board

37

"Trust but verify": Intentions cannot be verified, only materials and facilities

- The Agency cannot assure against change of intentions by a State regarding its nuclear fuel cycle > what extra burden on safeguards might this entail regarding naval nuclear propulsion?
- What could be a credible "diversion path analysis"?
- What could be a credible safeguards approach and related technical objectives for naval nuclear propulsion?
- What are the implications for the State Level Approach (SLA) for a State pursuing naval nuclear propulsion?

37

Questions: Technical

38

- Enrichment and reprocessing cannot be exempted from safeguards under para.14: hence the Agency should be able to verify the quantity and isotopic composition of LEU/HEU to be exempted from safeguards under para.14?
- Para. 14 requires information to be provided on the quantity and isotopic composition of the nuclear material subject to non-application of safeguards: how will the Agency ensure receipt of the information and physical inventory verification (PIV)?
- Naval propulsion nuclear reactors (NPNRs) essentially are essentially small or medium size reactors the characteristics of which are well known including that of reactor physics: what makes NPNRs different from other types of SMRs for safeguards purposes?
- NPNRs in common with SMRs generate steam to run generators to generate electricity > this function of NPNRs should be safeguardable?

38

Questions: Technical

39

- One difference between NPNRs and SMRs is that power generated by NPNRs drive ships and submarines > the classified components then are the platforms not the power source?
- The rough isotopic composition of NPNRs is referred to in unclassified literature is LEU below LEU 19% U235 and HEU up to 97.3% U235 > specific information in this regard needs to be provided to the IAEA in accordance with para.14 > how can the Agency ensure this?

39

Questions: Technical

40

CSA: INFCIRC/153: implementation of para.14

- How will this impact on the Safeguards Conclusion for the State concerned?
- Is nuclear material exempted under para.14 "declared" or "undeclared" or "exempted" or … ?
- Or previously declared in one quantity / isotopic level(s) but then "undeclared" after moving out of safeguards?
- How can "non-diversion" be verified?

40

Questions: Technical

41

AP: INFCIRC/540: implementation of para.14 CSA

Only in countries with both a CSA and an AP in force with sufficient information and access can the Agency provide credible assurances of both the non-diversion of declared nuclear material from peaceful nuclear activities and the absence of undeclared nuclear material and activities

- How will this impact on the Broader Safeguards Conclusion for the State concerned?

41

Questions: Technical

42

AP: INFCIRC/540: implementation of para.14 CSA

- Will the Agency have to give a "qualified" safeguards conclusion?
- What would be credibility and efficacy of such a "qualified conclusion"?

42

Questions: Technical

43

CSA + AP: implementation re para.14 CSA

- How will Agency address and investigate open source and third-party information regarding (possible) diversion of nuclear material exempted under para.14?
- And, in this context seek to discover related clandestine or undeclared activities?
- What remedies would be available to the Secretariat and Board?

43

Questions: Technical

44

- 20 Aug 1987: Secretariat letter addressed to me:
- INFCIRC/153 is intended to provide for the application of safeguards to enable non-nuclear-weapon States (NNWS) parties to the NPT to implement their undertaking made in Article III.1 of the NPT to conclude with the Agency safeguards agreements for the "exclusive purpose of verification of the fulfilment of its (the State's) obligations assumed under this Treaty (NPT') with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices". **The undertakings made by NNWS parties to the Treaty prohibit the use by NNWS of nuclear material for nuclear weapons or other nuclear explosive devices. They do not explicitly exclude or include the possibility of NNWS parties to the Treaty making use of nuclear material for other non-proscribed military purposes >> what does this imply?**

44

Questions: Technical

45

- 20 Aug 1987: Secretariat letter addressed to me:
- **The undertakings made by NNWS parties to the Treaty prohibit the use by NNWS of nuclear material for nuclear weapons or other nuclear explosive devices. They do not explicitly exclude or include the possibility of NNWS parties to the Treaty making use of nuclear material for other non-proscribed military purposes**
- **Thus, INFCIRC/153 does not exclude/include making use of nuclear material for naval nuclear propulsion! > why has the Secretariat stated that INFCIRC/153 foresees nuclear material use in non-proscribed military activities = naval nuclear propulsion?**

45

Questions: Technical:
20 Aug 1987: Secretariat letter addressed to me:

46

- To the Secretariat's knowledge **there is no formal definition** of **"non-proscribed military activity"**. We understand that at the time of preparing INFCIRC/153 *naval propulsion* was commonly considered the *most likely use*. We also understand that most, if not all, participants in the Committee which prepared INFCIRC/153 favoured a narrow construction of the term "non-proscribed military activity", and that processes such as **enrichment or reprocessing to produce materials for use in such an activity would not themselves be considered as non-proscribed military uses and would therefore be subject to safeguards** in the NNWS concerned >> **who should address definitions regarding para.14?.**

46

Questions: Technical:
20 Aug 1987: Secretariat letter addressed to me:

47

"To the Secretariat's knowledge **there is no formal definition** of **"non-proscribed military activity"…**

A definition for the consideration and approval of the Board should be developed by whom?

- Secretariat?
- Member States with support of Secretariat?
- SAGSI?
- International panel of experts?
- States seeking to implement para. 14?

47

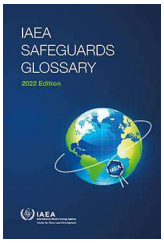
Notate bene

48

5) The Safeguards Glossary issued in 2022 has a revised description of INFCIRC/153 Corr. para.14 on "Non-application of safeguards to nuclear material to be used in non-peaceful activities" as compared to the 2001 edition > see following slides.

