International Conference on Nuclear Security:

ENHANCING GLOBAL EFFORTS

Summary of an International Conference
Organized by the International Atomic Energy Agency
Vienna, 1–5 July 2013

IAEA
International Atomic Energy Agency

INTERNATIONAL CONFERENCE ON NUCLEAR SECURITY: ENHANCING GLOBAL EFFORTS

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PROCEEDINGS SERIES

INTERNATIONAL CONFERENCE ON NUCLEAR SECURITY: ENHANCING GLOBAL EFFORTS

SUMMARY OF AN INTERNATIONAL CONFERENCE
ORGANIZED BY
THE INTERNATIONAL ATOMIC ENERGY AGENCY
AND HELD IN VIENNA, 1–5 JULY 2013

INTERNATIONAL ATOMIC ENERGY AGENCY
VIENNA, 2014

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1400 Vienna, Austria
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tel.: +43 1 2600 22417
email: sales.publications@iaea.org
http://www.iaea.org/books

Printed by the IAEA in Austria
March 2014
STI/PUB/1643

IAEA Library Cataloguing in Publication Data

International Conference on Nuclear Security : Enhancing Global Efforts : summary of an international conference organized by the International Atomic Energy Agency and held in Vienna, 1–5 July 2013. — Vienna : International Atomic Energy Agency, 2014.
p. ; 24 cm. — (Proceedings series, ISSN 0074–1884)
STI/PUB/1643
ISBN 978–92–0–101514–3
Includes bibliographical references.

1. Nuclear facilities — Security measures — Congresses. 2. Radioactive substances — Security measures — Congresses. 3. Nuclear terrorism — Prevention — International cooperation. I. International Atomic Energy Agency. II. Series: Proceedings series (International Atomic Energy Agency).

IAEAL 14–00888

FOREWORD

The International Conference on Nuclear Security: Enhancing Global Efforts was organized by the IAEA and held in Vienna on 1–5 July 2013. The conference was organized in cooperation with the following organizations and initiatives: the European Union; the Global Initiative to Combat Nuclear Terrorism (GICNT); the International Criminal Police Organization (INTERPOL); the Institute of Nuclear Materials Management (INMM); the Nuclear Threat Initiative (NTI); the Organization for Security and Co-operation in Europe (OSCE); the Partnership for Global Security; the Police Community of the Americas (AMERIPOL); the United Nations Interregional Crime and Justice Research Institute (UNICRI); the United Nations Office on Drugs and Crime (UNODC); the World Institute for Nuclear Security (WINS); the World Nuclear Association (WNA); and the World Nuclear Transport Institute (WNTI). A total of 34 ministers participated in the ministerial session of the conference. Altogether, the conference attracted more than 1300 registered participants from 125 IAEA Member States and 21 organizations.

The aim of the conference was to review the international community's experience and achievements to date in strengthening nuclear security, to enhance the understanding of current approaches to nuclear security worldwide and identify trends, and to provide a global forum for ministers, policymakers and senior officials to formulate views on future directions and priorities for nuclear security.

This book contains the President's Summary of the conference and a summary of the ministerial session, the full text of the ministerial declaration adopted by the conference and summaries of the main conference sessions. The attached CD-ROM contains the full conference programme, the list of conference participants, the national statements from the ministerial session and a selection of papers.

The IAEA gratefully acknowledges the cooperation and support of the organizations and individuals involved in this conference. The IAEA officers responsible for this publication were I. Barraclough and K. Mrabit of the Department of Nuclear Safety and Security.

EDITORIAL NOTE

The contents of this conference summary have undergone only the minimum copy editing considered necessary for the reader's assistance. The views expressed remain, however, the responsibility of the named authors or participants. In addition, the views are not necessarily those of the governments of the nominating Member States or of the nominating organizations.

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PRESIDENT'S SUMMARY[1] OF THE CONFERENCE

INTRODUCTION

The International Conference on Nuclear Security: Enhancing Global Efforts was convened at the IAEA's headquarters in Vienna on 1–5 July 2013. This was the first occasion that a conference of this type had been convened by the IAEA. It included government ministers; senior officials and policy makers responsible for nuclear security; experts and representatives from a wide range of technical disciplines and specialist organizations that contribute to nuclear security; representatives of intergovernmental and non-governmental organizations with relevant competencies; regulatory bodies and other national competent authorities; national security and crisis management agencies; law enforcement and border control agencies; and industry and other entities engaged in activities relevant to nuclear security.

The conference attracted more than 1300 registered participants from 125 Member States, 34 of which were represented at ministerial level, and 21 governmental and non-governmental organizations. This high level of participation is a reflection of the importance of the conference and the value placed on it by interested parties worldwide. It also implies recognition of the fact that, while activities relating to nuclear security are the responsibility of individual States, there are regional and global interests in nuclear security matters which could be greatly enhanced through collective actions and international cooperation.

The conference provided a forum where experiences could be discussed and ideas exchanged to identify emerging trends and to consider medium and long term objectives for international nuclear security efforts, as well as to inform the development of the IAEA's Nuclear Security Plan 2014–2017. This plan will provide a blueprint for the IAEA's nuclear security activities over this period and will facilitate the evaluation of the IAEA's nuclear security programmes.

In his opening remarks, the President of the Conference, János Martonyi, the Minister of Foreign Affairs of Hungary, emphasized that the fight against nuclear terrorism requires all States to stand together, fulfilling their responsibilities nationally and coordinating their efforts internationally.

In his remarks, the IAEA Director General, Yukiya Amano, stressed the enduring threat of nuclear or other radioactive material falling into the hands of

[1] The opinions expressed in this summary — and any recommendations made — are those of the participants and do not necessarily represent the views of the IAEA, its Member States or the other cooperating organizations.

those who might use it for malicious acts. Both the Conference President and the Director General recognized the progress that has been made in nuclear security, but emphasized the need to avoid complacency, continue to strengthen nuclear security worldwide and remain vigilant against credible threats.

The conference began with a ministerial session. A total of 69 ministers and other heads of delegation delivered statements.

The Ministerial Declaration adopted by consensus[2] in the ministerial session is included in this conference summary.

The ministerial session was followed by six substantive main sessions addressing broad areas associated with nuclear security, and twelve parallel technical sessions which provided more in-depth discussions of a range of topics relevant to nuclear security.

To tie the various strands of the conference together, rapporteurs summarized the main conclusions and key issues from each of the technical sessions and presented the summary to a relevant main session. The co-chairs of the main sessions then compiled the main conclusions and key issues from their respective sessions — taking account of the reports from the technical sessions — which were then reported to the final plenary session. This President's Summary highlights the main conclusions and key issues, drawing on the reports from the main and the technical sessions.

THE TECHNICAL SESSIONS

The technical sessions delved more deeply into specific issues, including information and cyber security, the enhancement of nuclear security regimes, the security of radioactive sources, capacity building, safety–security interfaces, threat characterization and assessment (including security in the transport of nuclear and radioactive material), education and training, detection and response architecture, nuclear forensics, and nuclear security at nuclear facilities.

The participants endorsed the IAEA's commitment to each of these areas, as well as noting the valuable exchanges of information during these sessions, which combined technical presentations, question and answer sessions and lively discussion in panels and with the audience.

Rapporteurs captured the main conclusions and key issues from each technical session. Their full reports are included on the CD-ROM accompanying this book, and were summarized in brief presentations to a relevant main session.

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[2] After the adoption of the Ministerial Declaration, one Member State made a statement to express reservations, but did not object to reaching consensus on the document. This statement is included in this publication as an annex.

The following brief summary observations give a flavour of the discussions in each technical session:

— *Regarding information and cyber security* (Session TA2), the IAEA was encouraged to develop additional guidance level publications, including recommendation level guidance, to provide the basis for implementing regulations on information and cyber security.
— *Regarding safety–security interfaces* (Session TB5), there was broad recognition that nuclear security and nuclear safety share the same fundamental objective: to protect people, property, society and the environment. Therefore, the intersection of nuclear safety and security must be accounted for at all levels, from the operator to the regulatory level. Recent advances in enhancing the interfaces between these two distinct disciplines were commended.
— *Regarding the enhancing of nuclear security regimes* (Sessions TA3 and TB2), participants supported efforts to strengthen the IAEA's nuclear security programme's response to Member States' requests for advisory missions, such as International Physical Protection Advisory Service (IPPAS) missions, and to follow up requests to enhance and sustain effective nuclear security regimes.
— *Regarding threat characterization and assessment* (Session TB3), the IAEA was encouraged to give priority to the threat based approach to regulate the activities for the physical protection of nuclear material and nuclear facilities. The participants also emphasized that training and educational programmes are essential to increase the general awareness of security in the transport of nuclear and other radioactive material. The participants welcomed the availability of INFCIRC/225/Revision 5 and looked forward to the introduction of implementation guidance for transport security to assist in the application of the 2005 Amendment to the Convention on the Physical Protection of Nuclear Material (the 2005 Amendment to the CPPNM).
— *Regarding the security of radioactive sources* (Session TA4), participants shared lessons learned from the unique national circumstances in which such sources are stored, used and transported. No single 'one size fits all' approach will work for every State, but the lessons that were shared provided useful insights for States to assess those approaches that are most suitable for them.
— Regarding structured capacity building, education and training (Sessions TA5 and TB4), the participants endorsed the concept of developing competence through education and training, and in this regard noted that Nuclear Security Support Centres (NSSCs) can contribute to

the development of sustainable nuclear security regimes. The participants strongly supported the development of Integrated Nuclear Security Support Plans (INSSPs) that address security improvements, and requested that the IAEA complete, in close cooperation with States receiving IAEA assistance, relevant INSSPs and begin implementation as soon as possible.

— *Regarding detection and response architecture* (Session TA6), the participants noted that for material out of regulatory control, a coordinated and cooperative approach is necessary. Such an approach would involve competent authorities at both national and regional levels introducing, maintaining and sustaining measures to prevent, detect and respond to criminal or intentional unauthorized acts. This includes the conduct of investigations and bringing perpetrators to account in an appropriate criminal justice system. Adequate nuclear security involves the inclusion of all entities in a State, including those outside the traditional IAEA constituency, in the planning and execution of nuclear security programmes. This includes customs officials, medical facility administrators, border guards and other law enforcement agencies.

— *Regarding nuclear security at nuclear facilities* (Session TB6), many Member States are considering the construction of new nuclear power plants in an effort to secure energy security and to rebalance their overall energy needs, with a greater emphasis placed on nuclear energy as part of their energy mix. It is important that security performance meet the needs and expectations of the international community.

— *Regarding nuclear forensics* (Session TA7), the participants welcomed the IAEA's work in the area and encouraged States which have not yet done so to establish, where practicable, nuclear forensics databases drawing on assistance available on request from the IAEA and other relevant regional initiatives.

— *Regarding detection and response architecture linked to major public events and new technologies* (Session TB7), participants highlighted the importance of international cooperation and assistance during the implementation of nuclear security measures at major public events, keeping pace with technological advances and being fully aware of the current challenges in detecting and responding to potential nuclear security events.

THE MAIN SESSIONS

The conference reaffirmed the principle that the responsibility for nuclear security within a State rests entirely with that State, but equally, it recognized the

importance of international cooperation and the central role of the IAEA. The six substantive main sessions of the conference developed these principles under the following titles.

Implementing and enhancing the international nuclear security framework

The Convention on the Physical Protection of Nuclear Material (CPPNM) is a key international instrument supporting nuclear security. Its 2005 amendment would significantly extend its scope and the benefit that it can provide. However, it has not yet been ratified by the required two thirds of States Parties and has thus not entered into force. It is clear that the IAEA and its Member States must continue their efforts to support the entry into force of the amendment to this critical international instrument, which greatly strengthens the framework for protecting nuclear material. While the international legal framework for nuclear security includes several other instruments which build confidence in nuclear security, practicalities remain an important factor and the 2005 Amendment to the CPPNM is needed to close a significant gap.

In closing the session, the co-chairs thanked the speakers for their interesting and informative presentations. One of the co-chairs noted that the issues raised in the session were central to a broad area of nuclear security and that these were faced not only in the IAEA but globally. He stated that he would not put forward conclusions from the session but would work with the other co-chair to produce a balanced report of the discussion for transmission to the president of the conference. Subsequently, the following points were agreed:

— The universalization of the international legal instruments in the area of nuclear security is of the utmost importance and ought to be promoted, not only by the States concerned, but also by international bodies such as the IAEA or UNODC.
— In this area, a working system of binding and non-binding instruments that complement and reinforce each other now exists. The IAEA plays an indispensable role in bringing together and facilitating the work of technical, legal and political experts to develop both the binding and, in particular, the non-binding measures and guidelines for application by Member States.
— In the nuclear sphere, there is a delicate balance between transparency and confidentiality, which needs to be developed very carefully in order not to jeopardize future peaceful use of nuclear energy; to prevent the threat to humanity posed by malicious acts; and to build confidence that nuclear security measures are being applied appropriately worldwide.

Nuclear material and nuclear facilities

The IAEA's Nuclear Security Fundamentals and related IAEA Nuclear Security Series publications make recommendations with regard to national, regional and global nuclear security frameworks. In particular, IAEA Nuclear Security Series No. 13, Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Revision 5), recommends significant enhancements to a State's physical protection regime. Although the IAEA is in the process of preparing an implementation guide for this publication, participants suggested that more needs to be done both by the IAEA and its Member States to achieve the consistent application of these important recommendations.

Conclusions and recommendations from this session include the following:

— The IAEA is urged to devote more resources to providing assistance requested by Member States to implement the recommendations of INFCIRC/225/Revision 5.
— The IAEA is urged to complete the IAEA Nuclear Security Series of publications as a priority.
— The international community should recognize and encourage the concept of security by design, keeping the entire life cycle of the facility in mind.
— The international community recognizes that a strong, efficient legal and regulatory framework is an important element of a nuclear security regime. It needs to be complemented by a dedicated, properly resourced nuclear security authority which is underpinned by institutionalized, effective nuclear security culture.
— A nuclear material accountancy and control system is a key pillar of a facility's physical protection system and helps to deter and detect the misuse or theft of nuclear material.
— IAEA guidance should be used as a basis for the establishment of information and cyber security policy and programmes in Member States. However, recommendations level guidance is necessary.
— Member States should develop institutional arrangements that support the appropriate interface between nuclear safety and nuclear security.
— The IAEA is urged to give due priority to promoting a risk informed, performance based approach to nuclear security and to assisting Member States on the development of their regulatory infrastructures in this respect.
— Participants recognized the value of IPPAS Missions in assisting Member States to review and enhance their nuclear security regimes.

— The IAEA, with its Member States, is urged to develop and publish guidance to assist the implementation of IAEA recommendations on transport security.

Radioactive sources and associated facilities

The Code of Conduct on the Safety and Security of Radioactive Sources (the Code of Conduct) is the principal international instrument for the security of radioactive sources. States are encouraged to make a political commitment to work towards meeting the principles of the Code of Conduct and guidance and are responsible for taking these into account in their national infrastructures. The challenges to the security of radioactive sources are unique, and States, regulators and others need the appropriate knowledge and training and must assign adequate resources to protect these sources.

Conclusions and recommendations from this session include the following:

— The security of radioactive sources requires a similar level of effort, commitment and resources on the part of States and the IAEA to the Model Project on Upgrading Radiation Protection Infrastructure, which started in the early 1990s with five Member States and was completed in 2004 with the involvement of nearly 100 States.
— The Code of Conduct, in its current form, has wide acceptance as the primary instrument for the security of sources.
— To keep States engaged and committed to the provisions of the Code of Conduct, and to help States to recognize why radioactive source security presents challenges not always found in addressing the security of nuclear material and nuclear facilities, a strategy of motivation, application of knowledge and the use of resources should be utilized. All should be reminded of why sources need to be protected and given the necessary training and guidance to implement source security. Practically speaking, properly allocated resources are an essential part of ensuring that sources can be adequately secured, regardless of the application.
— While the primary responsibility for nuclear security rests with the State, all interested parties have a responsibility to contribute to helping ensure the security of radioactive sources.
— The IAEA, in particular, is urged to continue to play a central role in the development of guidance to assist regulators and, by extension, operators, in raising awareness and collaborating with other interested parties in the provision of physical protection and security management measures.
— Taking a regional approach enhances working relationships at regional, national and local levels and encourages increased coordination and

collaboration across borders. The success of any regional partnership relies on identifying leaders, be they States or organizations, as well as on engaging personnel at all levels.
— Although leadership is not only crucial, but it should also be recognized that there is also a need for succession and institutional planning in order to maintain sustainability.

International cooperation and assistance, and the role of the IAEA

The conference acknowledged the contributions of a wide range of organizations and initiatives in promoting international cooperation and enhancing international efforts. Conclusions and recommendations from this session include the following:

— Nuclear security is a national responsibility. However, States are increasingly aware of the importance of bilateral, regional and international cooperation to enhance national nuclear security regimes. Similarly, international cooperation and assistance can result in regional and global threat reduction.
— States should be encouraged to participate in the activities of those international organizations and initiatives that promote the development of national capabilities to respond to nuclear security threats.
— States need to exchange accurate and verified information on nuclear security events in accordance with their international obligations and national legislation, taking into account the need to protect sensitive information.
— States should develop formal education, training and certification programmes to support structured and sustainable capacity building.
— The IAEA is recognized by the participants as the source of international nuclear security guidance, developed in conjunction with Member States.
— The IAEA is urged to facilitate international cooperation and assistance to promote the safe, secure and peaceful uses of nuclear energy, as well as its international peer review and advisory services.
— The IAEA is urged to strengthen its collaboration with other international initiatives and organizations to optimize resources, prevent duplication of effort and harmonize approaches to achieving effective nuclear security.

