

Summary

Russian-Dutch Bilateral Seminar

"THE ROLE OF NUCLEAR INDUSTRY IN NUCLEAR SECURITY GOVERNANCE: MOVING TO THE 2014 NUCLEAR SECURITY SUMMIT IN THE HAGUE"

On September 3, 2013 PIR Center and the Embassy of the Kingdom of the Netherlands co-organized bilateral Russian-Dutch seminar "The Role of Nuclear Industry in Nuclear Security Governance: Moving to the 2014 Nuclear Security Summit in The Hague". The seminar took place in Moscow in *Marriott Courtyard hotel*. The representatives of governmental agencies, nuclear facilities and expert community from Russia and the Netherlands took part in the seminar.

Seminar was organized under the *Chatham House Rule*. The summary of the seminar is available at PIR Center website (names and workplaces of the speakers are not mentioned).

During the opening speeches the following points were raised:

- The first summit on nuclear security was held in Russia: in 1996 in Moscow the leaders of Russia and the *Group of Seven* discussed the measures to strengthen the nuclear security of both Russia and the rest of the world. PIR Center prepared materials for that summit. Since that time PIR Center has engaged in research of the nuclear security issues. PIR Center representatives took part in the preparatory work and non-governmental conferences of the nuclear security summits in Washington (2010) and Seoul (2012).
- Russia is a part of all major international legal mechanisms related to the nuclear security: The International Convention for the Suppression of Acts of Nuclear Terrorism, the Convention on the Physical Protection of Nuclear Material and its amendments. As it was emphasized in the statement of the Russian representative at the IAEA Ministerial Conference in July of this year "The universalization of these legal instruments is an urgent objective in strengthening nuclear security. We call upon all the Member States of the IAEA to accede to these mechanisms"
- This seminar organized by PIR Center and the Embassy of the Netherlands is a good impetus for those who are engaged in the practical application of nuclear technology, i.e. the representatives of the nuclear industry, to discuss the perspectives of strengthening the nuclear security, including the international cooperation perspectives.
- The national states play a key role in international cooperation in the field of nuclear security. At the same time, the industry is engaged in the implementation of practical measures, including those aimed at the implementation of the state policy in the nuclear security field.

During the seminar Russian and Dutch participants discussed the following issues:

1. The assessment of achievements of the Seoul Nuclear Security Summit and the implementation commitments adopted at that Summit
2. Cyber security in the nuclear domain
3. The reduction of the use of HEU in research reactors
4. The role of education, science and technology in providing nuclear security

1. The assessment of achievements of the Seoul Nuclear Security Summit participants in the implementation of their commitments adopted at that Summit

The main theses of Russian representatives

The main approaches of Russian representatives regarding this question can be stated by the following key points:

- This seminar has provided a good opportunity to reanalyze the outcomes of the 26-27 March 2012 Summit in Seoul and assess what has been done, and discuss what else can be done to strengthen the nuclear security.
- By Seoul communiqué the state leaders reaffirmed the political commitments taken during the Washington Summit in 2010, aimed at strengthening nuclear security, reducing the threat of nuclear terrorism and preventing terrorists, criminals or other unauthorized persons from acquiring nuclear materials.
- The central role of the IAEA in strengthening the international nuclear security was emphasized during the Summit in Seoul.
- In this regard, an important step on the way to the Hague, was the successful organization of the international high-level conference on the Nuclear Security by the IAEA. During the conference the main guidelines for the future work of the IAEA in this area were chosen.
- According to communiqué of the Summit the measures strengthening nuclear security will not prevent the States from developing and using the nuclear energy for peaceful purposes.
- The question of building a nuclear power plant and using a nuclear energy for peaceful purposes is a sovereign choice of each state.
- As noted by many researchers, the expected growth in usage of nuclear power will increase the number of nuclear facilities, the volume of nuclear and radioactive materials in use, expand the geography of the industry and will add new states to the *nuclear power club*.
- Such development will require both the states and the nuclear industry to take actions to ensure nuclear safety and security and to guarantee the safe use of nuclear energy
- The basic principle is that the States should take responsibility for ensuring the safety and security. In this regard, the political decisions of the States and the actions of the respective government agencies are very important. At the same time, the partnerships between the government and the nuclear industry, and between the countries supplying nuclear technologies and those that have just started to develop their own nuclear energy are important as well.
- Those countries dealing with practical issues of nuclear energy and its development are aware of the potential dangers associated with it.

