the evolving landscape of Nuclear Security

by Ritu Kenn & Giovanni Verlini

Terrorism in the modern world has renewed attention to security issues, prompting a profound re-thinking in the international approach to nuclear security.

Anita Nilsson, Director of IAEA's Office of Nuclear Security, explains how the international nuclear security paradigm is extending its reach.

Question: There seem to be significant developments at the horizon for nuclear security, an area that is receiving an increasing level of attention from the international community. What is your view?

Anita Nilsson: Within the past 5-7 years there have been very significant developments in the approach to nuclear security. While this is a matter that was always attended for in the past, recently it has been recognized that much more needs to be done. The materials and facilities that are subject for security considerations are much broader than initially thought of.

One of the signs that the international community is paying much more attention to security is the fact that we have new international conventions, such as the Physical Protection of Nuclear Material Convention. In this convention, which was revised in 2005, the majority of the State parties agreed on strengthening security measures.

Another convention of similar nature is the International Convention for the Suppression of Acts of Nuclear Terrorism, which entered into force recently. This convention emphasises the need to criminalize acts involving the use of radioactive substances for the purpose of causing threat, destruction or death among people, as well as having negative impacts on the environment and property. It also contains an article whereby all the State parties commit to make every effort to prevent these acts from happening. In the operative articles the convention also refers to functions of and recommendations for the IAEA.

When you bring these things together it becomes clear that a whole new approach to nuclear security is emerging. We should not forget about the work of the UN Security Council. They issued a resolution (Res. 1540), which also envelopes these measures. It contains obligations for all countries of the UN System to protect nuclear material from theft and put in place effective border control, so that that any undeclared, unauthorised or illegal movement of radioactive and nuclear materials could be caught at the borders or other locations. This is a very significant step forward.

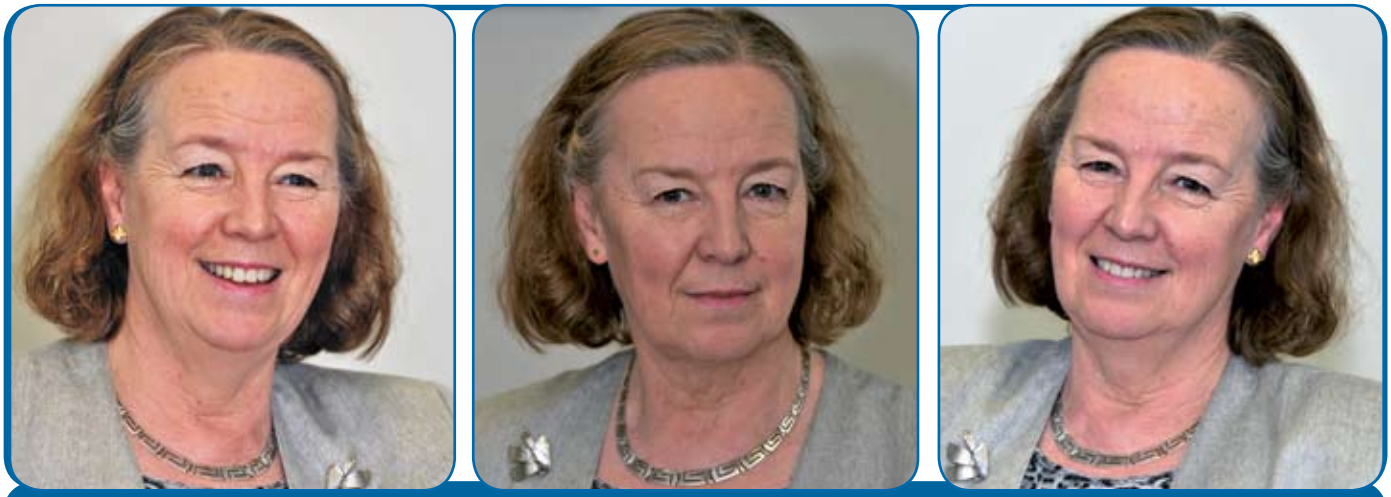
Q: Has the approach to nuclear security changed over the years? If so, how?

AN: If we look back 10 years, at that time it was recognized that nuclear material had to be protected against theft. States were clearly in agreement on this issue and measures for the protection of nuclear material were adopted. At a later date, nuclear facilities also became the object of an agreement, as referred to in an IAEA document issued as InfCirc 225.

But after 9/11 and other terrorist attacks around the globe, it became evident that security concerns should not be limited to nuclear and fissile material. They should also include lower grade nuclear material as well as radioactive substances which could be used to disperse radioactivity in the environment. This new approach changed dramatically the perception of security. Now we take a much broader view of security: all substances, fissile or radioactive, have to be managed to ensure their accountability, safety, security and, for fissile materials, their peaceful uses.

Q: Nuclear security experts such as yourself are now talking about the need for a holistic approach to security. What does this mean in practice?