Building and sustaining a nuclear security culture

Conclusions and recommendations from this session include the following:

— The constant loss of qualified personnel as a result of career development, retirement and administrative changes, combined with the increased evolution of technology and procedures, creates a unique challenge for the sustainability of nuclear security regimes. A common goal is to maintain the competency of personnel.
— The education and training networks for nuclear security hosted by the IAEA contribute to the global improvement of nuclear security culture, and Member States are encouraged to support and promote them. A closer relationship between these networks and the Board of Governors should be considered.
— INSSPs and other capacity building initiatives and programmes developed by Member States and others contribute to the global effort in establishing and maintaining an effective nuclear security culture in States.
— A key to achieving success in the sustainability of systems and measures designed to ensure nuclear security is in having effective leadership and continuous management, and not relying solely on technology and processes.
— Lessons learned from recent initiatives should be applied for the continuous development of international capacity building support, with an emphasis on education and training, to further promote nuclear security culture in States.

Addressing the illicit trafficking threat

The use and availability of nuclear material and other radioactive material can be expected to grow, thereby increasing the risks of illicit trafficking and the potential for radioactive material to pass out of regulatory control.

It is necessary to:

— Promote self-assessment and international peer reviews, based on IAEA Nuclear Security Series guidance, to identify priorities for nuclear security infrastructure development in the key areas of prevention, detection and response.
— Encourage a strategic approach to establishing, within Member States, efficient and sustainable nuclear security detection and response systems and measures for material out of regulatory control, including nuclear security infrastructure, capacity building and sustainability.

— Further develop tailored implementation and technical guidance to Member States in relation to the detection of, and response to, nuclear and other radioactive material out of regulatory control.
— Further strengthen collaborative efforts with other international initiatives related to detection and response to optimize the available resources, harmonize approaches and complement the assistance provided.
— Enhance the capability of States, through coordinated research, in the application of IAEA Nuclear Security Series guidance and the provision of technical assistance and training in the context of criminal investigations and prosecutions related to nuclear security events.
— Promote the development of a national nuclear forensics library to strengthen confidence in nuclear forensic conclusions and identify and address nuclear security vulnerabilities.
— Help States appreciate the value of, and contribute effectively to, the Incident and Trafficking Database (ITDB), with particular regard to timeliness, comprehensiveness and relevance of information and the development of a best practice guide for ITDB reporting.
— Provide assistance to States in harmonizing international law and guidance on an integrated national legislative and regulatory system.
— Expand regional and subregional activities to build on shared experience and needs, and to develop and exercise common approaches.

SUMMARY OF THE MINISTERIAL SESSION

The conference began with a ministerial session in which ministers and other heads of delegation made national statements, after which a ministerial declaration was adopted. The session was chaired by the Conference President, His Excellency János Martonyi, the Minister of Foreign Affairs of Hungary.

Minister Martonyi's opening remarks and the opening statement to the conference by the Director General of the IAEA, Yukiya Amano, are reproduced in full in Appendix I.

A total of 69 ministers and other heads of delegation made statements. All acknowledged the importance of strengthening nuclear security worldwide, and the need for international cooperation and assistance to complement and support national action. Many expressed appreciation for the IAEA's central role in coordinating such international efforts and providing such assistance when requested. The national statements reflected the different circumstances and priorities of the various States, but a number of recurring themes can be identified, for example:

— Many States referred to international legal instruments that they had ratified or were preparing to ratify, and especially to the 2005 Amendment to the CPPNM. Several States that had already ratified the amendment urged others to do so in order to bring it into force, while a number of States reported their progress towards ratification. Others highlighted the work being done, for example, in drafting or amending laws and regulations, to meet the obligations taken on through their adherence to international instruments.
— Several States referred to the IAEA's advisory and peer review services, and particularly to IPPAS. Some referred to benefits and experience gained from such services, while others indicated their intention to request such services in the near future.
— Many States referred to achievements in capacity building, often with assistance from the IAEA. Some referred to established or planned NSSCs or centres of excellence; others reported on developments in their educational and training activities, such as new facilities and courses.
— A number of States reported on their participation in, and benefits obtained through, regional and international cooperation initiatives, particularly in areas such as combating illicit trafficking.
— Several States reported on risk reduction measures in which they had been involved, such as repatriation of high enriched uranium (HEU) and reduction in, or elimination of HEU use.

— Several States emphasized the importance of ensuring that the IAEA has sufficient resources to fulfil its role. Some highlighted their own voluntary contributions, both monetary and in-kind, and a few announced their intentions to provide continuing or new contributions.

During the ministerial session, a ministerial declaration was adopted by consensus.[3] The text of this declaration is reproduced below. On the adoption of the declaration, the Conference President commented that it was an important milestone in nuclear security and sent an important message that, while States may all have their own interests and priorities, they can unite in a strong public commitment to pursue the common goal of strengthening nuclear security worldwide. He thanked the ambassadors of Hungary and Brazil for their excellent and tireless work in coordinating the process of negotiating the Ministerial Declaration, and commended Member States for their contributions and for the great spirit of cooperation and flexibility that they had displayed in the consultation process in striving to reach consensus.

Following the ministerial session, a brief introductory session provided a bridge between the ministerial and main sessions, introducing the non-ministerial parts of the conference.

Introductory statements were made by:

— Denis Flory, Deputy Director General, Head of the Department of Nuclear Safety and Security, on behalf of the IAEA;
— Angela Kane, High Representative for Disarmament Affairs, on behalf of the United Nations; and
— Dominique Ristori, Director General of the European Commission Joint Research Centre, on behalf of the European Union.

The text of these introductory statements is reproduced in Appendix I.

There then followed six substantive main sessions addressing broad areas of nuclear security. Summaries of these sessions follow below, based on the reports prepared by the co-chairs of the sessions.

[3] After the adoption of the Ministerial Declaration, one Member State made a statement to express reservations, but did not object to reaching consensus on the document. This statement is included in this publication as an annex.

MINISTERIAL DECLARATION

Adopted by the International Conference on Nuclear Security:
Enhancing Global Efforts
Vienna, 1 July 2013

We, Ministers of the Member States of the International Atomic Energy Agency (IAEA), gathered at the International Conference on Nuclear Security: Enhancing Global Efforts, convened by the Director General of the IAEA and open to all States, remain concerned about the threat of nuclear and radiological terrorism and of other malicious acts or sabotage related to facilities and activities involving nuclear and other radioactive material.

We welcome the substantial progress that has been made in recent years in strengthening nuclear security worldwide, including the establishment and implementation of various binding and non-binding international instruments. We recognize the contributions made to this progress by the United Nations, the IAEA and other relevant international organizations and note the role that international and inclusive processes, initiatives and summits could play in facilitating synergy and cooperation in the area of nuclear security. We acknowledge, however, that more needs to be done to further strengthen nuclear security worldwide.

We encourage all States to maintain highly effective nuclear security, including physical protection, for all nuclear and other radioactive material, their transport, use and storage and their associated facilities, as well as protecting sensitive information and maintaining the necessary nuclear security systems and measures to assess and manage their nuclear security effectively.

In the light of the above, we:

1. Assert that the responsibility for nuclear security within a State rests entirely with that State.
2. Stress the importance of international cooperation in supporting States, upon their request, to fulfil their nuclear security responsibilities and obligations and emphasize the need for the involvement of all Member States of the Agency in its nuclear-security-related activities and initiatives.
3. Call upon all States to ensure that measures to strengthen nuclear security do not hamper international cooperation in the field of peaceful nuclear activities.

4. Recognize the threat to international security posed by the potential theft and/or smuggling of nuclear material, and affirm in this regard the fundamental responsibility of States, consistent with their respective national and international obligations, to maintain effective security of all nuclear material under their control, which includes nuclear material used for military purposes.
5. Recall the statement in UN General Assembly Resolution 67/44 on *Measures to prevent terrorists from acquiring weapons of mass destruction* "Emphasizing that progress is urgently needed in the area of disarmament and non-proliferation in order to maintain international peace and security and to contribute to global efforts against terrorism", and recognize that there is a need to make further progress in this regard.
6. Recognize and support the IAEA's continuing work to assist, upon request, States' efforts to establish effective and sustainable national nuclear security regimes, and note the important role that Integrated Nuclear Security Support Plans (INSSPs) play in this regard. We encourage States to make further use of such assistance where it is needed, and similarly encourage States in a position to do so to make available such assistance.
7. Encourage efforts to promote international exchange of experience on ways to develop, foster and maintain a robust national nuclear security culture, compatible with the State's nuclear security regime. We note the potential contribution of industry initiatives in this regard.
8. Take note of existing regional initiatives in nuclear security and encourage States to promote such initiatives where these can contribute to improving the coordination and sustainability of national and global efforts to enhance nuclear security.
9. Invite States that have not yet done so to become party to and fully implement the Convention on the Physical Protection of Nuclear Material (CPPNM) and its 2005 Amendment and the International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT) and, in this regard, encourage the IAEA and States to continue efforts to promote the entry into force of the 2005 Amendment to the CPPNM at the earliest possible date.
10. Invite States that have not yet done so to make a political commitment to implement the non-legally-binding Code of Conduct on the Safety and Security of Radioactive Sources and supplementary Guidance on the Import and Export of Radioactive Sources, and encourage all States to implement these instruments and to maintain effective security of radioactive sources throughout their life cycle.

11. Encourage the IAEA, in consultation with Member States, to consider ways of further promoting the exchange, on a voluntary basis, of information on the implementation of the legal instruments relevant to nuclear security.
12. Encourage States to further minimize the use of high enriched uranium on a voluntary basis and to use low enriched uranium where technically and economically feasible.
13. Encourage States to use, on a voluntary basis, the IAEA's nuclear security advisory services and peer reviews based on internationally accepted guidance and tailored to national needs, welcome the increased recognition of the value of IAEA International Physical Protection Advisory Service (IPPAS) missions by Member States, and encourage the IAEA to foster the sharing of experience and lessons learned from these missions.
14. Recognize the importance of continuing efforts to address the threats posed by illicit trafficking of nuclear and other radioactive material, affirm in this regard the IAEA Incident and Trafficking Database (ITDB) as the international repository of information on incidents and illicit trafficking, and encourage all States to join and participate actively in the ITDB programme.
15. Welcome the IAEA's work in the area of nuclear forensics and encourage States which have not yet done so to establish, where practical, national nuclear forensics databases drawing on assistance, upon request, from the IAEA and relevant regional initiatives as necessary.
16. Recognize that nuclear security and safety have the common aim of protecting human health, society and the environment, while acknowledging the distinctions between the two areas, and affirm the importance of coordination in this regard.
17. Affirm the central role of the IAEA in strengthening the nuclear security framework globally and in leading the coordination of international activities in the field of nuclear security, while avoiding duplication and overlap.
18. Recognize the importance of the IAEA having access to appropriate resources and expertise to undertake its work, including through further voluntary contributions to the IAEA's Nuclear Security Fund by existing and new donors.

19. Welcome the IAEA's support for capacity building in States, upon request, including regulators, law enforcement agencies and industry, developed in cooperation with Member States, and recognize the importance of the collaborative International Nuclear Security Education Network (INSEN) and Nuclear Security Support Centre (NSSC) network.
20. Urge the IAEA to continue developing and publishing nuclear security guidance, and encourage all States to take the guidance into account, as appropriate, in their efforts to strengthen and continuously improve their nuclear security.
21. Note the IAEA's Nuclear Security Recommendations on physical protection of nuclear material and nuclear facilities (INFCIRC/225/Revision 5), including measures to protect against sabotage of nuclear facilities and nuclear material in use, storage, and transport, and look forward to the preparation of further guidance on their implementation including during the process of construction and maintenance of nuclear facilities.
22. Recognize the IAEA's efforts to raise awareness of the growing threat of cyber attacks and their potential impact on nuclear security, and encourage the IAEA to make further efforts to foster international cooperation and to assist States, upon request, in this area through the establishment of appropriate guidance and by providing for its application.
23. Urge the IAEA to take due account of this declaration in finalizing its Nuclear Security Plan for 2014 to 2017.
24. Call on the IAEA to consider organizing international conferences on nuclear security every three years.

CONFERENCE SUMMARY

CO-CHAIRS' SUMMARY[4] OF MAIN SESSION M3: IMPLEMENTING AND ENHANCING THE INTERNATIONAL NUCLEAR SECURITY FRAMEWORK

G. Berdennikov
Russian Federation

A. Harrington
United States of America

INTRODUCTION

Co-chair **A. Harrington (USA)** introduced the session, commenting that it helped set the stage for the discussions to follow in the coming days. More importantly, she noted that the goal was to challenge everyone to take the discussions home, to carry on the dialogue internally and with bilateral and multilateral partners, and to then move from concept to practice. She noted that the papers presented some fundamental questions about how the international community went about the business of nuclear security. They raised questions about what instruments are most effective: legally binding versus non-legally-binding; broadest possible reach versus depth and detail; rigid structures versus structures that can evolve with changing circumstances.

INVITED PAPERS

G. Terigi (Argentina) spoke on promoting entry into force of the Amendment to the CPPNM. He pointed out that the CPPNM is the only legally binding international instrument in the area of physical protection, and is therefore a central element of the international legal (and policy) framework for nuclear security. However, the CPPNM was relatively limited in scope. The changes introduced by the amendment were intended to address the issues of the prevention of the unauthorized possession of nuclear material and access to nuclear facilities. He focused on three areas of the amendment which, in his view, merit particular attention.

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[4] The opinions expressed in this summary — and any recommendations made — are those of the participants and do not necessarily represent the views of the IAEA, its Member States or the other cooperating organizations.

The scope of the convention is extended by the amendment to include use, storage and transport of nuclear material within a State, which brings nuclear facilities into the scope. Sabotage is defined as an offence, introducing the concept of 'radiological consequences'. The amendment inserts the Article 2A, which places an obligation on States Parties to establish a physical protection regime, applicable to nuclear material and nuclear facilities under its jurisdiction. It also enshrines the physical protection objectives and 12 fundamental principles for such a regime which were endorsed by the IAEA's General Conference in 2001 (and are now also reflected in the IAEA's nuclear security guidance). This is a central contribution of the amendment.

Mr. Terigi noted that two thirds of the States Parties to the CPPNM must ratify the amendment for it to enter into force. The amendment currently has 68 signatories; although the pace of ratification has quickened, another 30 are needed for entry into force. Addressing the question of why the amendment had still not entered into force, Mr. Terigi pointed to a number of issues such as competing national priorities, lack of awareness, domestic political difficulties in getting the issue onto the agenda, and the issue of implementing legislation. He argued that side events ought to be organized at high profile meetings, such as the IAEA's General Conference, to raise awareness of the amendment and its contribution to security. He also proposed that States do more to share their experience in incorporating the new elements of the amendment into their national legislation and practices with the international community to help those States experiencing difficulties.

M. Requena (UNODC) addressed the international legal framework against nuclear terrorism. She noted that UNODC was mandated by the United Nations General Assembly to promote the ratification and implementation of 18 international legal instruments against terrorism, seven of which deal with nuclear terrorism, including United Nations Security Council Resolutions 1373, 1540, 1822 and 1887. She described the common features of those seven instruments: establishing offences; requiring States to criminalize offences domestically; establishing the principle *aut dedere aut judicare*; and providing for international cooperation mechanisms. These instruments do not require the definition of an offence of terrorism but rather define the offences of committing certain acts, regardless of motivation. She noted the challenges of achieving ratification of the treaties and the incorporation of necessary measures into domestic law, and that this was complicated by the fact that nuclear terrorism related provisions are scattered over several legal instruments. Finally, she provided information on UNODC's assistance services for the ratification and implementation of international legal instruments against nuclear terrorism, which include awareness raising and assistance with capacity building, drafting

and/or reviewing national legislation, and training criminal justice and law enforcement officials.

S. McIntosh (Australia) presented a paper on the Code of Conduct. He argued that the security aspect of the Code of Conduct was strengthened after the events of 11 September 2001. He noted that while the implementation of the Code of Conduct at national level is uneven, given resource constraints and differing levels of coordination between radiation regulators and law enforcement bodies, the information exchange meetings held by the IAEA have shown clear advances in the regulation of the security of sources in many countries. While noting that 117 States had made such a commitment to date, Mr. McIntosh pointed out that the making of such a commitment was just the start; the key lies in the practical implementation of the Code of Conduct. In this regard, he stressed the vital importance of IAEA projects to upgrade national protection infrastructures. He outlined Australia's experiences in implementing the Code of Conduct. In particular, he noted that implementation of the code had led to the introduction of a range of measures for stronger security controls over sources. The code had also provided impetus for a strengthened relationship between radiation regulators and their counterparts in law enforcement and border control.

With regard to the legal status of the code, Mr. McIntosh argued that two factors had intervened to change the level of attention that the code had received: one was the IAEA's effort to incorporate the code into its Model Project for Upgrading Radiation Protection Infrastructure, through which the code's provisions were incorporated into national law in a number of States. The other was the revision of the code in July 2003 and the IAEA General Conference's subsequent call to urge each State to write to the Director General stating their commitment to working towards following the guidance. Noting that there had been some discussion of the possibility of converting the code into a legally binding convention, he highlighted a number of potential advantages and disadvantages to this. Advantages include the signal it would give to how seriously the international community consider the security of sources; the leverage it would provide for national regulators to persuade governments to afford greater priority and resources for the security of sources and more formal reporting mechanisms. Disadvantages include the considerable period of time required for the negotiation of a convention, the possibility that a convention would be more general than the code, the question of how to ensure the universality of a convention and the resources required for the negotiations.