48

Naval Nuclear Propulsion: NPT and IAEA Safeguards



2.15. Non-application of safeguards to nuclear material to be used in non-peaceful activities. The use of nuclear material in a non-proscribed military activity which does not require the application of IAEA safeguards. More specifically, this refers to the use by a State with a comprehensive safeguards agreement (CSA) as envisaged in para. 14 of [153] of nuclear material in a nuclear activity which does not require the application of IAEA safeguards (e.g. a non-proscribed military activity such as naval nuclear propulsion). …. the IAEA and the State are required to make an arrangement, as provided for in para. 14(b) and 14(c) of [153], so that only while the nuclear material is in such an activity, the safeguards provided for in [153] will not be applied. Such an arrangement shall identify, to the extent possible, the period or circumstances during which safeguards will not be applied. **Any arrangement pursuant to para. 14 of [153] will be reported to the IAEA Board of Governors**

49

Naval Nuclear Propulsion: NPT and IAEA Safeguards

2.14. Non-application of IAEA safeguards — refers to the use of nuclear material in a non-proscribed military activity which does not require the application of IAEA safeguards. Nuclear material covered by a comprehensive safeguards agreement may be withdrawn from IAEA safeguards should the State decide to use it for such purposes, e.g. for the propulsion of naval vessels. Paragraph 14 of [153] specifies the arrangements to be made between the State and the IAEA with respect to the period and circumstances during which safeguards will not be applied. **Any such arrangement would be submitted to the IAEA Board of Governors for prior approval**

50

Questions: IAEA Safeguards Glossary 2022 and 2001

51

- What is the explanation for the change of explanation regarding para.14 ?in the 2022 edition compared to the 2001 edition?
- What is meant by "report to the Board" in the 2022 edition?
- Is this just a routine report for information with no requested action(s)?
- Or, will the Board be expected to "consider" or "review" or "approve" any arrangement(s) or procedures(s) pertaining to the non-application of safeguards pursuant to para.14?

Tariq Rauf 01/06/2023

51

Notate bene

6) GOV/INF/347 (3 July 1978):

- Australia notes that a State implementing para.14 would need to inform the Agency (Board through the Secretariat) and the State "**would be required to 'make clean'** the matter referred to in para.14(1) and para. 14(2)" and further that "**the 'arrangement' referred to in para.14(b) would be referred to the Board and… would require its approval**…"
- The Director General's response states that "as far as the Secretariat of the Agency is concerned, **the understanding of the Australian authorities is correct** and, in particular, …your letter **correctly describes the procedures that the Secretariat would follow**…"

52

GOV/INF/347 (3 July 1978):

"…**the "arrangement" referred to in para.14(b) would be referred to the Board and would require its approval …**"

B

International Atomic Energy Agency
BOARD OF GOVERNORS
For official use only

GOV/INF/347
3 July 1978
RESTRICTED Distr.
Originals: ENGLISH

THE STRUCTURE AND CONTENT OF AGREEMENTS BETWEEN THE AGENCY AND STATES REQUIRED IN CONNECTION WITH THE TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS

Note by the Director General

1. On 30 March 1978 the Director General received a letter from the Resident Representative of Australia to the International Atomic Energy Agency in relation to paragraph 14 of document INFCIRC/153 (corrected) - The Structure and Content of Agreements between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons. The Director General replied to this letter on 17 April 1978.

2. The Director General considers that the matters dealt with in this exchange of letters will be of interest to Governors and the texts of the two letters are accordingly reproduced below.

Letter addressed to the Director General by the Resident Representative of Australia

"I25/10/5
IA 53/19 "29 March 1978

"I have the honour to refer to the document INFCIRC/153 (corrected) which constitutes the model for agreements for the application of safeguards in countries party to the Treaty on the Non-Proliferation of Nuclear Weapons. The Australian authorities have asked that I seek clarification of certain of the provisions and procedures involved in paragraph 14 of that document.

GOV/INF/347 (3 July 1978):

"…**any arrangement…must be reported to the Board … it would be for the Board in each case to take appropriate action…**"

53

GOV/INF/347
page 2

"In essence, the Australian authorities wish to confirm that the Secretariat shares their understanding that paragraph 14 would operate to ensure that use by a State of nuclear material in a non-explosive military activity would be a matter which would be brought before the Board of Governors of the Agency for its consideration. Assurance on this point is relevant to the Australian Government's policy on the safeguards to apply to future exports of Australian uranium.

"Specifically, it is the understanding of the Australian authorities that:

(1) If a State were to use any 'nuclear material which is required to be safeguarded' (that is, all source or special fissionable material referred to in paragraph 2 of INFCIRC/153 (corrected)) in any non-proscribed (that is, non-explosive) military activity it would be under an obligation to follow the procedures laid down in paragraph 14;

(2) In this case, the Agency (meaning in practice the Board of Governors through the Secretariat - see IAEA Statute Articles VI.F and VII.A and B) would be informed and it would be to the Board of Governors that the State would be required to 'make clean' the matters referred to in paragraphs 14(1) and 14(2) of INFCIRC/153 (corrected);

(3) Similarly, the 'arrangement' referred to in paragraph 14(b) would be referred to the Board of Governors and would require its approval; and

(4) In the event of a State not following the prescribed procedures, this would constitute a breach of the safeguards agreement with the Agency and any such breach would be reported to the Board of Governors.

"On behalf of the Australian authorities I would be grateful for your confirmation of the above and any additional comments the Secretariat may wish to make on the operation of paragraph 14."

GOV/INF/347
page 3

Letter addressed to the Resident Representative of Australia by the Director General

"1970-06-17

"I have the honour to refer to your letter of 29 March 1978 concerning paragraph 14 of document INFCIRC/153 (corrected) which deals with the 'non-application of safeguards to nuclear material to be used in non-peaceful activities' in States which conclude safeguards agreements with the Agency pursuant to Article III of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT).

"No State Party to NPT has so far exercised the discretion referred to in paragraph 14. Accordingly, the Board of Governors has not had occasion to interpret that paragraph, nor has it elaborated in further detail the procedures to be followed pursuant to that paragraph.

"Nevertheless, I am able to confirm that as far as the Secretariat of the Agency is concerned, the understanding of the Australian authorities set forth in your letter is correct and, in particular, that your letter correctly describes the procedures that the Secretariat would follow if a State were to communicate to the Agency its intention of availing itself of the provisions of paragraph 14.

"Summing up, therefore, it is the Secretariat's view that any exercise by a State of the discretion referred to in paragraph 14 which comes to the knowledge of the Secretariat, and any notification received by the Secretariat under that paragraph as well as any arrangement made pursuant to that paragraph or any breach of the procedures referred to in that paragraph, must be reported to the Board of Governors, and it would be for the Board of Governors in each case to take the appropriate action.

"In view of the importance of this question, it is my intention to circulate your letter and my reply to the Board of Governors for information."

54

GOV/INF/347 (3 July 1978): Questions

55

- In its letter Australia clearly stated that "the 'arrangement' referred to in para.14(b) would be referred to the Board and… would require its approval…" > was this conclusion by Australia the basis for the formulation used in the 2001 Safeguards Glossary in section 2.14. Non-application of IAEA safeguards?
- As the Director General acknowledged that Australia's assertion that "the 'arrangement' referred to in para.14(b) would be referred to the Board and… would require its approval…" the logical conclusion would be that para.14 arrangement(s)/procedure(s) require approval by the Board?