AN: This is an extension of what I mentioned earlier. All materials, radioactive and fissile, should be subject for security considerations. And they should



I believe that the expansion of nuclear energy is an opportunity for conveying the values of nuclear security. It is an opportunity for countries to build security in their system from the very beginning. — *Anita Nilsson is Director of the IAEA's Office of Nuclear Security.* Photos: Dean Calma/IAEA

also be considered in every application — at nuclear facilities, for nuclear energy production, in medical or industrial uses etc. Wherever these materials are, they should be subject to a management system that ensures security.

Having said that, it is equally necessary to underline that such a security system is not 'one size fits all'. One has to consider the type of material, its properties and how a graded approach can be implemented for security and physical protection. Otherwise such as system would not be respected and implemented in a truly holistic manner.

A holistic approach also includes the so called 'second line of defence', which means that measures for long-term security at facilities should be complemented with other measures to detect stolen materials. For example, at border crossing points in addition to ensuring that a cargo does not contain undeclared radioactive substances, it is essential to cooperate with law enforcement authorities in case of a suspected package or seizure.

It is also necessary to have response measures in case of a seizure. These include knowing what to do with this material, taking proper radiation protection, but also handling the material in a safe and secure manner and bringing it to a place where it is under appropriate control. This is the essence of the holistic approach: to combine prevention, detection and response.

Q: What are the tools that need to be used to guarantee nuclear security? Are they of a legal nature, political, intelligence, etc.?

AN: In this field there are no tools that can guarantee nuclear security, because the bottom line and the overarching approach is that the responsibility rests with the State. Having said that, it is also clear that security gains from a recognized international dimension. This is where the IAEA can make a contribution and a difference.

The IAEA works together with States in prevention, detection, response as requested by them. They can request an advisory service, where we assemble a small group of recognized experts to look at facilities and situations in the country, and evaluate whether these meet international standards and best practices. These experts then make recommendations for improvements or strengthening if this is warranted. If they find good practices, this is also pointed out. This is an important tool for any country to convey the message that they are serious about nuclear security arrangements.

We have a major programme for human resource development which includes training activities as well as an educational programme at a graduate level that can be picked up by universities. We have information networking, such as the illicit trafficking database. This contains information on radioactive and fissile materials circulating in circumstances where they should not be found, and then what to do about it.

We also provide assistance in capacity building. For example, we help building effective border control measures, or improving actual physical protection measures at facilities with accounting and control systems.

Security

Q: Are there any other services that the IAEA offers to its Member States in the nuclear security field?

AN: Yes. Internationally, a common benchmark for the security systems is needed. This is done through the development and publishing of a guidance package. The IAEA produces the Nuclear Security Series as internationally accepted guidelines in the field. However, as this process takes a while, other publications are produced in the interim. It is critical that we share values for the security systems, and that we have common benchmarks accepted by Member States and others.

Q: What are Member States and the international community doing in this field?

AN: Again the basic responsibility rests with Member States. In many cases, they take the initiative to reach the goals that we have spoken about. But the international community in general, and the IAEA in particular can also help with this. We interact with Member States to help them and, if there is an interest, develop an integrated nuclear security support plan — a plan which deals with measures for prevention, detection and response.

Q: What is the contribution from the private sector?

AN: The private sector in this field is normally the operator, and they have the responsibility for exercising the requirements set by the national regulatory authority. The private sector operator that has its main target in, for example, energy production, must take this on as one element of how they manage their facility.

Q: How are the international community, the private sector and the IAEA cooperating on this issue?

AN: This happens at several levels. The private sector contributes to our work by sending experts who help developing standards, exercise training, contributing to services, etc. We also have a new institute called the World Institute of Nuclear Security (WINS), which has expressed its intentions to pick up the industrial dimension of nuclear energy and nuclear security in particular. This is very welcome because the private sector is expanding, with many countries expressing interest in having nuclear energy as part of their energy mix. We must have robust systems for interacting with the industry and the governments and WINS may provide a good channel for such interactions.

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Q: A so called three 'S' approach, one that encompassed nuclear security, safety and safeguards is emerging. What does this entail?

AN: It goes back to the discussion about recognising the fact that you have to consider all the conditions of your activities in a comprehensive manner. In simple words this means that there are obligations on the operator with relevance to safety – that equipment is managed well, is taken care of, that spare parts are replaced etc in order to avoid accidents. The operator also has obligations to account for the material, keep proper registries, know where all the substance and material quantities are at any time, and have the right security systems in place — including a graded approach to physical protection, adequate access control and particular protection for sensitive equipment and information, etc. All this should be conveyed in a comprehensive and synergistic manner to operators.

Rather than putting the three subjects in three different boxes, put them in one box and make a more effective system.

Q: What would you say are the challenges for nuclear security in the 21st century?

AN: I think that the main challenge is to keep in mind that this new security paradigm is here to stay. When we benefit from nuclear energy, the medical applications of radiation therapy or diagnostics or the use of radioactive sources in industrial applications, we need to recognise that this must be followed by responsible management including safety, security and safeguards considerations.

This is a challenge, but also an opportunity for ensuring further, more widespread, benefits of nuclear energy and its many applications.

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