J. Herbach (Netherlands) presented thoughts on strengthening the international legal framework for nuclear security. He suggested that the effectiveness of the international legal framework for nuclear security could be strengthened by three elements: that States become parties to the relevant instruments; that Parties act in accordance with the rules and norms established

in those instruments and that the framework be adequate to achieve the objectives for which it was established. He considered a number of options for strengthening the legal framework, including making use of existing mechanisms such as outreach and legislative assistance; review conferences and consultation and cooperation; and, in addition, looking beyond the current structure to broaden and deepen cooperation. He also pointed to the importance of using Article 14 of the CPPNM as a means to build trust and confidence in compliance, of the role of review conferences under Article 16 of the CPPNM as a means to strengthen the legal framework and of encouraging adherence to the convention.

Mr. Herbach suggested that compliance with the non-legally-binding instruments could be supported by institutional arrangements such as IPPAS missions. He discussed the relative merit of non-legally-binding instruments, noting that they can be easily amended and that they provide more flexibility to meet contemporary challenges. He also underlined the importance of the entry into force of the 2005 Amendment to the CPPNM as well as the importance of coordination and exploration of synergies among outreach efforts undertaken by relevant international organizations.

R. Floyd (Australia) addressed ways of building international confidence in nuclear security practices. He said that it was of critical importance to develop mechanisms that will allow States to gain confidence in one another's security arrangements without compromising national security. He noted that the community of officials, experts and nuclear security practitioners has further defined, developed and delineated the concept of international assurance as one that contributes to nuclear security as a shared as well as sovereign responsibility. His paper focused on the definition of international assurance, why international assurances matter, how international assurances work, what is in place and what is new and how best to implement international assurances efficiently with minimal duplication and maximum assurance benefit.

Mr. Floyd discussed how activities undertaken, information shared or measures implemented voluntarily by a State or other stakeholder can build the confidence of others about the effectiveness of nuclear security within a given State. Mr. Floyd noted that such mechanisms are widely used across many industries, including those using sensitive information. Assurances can be provided by those engaged in assurance activities and information sharing, such as ministries and agencies from government and regulators, as well as the nuclear industry, and can be provided in a variety of ways, including unilaterally (national reports), bilaterally (cooperative measures) or multilaterally (best practice exchanges). He set out a menu of potential international assurances, including information sharing and reporting; peer review; expanded best practice sharing; bilateral cooperation; declarations and accounting; and training and certification. His conclusion was that in most cases the activities were not

new. Many are already being performed by States or are already required by pre-existing agreements.

L. Holgate (USA) spoke on further strengthening the implementation and enhancement of the international nuclear security framework, or "the global architecture for nuclear security". She suggested that the architecture be comprehensive and based on international standards, supporting the identification and recognition of assurances relating to nuclear security and encouraging the reduction of stocks of directly usable fissile material. She touched upon several elements of the global architecture. While she mentioned United Nations Security Council Resolution 1540 as the keystone of such architecture, she argued that no matter how strong this keystone is, the nuclear security foundation is incomplete because the ICSANT and the 2005 Amendment to the CPPNM have yet to reach their full potential. She discussed the role of the Nuclear Security Summits in strengthening these legal foundations, making reference to policy commitments made at the Washington and Seoul summits, such as the universalization of the CPPNM and ICSANT and the entry into force of the amendment. She argued that CPPNM and ICSANT can also be used as platforms to maintain high level attention on nuclear security after the Nuclear Security Summit process concludes. She maintained that, while neither convention creates a formal review process, both have provisions for meetings to discuss implementation. Ms. Holgate discussed the idea that future IAEA nuclear security conferences could review progress on the amended CPPNM, for instance, in the form of a special side meeting of States Parties. She also argued that CPPNM and ICSANT could provide a platform on which to build expectations and behaviour that can, over time, transition from so-called 'soft law' into the 'hard law' of future treaties and arrangements that expand the coverage of these legal structures.

Ms. Holgate discussed a number of impacts that the Nuclear Security Summits have made. These included: provision of an impulse to enhance the national legal basis of nuclear regulations and regulatory bodies; highlighting the central role of the IAEA in supporting Member States in implementing their international and national security commitments; and emphasis on the connections between formalized legal and multilateral foundations and the plurilateral initiatives that have filled in and strengthened the overall architecture. She touched upon the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction as an important mechanism to provide resources and coordination for international cooperation on nuclear security. She also mentioned the World Institute for Nuclear Security, which she believed has the potential to be a critical gapfiller between governments and private sector actors across the nuclear security field, and to help translate and promulgate best practices. She concluded that follow-through of the national commitments made in the Nuclear Security Summits had provided tangible, concrete evidence of

improved nuclear security. She maintained, however, that more needed to be done, for instance, to enhance nuclear security performance, to dissuade and apprehend nuclear traffickers, to eliminate excess nuclear weapons and material and to share experiences and best practices. She also maintained that it is important to do so in visible ways, thereby providing assurance that each State is effectively executing its sovereign responsibility.

I. Barraclough (IAEA) described progress in the IAEA's Nuclear Security Fundamentals and related IAEA Nuclear Security Series publications. He set out the history and background on the development of the IAEA Nuclear Security Series publications, which aim to provide States with guidance to assist them in establishing and sustaining effective national nuclear security regimes. He also provided background on the Nuclear Security Guidance Committee, which was established in March 2012 with the aim of further strengthening and formalizing Member States' roles in defining consensus nuclear security guidance for global application by reviewing and approving IAEA Nuclear Security Series publications. He pointed out that while much has been achieved, including the issuing of two top tiers of publications, namely, the Nuclear Security Fundamentals and three sets of recommendations, and the establishment of the Nuclear Security Guidance Committee, much remains to be done to complete and consolidate the suite of nuclear security guidance and to address a range of issues, particularly the relationship between such guidance and the IAEA's Safety Standards. He noted that a current major issue is how security aspects are addressed in IAEA Safety Standards and how safety aspects are addressed in nuclear security guidance. He maintained that the conceptual foundations and the structures and processes are now in place to allow the gaps to be filled and for a complete and authoritative IAEA Nuclear Security Series to provide the comprehensive, consistent and high quality guidance that can both inform States' national efforts to strengthen nuclear security nationally and form the central basis for all of the IAEA's nuclear security activities.

PANEL DISCUSSION

The session concluded with a panel discussion which was intended to provide an opportunity to the participants to ask general questions and make comments to the speakers of the session. The panel was composed of speakers from the session. **K. Mrabit**, Director of the IAEA's Office of Nuclear Security, and **P. Johnson**, Director of the IAEA's Office of Legal Affairs, joined the panel.

A number of questions were put to the panel and comments made from the floor covering the following points.

Role of voluntary codes and their possible conversion to a convention

The point was made that the number of safety incidents occurring since the adoption of the revised Code of Conduct had declined. However, the need was to keep codes current and not let them become moribund. It was also pointed out that conventions evolve over time. On the question of converting the Code of Conduct to a legally binding instrument, the panel noted that the question of including radioactive sources within the scope of the CPPNM had been discussed in the past under the auspices of that convention. However, it had not been possible to agree on their inclusion. The panel and participant noted the practical effectiveness of non-binding instruments in referring to examples showing how they become legally binding when translated into national laws and regulations and incorporated into bilateral agreements. Panellists pointed out that it would not be possible just to convert the Code of Conduct to a legally binding instrument and that extensive discussion would have to take place in order to take such a process forward.

International assurances

This subject generated a number of comments and questions. It was pointed out that the best assurance was membership of the international legal instruments, such as the CPPNM. Another participant noted that the follow-up to the provision of voluntary assurances would be the development of criteria to define what assurances are to be given. The question was also posed as to whether one State would give the same assurances to every other State, irrespective of the nature of the relationship between them. One speaker noted that the question of assurances was drawn from safety and that the concept might not be valid in security, where the content of the assurances might be studied by potential adversaries in order to identify potential weaknesses. In response, a panellist pointed out that it was for a State to decide what assurances would be given and that in doing so the State would have to take account of the potential risk of transparency. It was also pointed out that it was necessary to explore the balance between transparency and confidentiality in the area of nuclear security so that the application of the assurance concept will not be abused to provide new opportunities for terrorists but will help to build more confidence for States in the sustainability of the nuclear security regime worldwide. The panellist thought that the current balance was too biased towards confidentiality. Another panellist pointed out that it would be easy to differentiate between generic and specific information. Panellists also suggested that, following the example of the safety conventions, over time States would be more willing to share information once trust had been established.

Verification

Some participants questioned whether there would be a need to establish a mechanism to ensure that States were fulfilling legally binding obligations and, if so, whether this responsibility would be devolved to an international organization. This led to the question of liability for the consequences of a subsequent nuclear security incident after such verification. The panel argued that verification implied an intrusive inspection regime. Clear, convincing evidence of compliance could be demonstrated by States, for instance, through the provision of national laws and regulations which give effects to the international instruments that they are bound by. It was noted that information exchange took place every three years under the Code of Conduct and that States could choose the level of detail that they provided under this exchange. However, it was also pointed out that the law of diminishing returns was starting to be felt in the analogous peer review process in the safety conventions.

Promoting the entry into force of the CPPNM Amendment

The panel referred to some of the technical and political challenges in ratifying the CPPNM amendment and ICSANT. The technical ones include the existence of multiple instruments relevant to nuclear security and the inclusion of different criminal offences required by those instruments without leaving gaps. However, one speaker stressed that States that have already implemented the provisions of the CPPNM would not have many difficulties in implementing the criminalization provisions of the amendment . The political challenges include lack of political will to be bound by legal obligations, priority of other issues and lack of awareness. In comments related to this subject from the IAEA, the Director of the Office of Legal Affairs outlined the IAEA's legislative assistance programmes which are available to Member States upon request to support their efforts to adhere to and implement international instruments for nuclear security. In addition, the Director of the Office of Nuclear Security mentioned a systematic and comprehensive programme of IAEA technical assistance to support States in their implementation of those instruments, including the development of guidance publications.

Role of export control in Nuclear Security

A participant noted that under the guidelines published by the Nuclear Suppliers Group (NSG), participating governments in the group undertook to consider physical protection as a condition of supply and suggested that the role of export controls in promoting security be recognized. A number of panellists

thought that the proposal had merit, but it was noted that the NSG guidelines were one of three documents made available to participants at the meeting in 1979 to adopt the final act of the CPPNM.

CONCLUSIONS

In closing the session, the co-chairs thanked the speakers for their interesting and informative presentations. Co-chair **G. Berdennikov (Russian Federation)** noted that the issues raised in the session were central to a broad area of nuclear security and were faced not only within the IAEA but throughout the world. He stated that he would not put forward conclusions from the session but would work with the other co-chair to produce a balanced report of the discussion for transmission to the Conference President. Subsequently, the following points were agreed:

— The universalization of the international legal instruments in the area of nuclear security is of utmost importance and ought to be promoted not only by the States concerned but also by international bodies such as the IAEA and UNODC.
— In this area, there now exists a working system of binding and non-binding instruments that complement and reinforce each other. The IAEA plays an indispensable role in bringing together and facilitating the work of technical, legal and political experts to develop both the binding and, in particular, the non-binding measures and guidelines for application by Member States.
— In the nuclear sphere, there is a delicate balance between transparency and confidentiality which needs to be developed very carefully in order not to jeopardize the future peaceful use of nuclear energy, to prevent the threat to humankind caused by malicious acts and to build confidence that nuclear security measures are applied appropriately worldwide.

CO-CHAIRS' SUMMARY[5] OF MAIN SESSION M4: NUCLEAR MATERIAL AND NUCLEAR FACILITIES

Liu Daming
China

J.M. Esteves dos Santos
Brazil

INTRODUCTION

The co-chairs **J. M. Esteves dos Santos (Brazil)** and **Liu Daming (China)** welcomed delegates to the session. The objective of the session was to allow for the discussion of important points related to the security of nuclear material and nuclear facilities. The session comprised six speakers on subjects related to the security of nuclear material and facilities, reports from relevant technical sessions and a panel discussion on the implementation of INFCIRC/225/Revision 5 as the framework for security programmes.

INVITED PAPERS

A. Freer (United Kingdom) presented the UK's experience in achieving sustainable and effective physical protection systems. He informed delegates that the UK's regulations include the categorization of nuclear material according to INFCIRC/225/Revision 5, but with the addition of fissile material. For the application of graded approaches, a 'dilution factor' was also considered, especially for radioactive waste. UK regulations require that licensees of nuclear material in Categories I–III submit a security plan to the regulatory body (the Office for Nuclear Regulation) for approval. Security arrangements are determined by the inventory held, the threat, vulnerabilities and the potential consequences of loss. A key theme of the paper was how the UK worked to achieve the appropriate effective physical protection measures by adopting a risk informed approach. The paper explicitly described approaches adopted to address the key functions of risk, threat, vulnerability and potential consequences.

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Promoting nuclear security culture through all regulatory activities was also one of the key themes of the paper.

Mr. Freer concluded that suitably qualified, experienced and reliable staff and contractors, with appropriate and well maintained security equipment, procedures, processes and high security culture, are important for an effective physical protection system.

V. Kuchinov (Russian Federation) spoke on the role of nuclear material accounting and control (NMAC) for ensuring nuclear security. He explained that nuclear NMAC systems, in coordination with other facility systems, were part of the Russian Federation's nuclear security regime. The essential function of an NMAC system was to obtain, systematize, verify and store information about nuclear material and their utilization. Associated tasks included maintaining accurate, timely, complete and reliable information about locations, quantities and characteristics of nuclear material available at the facility, and ensuring continuity of knowledge of nuclear material. The system is also used for the detection and investigation of anomalies indicating a possible loss of nuclear material in order to determine if a loss has actually occurred.

He stressed that an NMAC has some limitations as a nuclear security measure. For example, NMAC systems' ability to detect the unauthorized removal of nuclear material within a short period of time (for example, within a few hours) can be limited by technical capabilities and system operation procedures. At facilities, where work is carried out in one shift, NMAC personnel are not always able to timeously detect signs of unauthorized removal of nuclear material. If the taking of an emergency physical inventory is required to confirm material loss, confirmation can take several days. Mr. Kuchinov concluded that the Russian Federation has a solid set of laws and regulations to support the implementation of accounting and control systems.

C. Bolton (UK) presented a paper on security by design. He argued that security by design provides an opportunity to reduce the intrinsic vulnerability of nuclear facilities without the disadvantages of adding security measures retrospectively. He stressed that this did not only mean physical protection systems; it also means designing nuclear operations, from the start, to meet nuclear security objectives with equal priority to nuclear safety and safeguards. The design basis threat should be the basis for design. As the design concept is fixed for the life of the facility, therefore, threat tolerant design is therefore needed to anticipate threats that may emerge later.

A key concept of the paper was the division of security measures into two parts: extrinsic and intrinsic measures. Security by design is the application of intrinsic security to nuclear facilities. Mr. Bolton explained this concept by providing examples from nuclear facilities. He concluded that the public perception that nuclear facilities are more vulnerable to malicious acts than

competitor generating technologies was not correct and a nuclear reactor, once built and fuelled, is less vulnerable to interruption of supply than a fossil fuel generating plant. He considered that 'security by design' had an essential part to play, but required a cultural shift.

C. Quintin (France) talked about revising the regulatory framework to enhance nuclear security. He referred to the four missions of the French Nuclear Security Authority: establishing and maintaining the legal and regulatory framework; enforcing regulations; supervising drills and exercises; and detecting and recording violations of law and regulation and starting proceedings. He also gave an insight into the revision of the French regulations on nuclear material and nuclear facilities. The new regulatory regime took an integrated approach to considering the unauthorized removal of nuclear material and the sabotage of nuclear facilities. It was based on three important pillars: licensing nuclear activities, ensuring compliance with regulations and taking enforcement action if required.

Mr. Quintin concluded that the protection of nuclear material relies on having a strong, efficient and regularly updated legal and regulatory framework; a dedicated nuclear security authority with adequate means; and an effective nuclear security culture at all levels and in all organizations.

J. Dally (UK) presented a paper describing the genesis of the Nuclear Security Summit process and its effects as a catalyst to broaden the political consciousness and perspective on nuclear security, stressing that this awareness needed to extend to the protection of related nuclear information. The paper went on to suggest a classification scheme for information related to nuclear facilities and to describe the matrix of protective measures to be implemented for information in the different classes. She provided insight regarding the UK's support to the Nuclear Security Summits in the area of information security, including the UK sponsored multinational statement on information security, which contains 12 specific voluntary actions that countries can take to bolster their nuclear security information regimes. In conclusion, she suggested that a voluntary code of conduct on nuclear information security is needed.

J. Wiggins (USA) discussed measures that had been taken to improve cyber security at facilities regulated by the United States Nuclear Regulatory Commission. He explained that the cyber threat had significantly increased over the last decade and continued to evolve. The threat included both State and non-State malicious actors. As facility operators upgrade from analogue to digital industrial control systems, it is imperative that licensees were aware and took actions to mitigate these threats. The United States Nuclear Regulatory Commission continues to develop regulations that enhance security requirements related to cyber security, and requires that cyber enhancements be integrated into

the physical protection system. A roadmap has been developed to help ensure appropriate levels of cyber security are implemented.