55

GOV/INF/347 (3 July 1978): Questions

56

- As the Director General acknowledged Australia's assertion that "the 'arrangement' referred to in para.14(b) would be referred to the Board and… would require its approval…" the logical conclusion would be that para.14 arrangement(s)/procedure(s) require approval by the Board?
- Why then has the Secretariat modified the explanation in the 2022 edition of the Safeguards Glossary to "report" rather than the "approval" of the Board?
- Was the Director General correct in his assessment in GOV/INF/347 or is the Secretariat correct in the 2022 Safeguards Glossary?
- The explanation by OLA that it never reviewed the 2001 Safeguards Glossary seems inadequate in light of the Director General's stated views in 1978?

56

Global challenges

- Covert nuclear trade networks
- New technologies

- Concerns regarding future of the non-proliferation regime
- Naval nuclear propulsion and IAEA safeguards

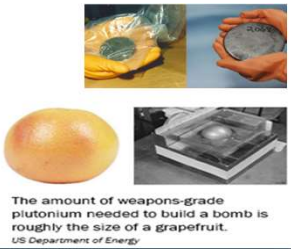
- Large stocks of weapon-usable nuclear material outside international monitoring

57

Significant Quantity Nuclear Material for a Warhead:

25kg/< HEU; 8kg/< Pu

The amount of HEU needed to build a nuclear weapon could fit in a 5lb bag of sugar.

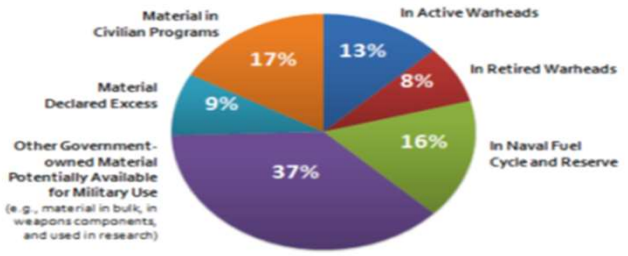


The amount of weapons-grade plutonium needed to build a bomb is roughly the size of a grapefruit.

US Department of Energy

58

Categories of Weapons-Usable Nuclear Materials Globally (Estimated Percentages)



59

World Stockpiles of Fissile Materials

60

Questions: Technical

61

- It is estimated that presently some 1,499 tonnes (1,499,000 kg) of HEU and some 499 tonnes (500,000 kg) of Plutonium in military nuclear fuel cycles remain completely outside any international accounting, monitoring or verification > how can the Agency justify the "non-application of safeguards" in NPT NNWS of up to or in excess of 2 tonnes (2000 kg) of weapon-grade HEU (93%-97.3% U235) in naval nuclear propulsion programmes?
  - (Recall that for safeguards purposes 1 SQ = 25 kg HEU, 8 kg Pu, Safeguards Glossary 2022, p.31)

61

- Nuclear Submarines Acquisition Programmes in NPT NNWS

62

Australia, UK and US Trilateral Agreement (AUKUS)

- **15 September 2021**: Australia, UK and US trilateral agreement > will facilitate the sharing of information in a number of technological areas, including artificial intelligence, underwater systems, and long-range-strike, cyber- and quantum capabilities, and nuclear-powered submarines to counter China and for "ensuring peace and stability in the Indo-Pacific [region] over the long term"

63

Australia, UK and US Trilateral Agreement (AUKUS)

- **22 November 2021**: The Exchange of Naval Nuclear Propulsion Information Agreement > to provide Australia with a fleet of at least eight nuclear-powered submarines
  - The agreement is subject to approval by the US Congress under Section 123 of the 1954 Atomic Energy Act, which regulates US nuclear trade, and to a UK parliamentary review > Section 123 establishes conditions and outlines the process for major nuclear cooperation between the United States and other countries
- **1 December 2021**: White House to Congress > "The agreement would permit the three parties to communicate and exchange naval nuclear propulsion information and would provide authorization to share certain restricted data as may be needed during trilateral discussions, thereby enabling full and effective consultations"

64

Australia, UK and US Trilateral Agreement (AUKUS)

- **13 March 2023**: **Joint Leaders Statement on AUKUS (San Diego)**
  - supply of three Virginia-class conventionally-armed nuclear-powered submarines (SSNs) to Australia by the early 2030s with the option to supply two additional boats
  - in the late 2030s, the UK will deliver its first SSN-AUKUS to the Royal Navy >> Australia will deliver the first SSN-AUKUS built in Australia to the Royal Australian Navy in the early 2040s
  - SSN-AUKUS: "a trilaterally-developed submarine based on the UK's next-generation design that incorporates technology from all three nations, including cutting edge US submarine technologies.to be built in each of the three countries over the next two- to three-decades"

65

Australia, UK and US Trilateral Agreement (AUKUS)

- **13 March 2023**: Joint Leaders Statement on AUKUS (San Diego)
  - "When we announced the AUKUS partnership in September 2021, we committed to set the highest nuclear non-proliferation standard
  - the plan we announce today delivers on this commitment and reflects our longstanding leadership in, and respect for, the global nuclear non-proliferation regime
  - we continue to consult with the International Atomic Energy Agency to develop a non-proliferation approach that sets the strongest precedent for the acquisition of a nuclear-powered submarine capability"

66

AUKUS Nuclear-Powered Submarines: NPT and IAEA Safeguards

- Key issue: exemption from safeguards of HEU/(LEU) used for nuclear submarine fuel under INFCIRC/153 (Corr.) para. 14
- *US Virginia-class SSN (S9G NPNR)*
- *UK Astute-class SSN: ship propulsion reactor (S5G) licensed for production and use by the UK from the USA*
- US legislation and US-UK nuclear cooperation agreement does not allow retransfer or supply to third country, without specific prior permission from the US Congress
- Quantity + Isotopic composition of HEU-fuel, fabrication information, etc. remain highly classified: 97.3% HEU /*200 kg per submarine*
- Requirement for exemption of HEU-fuel from safeguards on the grounds of protection of classified information