- The main task of the nuclear industries and the operating organizations is to ensure that those potential risks do not translate into reality be it during the day-by-day operation, in case of emergencies or in case of attacks from terrorist groups. In other words, the necessary measures for ensuring nuclear safety and security are the priorities of the nuclear industries and operating organizations.
- Thereupon the Nuclear Industry Summit which was held on the eve the main Summit in Seoul became an important event.
- A similar Nuclear Industry Summit is being prepared as well. This Summit will take place in the Netherlands in March 2014
- There are three working groups that prepare materials for the Summit: 1) Strengthening Security Governance Group, 2) Dealing with Cyber Threat Group, 3) Managing Materials of Concern Group. At this moment the reports are being prepared, which will form the basis of the future joint declaration of the Nuclear Industry Summit. There is a hope that during the preparation of declaration the consensus principle will be respected. The meeting of representatives of the nuclear industry will be important as the heads of States seek to improve interaction between government and private industry in the use of nuclear energy in order to ensure safety in the broader sense.

It should also be taken into account that one of the Russian participants came up with a rather skeptical assessment of the prospects of the Nuclear Security Summit. He has stated the following points:

- Today, there is no more common agenda for the further action to improve the nuclear security in the world;
- The discussions of experts on specific issues have not led to corresponding actions of the State leaders and representatives of the nuclear industry;
- The future of the nuclear security summits is under the question;
- The Nuclear Security Summit in 2016 has already been announced, and thus the deadline for the implementation of commitments taken during the Seoul Summit has been postponed as well;
- The further work to improve the nuclear security can be organized through the mechanisms such as the Nuclear Security Summit, the IAEA Convention on the Physical Protection of Nuclear Material, the resolution number 1540 and the International Convention for the Suppression of Acts of Nuclear Terrorism;
- One of other priorities should be practical steps improving the nuclear security and the mechanisms supporting the practical implementation in the countries concerned.

The main theses of the Dutch representatives

During the discussion of the first topic, the Dutch representatives focused on the responsibility of the stakeholders in the nuclear domain, as well as on the code of conduct for the nuclear industry. The following points were made regarding the responsibility of stakeholders:

- In the Netherlands, structure of the governance of nuclear industry is quite simple. The main regulatory authority in this field is Ministry of Economy. Ministry of Security and Justice, which is responsible for ensuring the safety of nuclear installations, protection of sensitive information, critical infrastructure, etc. is also involved in the governance of the nuclear industry.
- Although the nuclear sector in the Netherlands is relatively small, its governance includes many different aspects. In the Netherlands, this sector contains both government agencies and private companies, such as URENCO, the Research Institute Delft, etc.
- As far as the definitions are concerned, it should be noted that the stakeholders in the nuclear industry can be both regulators, represented by government agencies, and operators, which are usually private companies. It is necessary to raise the question of responsibility of both regulators and operators.
- In order to ensure a high level of nuclear safety, equal engagement of both the regulators and the operators is required. The Dutch representative recommended increasing the role of private companies in the nuclear security governance, certainly meaning that the companies must have an impeccable reputation, to be entrusted to manage such a sensitive field as nuclear security. In order for the company to meet such a high level of confidence, it is necessary to facilitate the development of a code of conduct for the nuclear industry.

Thus, in the discussion of the first topic, the presentations by the Dutch representatives traced a smooth transition from responsibility of stakeholders to the development of a code of conduct for the nuclear industry. Regarding the latter, the Dutch representative made the following main points:

- the term “code of conduct of the nuclear industry” is largely a philosophical concept;
- to explain the essence of the term, it is useful to refer to the theories of motivation, which are offered by a researcher M. McGregor;
- according to McGregor, there are two possible explanations for the motivation of human behavior;
- First, conventionally referred to as the “X-theory”, is based on the assumption that human being is inherently lazy, not ambitious and works only because the circumstances make him or her to do so. So, people do not tend to be capable of creative activity, their work is strictly regulated by the established norms;
- Second, is conventionally called the “Y-theory”. It is based on the assumption that human being is ambitious, creative, and that the formation of his behavior is affected by moral values that people voluntarily adheres, not the strict rules;
- according to the Dutch representative, based on these two theories, two approaches to the code of conduct of the nuclear industry can be formed. One approach refers to the necessity of a clear system of regulatory documents that would regulate all the issues related to nuclear security in detail. The other approach comes from the fact that formal regulation is not enough. High level of responsibility and culture of those people who are in charge for the nuclear security is essential;