OUTCOME OF RELEVANT TECHNICAL SESSIONS

The rapporteurs from sessions TA2, TB2, TA3, TB3, TB5 and TB6 reported to the plenary on the major conclusions and recommendations of each technical session, based on their written reports of the sessions. Key points are summarized below.

F. Eltawila (United Arab Emirates) reported on Technical Session TA2, which focused on information and cyber security, and concluded that:

— Cyber security is an extensive area for discussion, and the session was only able to touch upon a few of the many issues being faced by Member States. Additional opportunities and mechanisms for exchange on technical and regulatory topics between Member States are needed, and the IAEA could help in this regard.
— IAEA guidance is being used as a basis for the establishment of information and cyber security policy and programmes in Member States, but further development, including recommendations level guidance, is needed, specifically in areas such as cyber security regulation and cyber threat analysis.
— Information sharing between responsible parties in cyber security is needed. The exchange of information may include that related to incidents, vulnerabilities and threats. At the same time, such information needs to be properly protected from other parties.
— Cyber security cannot be an isolated topic, but ought to be integrated to a greater degree in all aspects of the overall security programme.
— IAEA activities such as this conference session provide a valuable forum for discussion and sharing between Member States on the challenging issues of information and cyber security. The participants strongly support a 2015 IAEA conference focused on cyber security.

Technical Sessions TB2 and TA3 focused on enhancing nuclear security regimes. **K. Horváth (Hungary)** reported that all of the papers in session TB2 recalled recent or proposed enhancements to national nuclear security regimes, including coordinating the responsibilities of operators and police authorities. These enhancements have drawn on IAEA guidance publications and/or IPPAS missions for advice or endorsement. This reflects that many Member States are engaged in continuous improvement to ensure the effectiveness of their nuclear

security arrangements and the leading role that the IAEA plays in contributing to this effort. The session also concluded that:

— The participants endorsed the immediate need for completing a comprehensive suite of IAEA Nuclear Security Series publications to ensure that necessary guidance is available to Member States to support their efforts in enhancing and sustaining effective nuclear security regimes.
— The participants supported the need for further enhancement of IPPAS and encouragement of States to use this important service to review and enhance their nuclear security regimes and to contribute to confidence building.
— The participants encouraged the IAEA to establish and maintain an appropriate mechanism for sharing good practices identified during IPPAS missions.
— The participants supported the development and publishing of guidance on the self-assessment of nuclear security culture as well as practical guidance on its enhancement as part of the IAEA Nuclear Security Series and encouraged the IAEA to execute this activity with high priority.
— The participants welcomed the IAEA International Seminar on IPPAS hosted by France on 4–5 December 2013 in Paris to share experience and to discuss the further enhancement of this IAEA service.

A. Shakoor (Pakistan) reported that Technical Session TA3 concluded that:

— INFCIRC/225/Revision 5 is a focus for Member States when designing, implementing and evaluating their nuclear security regimes.
— IPPAS missions ought to be expanded, including the larger facilities that contain the most attractive material.
— There is support for Member States' efforts to expand and strengthen the IAEA nuclear security programmes, including international cooperation.
— Computer modelling, simulation and other new tools are being used to analyse many aspects of the nuclear security regime with the promise of better designed security features.

S. Repanovici (Romania) reported on Technical Session TB3, which focused in part on threat characterization and assessment .

With regard to threat characterization and assessment:

— Participants would encourage States to use a risk informed, performance based approach to regulate the physical protection of nuclear material and nuclear facilities.

— The IAEA is urged to give due priority to promoting the risk informed, performance based approach and assisting Member States on the development of their regulatory infrastructures in line with this approach.
— The IAEA is urged to facilitate 'lessons learned' workshops for Member States that have participated in, or plan to participate in, a design basis threat workshop and discuss improvements and legal or other actions adopted.

With regard to security in transport:

— The IAEA is encouraged to develop and publish common tools to effectively apply the IAEA recommendations on transport security, consistent with transport safety.
— Participants encouraged the IAEA to develop communication tools, taking into account the protection of information.
— It was recognized that training and education programmes are essential to increase the awareness of security in the transport of nuclear and radioactive material.
— The importance of INFCIRC/225/Revision 5 and the supporting Implementing Guides for transport security were recognized.

A. Elabd (Egypt) reported on technical session TB5, which focused on the interfaces between security and safety and how to ensure a balanced recognition of each. The session concluded that:

— The plenary session recognized the shared objective of nuclear safety and nuclear security, which is the protection of people, property, society and the environment.
— States embarking on or expanding their nuclear power programme need to pay attention to the interface between safety and security in the regulatory framework for the supervision of nuclear power facilities.
— States embarking on or expanding their nuclear power programme need to pay attention to the institutional arrangements that support the appropriate interface between safety and security in a manner that strengthens both.
— All States need to ensure that safety measures and security measures, when implemented in relation to the use of nuclear and other radioactive material and to associated facilities and activities are coordinated by the operator to ensure that neither safety nor security is compromised.
— States are encouraged to promote a robust security and safety culture among all organizations and entities involved in the peaceful uses of atomic energy.

— Safety and security considerations are important when considering a response to a radiological emergency, irrespective of the cause of the emergency, and may necessitate the further development of interfaces between response measures from the safety and the security perspectives.
— The areas of concern identified during the panel discussion and listed above ought to be considered by the IAEA including, in particular, a consideration of the relationship between the IAEA Safety Standards Series and the IAEA Nuclear Security Series publications and the need to ensure an interface between safety and security in all key guidance developed for States so that the issues may be addressed appropriately. This may include strengthening the guidance related to interface documents developed for both safety and security and to the development process attached to these documents to ensure the enhancement of both safety and security.

P. Carroll (UK) reported that in the papers submitted for technical session TB6 on the security of nuclear facilities (the session itself being scheduled for later in the conference):

— The participants endorsed the IAEA Secretariat's programmes associated with the implementation of INFCIRC/225/Revision 5, including nuclear security for the uranium industry, security management for research reactor operators and nuclear security for nuclear power plants.
— The participants encouraged the IAEA Secretariat to publish the necessary guidance as soon as possible.
— Participants recognized the importance of a co-ordinated programme for education and training, and accepted this as essential to increase awareness and build capacity in each Member State.
— Strong support was expressed for the advisory missions (IPPAS) offered by the IAEA Secretariat to the Member States. Current efforts should continue to encourage all Member States concerned to benefit from this programme.

PANEL DISCUSSION

The purpose of the panel discussion was to allow for a more in-depth discussion on how to define and implement comprehensive national security programmes for nuclear facilities and nuclear material. The panel comprised an oral presentation by **K. Naito (Japan)** and a session for questions to the panellists.

Specifically, panellists talked about the essential elements of a national security programme based on experiences gained in their respective States and

activities. It was widely recognized that nuclear security in the fields discussed requires the active engagement of personnel at all levels: at the State level to establish the legal framework based on international guidance; at the regulatory level to turn legislation into practical guidance for operators; and at the operational level to implement the required security measures and management practices.

Several questions to the panel concerned cyber security programmes. The panel agreed that the IAEA is ideally suited to assist Member States in developing security awareness and implementing information security and cyber security programmes. Several threads of the discussion included information security related to operations, but also the need for information security in logistics and the procurement of equipment, especially when such information could support sabotage.

Other questions addressed the functions of nuclear material accountancy and control for security. A facility's NMAC system serves both a safeguards and a nuclear security function, and must be coordinated accordingly. Some States are already operating a well defined NMAC for nuclear security functions, and these capabilities could be extended to other radioactive material. It is recognized that an NMAC capability is a key pillar of a facility's nuclear security system and that it complements the physical protection system by helping to deter and detect possible misuse or theft of nuclear material.

The panel emphasized the importance of an effective nuclear security regime for Member States with nuclear facilities and that individual nuclear facilities have different and varying challenges.

Supporting these unique nuclear security requirements are technical missions to assist Member States to identify appropriate security systems and measures for each facility; education and training to raise awareness and to build capacity within the Member State; and IAEA Nuclear Security Series publications to provide implementation guidance.

CONCLUSIONS

The session co-chairs agreed on the following conclusions. Regarding the implementation of IAEA INFCIRC/225/Revision 5, these recommendations are a focus for Member States when designing, implementing and evaluating their nuclear security regimes. The IAEA is urged to put more resources into providing necessary assistance to Member States, if requested, to implement the recommended requirements of INFCIRC/225/Revision 5.

More generally, there is an immediate need to complete a comprehensive suite of the IAEA's Nuclear Security Series publications to ensure that necessary

guidance is available to Member States to support their efforts in enhancing and sustaining effective nuclear security regimes.

Regarding security by design, the importance of ensuring adequate security of all nuclear fuel cycle facilities and associated activities throughout their lifetime was recognized. Security by design is an important aspect of the security of a facility because threat tolerant design is required to anticipate threats that may emerge later. Therefore, the international community needs to work further to develop this concept.

A strong, efficient and regularly updated legal and regulatory framework, a dedicated nuclear security authority with proper resources and deeply rooted effective nuclear security culture at all levels and in all organizations are all important elements of a nuclear security regime.

Regarding nuclear material accountancy and control, a facility's NMAC system serves both a safeguards and a nuclear security function, and must be coordinated accordingly. Some States are already operating a well defined NMAC for nuclear security functions, and these capabilities could be extended to other radioactive material. It is recognized that NMAC capability is a key pillar of a facility's nuclear security system and that it complements the physical protection system by helping to deter and detect possible misuse or theft of nuclear material.

On information and cyber security, cyber security was identified as a major evolving threat to nuclear facilities. IAEA guidance is to be used as a basis for the establishment of information and cyber security policy and programmes in Member States, but further development, including recommendations level guidance, is needed, specifically in areas such as cyber security regulation and cyber threat analysis. Consideration also needs to be given to the protection of nuclear security related information.

On interfaces between nuclear security and nuclear safety, States embarking on or expanding their nuclear power programme need to pay attention to the institutional arrangements that support the appropriate interface between safety and security in a manner that strengthens both.

It was recognized that the requirements and nuclear security systems and measures in place should be based on the State's current threat assessment and design basis threat, and the IAEA is urged to provide further assistance in this area (where needed) by further enhancing assessment methodologies as well as assisting States in their implementation. Also, the IAEA is urged to facilitate 'lessons learned' workshops for Member States that have participated in, or plan to participate in, a design basis threat workshop, and discuss improvements and legal or other actions adopted. The IAEA is urged to give due priority to promoting the risk informed, performance based approach and assist Member States in the development of their regulatory infrastructures in line with this approach.

The session participants recognized the value of IPPAS missions in assisting States to review and enhance their nuclear security regimes, expressed full support for IAEA efforts in further enhancement and expansion of this service to cover the security of radioactive material, associated transport and cyber security, and looked forward to IPPAS becoming the de facto norm in the near future.

The IAEA is encouraged to develop, with participation from Member States, common tools to effectively apply the IAEA's recommendations on transport security in a coordinated manner consistent with transport safety.

Participants encouraged the IAEA to develop communication tools, taking into account the protection of information.

CO-CHAIRS' SUMMARY[6] OF MAIN SESSION M5: RADIOACTIVE SOURCES AND ASSOCIATED FACILITIES

G. Emi-Reynolds
Ghana

B. Nsouli
Lebanon

INTRODUCTION

The co-chairs **G. Emi-Reynolds (Ghana)** and **B. Nsouli (Lebanon)** explained that the purposes of this main session were:

— To discuss the role of the Code of Conduct in guiding States to enhance the security of their radioactive material and to examine its 'fitness' for achieving the security of sources;
— To discuss techniques to allow States to better coordinate their efforts, both on a regional basis and via the IAEA;
— To discuss critical technical differences between applying security concepts for nuclear material and other radioactive material and to examine aspects of radioactive source security that differentiate it from the security of nuclear material and nuclear facilities;
— To look at specific cases and States currently implementing strategies for radioactive source security in use, storage, and transport;
— To explore the benefits of regional and bilateral cooperation and the IAEA's role in improving source security.

As background to the session, the co-chairs identified key notes/messages from the Ministerial Declaration which apply to radioactive source security, and potentially to this session:

[6] The opinions expressed in this summary — and any recommendations made — are those of the participants and do not necessarily represent the views of the IAEA, its Member States or the other cooperating organizations.

— The Ministerial Declaration encourages "all States to maintain highly effective nuclear security, including physical protection, for all nuclear and other radioactive material, their transport, use and storage and their associated facilities, as well as protecting sensitive information and maintaining the necessary nuclear security systems and measures to assess and manage nuclear security effectively."
— This Main Session (M5) discusses topics specifically related to "other radioactive material, their transport, use and storage and their associated facilities."
— Further, the declaration affirms "the central role of the IAEA in strengthening the nuclear security framework globally and in leading the coordination of international activities in the field of nuclear security, while avoiding duplication and overlap".
— The Ministerial Declaration takes "note of existing regional initiatives in nuclear security and encourage[s] States to promote such initiatives where these can contribute to improving the coordination and sustainability of national and global efforts to enhance nuclear security." This subject was repeatedly mentioned in Technical Session TA4 as a means to promote and enhance radioactive source security.
— By urging "the IAEA to continue developing and publishing nuclear security guidance, and encourage all States to take the guidance into account, as appropriate, in their efforts to strengthen and continuously improve their nuclear security" the Ministerial Declaration confirms the support of the Working Group on Radioactive Source Security for the efforts of the IAEA with regard to providing and promoting guidance for radioactive source security.
— States which have not yet made a political commitment to implement the non-legally-binding Code of Conduct and supplementary Guidance on the Import and Export of Radioactive Sources are encouraged to do so and all States are urged to implement these instruments and to maintain the effective security of radioactive sources throughout their life cycle.

INVITED PAPERS

R. Czarwinski (Germany) presented a paper in which she discussed the history, scope and applicability of the Code of Conduct, which is the primary international instrument for the security of high level sealed radioactive sources. She discussed some of the key provisions of the code, including the call for States to establish a regulatory infrastructure that includes regulations for the security of

radioactive sources and controls on the import and export of sources and to take steps to ensure adequate security of sources at the end of their useful lives.

Ms. Czarwinski also raised some key questions for consideration:

— Given the prevalence of sources worldwide, should the status of the code be elevated to that of a legal convention? She described how this question has been and continues to be explored, but stressed that it requires a very careful legal analysis and assessment of the advantages and disadvantages.
— Is the code fit for its intended purpose? That is, does it provide the necessary framework for ensuring that States have the appropriate system of regulatory controls in place to manage high level sources within their territory, and for ensuring that they will be adequately secured prior to authorizing an export? She concluded that the code, along with its supplementary guidance, used in conjunction with other tools of the IAEA (IRRS and IPPAS missions) does provide a sound infrastructure for source security. The voluntary political commitment made by 117 States to date was an indication of States' support for source security as well as the 'fitness' of the tool.

A. Shakoor (Pakistan) summarized the international guidance for radioactive source security, from the Code of Conduct to the IAEA's Nuclear Security Series. The code recognizes that the role of the IAEA is to:

> "continue to collect and disseminate information on laws, regulations and technical standards relating to the safe management and secure protection of radioactive sources, develop and establish relevant technical standards and provide for the application of these standards at the request of any State, inter alia by advising and assisting on all aspects of the safe management and secure protection of radioactive sources".

The IAEA's Nuclear Security Recommendations on Radioactive Material and Associated Facilities (IAEA Nuclear Security Series No. 14) are consistent with and complement the provisions of the Code of Conduct and the supplementary Guidance on the Import and Export of Radioactive Sources. States are using IAEA Nuclear Security Series No. 14 for the establishment, management and sustainability of their nuclear security regimes for radioactive material and associated facilities and activities, and the IAEA provides assistance, if requested. Additional IAEA Nuclear Security Series publications may need to be developed, including implementation and best practice guides.

Mr. Shakoor noted that regional and international meetings and workshops provide further guidance to States and provide a forum for sharing best practices and experiences. Pakistan was asked about its experience in the implementation of international guidance for the security for radioactive sources and shared a number of initiatives, including the current work to establish its regulatory framework; human resource development; measures being taken to upgrade security; and participation in international forums such as IAEA activities. Overall, Pakistan is developing a stringent, comprehensive source security programme covering production, transport, use, further disposal and accounting of all sources within a database maintained by the regulatory body.

A. Dela Rosa (Philippines) discussed how regional cooperation has enabled Member States in the Asia-Pacific region to meet their commitments to the Code of Conduct, resulting in a higher level of safety and security of radioactive sources. She stressed that a key role of the IAEA was providing assistance for capacity building and guidance. She also noted that regional cooperation in the Asian region brings together IAEA Member States and serves as a forum to discuss common issues on the security of radioactive sources, such as the formulation of national regulations and their implementation, security during the transport of radioactive sources, combating illicit trafficking across borders, radiation detection techniques, radiological crime management by frontline officers and human resource development. A proposed Association of Southeast Asian Nations (ASEAN) Network of Regulatory Bodies on Atomic Energy is envisioned to serve as a forum for the exchange of information on best practices among the nuclear regulatory bodies of ASEAN members and for enhancing cooperation and developing national capacities in nuclear safety, security and safeguards in ASEAN countries.

Ms. Dela Rosa also emphasized that ensuring the sustainability of nuclear security efforts should be an important element of regional cooperation. To sustain effective nuclear security for the long term, users of nuclear and radioactive material must commit the needed financial and personnel resources; the government must provide a complete regulatory framework and regulations as well as effective enforcement of those regulations. It is equally important to avoid duplication and to coordinate all efforts.