67

Brazil Nuclear-Powered Submarine Programme

- **1970s**: Submarine Development Programme - PROSUB is one of the main strategic projects of the Brazilian Armed Forces and aims to increase the national defence infrastructure and ensure Brazilian maritime sovereignty
- **December 2008**: Brazil purchased four *Scorpène*-class conventionally-powered submarines from France > Brazil's goal is to build the first nuclear submarine in the Southern Hemisphere > nuclear submarines are currently operated by China, France, Russia, UK and US > Brazil has partnered with France to develop its own nuclear-powered attack submarine > *Álvaro Alberto*
- **2018**: after many years delay and a series of problems, the prototype of the naval nuclear propulsion reactor: Brazilian Multipurpose Reactor or LABGENE was launched by Nuclebrás
- ***2022 June:*** Brazil starts discussions with IAEA on its nuclear-powered *submarine acquisition programme – exemption from safeguards*

68

Brazil Nuclear-Powered Submarine Programme

- IAEA safeguards are applied in Brazil pursuant to the 1991 Agreement between the Republic of Argentina, the Federative Republic of Brazil, the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials and the International Atomic Energy Agency for the Application of Safeguards, Quadripartite Agreement, reproduced in IAEA INFCIRC/435 which also serves since 30 July 1999 as Brazil's safeguards agreement under the NPT (IAEA INFCIRC/435/Mod.3 dated 2 March 2000)

69

Brazil Nuclear-Powered Submarine Programme

- Under Article III of the Argentina-Brazil "Agreement on the Exclusively Peaceful Utilization of Nuclear Energy", IAEA INFCIRC/395, "None of the provisions of the present Agreement shall limit the right of the Parties to use nuclear energy for the propulsion of any type of vehicle, including submarines, since propulsion is a peaceful application of nuclear energy"

70

Brazil Nuclear-Powered Submarine Programme

- Whereas Article 13 of the Quadripartite Agreement, partly mirrors Article 14 of the standard INFCIRC/153/Corr., and provides for "special procedures" for "a State Party … to exercise its discretion to use nuclear material which is required to be safeguarded under this Agreement for nuclear propulsion or operation of any vehicle, including submarines and prototypes, or in such other non-proscribed nuclear activity as agreed between the State Party and the Agency"

71

Brazil Nuclear-Powered Submarine Programme

- May 2022, Brazil submitted to the IAEA) its initial proposal for special procedures to be applied to nuclear material used in naval nuclear propulsion, pursuant to Article 13 of the Quadripartite Agreement
  - "Nothing in the NPT precludes the use of nuclear energy for such purposes, which are fully consistent with the IAEA safeguards regime ... in pursuing the legitimate goal of naval nuclear propulsion, Brazil is committed to transparency and open engagement with the IAEA and ABACC, ensuring their ability to fulfil their non-proliferation mandates"

72

Brazil Nuclear-Powered Submarine Programme

- May 2022, Brazil:
  - "Similarly to bilateral comprehensive IAEA safeguards agreements based on INFCIRC/153, the Quadripartite Agreement envisages the possibility of using nuclear material in certain non-proscribed military activities, including nuclear propulsion ... in this case, as specifically indicated in its Article 13, special procedures regarding the application of safeguards to nuclear material will apply while the nuclear material is used for nuclear propulsion in submarines and prototypes"

73

Brazil Nuclear-Powered Submarine Programme

- May 2022, Brazil:
  - "A long-standing objective pursued by Brazil for many decades, the development of nuclear propulsion is a fully indigenous and autonomous project … the submarine, its nuclear reactor and fuel are being designed, developed, built and assembled in Brazil. It will be a nuclear-powered, conventionally armed vessel ... its reactor will use low-enriched uranium (LEU)
  - All nuclear facilities of the Brazilian Navy are subject to safeguards under the Quadripartite Agreement and will remain so"

74

Brazil Nuclear-Powered Submarine Programme

- May 2022, Brazil:
  - "consultation process underway between Brazil and the IAEA will ensure that such special procedures will be sufficient to enable the Agency to draw the relevant safeguards conclusion on the non-diversion of nuclear material, while protecting sensitive technological and operational parameters related to the nuclear-powered submarine
  - ABACC´s role in the implementation of special procedures will include keeping records of the total quantity and composition of nuclear material used in nuclear naval propulsion"

75

Brazil Nuclear-Powered Submarine Programme

- May 2022, Brazil:
  - While nuclear installations operated by the Navy on land will continue to be licensed and supervised by ANSN [National Authority for Nuclear Security], including the prototype on land of the nuclear reactor to propel the submarine, the onboard nuclear plants will be licensed by Naval Agency for Nuclear Safety and Quality (AgNSNQ) … The nuclear reactor on the submarine will therefore undergo a double licensing process: its prototype, by ANSN; and the onboard plant, by AgNSNQ"

76

Brazil Nuclear-Powered Submarine Programme

- May 2022, Brazil:
  - This double licensing makes the Brazilian case unique in the world … in other countries with naval propulsion capabilities, the licensing of both land-based prototypes and submarines is carried out exclusively by the respective military regulatory bodies"

77

IAEA Statements

78

Nuclear-Powered Submarines: IAEA Director General

Washington, 14 March 2023: "*We have to check before it [the SSN] goes in the water and when it comes back ... this requires highly sophisticated technical methods because there will be welded units, [but] our inspectors will want to know what is inside and whether, when the boat comes back to port, everything is there and there has not been any loss … it's the first time something like this will be done ...* ***we are going to be very demanding on what they are planning to do ... so, the process starts now ... and the proof of the pudding is in the tasting … We are going to put together a solid, watertight system to try to have all the guarantees ... if we cannot do that, we would never agree"*** **[emphasis added]**

79

Nuclear-Powered Submarines: IAEA Director General

Vienna, 14 March 2023: "*This process involves serious legal and complex technical matters. The required arrangement under Article 14 of the CSA and the development of the necessary safeguards approach must be in strict conformity with the existing legal framework. Importantly, once that the arrangement is finalized, it will be transmitted to the Board of Governors of the IAEA for appropriate action…"*

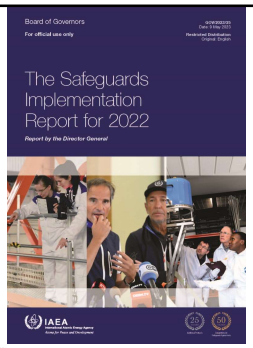
80

Nuclear-Powered Submarines: IAEA Director General

Vienna, 14 March 2023: "*The Agency's role in this process is foreseen in the existing legal framework and falls strictly within its statutory competences. The Agency will conduct the work on this matter in an independent, impartial, and professional manner. I will ensure a transparent process that will be solely guided by the Agency's statutory mandate and the safeguards agreements and additional protocols of the AUKUS Parties. An effective arrangement under Article 14 of Australia's CSA to enable the Agency to meet its technical safeguards objectives for Australia under the CSA and AP will be necessary. Ultimately, the Agency must ensure that no proliferation risks will emanate from this project…"*