- Thus, the code of conduct of the nuclear industry is a set of moral values of the nuclear industry representatives. These moral values form high level of responsibility and understanding of the importance of all aspects in maintaining the safety and security of the nuclear facility;
- The Dutch representatives find the formation of a code of conduct of the nuclear industry essential to strengthen the nuclear security;
- Representatives of the Russian nuclear industry that participated in the seminar, critically evaluated the proposed approach regarding the Code of conduct. They noted two points that demonstrate the term needlessness and even harmfulness of the term. In the first approach, the code of conduct is not contrary to legal norms. In this case, it simply duplicates them and therefore, becomes unnecessary. In the second approach, the code of conduct may be contrary to legal norms. In this case, the code of conduct is harmful, because it creates chaos and disorientation in the field of the nuclear industry;
- In response, the Dutch representatives noted that the second option is purely hypothetical, and that in practice the code of conduct always meets the legal requirements. However, according to the Dutch representatives, there is no duplication and the code of conduct is essential in order to enhance the effectiveness of legal norms.

2. Cybersecurity in the nuclear industry

The keynotes of Russian representatives:

- A typical example of cyberthreats in the nuclear infrastructure is a *Stuxnet* virus.
- there is no consensus of experts on this issue: some believe that the virus could potentially harm the plant, while others deny such a possibility
- among nuclear facilities that may be subject to cyberattacks are:
 - uranium enrichment plants
 - fuel producing plants
 - spent fuel reprocessing plants
 - fuel storage facilities
- this list doesn't include nuclear power plants because regarding cyberthreats to these plants we should also take into account views of recognized experts (for example, Kaspersky Lab), who deny the possibility of such threats
- in case of nuclear power plants there are threats to peripheral systems that is the cooling system and the system of generation and distribution of energy. In other words it is impossible to speak about cyberthreats to systems that are in the reactor building, as it would be unrealistic and unscientific raising of the issue
- in the cyber threats context it is interesting to mention such a document as The Tallinn Manual on the International Law Applicable to Cyber Warfare, which was published by the Cooperative Cyber Defense Center in the spring of 2013. This document includes an article which states that some critical infrastructure, such as dams and nuclear power plants as such are not and can not be the object of attack in case of inter-state cyberconflict. If a state takes

such steps it could receive a kinetic (conventional military) response instead of cyber

- experts recommend to start the development of an international, legally nonbinding document or an instrument of soft law prohibiting attacks, authorized by states to the objects of the nuclear infrastructure
- one of the steps towards the practical implementation of this recommendation would be creation of the Multilateral Response Center to cyberthreats in the nuclear field.

The keynotes of the Dutch representatives:

- for the Netherlands cyber security of nuclear facilities is one of the priorities in the nuclear security
- the issues concerning cybersecurity of nuclear facilities will be discussed at the Nuclear Industry Summit and Nuclear Security Summit to be held in 2014 in the Netherlands
- in the Netherlands the office of the national coordinator for security and counter-terrorism, which is part of the Dutch Ministry of Security and Justice is responsible for cybersecurity of nuclear facilities
- one of the tasks of the national coordinator for security and counter-terrorism is to ensure maintenance of a high level of security of nuclear facilities, including their cybersecurity, critical infrastructure of nuclear facilities
- cybersecurity of nuclear facilities has only recently been transferred to the Dutch Ministry of Security and Justice, that deals with nuclear security. However, today the maintenance of cybersecurity is one of the strategic priorities in this field

3. Reducing the use of HEU in research reactors

The keynotes of the Dutch representatives:

- in the Netherlands, the issue of conversion of HEU in research reactors is relevant primarily for the Nuclear Research and consultancy Group (NRG)
- HEU research reactors have been used in the Netherlands since 1960
- the conversion of HEU research reactors in the Netherlands should be divided into 3 points:
 - countering the threat for nonproliferation. The Netherlands supports international efforts to minimize the use of HEU in reactors;
 - return of spent fuel containing HEU from the Netherlands to the United States;
 - the Netherlands supports the rejection of the usage of HEU fuel, also for economic reasons

The keynotes of Russian representatives:

- in the USSR/Russia gradual reducing the use of HEU in reactors was implemented. Initially, in the 1950s - 1970s the Soviet research reactors used uranium with enrichment up to 80 - 90 %. In the 1980s, the reactors were switched to the use of uranium with enrichment 36%. The next step was the development of fuel enriched to less than 20% based on uranium dioxide for conversion of foreign research reactors
- most Russian research reactors use fuel that is not delivered abroad
- there are several Russian research reactors that use fuel assemblies similar to those supplied abroad - IRT and VVR. For conversion of these reactors uranium density that can be achieved on the basis of uranium dioxide is sufficient
- however, for conversion of some Russian high-flux reactors only high-density fuel is needed
- Russian specialists are involved in the discussion of the problems of using LEU for the production of Mo-99
- today, Russia believes that complete elimination the usage of HEU in the reactors is not yet possible, primarily for economic reasons

4. Role of education, science and technology in providing nuclear security

The keynotes of the Dutch representatives:

- for the Netherlands, as well as for Russia, it is a pressing issue to replace the aging professionals responsible for ensuring nuclear security by a new generation. The lack of young talented professionals in this area is a challenge that the Netherlands are ready to overcome by the international cooperation;
- the Netherlands pay special attention to the issues of international scientific and technical cooperation, including the interaction between the nuclear research centers in various countries (lab-to-lab cooperation);
- the Netherlands have an experience in the commercialization of nuclear security technologies and are ready to share this experience.

The keynotes of Russian representatives:

- The nongovernmental educational institution of additional professional education *Central Institute for Continuing Education and Training (CICET)* plays an important role in training of specialists among them foreign specialists;
- In CICET main attention is paid to training courses rather than on education because the institute professors assume that education is knowledge but training is skills. For nuclear specialists with high educational level the most important is to improve their practical skills, so practice is what CICET activity focuses on;
- The educational activity of CICET is also directed towards the development of high level of physical and operational security culture of trainees.

Moreover CICET seeks to improve above all cultural level of people who make crucial decisions in administrating of physical nuclear security.

Closing the seminar the Dutch representative summed up in the following 10 points:

1. PIR Center and the Dutch Embassy organized the seminar and were able to bring together respected experts. This is important because of some concerns in the Netherlands regarding the situation with NGOs in Russia. However, the seminar held on September 3 demonstrates that the Russian NGO jointly with the Dutch embassy brought together a range of leading experts to discuss the topics of common concern
2. The event was more than a diplomatic meeting. The discussion was open and it demonstrated that Russia and the Netherlands have a lot of common interests
3. All the reports were different. But it should be noted that Dutch and Russian presentations complemented each other.
4. The seminar strengthened the conviction that nuclear security issues are a priority, also in Russia. It is impossible to agree with the remark made at the beginning of the seminar that the fight against nuclear terrorism had lost some of its effect. At present, major efforts are made to bring important international agreements in the field of nuclear security into force
5. The seminar was devoted to the role of nuclear industry in nuclear security governance where state agencies also play prominent part. The interaction between the state agencies and nuclear industry should be encouraged.
6. Discussion about the Code of Conduct for nuclear industry was particularly interesting. It addressed issues of interaction between the Code of Conduct and the regulations in area of nuclear security. Valuable comments were made by participants about the importance of nuclear security culture. In this area, Russia is also making active efforts
7. Discussion on cybersecurity of nuclear facilities was also very interesting. This issue, as well as the rest of discussed issues related to the key topic - security of nuclear industry facilities and protection from external attacks and insiders
8. Discussion about conversion of HEU to LEU in research reactors was very useful for the Dutch representatives, as these issues are a priority for the Netherlands, and in this regard the Netherlands are ready to cooperate with Russia. In this field Russia has made significant progress between summits in Seoul and the Hague. The success of Russia is appreciated in the context of cooperation in the framework of the Nuclear Security Summits
9. Discussion about the role of education, science and technology in nuclear security was also fruitful. It is well known that academic research brings great contribution to the nuclear security, and therefore there is a need to encourage scientists to keep on contributing to nuclear security. In this regard, it should be noted that the nuclear educational institutions both in Delft and Obninsk play a positive role in preparations for the nuclear security summit

10. The value of the seminar is that it helped to understand better Russian position on the nuclear security. It will contribute to success of Nuclear Security Summit in The Hague. For the Netherlands, it is important to clarify the position of Russian representatives, as Russia has an important role to play in the Summit.