C. Elechosa (Argentina) described how an effective legal framework is essential to ensure and facilitate the secure transport of radioactive material, recognizing that sources are most vulnerable during transport. The user organization must demonstrate to the competent authority that the technical means employed meet the security objectives proposed by State standards. The regulatory body's objective related to security is to prevent, with a reasonable degree of certainty, the theft, robbery, removal or dispersion as a malicious act, or unauthorized use of nuclear material, or sabotage or intrusion of outsiders in

nuclear facilities or during transport, which may generate severe radiological consequences due to their radioactive inventory.

He explained that only the transport of Category 1 sealed sources must be carried out under security provisions according to national regulations, which ought to be commensurate with the risks associated with the conditions of each transport. Before the transport of Category 1 radioactive sources, consignors must submit to the regulatory body a written security plan for transport, including satellite tracking systems, custody escort in their own vehicles, real time notification (of departure, arrival, and any relevant news related to security that may occur during the journey); a person responsible for security designated by the consignor and a contact phone number. The regulatory body performs inspections and regulatory audits of consignors, carriers and other related users, and has implemented a database which stores all information relevant to the transport of radioactive material, as well as the corresponding security measures: consignor, security, responsible person, origin and destination of shipments, routes, type and amount of radionuclides, satellite tracking and custody company are examples of the information stored. At border crossings considered relevant, the regulatory body has given specific training courses in transport security aimed at customs personnel. This kind of course is also given periodically to other security forces.

J.-L. Lachaume (France) provided a comprehensive overview of the French regulatory system, including a description of the entities responsible for the security of sources; the licensing process and relevant legislation; procedures for tracking sources using the French national register; and inspection and enforcement actions. Also described were the mandatory return of sealed sources to suppliers and a financial security fund if businesses are no longer in operation.

He described recent upgrades to the system, such as on-line registration for source users and a new bill under consideration which would give France's nuclear safety regulator the responsibility for the protection of sources against malicious acts, two examples at the regulatory and State levels of how France is working to strengthen the security of sources on its territory. Mr. Lachaume made clear that even States with a long history of producing, supplying and using radioactive sources still have work to do to ensure the proper and effective implementation of the security principles in the Code of Conduct. It was noted that one of the strengths of the European Union's approach is the introduction of financial requirements to ensure proper management of disused sources. At the same time, it was also noted that many EU countries are only now developing regulations for the security of sources and he wondered if this is due to the lack of security provisions in the Council Directive 2003/122/Euratom of 22 December 2003 on the control of high level sealed radioactive sources and orphan sources.

In his presentation on the challenges of protecting radioactive sources, **F. Morris (USA)** explained that the security of radioactive sources and associated facilities is different from the security of nuclear material and nuclear facilities, and as a result of these inherent differences, source security should not be treated as 'nuclear security light'. There are numerous reasons, including the diversity of both their application and the organizations which use them, the primarily safety orientation of operators and regulators and limitations on resources at all levels, owing to which securing sources poses a tremendous challenge.

To overcome these challenges, Mr. Morris proposed a strategy of motivation, knowledge and resources. Here, the IAEA could play a key role, along with its bilateral partners. The delivery of source security awareness training; the development of specific training on subjects such as threat assessment; and the continued development of guidance for regulators to devise regulatory requirements are examples of collaborative efforts to motivate States, regulators and operators to protect sources. Once motivation and knowledge have been instilled, allocating the necessary resources becomes the third aspect of the overall strategy to provide for the security of sources in a practical and sustainable manner.

OUTCOME OF RELEVANT TECHNICAL SESSIONS

The plenary was advised by the rapporteurs from Technical Sessions TB3, TA4 and TB5 of the major conclusions and recommendations of these sessions relevant to the security of radioactive material and associated facilities.

Technical Session TB3 focused on threat characterization and assessment and the sharing of best practices in the transport of nuclear and radioactive material. Technical Session TB5 focused on the safety–security interface. These reports were also relevant to Main Session M5 and are summarized there. They are therefore not repeated here.

Technical Session TA4 focused on States' approaches for improving the security of radioactive sources through collaborative efforts and by sharing lessons learned. **R. Severa (Zimbabwe)** reported the main conclusions as follows:

— States are urged to consider the entire lifecycle of sources in order to develop their national infrastructure for the security of sources. In particular, disused sources are a critical issue for all States. A strategy for properly managing and securing disused sources is therefore important given their vulnerability to theft, loss or misuse. Each State needs a national

storage capability as an interim measure, regardless of the chosen long term strategy.

— A number of initiatives are currently being pursued to improve radioactive source security and emphasis is to be put on collaborative approaches (bilateral, multilateral and regional) as an effective way to develop security of source capabilities in a sustainable manner.
— The IAEA's Working Group on Radioactive Source Security is an important initiative for improving radioactive source security worldwide. By engaging stakeholders, be they assistance providers or recipients, multilateral organizations or industry, the IAEA is well placed to coordinate the sharing of information about activities and to work with Member States in the development of technical solutions.

The panel discussion invited the audience's comments on the challenges they face in source security. In particular, the following challenges were raised by many participants and panellists:

— Drafting, promulgating and implementing legislation and regulations on the security of sources continues to be a common problem for all countries.
— There is a perceived lack of threat awareness amongst source users that results in a negative impact on effective source security.
— Mobile and portable high level sources present a unique challenge, and efforts to address this concern, without compromising their utility and purpose, need to be a top priority.
— Generating sufficient motivation at all levels — national, regulatory and operational — to implement source security is critical and goes beyond a political commitment.

PANEL DISCUSSION

The focus of the panel was on the development of a comprehensive programme for the security of radioactive sources, and the panel comprised all of the invited speakers.

Much of the panel discussion involved the sharing of opinions on the status of the Code of Conduct as a non-binding agreement. Speakers on the subject expressed the opinion that the code, in its current form, has the commitment of 117 States and need not be elevated to a convention.

The Code of Conduct includes provisions for the protection of information and it was noted that guidance on security management and security plans is being

developed by the IAEA Secretariat, which would provide additional guidance on protection of information specific to radioactive material and associated facilities.

Panellists and participants recognized that regional, bilateral and international assistance has contributed to improving radioactive source security, particularly in south-east Asia. The IAEA was also recognized as a primary actor in this regard, and is urged to continue its role in providing guidance, training and advisory services to States.

Equally important to regional cooperation is the need for strong leadership within States to drive and sustain security efforts.

CONCLUSIONS

The co-chairs noted the following conclusions:

— The security of radioactive sources requires a similar level of effort, commitment and resources on the part of States and the IAEA to that of the Model Project initiative for safety, which started in the early 1990s with five Member States and was completed in 2004 with the involvement of nearly 100. INSSPs are a key vehicle for identifying and prioritizing the necessary steps.
— The Code of Conduct, in its current form, has wide acceptance as the primary instrument for the security of sources. In particular, the information exchange process under the code represents an opportunity for all States to undertake rigorous self-assessment and share their experiences in implementation of source security with others.
— To keep States engaged and committed to the provisions of the Code of Conduct, and to recognize the fundamental differences between radioactive source security and nuclear security, a strategy of motivation, knowledge and resources is suggested. All levels of staff should be reminded why sources need to be protected, and given the necessary training and guidance to implement source security. Practically speaking, resource allocation is an essential part of ensuring that sources can be adequately secured regardless of the application.
— While primary responsibility for security rests with the State, all stakeholders have a responsibility to ensure the security of radioactive sources. This includes the IAEA, bilateral programmes and, most importantly, States themselves.
— The IAEA in particular is urged to continue to play a central role in the development of guidance to assist regulators and operators in raising

awareness, and collaborating with other stakeholders in the provision of physical protection and security management measures.

— Taking a regional approach enhances working relationships at regional, national and local levels and encourages increased coordination and collaboration across borders. The success of any regional partnership relies on identifying leaders, be it States or organizations, as well as the engagement of personnel at all levels.

— Leadership is crucial, but it also needs to be recognized that there is a need for succession planning and institutional planning in order to sustain efforts. Just as there is a community for nuclear security, so there ought to be a radioactive source security community. It was recommended that this topic be included in the agenda of the next meeting of the Working Group on Radioactive Source Security.

CO-CHAIRS' SUMMARY[7] OF MAIN SESSION M6: INTERNATIONAL COOPERATION AND ASSISTANCE, AND THE ROLE OF THE IAEA

T. Countryman
USA

A. Farhane
Morocco

INTRODUCTION

The co-chair, **T. Countryman (USA),** welcomed participants to this plenary session, noting the importance of international cooperation and assistance in the context of nuclear terrorism, which he characterized as one of the gravest threats facing the world, particularly as a nuclear security event in one country or region can have devastating consequences across the globe. For this reason, international cooperation and assistance — particularly the work of the IAEA — are critical to deterring and addressing the possible outcomes of such dangers. He also noted that bilateral and regional engagement is essential to comprehensively address the shared threat of nuclear terrorism. The Nuclear Security Summits reaffirmed the IAEA's central role in global nuclear security and reinforced the principle that all States are responsible for ensuring the security of their material, for seeking assistance if necessary and providing assistance if asked. The coordination of international cooperation and assistance by the IAEA is imperative to reduce needless duplication and increase the effectiveness of essential programmes. Mr. Countryman noted that to facilitate multilateral engagement, all States must bolster existing institutions, such as the IAEA, to ensure that these organizations continue to have the appropriate structure, resources and expertise needed to carry out nuclear security related activities. We must also learn from experience and by sharing best practices and lessons learned.

The other co-chair, **A. Farhane (Morocco)**, outlined his expectation that this session would allow the conference to reflect on the development of the central role of the IAEA in international cooperation and assistance and

[7] The opinions expressed in this summary — and any recommendations made — are those of the participants and do not necessarily represent the views of the IAEA, its Member States or the other cooperating organizations.

the exploration of collaborative approaches between international initiatives in terms of synergies, complementarity and coordination. Key organizations and initiatives that provide vital forums for international cooperation and assistance on nuclear security contributed to this session. Representatives of the G8 Global Partnership; the Global Initiative to Combat Nuclear Terrorism; the European Commission; the 1540 Committee and the European Nuclear Security Regulators Association spoke of their role in international cooperation and assistance. National and regional perspectives on the benefits of international cooperation and assistance were also shared through presentations from representatives of Malaysia, the United Arab Emirates and the USA.

In addition to the oral presentations and panel discussion, the outcomes of Technical Sessions TA5 and TB4 made important contributions to this session. The co-chairs acknowledged the reports of the main conclusions from each Technical Session which are set out below.

INVITED PAPERS

K. Mrabit (IAEA) identified the mandate of the IAEA in relation to nuclear security in general and its role in international cooperation and assistance in particular. A number of key international legal instruments identify the IAEA as the appropriate mechanism through which information may be provided and exchanged. He emphasized that the decision by Member States to cooperate internationally in relation to nuclear security or to provide or receive international assistance in nuclear security is entirely voluntary. The IAEA has the central role of facilitating international cooperation and assistance at the request of Member States, as endorsed by, for example, the Ministerial Declaration and IAEA General Conference resolutions. Mr. Mrabit gave detailed information on a number of technical areas of nuclear security where cooperation and assistance, whilst voluntary, has strengthened and will continue to improve the nuclear security regime in Member States. He gave a detailed overview of IAEA programmes that assist with development, implementation, maintenance and ultimately the sustainability of each State's nuclear security regime. Mr. Mrabit responded to a question regarding the IAEA priority areas for 2014–2017 by advising that the outcome of this conference will be a key input to finalizing the plan. However, he noted that five main areas had already been identified as important: further development of the nuclear security guidance series, cyber security, nuclear forensics, training and education, and IAEA peer review and advisory services.

R. Hardiman (G8 Global Partnership) outlined the key priorities of the Global Partnership, including the need to target activities through efficient coordination and provide effective bridge and delivery mechanisms between the

2012 and 2014 Nuclear Security Summits. He noted that the Global Partnership has recently expanded its membership and has strategies to support States' implementation of United Nations Security Council Resolution 1540 obligations. He encouraged the IAEA to continue to enhance its INSSP programme as an aid to identify support needs, and he encouraged those Member States that have INSSPs and wish to request support from other Member States or the Global Partnership to agree to the sharing of appropriate information from the INSSP with proven partners so that donors could decide to provide support and activities can be coordinated.

G. Berdennikov (Russian Federation) gave a presentation on the Global Initiative to Combat Nuclear Terrorism (GICNT), which is co-chaired by the Russian Federation and the USA. Mr. Berdennikov discussed the recent achievements of the GICNT, noting in particular its successful plenary meeting in Mexico City in May 2013. He stressed that GICNT activities are undertaken in support of, and with regard to, the activities of the IAEA and that the GICNT hoped to develop similar synergies with other international organizations in order to reinforce collective efforts. Mr. Berdennikov noted that in the future, the GICNT would be increasingly focused on practical and actionable undertakings and engagements between GICNT partners. He described the three key thematic areas of GICNT work in nuclear detection, nuclear forensics and response and mitigation. He indicated that future work addressing the interrelationships between these technical communities is a new priority of the GICNT.

H. Mattli (ENSRA) gave a paper on the future direction of the European Nuclear Security Regulators Association (ENSRA). The Association was formed in 2004 as a forum for European nuclear security regulators to develop common ground and strengthen nuclear security in Europe. He described the plans for information sharing and for collaborative approaches to be developed among the members of ENSRA. He recognized the challenge of sharing security related information. Notwithstanding this, the activities of ENSRA have created an atmosphere where experience may be shared on important security related topics. ENSRA has an ambitious cooperation programme and it intends to look for projects that result in real harmonization and the setting of common goals in the security field for all members, and to facilitate the sharing of information amongst its members on a robust and flexible IT platform. In addition, ENSRA wishes to collaborate with the IAEA to harmonize the implementation of its nuclear security guidance across its membership.

S. Al Kaabi (United Arab Emirates) gave a paper on behalf of the United Arab Emirates, setting out the experience of an embarking country and the lessons learned in establishing a nuclear security infrastructure when developing a nuclear power programme. The development and implementation of a national nuclear regulatory framework in the United Arab Emirates, in close

collaboration with the IAEA, was a significant step in that development process. He also outlined a number of its bilateral government–government cooperative arrangements which enable the United Arab Emirates to obtain scientific and technical information from other countries and to acquire material and equipment. The United Arab Emirates have also established a high level group of international experts, the International Advisory Board, to review and advise the United Arab Emirates Government on progress in achieving and maintaining its nuclear policy objectives. He emphasized the role of the IAEA in providing review and assistance services to the United Arab Emirates in the context of their nuclear power programme in particular. Through extensive collaboration with the IAEA and the regulatory bodies and experts in partner States, the United Arab Emirates was able to develop an effective legislative and regulatory framework.

Raja Abdul Aziz Raja Adnan (Malaysia) described the situation of a small Member State without a civil nuclear power programme but which faces serious challenges in nuclear security as a consequence of its geographical location and its role as a key trading country. Malaysia recognized that the appropriate lead agency for nuclear security is the National Security Council, as it has responsibility for overall security, including nuclear security, and could bring together all relevant agencies and ensure coordination and communication between them. He identified this as a good practice. Mr. Adnan believes that a regional approach is the key to the sustainability of national nuclear security infrastructure. He noted the need to prioritize key areas of nuclear security when a Member State is faced with limited resources. He noted the importance of integrating and coordinating all international assistance to maximize the benefits from it both nationally and regionally.

OUTCOME OF RELEVANT TECHNICAL SESSIONS

The plenary was briefed by rapporteurs from Technical Sessions TB4 (on education and training) and TA5 (on structured capacity building) on the conclusions and recommendations arising from each session.

In relation to education and training, **J. Sterba (Austria)** reported the following conclusions from Technical Session TB4:

— The participants recognized a fundamental challenge to nuclear security in that it is multidisciplinary and requires experts from several different disciplines in order for it to be successfully established and implemented. The participants endorsed the concept that developing competence in people through education and training reinforces sustainable social,

economic, technical and cultural growth related to security measures that prevent, detect and respond to malicious acts.

— The participants supported the IAEA's national NSSC concept as a model application that can contribute to the establishment and distribution of financial and physical resources within a country. The NSSC concept urges the utilization of all available resources within the national competent authorities to implement the national training programme, promote closer cooperation and ties between the authorities and optimize the availability of resources to preclude the need for significant additional resources. A key benefit is that an NSSC not only develops experts within the relevant agencies, but also promotes the use of experts as regional resources for the purpose of sharing experienced personnel and best security practices.
— The participants commended the INSEN to all educational institutions to promote excellence in nuclear security education in pursuit of the identified need for highly qualified nuclear security professionals. An extension of this commendation is support for further implementation of professional development courses for academic faculty, employing a train-the-trainer approach.
— The participants recommend periodic review and revision of IAEA guidance on educational programmes to incorporate lessons learned and best practices from activities such as professional development courses, degree programmes, pilot courses and research. A particular gap in the integration of cyber security with nuclear security was identified.
— The participants recommended that the IAEA and Member State representatives to the networks collaborate more closely in the future to ensure that material developed for education and training are made available appropriately, in a timely manner and translated into key languages to overcome a major barrier to the use of the material.

In relation to structure capacity building, **I. Soufi (Morocco)** reported the following conclusions from Technical Session TA5:

— The participants recognized the value of the IAEA's INSSPs in assisting States to apply a structured and systematic approach to nuclear security capacity building.
— The participants encouraged the IAEA to continue the development, at the request of States, of INSSPs through which States can methodically identify their nuclear security needs and request international assistance to fulfil those needs, as well as to establish a programme to review INSSPs at regular intervals for relevance and adequacy.