81

SIR 2022 (9 May 2023)



H. Naval Nuclear Propulsion

297. The use of nuclear material subject to safeguards under a CSA by a State in a nuclear activity such as naval nuclear propulsion is foreseen by the CSA. Two States[24] with CSAs in force have informed the Agency of their plans related to the use of nuclear material – subject to safeguards under their respective CSA – for naval nuclear propulsion. The use of nuclear material in such an activity requires arrangements under their respective safeguards agreements and the development of appropriate Agency safeguards approaches. Hence, during 2022, the Secretariat engaged in consultations with the States concerned to consider the possible implications on the application of Agency safeguards. Moreover, during the year, the Director General kept the Board of Governors informed of relevant developments on this matter through his introductory statements at the Board's quarterly meetings.

298. On 15 September 2021, Australia, the United Kingdom and the United States of America informed the Director General about their decision to initiate a trilateral effort of 18 months to "identify the optimal pathway to support Australia's acquisition of a conventionally armed, nuclear-powered submarine for the Royal Australian Navy" (AUKUS). Since then, the Agency has engaged, and held technical consultations with, the States concerned to discuss the possible implications of naval nuclear propulsion under AUKUS on the implementation of Agency safeguards. In 2022, the Director General submitted a report to the Board of Governors entitled *IAEA safeguards in relation to AUKUS* (GOV/INF/2022/20).

299. In May 2022, Brazil provided to the Agency a "Proposal of safeguards special procedures for the nuclear material for use in naval propulsion prototypes and in the conventionally armed, nuclear-powered submarine" in accordance with the provisions contained in Article 13 of the Quadripartite Safeguards Agreement (INFCIRC/435). Also in May 2022, representatives from Brazil made a first presentation to the Agency on the concept of this proposal. Since then, two technical meetings took place in Brazil to discuss Brazil's proposal, including visits to facilities and laboratories that are planned to receive, process, produce and handle nuclear material for the naval nuclear propulsion programme.

82

- Proliferation of Nuclear-Powered General Purpose Submarines (SSNs)

83

Proliferation of Nuclear-Powered and Nuclear-Armed Submarines

- 1988: USSR "lease" of Charlie-class SSN to India
- Russia "lease" of *Akula*-class SSN

➢ India reverse-engineers and copies USSR/Russia nuclear propulsion technology > product "*Arihant*" SSBN

84

Proliferation of Nuclear-Powered and Nuclear-Armed Submarines

- Next in line??: RoK, Japan, Iran, Argentina, (Israel)…
- ➢ Risks: refitting of conventionally armed land-attack sea-launched cruise missiles (SLCM) on NNWS SSNs with nuclear warheads owned by NWS? > stationing of SLCM-N on SSNs of NPT NNWS under forward deployment arrangements such as for forward deployed nuclear weapons in five NATO NPT NNWS…??

85

- Conclusions

86

Conclusions

87

- This presentation has outlined the significant challenges posed by the acquisition of nuclear-powered submarines by NPT NNWS to IAEA safeguards
- Thus far, the IAEA Secretariat and Board have deflected requests to convene open-ended consultations and technical briefings
- Thus far, the reporting by the Secretariat has not provided any specific information on safeguards approaches and technical objectives for safeguards relating to naval nuclear propulsion
- SIR 2022 reporting is inadequate and lacks the expected level of transparency

87

Conclusions

88

- This presentation has outlined the practice of the IAEA for open-ended consultations and technical briefings on important matters concerning safeguards and approaches to the nuclear fuel cycle [as well as nuclear safety and security] to encourage policy and technical inputs from Member States and experts to develop better understanding of the issues under consideration, as well as to develop broad support from Member States
- It clearly is in the interests of the Member States and the IAEA Secretariat to convene open-ended consultations and technical briefings on significant aspects of the implementation of INFCIRC/153 Corr. para.14, and implications for the efficacy and efficiency of the Agency's safeguards system

88

Conclusions

89

- It needs to be clearly understood that matters concerning the interpretation and implementation of INFCIRC/153 Corr. para.14 are inherently policy and political matters concerning all IAEA Member States and NPT States parties with CSAs in force > this is not a matter of legal opinions, as legal opinions are just that "opinions" and can be challenged and refuted
- The Board of Governors, thus far, has failed to exercise its responsibility and obligation as regards the interpretation and implementation of INFCIRC/153 Corr. para.14 > the Board must take a pro-active role and empower the Director General to show leadership on this matter (along the lines the DG has demonstrated exemplary leadership on the safety and security of ZNPP)

89

Conclusions

90

Vienna, 14 March 2023: The Director General stated, *"This process involves serious legal and complex technical matters. The required arrangement under Article 14 of the CSA and the development of the necessary safeguards approach must be in strict conformity with the existing legal framework. Importantly, once that the arrangement is finalized, it will be transmitted to the Board of Governors of the IAEA for appropriate action…"*

- *What is meant by "once that the arrangement is finalized, it will be transmitted to the Board of Governors of the IAEA for appropriate action"? Does this imply that prior approval will not be sought from the Board? If so, how does comport with GOV/INF/347?*

90

Conclusions: Director General's Assurances

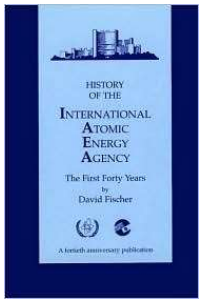
91

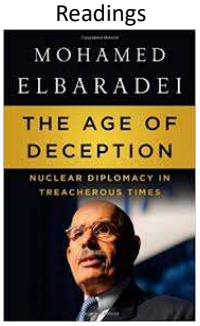
The Director General correctly has asserted on 14 March 2023 that for any States exercising para.14, the Agency will have to (my interpretation):

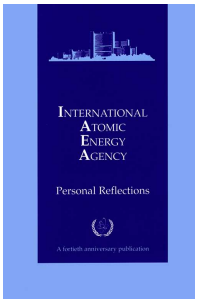
- the Agency will conduct the work on this matter in an independent, impartial, and professional manner … will ensure a transparent process
- check the SSN before launch and after return to port
- utilize highly sophisticated technical methods because the naval nuclear propulsion reactors will be welded units
- ensure that Agency safeguards inspectors will know the fuel loading on launch and on return to port to ascertain that there has not been any diversion of nuclear fuel
- ensure inspectors will be very demanding, the proof will be in the safeguards methodology and practice [approach and technical objectives]
- ensure a solid, watertight system with required level of guarantees failing which the Agency will not agree to any arrangement for non-application of safeguards on non-proscribed nuclear military activities