— The participants welcomed the opportunities for States to share experience and best practices in developing and implementing INSSPs, especially on how to ensure effective cooperation and coordination between national stakeholders involved in nuclear security efforts. The participants recommended that the IAEA organize future events for experience sharing on the development and implementation of INSSPs, in particular at the regional level.
— The participants acknowledged that the IAEA's INSSPs and other capacity building initiatives and programmes developed by Member States, intergovernmental and non-governmental organizations — especially those with regional and/or international implications — contribute to global efforts in establishing and maintaining an effective nuclear security culture in States.
— The participants encouraged the application of lessons learned from recent initiatives to the continuous development of international support for capacity building, with an emphasis on education and training, to further promote nuclear security culture in States. Advanced methodologies such as role playing exercises were recognized by the participants.

PANEL DISCUSSION

The panel focused on regional and bilateral cooperation and assistance, and included the invited speakers and three additional experts. Mr. Farhane made a presentation on the interaction of Morocco with international initiatives and organizations. Panellists from the European Union (**S. Abousahl**), the United Nations Security Council 1540 Committee (**B. El Oumni**) and the USA (**S. Limage**) focused on their respective programmes in support of nuclear security and each noted that regional and bilateral cooperation and assistance can serve their key strategic interests as well as strengthen regional and national nuclear security infrastructure, and may facilitate the sharing of resources and capacity building. The caveat in all cases was the appropriate protection of sensitive information and respect for national security considerations and national sovereignty in nuclear security. Nevertheless, it was agreed that a global threat requires global, regional and bilateral solutions, and the central role of the IAEA in strengthening the nuclear security framework globally and in coordinating international activities in the field of nuclear security was reaffirmed.

RECOMMENDATIONS AND CONCLUSIONS

The co-chairs noted the following conclusions from the session:

— Nuclear security is a national responsibility.
— States are becoming increasingly aware of the need for bilateral, regional and international engagement on this issue.
— Because of this growing awareness, opportunities for States to work bilaterally, regionally and globally to develop and enhance their capability to detect, assess and respond to nuclear security events are multiplying.
— International cooperation and assistance needs to be coordinated and prioritized, and the IAEA is urged to continue to facilitate cooperation in supporting the efforts of States to fulfil their responsibilities to ensure the nuclear security of civilian nuclear and other radioactive material.
— International cooperation, including bilateral and regional activities, can help partner countries develop and practice the necessary mechanisms that will enable ready and accurate communications, both nationally and internationally.

On this basis, this plenary session recommended that:

— States be encouraged to participate in the various activities of international organizations and initiatives that seek to promote the preparation of national capabilities to respond to nuclear security threats.
— States continue to promote formal education programmes at the tertiary level as well as training and certification programmes to create structured and sustainable capacity building.
— The IAEA continue to act as an accepted global platform from which nuclear security guidance, best practices, information, education and training can be developed and shared.
— The IAEA continue efforts to develop its guidance publications and, in particular, seek to make them adaptable to particular national and regional requirements and interests.
— The IAEA continue efforts to encourage the exchange of information between international organizations and initiatives with the aim of encouraging coordination in the development of activities that build upon and reinforce collective efforts.
— The IAEA serve as a facilitator for international cooperation and assistance and coordination that promotes the safe, secure and peaceful use of nuclear energy.

— The IAEA promote international peer reviews based on IAEA Nuclear Security Series guidance, to identify priorities for nuclear security infrastructure development in the key areas of prevention, detection and response.
— The IAEA strengthen further collaborative efforts with other international assistance programmes to optimize the available resources, prevent duplication, harmonize approaches and complement the assistance provided.

CO-CHAIRS' SUMMARY[8] OF MAIN SESSION M7: BUILDING AND SUSTAINING A NUCLEAR SECURITY CULTURE

E. Bonnevie
France

M. Senzaki
Japan

INTRODUCTION

The co-chairs, **E. Bonnevie (France)** and **M. Senzaki (Japan)**, opened the session by thanking the speakers and attendees for their participation. Mr. Senzaki then focused on IAEA Nuclear Security Series No. 7 (NSS 7), the IAEA's implementing guide on nuclear security culture, which contains practical, experience based guidance on how to build and sustain a nuclear security culture. The guide addresses a culture which not only permeates the security staff working at a nuclear and/or other radiological facility, but is recognized and accepted by all employees and contractors at such facilities. It stresses the importance of capacity building through focused training and initiatives designed to create sustainability.

The purpose of the session was to emphasize the importance of a robust nuclear security culture as an essential component of a State's nuclear security regime as recognized in the Ministerial Declaration adopted earlier at the conference. The speakers all contributed to exploring all the contributing factors to building and maintaining an effective nuclear security culture at State, facility and individual levels, highlighting the specific challenges in increasing the level of knowledge and ensuring effective and proportionate security. The session also considered the effectiveness of education and training to overall capacity building, as well as lessons learned from recent events related to nuclear security. Considerations of the contributions of others were addressed, such as technical support organizations and non-governmental organizations, and how they could be harnessed more effectively.

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[8] The opinions expressed in this summary — and any recommendations made — are those of the participants and do not necessarily represent the views of the IAEA, its Member States or the other cooperating organizations.

INVITED PAPERS

D. van den Berg (Netherlands) spoke on human capacity building in nuclear security. Nuclear security continuously calls for professionals who are familiar with established approaches and challenged by innovations and state of the art developments in the associated technology and procedures. The constant loss of qualified personnel due to career development, retirement and administrative changes negatively affects a State's readiness to carry out nuclear security tasks effectively. At the same time, technology and procedures are evolving at an increasing pace with the introduction of new equipment and techniques. The European Commission has supported the realization of a Master's course in nuclear security within the commission's Lifelong Learning Programme. The realization of the course is coordinated by the Delft University of Technology in a consortium with other institutions and with further support from the IAEA and INSEN.

The objective of the Master's programme is to educate participants to be nuclear security managers and, ultimately, to improve the quality of nuclear security management in the practice by extending the scientific frontiers of the field. The two year programme started with a pilot course in 2013, and a regular course is envisioned to start in 2014. Mr. van den Berg also referred to a new initiative launched in 2013 at Delft University of Technology, namely the realization of a Safety and Security Institute. This is an interfaculty institute dealing with research and education on safety and security in a variety of disciplines such as internet/cyber security, transport and mobility, water, grids and infrastructure, health and patient safety, the chemical industry, climate and, of course, nuclear security.

T. Fanghänel (European Commission Joint Research Centre (JRC)) presented a paper on the roles of a nuclear research institute in identifying and addressing nuclear security needs. The Joint Research Centre's Institute for Transuranium Elements (JRC-ITU) benefits from long standing experience in handling and measuring nuclear material, complemented by a significant tradition in research and development activities for safeguarding nuclear material and by two decades of close involvement in nuclear security activities. They have developed tools for enhancing nuclear security, which requires a multidisciplinary skill set. The spectrum of technical development activities of the JRC-ITU includes surveillance techniques, detection techniques, nuclear forensic methods and tools for trade analysis and export control. Three dimensional (3-D) imaging capabilities were initially used in nuclear safeguards for applications such as design information verification. More recently, it was realized that 3-D data also provide valuable input to nuclear security applications and the necessary adaptation of technology is under way. Three dimensional data can be used for

surveying and 3-D mapping of large areas; it provides improved situational awareness (e.g. in command and control tools); supports the fusion of multiple sensor data and integration of virtual objects (augmented reality) and allows the detection of structural changes.

A large effort to improve capabilities for the detection of illicit trafficking is ongoing at many research centres throughout the world. The main outstanding problems relate to the detection of shielded material (especially HEU), discrimination between false and genuine alarms and the alternative neutron detection techniques. The JRC-ITU carries out investigations relevant to the detection of shielded nuclear material on active neutron interrogation techniques at the PUNITA (Pulsed Neutron Interrogation Test Assembly) facility in Ispra.

The training of front line officers in nuclear detection is an important aspect of nuclear security. The JRC has been providing training courses at the Ispra site since 2009. These training activities have been integrated in the broader scope of the European Nuclear Security Training Centre (EUSECTRA). EUSECTRA complements national training efforts by providing realistic scenarios with real nuclear material. EUSECTRA also serves as a platform for experts to share best practices in their respective fields. Moreover, it supports the development of partnerships and of networks of experts.

Khairul (Indonesia) spoke on nuclear security culture in practice, drawing upon experience from the National Nuclear Energy Agency of Indonesia (BATAN). With many ongoing programmes in place and several agencies involved, one highly important element missing was an understanding of human factor reliability and security culture throughout Indonesia's nuclear security infrastructure. BATAN has promulgated nuclear security culture at all levels with reference to international guidance. In 2010, Indonesia set up the National Counter-Terrorism Agency (NCTA), which collaborates with national counterterrorism stakeholders and coordinates counterterrorism efforts nationwide.

As a next step in promoting and improving nuclear security culture, the IAEA has been working with a group of international experts to develop and implement a robust methodology for self-assessment at nuclear facilities. This methodology will provide national authorities and facility management with benchmark information on the status of nuclear security culture, and later for the development of a set of measures to fill the identified gaps. BATAN's self-assessment of nuclear security culture at its three nuclear research reactors was the first attempt to test the emerging IAEA methodology. This self-assessment pilot project has yielded BATAN significant and tangible results. It offered not only an assessment of the status of security culture at three research reactors, but also a learning experience for the management and the workforce. There are certainly some gaps and inconsistencies in the current text that require further

improvements, and BATAN is prepared to continue cooperation with the IAEA to make future guidance a user friendly tool. BATAN is establishing a baseline for future nuclear security culture evaluation. In this sense, the pilot project was just the first step forward.

Kwan-Kyoo Choe (Republic of Korea) presented experiences from the nuclear security centres of excellence (CoEs) in north-east Asia, and particularly the collaboration between centres in China, Japan and the Republic of Korea. The establishment of CoEs for nuclear security and nuclear non-proliferation in north-east Asia could accelerate the dimension of reciprocal interdependence. Even though each country is setting up its own programmes and courses, they could also address areas of common interest through the sharing and exchanging of information, programmes and lecturers. Each CoE aims to strengthen domestic capabilities, by helping to deepen nuclear security culture and capacity building in reinforcing national nuclear security systems. The collaboration between three CoEs in north-east Asia could lead to a more cooperative approach to nuclear security in this region, reflecting the essential values — peace and reciprocal interdependence — referred to in the three countries leaders' statements. Nuclear security could find its universal value in connection with peaceful uses of nuclear energy via its contribution to strengthening uses of nuclear material and facilities which are safe, secured and safeguarded against terrorism, natural disaster and lack of safe operation and management. The value could be internalized, given shape and reinforced through the collective efforts of CoEs for nuclear non-proliferation and security education and training.

A. Harrington (USA) presented a paper on confronting the challenges of nuclear security, particularly that of sustaining nuclear security systems and measures. She stressed that security — even in a state of the art facility with highly advanced detection technology — is only as good as the people and processes that are in place. The security of any organization is constantly changing, because equipment gets old and starts to fail, because people change and make mistakes, and because the threat is always adapting and may show up in an unexpected form. People sometimes prepare for the wrong threats. It is quite usual to model armed attacks at multiple points along a perimeter, but how good are preparations to confront peaceful intruders? Being more inclusive and creative in how threat scenarios are modelled is necessary.

She emphasized the need to develop a questioning attitude and go into detail. A strong organization that is committed to continuous improvement needs to develop a workforce that promotes a degree of scepticism and a questioning attitude. Communication is also critical. Open communication is an absolute requirement. If the leaders of an organization send signals that they do not want to hear about problems, that the focus is on making "everything a green light", then that is all they will see — "everything green" — but this will be an illusion.

The key lesson she wanted to share on the sustainability of systems and measures designed to ensure nuclear security, was that technology and processes alone cannot be relied upon. Effective leadership and continuous management are key.

OUTCOME OF RELEVANT TECHNICAL SESSIONS

The plenary was advised by the rapporteurs from Technical Sessions TB4 and TA5 of the major conclusions and recommendations relevant to this main session. These reports were also relevant to the previous main session and are summarized there; they are, therefore, not repeated here.

PANEL DISCUSSION

The panel, made up of all the invited speakers, addressed comments and questions from the participants.

From the panel discussion, there was wide agreement on the need for a robust nuclear security culture in a State that encompasses all bodies or entities with responsibility for nuclear security. Of particular interest was the importance of education and training and the tools that are provided by the IAEA to its Member States to support the continuous development of human resources, of the various elements of their nuclear security regimes and of a vitally important nuclear security culture.

A key discussion ensued among the panel and the participants when a question was raised about which is more important for a Member State: performing self-assessments of nuclear security culture or seeking continuous improvement of nuclear security culture. Most participants thought that the two activities are definitely linked and that continuous improvement of nuclear security culture is better achieved through knowledge and assessment of nuclear security effectiveness.

Nuclear security culture was discussed from several different perspectives including contractor employees, regulators and site operations. An important consideration is determining appropriate motivations for employees to support nuclear security culture at all levels of an organization. Although money can be a strong motivator, small personal acts of recognition are also meaningful and can be influential in making individuals feel part of the organization. Although there may be differences in culture between regulators and operators, knowing what is important and having management commitment first encourages the rest of the staff to also commit to nuclear security.

CONCLUSIONS

The co-chairs noted several important recommendations and conclusions from the session. The session endorsed the conclusions from the technical sessions summarized during Main Session M8 and also stressed the following:

— The constant loss of qualified personnel due to career development, retirement and administrative changes negatively affects a State's readiness to carry out nuclear security tasks effectively. At the same time, technology and procedures are evolving at an increasing pace with the introduction of new equipment and techniques.
— A key lesson for participants on the sustainability of systems and measures designed to ensure nuclear security was having effective leadership and continuous management and not relying solely on technology and processes.
— Participants urged one another to be more inclusive and creative in modelling and assessing threats and to not make any assumptions. The various threats are always adapting and looking for vulnerabilities and may present themselves in an unexpected form.

CO-CHAIRS' SUMMARY[9] OF MAIN SESSION M8: ADDRESSING THE ILLICIT TRAFFICKING THREAT

R. Duiven
Netherlands

C. Hinderstein
Nuclear Threat Initiative

INTRODUCTION

Introducing the session, the co-chairs **R. Duiven (Netherlands)** and **C. Hinderstein (Nuclear Threat Initiative)** stressed that, for nuclear and other radioactive material out of regulatory control, a coordinated and cooperative approach involving national competent authorities at the national and regional levels will be required to introduce, maintain and sustain measures to prevent, detect and respond to illicit trafficking of that material, including the conduct of investigations and the bringing of those responsible to account in an appropriate criminal justice system. However, the number and diversity of national competent authorities involved in addressing the threat of illicit trafficking in this material makes achieving effective coordination extremely challenging.

Adequate nuclear security involves the inclusion of all entities in a State, including those which are outside of the traditional IAEA constituency, in the planning and execution of nuclear security programmes. These include customs officials, medical facility administrators, border guards and other law enforcement agencies.

As background to the session, paragraphs 2, 4, 14, 15 and 20 of the Ministerial Declaration were noted.

INVITED PAPERS

R. Wesley (IAEA) and **M. Wallenius (JRC)** gave a joint presentation related to ongoing and future efforts to enhance the IAEA's Incident and

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Trafficking Database (ITDB) from the perspectives of the IAEA and the JRC of the European Commission, respectively.

Enhancing the ITDB is an identified challenge facing an international community committed to improving global nuclear security. In order to accomplish this task, both the IAEA and ITDB State participants must work in close cooperation and in a mutually supportive manner. The ITDB Secretariat at the IAEA has been developing internal plans for enhancing the ITDB in the mid-term (2014–2017) and the active support of State participants will be essential to fulfilling strategic objectives. One example of States taking a proactive approach to enhancing the ITDB is a project managed by the JRC-ITU in support of the EU Chemical, Biological, Radiological and Nuclear Defence (CBRN) Action Plan (2009). This project seeks to undertake an assessment of the ITDB and provide specific recommendations to EU states and the IAEA on future enhancements to the ITDB programme.

The JRC-ITU is completing a European Commission project on the assessment of the ITDB, started in December 2011, in which they have closely collaborated with the IAEA's Office of Nuclear Security to ensure that the work will have the largest possible acceptance also outside of the EU. As part of this task, EU states were surveyed on their experience with the ITDB. Though the ITDB was recognized as being a very useful tool for the exchange of information on incidents, there were still issues to be improved or further developed, according to the states. In particular, points of contact felt that increased support from the IAEA in terms of better communication, more instructions, training of new points of contact, regional meetings, outreach and assistance, would be helpful in fulfilling their tasks. Also, reporting by the points of contact might be further improved, for example, in relation to timeliness, completeness, 'asymmetric' reporting, follow-up and reporting commensurate with the significance of the incident. However, it was acknowledged that these issues are often related to national circumstances and result from arrangements or decisions which are beyond the control of the point of contact. Work has progressed on the drafting of a best practice guide for ITDB Points of Contact. The guide will help them in their submission of incident reports.