91

Readings

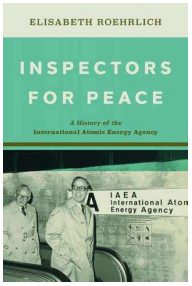


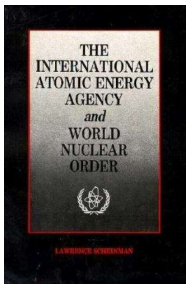


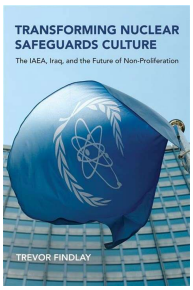


92

Readings

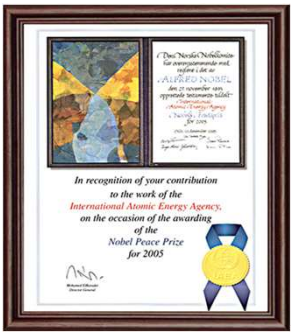






93

tariqrauf@icloud.com
Tel: 06991 920 7387



94

Laura Rockwood

WORKSHOP ON AUKUS
18 May 2023

Thank you for this opportunity to join you today to address a matter of considerable importance. I am honoured to be able to contribute to this discussion.

At the outset, I feel it is important to address a number of fundamental issues in connection with submarines and safeguards that are currently on the minds of those having to consider the implications of such activities.

- Nuclear naval propulsion is not prohibited under the NPT. The only prohibitions under the NPT are nuclear weapons and nuclear explosive devices. The negotiators explicitly debated the issue and decided NOT to prohibit the use of NM for naval propulsion.
- Nor is the transfer of HEU prohibited under the NPT, regardless of its enrichment level. Indeed, highly enriched uranium has been regularly supplied as fuel for research reactors.
- And the conclusion of a para. 14 arrangement is not in violation of Art. 2 of the Agency's Statute, which provides that Ithe Agency "shall ensure, so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used in such a way as to further any military purpose. The application of safeguards does not constitute "assistance" as contemplated under the Agency's Statute. Moreover, as confirmed in a legal opinion issued during the negotiation of INFCIRC/153 (COM.22/4), the inclusion of a provision accommodating the non-application of SG to military naval propulsion is permitted under Article III.A.5 of the Statute.
- And while Australia's request to commence negotiations with the Agency on an Article 14 arrangement has generated some controversy, it is not unprecedented. Indeed, Canada submitted just such a request in 1988.

So we should put these arguments to rest and focus on more real and challenging issues.

The issue of nuclear naval propulsion as it relates to comprehensive safeguards agreements (CSAs) does indeed raise questions that warrant addressing. Your presence today as representatives of Member States of the Agency reflects the importance you and your governments attach to this matter.

Under the NPT, NNWSs party to the treaty agree not to acquire nuclear weapons and nuclear explosive devices, and the NWSs agree not to provide them. The negotiators of the treaty specifically decided not to prohibit non-explosive miliary uses of nuclear material, specifically nuclear naval propulsion.

Committee 22 was an open-ended committee of the Board established to negotiate what became INFCIRC/153 – the document that serves as the basis for all CSAs required for NPT NNWSs. The drafters negotiated a provision to ensure that the exclusion from safeguards of nuclear material for non-explosive military nuclear uses – if and when it were ever invoked – would not serve as a mechanism – a cover, if you will – for the diversion of nuclear material for nuclear weapons.

Paragraph 14 was the result of those deliberations. It is reflected in almost all CSAs concluded by the IAEA, with the paragraph numbers in INFCIRC/153 corresponding, by and large, to article numbers in the actual CSAs.

It is often referred to as "withdrawal" of nuclear material from safeguards to distinguish it from provisions related to the termination of safeguards on nuclear material or the exemption of nuclear material from certain provisions under the agreement. However, the title of this provision – "**non-application** of safeguards" – was explicitly formulated by the negotiators to underscore that the IAEA "should be consulted and satisfactory administrative arrangements reached concerning the use of any nuclear material for a military purpose permitted under [the NPT], **whether or not the material was initially under safeguards**." It was explicitly stated that "The provision should **thus be applied to all material which was either actually under safeguards and to be withdrawn or which had never been placed under safeguards and which was intended to be used in a permitted nuclear activity**."

Operation of this provision is not automatic, and it was certainly not intended as a blanket exemption of nuclear material, facilities or activities due to their military nature. But is it required? Yes. A State may not use nuclear material for a non-prohibited military nuclear activity without invoking paragraph 14 and concluding an arrangement with the IAEA. Paragraph 14 explicitly provides that, if the State intends to exercise its discretion to use nuclear material which is required to be safeguarded under the safeguards agreement in a nuclear activity which does not require the application of safeguards under the Agreement, the specified procedures **will apply**. The agreement is unambiguous on its face and supported by the negotiation history – I will revert to that point in just a moment.

Para. 14 requires the State to conclude an arrangement with the Agency:

- Para. 14 does not, on its face, require Board approval. The original proposal tabled by the Secretariat during Committee 22 would have required for Board approval; this was not accepted, and was followed by text that would have required approval by the Director General. Ultimately, the text agreed to simply called for the conclusion of the arrangement "with the Agency".
- In response to an inquiry by Australia in 1978 exchange, the then Director General of the IAEA stated that any such arrangement would be provided to the Board for "appropriate action" (see the exchange of letters published in …).
- There are arguments on both sides: On the one hand, some argue that such an arrangement would be similar to the Subsidiary Arrangements, which are not approved by the Board. Others contend that such an arrangement is distinguishable from Subsidiary Arrangements as the latter relate to the implementation of a safeguards agreement within parameters specifically laid down in agreements that have been approved by the Board. Ultimately, it is for the Board to decide on what the "appropriate action" may be.

Para. 14(a): State must make clear that:

- The nuclear material involved is not subject to a "no military use" undertaking, i.e. an undertaking in respect of which Agency safeguards apply that the nuclear material will be used only in a peaceful nuclear activity

- The material will not be used for production of nuclear weapons or nuclear explosive devices

Para. 14(b): content of the arrangement

- It must identify, to the extent possible, the period or circumstances during which safeguards will not be applied, and require that the Agency be informed of the total quantity and composition of the material in the State and upon export.
- It shall relate to "such matters as" the temporal and procedural provisions and reporting arrangements. Thus, this is not an exclusive list of what the arrangement should include.
- That the non-application of safeguards provided for under the CSA will only be while the nuclear material is in that activity, and that safeguards are to be reapplied as soon as the nuclear material is reintroduced into a peaceful nuclear activity.
- What is peaceful as opposed to non-peaceful? While there is no definition of either term, the negotiators agreed that the following activities were not inherently military and therefore **not entitled to exclusion:**
    - Activities such as transport and storage
    - Activities or processes that merely change chemical or isotopic composition (e.g. enrichment and reprocessing)
- At what point should the arrangement take effect? What activities could be excluded from safeguards? Clearly, this aspect of the arrangement will constitute a significant element of the negotiations. As Australia will not be engaged in enrichment or reprocessing of the reactor fuel, that could simplify the negotiation process. However, clarity would have to be had regarding when, in accordance with the terms of the CSA, the nuclear material in the reactor would have to be brought back under safeguards.
- Is it possible to apply some verification measures under the arrangement? Absolutely – if that were not the case, there would hardly have been a need for a paragraph 14. The provision calls for the non-application of safeguards under the safeguards agreement – but the arrangement is intended to build in guiderails to make sure the material and activities involved are not misused for prohibited purposes. It is important to note at this point that there is nothing in the Statute of the IAEA that limits the application of safeguards to peaceful nuclear activities.

Para. 14(c): the Agency's agreement shall not involve approval, or classified knowledge of, the military activity or relate to the use of nuclear material therein.

- A key question will be how to get safeguards as close as possible to the submarine reactor without access to classified information, minimizing the time during which the material will not be subject to routine verification under the CSA.

What about the process? How should this arrangement be negotiated?

As to the actual negotiation of the arrangement, and suggestions that there is "normal or standard practice" of the IAEA in developing procedures and guidance on safeguards-related matters, it is important as well to note that the IAEA has in the past employed a variety of mechanisms. Among those mechanisms have been:

- Committees created by the Board of Governors: Committees 22 and 24 on the negotiation of 153 and 540, respectively, and Committee 25 established to consider further strengthening safeguards. While Committees 22 and 24 were successful, Committee 25 was wildly unsuccessful.
- Advisory groups appointed by the Director General: Standing Advisory Group on Safeguards Implementation (SAGSI)
- Technical working groups convened in collaboration with representatives of relevant technology holder States: LASCAR (negotiations limited to reprocessing technology holders); Trilateral Initiative (negotiations initiated by the Russian Federation that included the US and the IAEA)
- External initiatives of its Member States: Hexapartite Project, which involved commercial centrifuge enrichment technology holders and those on the verge of becoming technology holders, as well as Euratom and the IAEA
- Bilateral negotiations between the IAEA Secretariat and individual States

So, as to a committee? While that approach works in some cases, it does not in others. It depends on the context and the political environment. Experience suggests that, when dealing with novel and complex technical issues, particularly in a politically volatile environment, there is merit to leaving their resolution to the technical experts.

Military-to-military transfers?

It has been suggested by some that, because Australia's CSA – and by extension any CSA – is limited in application to NM in "peaceful nuclear activities", in light of the formulation of para. 1 of 153, that the NM transferred to Australia in the context of AUKUS is not NM "subject to SG under its CSA" and that therefore Article 14 is not applicable.

Could a military-to-military transfer be invoked to obviate the need for a paragraph 14 arrangement? **No, as a legal and a policy matter**.

LEGAL

- In accordance with customary international law, a treaty should be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of an agreement in their context and in light of their object and purpose.
- Para. 1 of INFCIRC/153 requires that the State accept safeguards, in accordance with the terms of the Agreement, on all source or special fissionable material in all peaceful nuclear activities within its territory, under its jurisdiction or carried out under its control anywhere, for the **exclusive purpose of verifying that such material is not diverted to nuclear weapons or other nuclear explosive devices**. Para. 2 of 153 requires the Agency to ensure that SG are applied to **all** such material for the exclusive purpose of verifying that such material is not diverted to nuclear weapons or other nuclear explosive devices.
- The reference to "peaceful nuclear activities" tracks the language of the NPT, which was intended to accommodate the interest among some non-nuclear-weapon States in the 1960s in the possibility of nuclear naval propulsion (nuclear-powered submarines), not as a means of securing an exclusion of nuclear material from safeguards due its use in a military activity.

- Paragraph 34(c) of INFCIRC/153 requires that nuclear material of a composition and purity suitable for fuel fabrication or isotopic enrichment, or produced later in the nuclear fuel cycle (as would be the nuclear material in a reactor core), becomes subject to all of the safeguards procedures under the safeguards agreement upon its import into a CSA State. This provision is not limited to the import of such material for peaceful purposes. Thus, the nuclear material contained in a reactor would become subject to safeguards upon its import, regardless of the purpose for which it was imported.
- Pursuant to paragraphs 95-96, a State is required to notify the IAEA of the expected transfer into the State of nuclear material in an amount greater than one effective kilogram (again, as would be the nuclear material in a submarine reactor core), in any case not later than the date on which the recipient State assumes responsibility for the material. Likewise, the State would be obliged to report the export of such material pursuant to paragraph 92 to 94. In neither of these provisions is there an exclusion for nuclear material used in or transferred for use a military activity.
- Thus , from a plain reading of INFCIRC/153, taken in its context and in light of its object and purpose, it must be concluded that a State party to a comprehensive safeguards agreement has committed itself to notifying the IAEA of the production and import of nuclear material, even if the material is intended for use in a non-proscribed military nuclear activity, and *furthermore* to complying with the provisions of paragraph 14 should it wish to exercise its discretion "to use nuclear material which is required to be safeguarded … in a nuclear activity which does not require the application of safeguards.
- This is unambiguous from a plain reading of the text and is supported by the negotiation history of INFCIRC/153, which clearly confirms that interpretation. As noted above, the drafters emphasized that the IAEA "should be consulted and satisfactory administrative arrangement reached concerning the use of any nuclear material for a military purpose permitted under [the NPT], **whether or not the material was initially under safeguards**".