T. Matikas (Greece) provided a presentation concerning the legal and regulatory framework related to the prevention of illicit trafficking. In order to establish, implement, maintain and sustain an effective and appropriate nuclear security regime to prevent, detect and respond to nuclear security events, the legal and regulatory framework in the context of the prevention of illicit trafficking could not be viewed in isolation. It is essential to integrate legislative and regulatory provisions for the prevention of illicit trafficking in the context of the prevention and detection of, and the response to, criminal or unauthorized acts involving nuclear and other radioactive material out of regulatory control. To

address the problem of illicit trafficking of nuclear or other radioactive material through legislation and regulation, it would be useful to survey whether the existing international legal framework is being effectively implemented by States. Such a review would certainly contribute towards the development of integrated national legal and regulatory frameworks and would lead to strengthened nuclear security regimes, and in particular, the prevention of illicit trafficking globally.

A. King (INTERPOL) gave an overview of INTERPOL's efforts to combat illicit nuclear trafficking. He described cooperation with the IAEA, including INTERPOL's Project Geiger, that focuses on collecting, collating and analysing information on illicit trafficking and other unauthorized activities involving nuclear or other radioactive material out of regulatory control. The analytical products that are published are highly valuable to both the international law enforcement community and other international organizations working to prevent radiological nuclear crimes. As of 28 May 2013, there were 2987 incidents in the Project Geiger database.

Part of the support offered by INTERPOL is its development and delivery of a chemical, biological, radiological, nuclear and explosive countermeasures programme, which was piloted in Jordan as a collaboration between INTERPOL and the EU CBRN Centre of Excellence for that region. INTERPOL has also introduced its I-24/7 system for accessing key information relevant to cases. This system has fundamentally changed the way the global law enforcement community works together. It enables investigators to access INTERPOL's cutting edge tools and to make connections between seemingly unrelated pieces of information, thereby facilitating investigations and helping to solve crimes. A dedicated I-24/7 support centre, staffed by highly skilled technicians, offers round the clock tailored assistance to first level users. INTERPOL notices are international requests for cooperation or alerts allowing police in member countries to share critical crime related information. A green notice provides warnings and criminal intelligence about persons who have committed criminal offences and are likely to repeat these offences in other countries. INTERPOL's Operation Fail Safe addresses non-State actors and was implemented to generate the issuance of INTERPOL Green Notices regarding individuals involved in the smuggling of nuclear or other radioactive material. Upon query by law enforcement officials at border crossings or other locations, an alert will be generated in response to the query based upon the green notice.

E. Melamed (USA) provided a presentation on developing and sustaining effective border controls from the perspective of the US National Nuclear Security Administration. Developing and sustaining effective border controls for global defence to combat nuclear security threats is a complex challenge. However, the strategic deployment of initiatives, procedures and technology augmented by trained personnel and operational capabilities at critical border sites worldwide

is crucial to the global nuclear detection architecture and bolstering momentum in the fight against the illicit trafficking of nuclear and other radioactive material, dual use and other controlled material, and commodities and related technologies in line with the international political agenda. Collaborative methodologies, focused on the need to build indigenous capacity at borders, help to fortify and link sites, States and regions to form a layered network focused on nuclear security deterrence, detection and interdiction activities. The international community's shared concern for global nuclear security is evident in agreements and other binding obligations such as United Nations Security Council Resolution 1540. Implementing the requisite counterproliferation capacity building measures includes effective border controls responsive to the illicit trafficking of nuclear and other radioactive material, dual use and other controlled material, and commodities and related technologies. Because of the dire consequences, the smuggling of these types of material and related technologies are unique among the other security threats encountered at borders. Interdiction rates must be exceedingly high as a single viable special nuclear smuggling network connecting sellers to end users is an extremely serious global security risk. There is evidence that illicit trafficking continues and it is thus imperative to continue border control efforts.

K. Mayer (JRC) spoke on the management of expectations in nuclear forensics. Nuclear forensics has developed from the ad hoc application of material characterization techniques to a full scientific discipline aiming at understanding correlations between measureable parameters and the process history of the material. Comprehensive chemical and physical analyses of many samples of nuclear material have been carried out in order to develop such signatures and to establish appropriate methods. Development work in the laboratory is tedious and both time and resource consuming. The expectations on the reliability of nuclear forensic investigations and on the comprehensiveness of conclusions have grown rapidly. While nuclear forensics continues to be developed and further perfected, it should also be realized that the threat has evolved. It should also be kept in mind that, since 1993, fewer than 60 incidents involving nuclear material have been subject to comprehensive nuclear forensic investigations. These were, however, the high profile incidents which attracted the attention not only of the competent authorities but often the interest of the media, and raised the already high expectations associated with nuclear forensic investigations. The increasing number of scientific publications on issues related to nuclear forensics document the steadily growing interest in this subject. It also serves as proof of the significant progress in the development, validation and implementation of new or improved tools and methods.

The findings of nuclear forensic analyses primarily serve to support investigations in the context of a nuclear security event, such as illicit trafficking

of nuclear material or malicious use. Publications in peer reviewed scientific journals and presentations at conferences are essentially meant for exchanging the results of recent research work within a community of experts, possibly also with a wider community. Beyond that, the publication of the outcomes of development efforts or of case work is a powerful demonstration of the capabilities of nuclear forensic science. This certainly has a deterrent effect for potential perpetrators.

M. Curry (USA) provided a presentation related to the topic of interagency cooperation in the context of enhancing national and international efforts to strengthen nuclear security. Mr. Curry emphasized that interagency cooperation is critical for governments to successfully address nuclear and radiological illicit trafficking threats and that the international community should consider reviewing interagency cooperation mechanisms and consider new ones to address this lingering transnational threat. Mr. Curry's presentation sought to address three questions: (1) what is the threat; (2) how do national governments organize themselves against it; and (3) what goals should national governments pursue?

OUTCOME OF RELEVANT TECHNICAL SESSIONS

Reports were received from the rapporteurs of Technical Sessions TA6 (Mohd Shaharudin bin Baharom (Malaysia)), TA7 (S. Fendrich (USA)) and TB7 (M. Reinhard (Australia)). TA6 and TB7 addressed aspects of detection and response architecture and TA7 discussed nuclear forensics.

Mohd Shahrudin bin Baharom (Malaysia) presented conclusions from Technical Session TA6, as follows:

— Current efforts by the IAEA Secretariat ought to continue in promoting and implementing a strategic approach (from appropriate legal provisions, national coordination, through threat assessment based detection and response strategy to sustainability planning) to assisting Member States in establishing their nuclear security detection and response architecture.
— It is recommended that technical guidance be issued by the IAEA Secretariat on various aspects pertaining to the detection and response architecture domain, such as the sustainability of such architecture, mobile detection system applications, detection and response approach to unofficial border crossing points ('green' borders).
— Current efforts by the IAEA Secretariat ought to continue to promote and foster coordination and cooperation in detection and response among Member States at the regional and international levels.

— Coordination with other international assistance programmes ought to continue in implementing complementary detection and response projects for the Member States concerned.
— Efforts by the IAEA Secretariat ought to continue to ensure funding for the provision of equipment and appropriate training, through bilateral and multilateral arrangements, to Member States with justified needs of assistance.
— The session recognized the leading role of the IAEA Secretariat in identifying potential areas of synergy between combating illicit trafficking and strategic trade control.
— There is an identified need to institutionalize detection and response training in customs and border control academies so that all graduating officers acquire proper understanding and familiarity with detection and response architecture and the importance of their role in combating illicit trafficking. The IAEA is urged to formally approach the World Customs Organization to instigate this in a systematic manner.

M. Reinhard (Australia) presented conclusions from Technical Session TB7, which focused on nuclear security detection and response architectures during major public events, and on research and development activities on detection technologies. The overall conclusions from Technical Session TB7 were as follows:

— Participants recognized the efforts by the IAEA in issuing several recent, and very relevant, IAEA Nuclear Security Series publications that support the establishment and sustainment of effective nuclear security detection and response architectures. The IAEA Secretariat is urged to continue to promote and implement a strategic approach to assisting Member States in the establishment of their nuclear security detection and response architectures through the publication of further technical guidance, peer review and advisory missions, specific projects and implementation of projects such as training for front line officers and experts in the nuclear security field.
— The IAEA Secretariat is urged to continue to promote and foster coordination and cooperation in detection and response projects for border security and security at major public events among Member States at the regional and international levels.
— The IAEA Secretariat is urged to continue to ensure funding for research and development, the testing and evaluation of equipment and procedures for detection and response activities at border crossings (green and legal)

and at major public events, and to provide assistance in the form of equipment and training as needed.

— Participants recognized the global nature of the detection and response problem and encouraged the IAEA to establish further programmes such as regional workshops on the latest techniques and problems, continue to provide training to front line officers and experts, and work with other international programmes and organizations and Member States to implement the programmes needed for an effective global nuclear security architecture.

S. Fendrich (USA) presented conclusions from Technical Session TA7, as follows:

— The participants endorsed the immediate need for the implementation by all Member States of nuclear forensics techniques for investigating the origin of seized nuclear and other radioactive material. The participants encouraged the IAEA to publish the necessary guidelines for Member States and arrange for regional and national awareness and training of experts in this field.

— The participants stressed the need for nuclear forensics techniques and analytical methods to support the criminal justice system in all Member States.

— The participants recommended the development of nuclear forensic libraries by Member States to ensure the security of nuclear and radioactive material for which States are responsible. The participants encouraged the IAEA to publish the necessary guidelines for the establishment of a nuclear forensic library by States, as well as to arrange for assistance in measurements supporting the library.

— The participants identified a need for the development of in-field and laboratory procedures for the categorization and characterization of seized items and encourage the IAEA to publish guidelines and establish a programme for assisting Member States in the implementation of proper procedures and techniques.

— The participants encouraged effective coordination and cooperation among the nuclear forensics science experts, law enforcement personnel and juridical authorities for the implementation of nuclear forensics and traditional forensics on contaminated objects, and recommend that the IAEA and INTERPOL establish programmes for fostering cooperation and coordination within and among Member States.

— The participants recognized that training and education programmes are essential to increase general awareness of the benefit of nuclear forensics to Member States. International, regional and national awareness and training of nuclear forensics experts ensures confidence in the conclusions from a nuclear forensic examination, as well as sustainment of the skills, knowledge and abilities necessary for maintenance of capacity.
— The participants welcomed the IAEA's convening of an International Conference on Advances in Nuclear Forensics: Countering the Evolving Threat of Nuclear and Other Radioactive Material out of Regulatory Control on 7–10 July 2014 in Vienna. The visibility of an international conference will highlight the crucial role nuclear forensics plays in the prevention of, and response to, a nuclear security event, emphasize the role of law enforcement in a nuclear forensics examination, review technical accomplishments to date, and identify the future priorities for nuclear forensics as an essential piece of a comprehensive nuclear security infrastructure. In this regard, the participants took note that the Nuclear Forensics International Technical Working Group and INTERPOL will officially cooperate with the conference.

PANEL DISCUSSION

The co-chair of the session put a general question to all panellists: "What is the most important action to be undertaken in order to enhance international cooperation in combating illicit trafficking?" The responses from the panel members included the following:

— Developing best practices on reporting to the ITDB;
— Governmental commitment, especially after the Washington and Seoul Nuclear Security Summits, and a renewed focus on regional efforts, to complement already dynamic international and bilateral efforts;
— National commitment to enhance ITDB relevant information sharing inside Member States;
— States adopting a comprehensive approach to nuclear security;
— Common standards in nuclear security, so that a response to nuclear security events is of the same quality in every Member State;
— Strengthen activities for the recovery of material that is out of regulatory control;
— Strengthening information intelligence on the illicit trafficking of nuclear and other radioactive material.

Following the panellists remarks, the floor was opened to audience questions and remarks. Issues raised by participants included:

— How to use nuclear forensics to identify both the origin of recovered material that was out of regulatory control and how it came to be out of regulatory control.
— Whether the IAEA might consider establishing its own nuclear forensics laboratory network. It was noted in this regard that an informal group already exists, the Nuclear Forensics International Technical Working Group, of which the IAEA is part.
— What conclusions and actions could be derived from the ITDB data broken down into Groups 1, 2 and 3. It was noted that recent captures of material indicate a worrying trend of there not seeming to be tools in place to take the remaining nuclear material out of regulatory control off the black market.
— Whether INTERPOL reports ought to be made accessible to Member States via the ITDB. It was noted that this is the policy of INTERPOL, but that some information would need to be redacted before further distribution.
— How many countries had the capability to set up proactive measures such as 'sting' operations, which had been central to recent seizures of nuclear material, and how governments could overcome the obstacles to information sharing across borders. INTERPOL's role in this regard was emphasized.
— The difficulties of exchanging information on illicit trafficking when sensitive facility specific details are involved. It was noted that the GICNT was preparing a paper on this topic.
— The value of subregional meetings as an effective mechanism for information exchange, and of regional training events aimed at coordinating nuclear security activities.

CONCLUSIONS

The co-chairs concluded that participants in the session wished action to be taken to:

— Promote self-assessment and international peer reviews based on IAEA Nuclear Security Series guidance to identify priorities for nuclear security infrastructure development in the key areas of prevention, detection and response;

— Encourage a strategic approach for establishing, within Member States, efficient and sustainable nuclear security detection and response systems and measures for material out of regulatory control, including nuclear security infrastructure, capacity building and sustainability;
— Further develop tailored implementation and technical guidance to Member States in relation to the detection of, and response to, nuclear and other radioactive material out of regulatory control;
— Further strengthen collaborative efforts with other international initiatives related to detection and response to optimize the available resources, harmonize approaches and complement the assistance provided;
— Enhance the capability of States, through coordinated research, application of IAEA Nuclear Security Series guidance and provision of technical assistance and training in the context of criminal investigations and prosecutions related to nuclear security events;
— Promote the development of a national nuclear forensics library to strengthen confidence in nuclear forensics conclusions and identify and address nuclear security vulnerabilities;
— Help States see value in and contribute effectively to the ITDB, particularly with regard to timeliness, comprehensiveness and relevance of information and the development of a best practice guide for ITDB reporting;
— Provide assistance for States in harmonizing international law and guidance on an integrated national legislative and regulatory system;
— Expand regional and subregional activities to build on shared experience and needs, and to develop and exercise common approaches.

Appendix I:

OPENING AND CLOSING STATEMENTS

OPENING REMARKS

JÁNOS MARTONYI
Minister of Foreign Affairs, Hungary
Conference President

Distinguished Ministers, Excellencies, Ladies and Gentlemen.

I am pleased to welcome you to the International Conference on Nuclear Security: Enhancing Global Efforts, organized by the International Atomic Energy Agency, in cooperation with a range of intergovernmental and non-governmental organizations.

This is a very ambitious conference. It aims to provide both high level political commitments to strengthen nuclear security, and concrete policy and technical recommendations. Participation in this forum is very broad, ranging from ministers and ambassadors to policy makers, regulatory officials and technical and legal specialists.

The conference comes at a crucial time for nuclear security. The heightened concern triggered by past terrorist acts remains. Events over the last decade have continued to show that there is no room for complacency and that there is a need to maintain the momentum of strengthening nuclear security. Nuclear security as a discipline is becoming mature. I believe it is time for it to be recognized as an established element in government, regulatory frameworks and industry, not an optional add-on.

The conference is an opportunity to consider how far nuclear security has come, where it is now and, perhaps most importantly, where it needs to go in the future.

Firstly, it is an opportunity to reflect upon what has been achieved. I believe that a great deal has been accomplished in a relatively short period of time. Throughout the world, physical protection systems have been upgraded, radioactive sources are better protected and borders are monitored more effectively. The list could go on.

Much has been learned from the experiences of the past decade or so. For example, technology can and does make a huge contribution to all aspects of nuclear security. However, technology cannot design, operate and maintain itself, or adapt to changing threats. Ultimately, just as the threats to nuclear security come from people, so nuclear security systems and measures to counter those threats must be designed by competent and reliable people who understand the threats. So, technological improvements must go hand in hand with sustainable capacity building.

Secondly, the conference will consider how States approach nuclear security and current issues and trends. This conference will not seek to make any evaluation of the status of nuclear security in States — that is a matter for the States themselves. But the conference does provide a timely opportunity to obtain an overall picture of how nuclear security is progressing worldwide.

Thirdly, this conference provides an opportunity to consider and to influence the future development of nuclear security, both generally and in specific areas. What needs to be done? What needs to be further improved? Who can best do these things and how can they best be helped to do them? How will threats change and how will nuclear security need to respond? What future challenges can be anticipated, and how can we best prepare ourselves to deal with unforeseen challenges?

These are tough questions. But this conference has brought together more than 1300 of the people best placed to answer them, and I hope you will all make the most of the opportunity. The conference has an immediate objective of helping to provide direction and priorities which will be reflected in the IAEA Nuclear Security Plan for 2014 to 2017. But there is a much broader opportunity to help define what nuclear security should aim to look like and to have achieved a decade from now, and beyond, and how those objectives can be achieved.

I do not wish to pre-empt Hungary's national statement, but I would like to reflect very briefly upon one example of where, from my country's perspective, real results have been achieved.

The topical example I want to highlight is the benefit that Hungary has gained from the IAEA's International Physical Protection Advisory Service, or IPPAS. We completed the self-assessment in preparation for the IPPAS mission and just last month we had the mission itself. The recommendations from the international team of experts gave us a really rigorous view of our national nuclear security regime, both its strengths and areas where improvement is needed. In addition to the benefits for Hungary, I believe that the IPPAS process has great value in helping to give confidence to our neighbours that we have effective nuclear security systems and measures in place.

Of course, this is only one example from one country's experience. I look forward to hearing many more such examples and ideas from the States represented here.