POLICY

- The worst possible outcome of this exercise would be an interpretation that the US/UK could provide nuclear powered submarines to Australia without Australia having to conclude a paragraph 14 arrangement with the IAEA. Why? Because it would imply that a State could circumvent comprehensive safeguards simply be asserting that nuclear material is in a military activity.
- To interpret paragraph 1 of INFCIRC/153 as providing what would be tantamount to an automatic exclusion from safeguards of nuclear material simply because it was already in, or produced for use in, a military activity would in effect, allow a State to conceal prohibited nuclear activities behind a military shield. It would create an enormous loophole in safeguards, thereby **defeating the very object and purpose of comprehensive safeguards agreements, a result not only contrary to international treaty law but highly undesirable as a matter of policy**.
- Just to bring this home, I'd like to remind you that IAEA Member States rejected that argument in 1993 when the DPRK attempted to thwart IAEA access to two locations

on the basis that they were military in nature. The IAEA advised the DPRK that there was no automatic exclusion for IAEA access to information or locations simply by virtue of such information or locations being associated with military activities – a view shared by the Board of Governors.

As a final note, while some argue that Australia's non-proliferation credentials should allow for greater flexibility in the arrangement to be concluded between the States and the IAEA, it is clear that any such arrangement will inevitably be invoked as a precedent for other States.

To that end, whatever the arrangement, it must be designed as fit for purpose regardless of who the partner states might be.

Ultimately, the acceptability of any given arrangement should be judged on its non-proliferation merits, and be able to survive the following test: if the names of the parties involved are changed, is it still acceptable?

Workshop "The AUKUS and Article 14"

Remarks by Anton Khlopkov, Director, Center for Energy and Security Studies

Vienna (Austria), 18 May 2023

1. First of all I would like to thank the organizers, the Permanent Mission of the People's Republic of China to the International Organizations in Vienna, for the invitation to participate in the workshop on such a relevant topic as the AUKUS Nuclear Submarine Deal and the application of the IAEA safeguards in this context.

2. The AUKUS Nuclear Submarine Deal, first announced in September 2021, raises numerous questions yet to be answered. Some of these questions, in my opinion, are only natural due to the sensitive nature of the project and the fact that it sets the precedent (no submarines were previously supplied to the NNWS which are parties to the NPT). Simultaneously, other questions are, in fact, artificially induced by the project participants by the lack of information and transparency about the activities involved.

3. I well understand the concerns of those who say that the AUKUS Submarine Deal poses nuclear proliferation risks or that it is not proliferation risks-free.

First, the project is slated to use about 4 tons of 93%-enriched uranium. In theory, this amount of material is enough to produce 160 simple nuclear warheads. It is worth to recall in this context, for example, that the first nuclear warheads of the only country in the Middle East, which posses with nuclear weapons, were made from HEU stolen (according to some estimates, about 300 kilograms) from a plant in Apollo, Pennsylvania, owned by NUMEC Corporation, that specialized in producing nuclear fuel for submarines. The use of low enriched instead of high enriched uranium would address several nonproliferation risks associated with the AUKUS Nuclear Submarine Deal would.

Second, there is no track record (there is no experience) for the application of safeguards in similar projects. The relevant concept needs to be developed.

4. Under Article 14 (b) of the Comprehensive Safeguards Agreement (CSA), a State and the Agency shall **make an arrangement** so that, only while the nuclear material is in such an activity (i.e., a non-proscribed military activity), the safeguards provided for in the Agreement will not be applied. "The arrangement" should define, to the extent possible, the period or circumstances during which safeguards will not be applied.

I would like to point out that it is the **Agency**, not the IAEA Secretariat, meaning that the Member States of the Agency and its governing bodies, including the IAEA Board of Governors, should be involved in discussing and approving the arrangement.

5. Let me remind here that this is about drafting (and approval) of an arrangement under the current bilateral Agreement between Australia and the Agency for the Application of Safeguards in connection with the NPT (INFCIRC/217; CSA). So, it is natural that Canberra and the Agency will play a central role in the process of preparing an arrangement.

6. However, this should not mean that Australia and the IAEA Secretariat draws up and approves the draft arrangement behind closed doors. In this case, the analogy with the

Subsidiary Arrangements, which are drafted between the IAEA Secretariat and a State in accordance with Articles 40-41 of the CSA and are not submitted to the IAEA Board of Governors, is not applicable. First, the Subsidiary Arrangements is a technical document. The content of the Subsidiary Arrangements is described in sufficient detail in the CSA, and second, they are essentially a technical document based on existing models/templates which describes nuclear facilities in a particular state and the procedures for applying safeguards to the nuclear material therein.

In the case of "the arrangement" under the Article 14 of the CSA there is a need to develop a conceptual document and here the Member States should be actively involved in the process.

7. It is difficult to recall a conceptual safeguards document in the history of the IAEA that would have been approved by the Board of Governors by vote rather than by consensus. Establishing a precedent with an arrangement between Australia and the Agency could threaten the universal nature of the safeguards approach and could have a negative impact on the effectiveness and sustainability of the Agency's safeguards system in the long term. It is therefore important to discuss the arrangement beforehand with the IAEA Member States with a view to adopting it by consensus.

8. In his statement on March 14, 2023, in relation to the AUKUS announcement, the IAEA DG Grossi drew attention to the fact that drafting an appropriate arrangement involves "serious legal and complex technical matters" as well as "the development of the necessary safeguards approach". One cannot but agree with this statement. In this context, it may make sense to consider creating an expert mechanism (various forms possible) that would combine the knowledge and experience of the Agency Secretariat and the IAEA Member States.

9. In particular, such a mechanism could include specialists with experience in operating naval reactors. Safeguards would not apply to the nuclear material while in a nuclear submarine as fuel and the submarine is at sea, but the knowledge of such specialists would help develop procedures related to the application of safeguards to the nuclear material before loading and after unloading of the nuclear fuel. Similar expert groups have previously been created to develop safeguards approaches at complex and sensitive facilities: for example, for nuclear materials in geological disposal facilities and at the Rokkasho nuclear reprocessing plant in Japan.

10. As for the implementation of Article 14 of the CSA in the context of the AUKUS Nuclear Submarine Deal, it's not simply about a safeguards approach to the nuclear material of a submarine propulsion system, but rather about a "state-level approach" to the implementation of the CSA and its Additional Protocol. In this context (following the "state-level approach"), the question of whether Virginia-class nuclear submarines, the ones, which will be supplied to Australia, are designed to carry nuclear weapons on board becomes particularly important.

Thank you for your attention.