The fight against nuclear terrorism requires all States to stand together, fulfilling their responsibilities nationally and coordinating their efforts internationally. The IAEA can and should play a central role in leading international cooperation to support the efforts of States.

For this to happen, there has to be high level political will within States. That is why this Conference starts with a ministerial session, so that States can affirm, in an inclusive forum, their commitment to the shared goal of strengthening

nuclear security worldwide. The more policy oriented and technical parts of this Conference then provide an opportunity to share information and experiences and to consider how we can do this more effectively.

I wish to conclude by expressing my appreciation to Brazil for chairing the Programme Committee and co-chairing the informal open-ended working group, which lead to this conference. I would also like to extend my gratitude to the IAEA Secretariat for their valuable support in preparing this conference. I believe that by the end of this week the international nuclear community will have come closer to our ultimate common goal, which is to considerably enhance global efforts for the cause of nuclear security and for a much safer world.

Thank you for your attention.

OPENING STATEMENT

YUKIYA AMANO
Director General, IAEA

Thank you, Mr. President.

Good morning, Excellencies, Ladies and Gentlemen.

I am pleased to welcome you to this IAEA International Conference on Nuclear Security. I thank you, Minister Martonyi, for taking on the role of president of the conference.

This is the first time that a conference on this very important subject has been held at ministerial level, open to all IAEA Member States. I am grateful for the active participation of so many ministers, senior policy makers and technical experts.

Your presence here sends an important message: that the world is serious about enhancing global efforts to protect nuclear and other radioactive material — and associated facilities — from malicious acts.

Much has been achieved in the past decade. Many countries have taken effective measures to prevent theft, sabotage, unauthorized access, illegal transfer or other malicious acts involving nuclear or other radioactive material. Security has been improved at many facilities containing such material.

Partly as a result of these efforts, there has not been a terrorist attack involving nuclear or other radioactive material. But this must not lull us into a false sense of security. If a 'dirty bomb' is detonated in a major city, or sabotage occurs at a nuclear facility, the consequences could be devastating. The threat of nuclear terrorism is real, and the global nuclear security system needs to be strengthened in order to counter that threat.

Taking action now to help prevent an incident occurring, and to limit the consequences if an incident were to happen, is clearly a necessary and a very worthwhile investment. I believe that this Conference will help in our continuing efforts to ensure that no terrorist attack ever succeeds.

Ladies and Gentlemen,

When I am asked how serious the threat of nuclear terrorism really is, I often give the example of a case in the Republic of Moldova two years ago. Moldovan police seized a quantity of high enriched uranium from an individual who was trying to sell it. The smugglers had tried to evade detection by building a shielded container. This is the actual container they used.

The attempt to shield the high enriched uranium from radiation detectors showed a worrying level of knowledge on the part of the smugglers.

I commend the Moldovan authorities for their success in securing this material. This was the result of their sustained efforts over a period of years, in cooperation with the IAEA and with partner countries, to boost their nuclear security capabilities.

This case ended well. The material was seized, arrests were made and a number of people received prison sentences. Unfortunately, we cannot be sure if such cases are just the tip of the iceberg.

Well over a hundred incidents of thefts and other unauthorized activities involving nuclear and radioactive material are reported to the IAEA every year. This means the material is outside regulatory control and potentially available for malicious acts. Some material goes missing and is never found.

Most of the incidents reported to us are fairly minor, but some are more serious. However, effective countermeasures are possible if *all* countries take the threat seriously.

I stress *all* countries. Even States without nuclear or other radioactive material should not think that this issue does not affect them. Terrorists and criminals will try to exploit any vulnerability in the global security system. Any country, in any part of the world, could find itself used as a transit point. And any country could become the target of an attack.

Responsibility for ensuring nuclear security lies with national governments, but international cooperation is vital. Cooperation has improved in recent years and the central role of the IAEA in helping countries to strengthen nuclear security has been widely recognized.

The Moldova case shows that a well prepared government with an effective nuclear security regime *can* prevent trafficking of nuclear and other radioactive material. It is my hope that this Conference will help to ensure that all countries achieve a similarly high level of preparedness. This requires action in many areas, from putting the necessary laws on the statute book and strengthening border controls, to training law enforcement officers and installing radiation detectors at ports and airports. The IAEA has programmes to help countries in all of these areas, including through the development of comprehensive *Integrated Nuclear Security Support Plans*. I encourage more countries to make use of our assistance.

Ladies and Gentlemen,

Let me spell out three key areas in which I believe progress could — and should — be made quickly to improve global nuclear security.

First, bringing into force the Amendment to the Convention on the Physical Protection of Nuclear Material. The amendment was agreed in 2005, but it has still not entered into force because not enough countries have ratified it.

The original convention covers only the physical protection of nuclear material in international transport. The amendment would expand its coverage to

include the protection of nuclear material in domestic use, storage and transport, and the protection of nuclear facilities against acts of sabotage.

We still need ratifications from 30 countries for the amendment to enter into force. Entry into force of the amendment would have great practical benefits. It would also represent a timely demonstration of international resolve.

Second, all countries should invite peer review of their nuclear security arrangements by international experts. Let your experts share experience and best practice with experts from other countries and from the IAEA. Peer reviews have a good track record in improving safety at nuclear power plants. Everyone benefits. Let us do the same for nuclear security.

Finally, make use of IAEA nuclear security guidance. This provides detailed and practical recommendations, devised by leading international experts working through the IAEA. It is not legally binding — but if implemented everywhere, it would help to make the world safer and more secure.

Ladies and Gentlemen,

Nuclear and other radioactive material is an essential part of modern life. They provide great benefit to human beings in medicine, industry and many other areas. It is vitally important that this material are protected from misuse by those who wish to do harm. That requires constant vigilance, as well as collective action.

My message to you today is that all countries should work to establish effective nuclear security systems. All countries should strengthen international cooperation, making sure that all internationally agreed instruments are in force and actually used. And they are encouraged to make full use of the expertise and assistance of the IAEA.

I am confident that this IAEA conference will make an important contribution to strengthening nuclear security throughout the world. I wish you every success with your deliberations.

Thank you.

INTRODUCTORY STATEMENT

DENIS FLORY
Deputy Director General,
Head of the Department of Nuclear Safety and Security, IAEA

Thank you Mr. Chairman,

Good morning, your Excellencies, Ladies and Gentlemen, my dear colleagues.

Introduction

I would like to welcome you to the first main session of the IAEA International Conference on Nuclear Security. You will have seen from the conference agenda that the purpose of this session is to review international progress and the status of our common goal to improve nuclear security.

In their declaration adopted last night, ministers participating in the conference declared that they remain concerned about the threat of nuclear and radiological terrorism. They also welcomed the substantial progress that has been made in recent years in strengthening nuclear security worldwide while recognizing that more needs to be done.

I am sure that all of us here today share both the concern and the recognition that, while great efforts have been made, more remains to be done and that we must act quickly. Security is a work in progress. There must be no room for complacency.

In the course of the week, you will hear a number of proposals and suggestions for future action. In order to set the context for the debate, I would just like to highlight the IAEA's contribution to addressing the threat of nuclear terrorism and to highlight a few of our achievements towards that goal.

Achievements

The IAEA recognized early on that it might be called upon to play a role in the area of the physical protection of nuclear material and facilities. Its first effort resulted in the publication in 1972 of Recommendations for the Physical Protection of Nuclear Material, which was prepared by a panel of experts convened by the Director General. These recommendations were revised by a group of experts in cooperation with the IAEA Secretariat, and the revised version was published in 1975 as INFCIRC/225 which is currently on its fifth revision, published in 2011. In 1977, upon the recommendation of an advisory group on the

physical protection of nuclear material, Member State representatives met under the auspices of the IAEA to elaborate a Convention on the Physical Protection of Nuclear Material which drew from the provisions of INFCIRC/225 and entered into force on 8 February 1987.

In 1995, in response to concerns from Member States about reports of trafficking incidents involving nuclear or other radioactive material, the IAEA developed the Incident and Trafficking Database to provide authoritative information on such incidents. Since 1995 and until December 2012, more than 2300 incidents were reported and confirmed, demonstrating that there are still quantities of nuclear and other radioactive material out of regulatory control.

Moving forward, in September 2001, the Board of Governors endorsed the Physical Protection Objectives and Fundamental Principles. This was just prior to learning of the horrific events in the United States of America. The Board of Governors was in session on 9/11 and responded quickly to the scenes unfolding on the video screens before them, by tasking the IAEA with contributing to efforts to improve nuclear security worldwide. The IAEA did so through the implementation of a series of Nuclear Security Plans, drawn up in consultation with our Member States and approved by the Board of Governors and General Conference. The current plan will run up to the end of this year and we look to this conference to provide input to the next, the 2014–2017 Plan, and to help determine future directions for nuclear security.

Securing the future

Let me make one thing clear. Responsibility for nuclear security rests with the State. This has been the guiding principle of all Agency activities and is included in the Nuclear Security Fundamentals approved by the Board of Governors last year. The assistance, on request, that we have provided through the implementation of the Plans has supported efforts to improve security nationally, regionally and globally.

Our efforts have focused on four main areas: the nuclear security framework; information exchange and advice; sustainability through education and training; and dealing with legacy issues. I will not go into them in detail because Khammar Mrabit, the Director of the Office of Nuclear Security, will do so later in the conference. I would, however, like to highlight some key elements of the programme.

Yesterday, the Director General addressed the importance of bringing into force the Amendment to the Convention on the Physical Protection of Nuclear Material. The CPPNM is the only international convention dealing with physical protection and is part of the global framework for nuclear security. This global framework comprises the following major elements, binding and non-binding,

namely the CPPNM, the International Convention for the Suppression of Acts of Nuclear Terrorism and the Code of Conduct.

The IAEA has provided assistance to States to raise their awareness on their obligations under these instruments and provide assistance for adherence through the legislative assistance programme.

However, adherence to instruments is only part of the picture. States require advice, recommendations and guidance on how to meet their obligations. We have done so through the development of the IAEA Nuclear Security Series of publications, 21 of which have already been published. We understand that States have greater ownership and support for this guidance when they are part of the development process of these guidance publications. To this goal, last year the Director General established the Nuclear Security Guidance Committee, open to all Member States, in order to ensure that these publications enjoy the widest possible support.

Establishing the guidance is only the first step. We also assist States in the use of such guidance for establishing and strengthening their nuclear security infrastructures. We are, for instance, helping States to identify vulnerabilities in their national nuclear security regimes.

I mentioned the ITDB which provides information exchange so that States can identify trends in their region. We provide peer reviews and advisory services such as IPPAS and the International Nuclear Security Advisory Service (INSServ) to assist States to improve the effectiveness of their national arrangements; we help States to develop INSSPs, often using input from the advisory services, to provide workplans for States to address vulnerabilities.

An important aim is to ensure sustainability of security improvements. The key to this is education, education and training. Well qualified individuals, from policy makers to front line officers with constantly updated skills and a strong awareness, is definitely the key to success. In order to address this need, we are providing education and training programmes covering *all* levels from policy makers to front line officer, and *all* disciplines, to ensure that levels of knowledge and skills are permanently improved and maintained. The training builds on the recommendations and guidance publications. Demand is high, and we work with States and institutions to establish and improve national delivery capabilities, such as NSSCs, to increase the number of trainers.

Securing the past

These activities are primarily aimed at securing the future but the IAEA has also been actively assisting States, on their request, to deal with legacy issues such as inadequate physical protection and poor detection capabilities, through the provision of upgrades to security at facilities; through the provision

of instruments to improve detection capabilities, through the safe and secure conditioning and storage of unused radioactive sources and through the return of HEU to the original supplier country, where relevant.

I hope that you will find five minutes to look through the documents provided in your conference package and to reflect on the fact that over 90% of the funding for all this important work has come from voluntary contributions to the Nuclear Security Fund. And I want to thank the donors for their continued support. We are nothing without them, without you.

As a result of the increased activities undertaken over the past 12 years, the central role of the IAEA has been recognized in a number of forums, in GC resolutions and, most importantly, in the Ministerial Declaration adopted yesterday. We are rightly proud of that recognition and will continue to work to be worthy of your trust.

International cooperation

The aim of the IAEA's work is to improve nuclear security nationally, regionally and globally. We at the IAEA provide a global platform through our 159 Member States, through our technical expertise and through our long experience in dealing with all aspects of nuclear and other radioactive material. We recognize, though, that we cannot do this alone. We face a global challenge which requires a global response from all actors. To that end, we have already been promoting international cooperation though exchange of information with key players such as the 1540 Committee, the UNODC, the Global Initiative to Combat Nuclear Terrorism, and others present at this conference. I look forward to hearing from Angela Kane, the United Nations High Representative for Disarmament Affairs, on how we can develop further the synergies between the IAEA and the United Nations programmes, to avoid duplication and overlap.

Our primary expectation from you is to help us identify the future direction for Agency activities, for the further consideration of our Policy Making Organs.

The main sessions that start this afternoon are designed to consider issues identified in technical sessions from a policy point of view and to produce conclusions and recommendations which will help us to finalize the next Nuclear Security Plan for 2014–2017.

I would like to echo three points made by the Director General in his statement yesterday.

First, to bring into force the Amendment to the CPPNM adopted on 8 July 2005, almost exactly eight years ago. The importance of its entry into force has been recognized many times and in many forums. Having been personally deeply involved in the drafting of the amendment, it is obviously a matter of considerable interest for me to see the amendment enter into force as soon as

possible. Eight years ago, the international community agreed that there was a need to strengthen the convention and that the amendment would answer that need. I hope that this conference will give a new, stronger impetus to the urgency of ratifying the amendment.

Next, to increase the use of peer reviews and advisory services. We have conducted more than 60 INSServ and 55 IPPAS missions at the request of Member States while keeping a strict control on sensitive information. But many installations and countries have not yet benefited from such peer reviews. I therefore strongly encourage States to request them. We stand ready to conduct them, to help States identify best practices and areas where improvements are needed. I would also urge States that have experience of peer reviews to share, wherever possible, the examples of best practice for the benefit of all. To this end, this December, France will host an IAEA International Seminar to promote the sharing of experience and lessons learned from past IPPAS missions.

The final point was the broader use of IAEA nuclear security guidance. If implemented everywhere, it would help establish global norms, and I would urge all of you to play a full part in the development and maintenance of this guidance. No one system is perfect; we can all benefit from the experience of others. Please bring that experience to the world, through participation in the Nuclear Security Guidance Committee.

I would like also to stress one important point. The department I have the honour to lead in the IAEA is the Department of Nuclear Safety and Security. Nuclear security cannot ignore nuclear safety. Both share the ultimate goal of protecting people and the environment against the harmful effects of ionizing radiation. They need to be addressed in ways in which they can strengthen one another while recognizing their differences. And here I have in mind the principles they share, such as defence in depth, graded approach, quality management, the importance of safety and security culture but also the opposition between transparency in safety and confidentiality in security. The primary focus of your discussion this week will rightly be on security but we should not lose sight of the other side of the coin, safety.

Conclusion

With these few words, I would like to again welcome you to this important conference. I look forward to comprehensive and in depth discussions and to an outcome which will help the international community as we strive together to continuously improve nuclear security and sustain effective nuclear security globally.

INTRODUCTORY STATEMENT

ANGELA KANE
United Nations High Representative for Disarmament Affairs

Excellencies, Ladies and Gentlemen,

I would like to begin my remarks by thanking the International Atomic Energy Agency (IAEA) for inviting me to speak to you today on behalf of the United Nations.

The purpose of this conference — enhancing global efforts on nuclear security — is a topic of utmost importance for the world community and has profound implications for international peace and security. While nuclear weapons became an unavoidable feature of international relations nearly seventy years ago, the world has only recently made the threat of nuclear terrorism a focus of concerted global attention. This attention is welcome but overdue.

As long as nuclear weapons exist, the possibility of their use — including by non-State actors — remains. Nuclear disarmament therefore continues to be the most credible and effective way to counter that risk, a point repeatedly recognized by the States parties to the Treaty on the Non-Proliferation of Nuclear Weapons. All States have a responsibility to work progressively to delegitimize and eliminate nuclear weapons — under effective and verifiable international control. The achievement of nuclear disarmament will bring us closer to a world of zero nuclear threats than any other possible measure.

As we move towards that goal, much remains to be done to strengthen nuclear security and to prevent unauthorized access to nuclear or radiological weapons and material. Towards this end, the IAEA has undeniably played a leading role. Over the past 12 years, the IAEA has significantly broadened and deepened its capabilities and provided related assistance to its Member States. As a result of these efforts, the world is far better equipped to prevent the nightmare scenario from coming to pass. In carrying forward the nuclear security agenda, it will be crucial to ensure that the IAEA has adequate resources, in order to enable it to meet this challenge.

Nuclear security is a global public good. As such, for nearly a decade the United Nations has contributed to global efforts to strengthen nuclear security, particularly through its work in the field of counterterrorism. The work of the United Nations in this regard constitutes an integral component of the global nuclear security framework.

We continue to work assiduously to achieve the objectives of Security Council resolution 1540 (2004), which aims to prevent non-State actors and terrorists from obtaining nuclear, chemical or biological weapons and their

delivery systems. I am pleased to note that since its adoption in 2004, we have seen a substantial increase in support for both the resolution's objectives and for efforts to achieve them based on international cooperation, partnerships and interaction.

The United Nations Office for Disarmament Affairs (UNODA) supports the Security Council's 1540 Committee by facilitating the national implementation efforts of Member States, including through country-specific and regional activities and in cooperation with relevant intergovernmental organizations.

UNODA has recently begun to actively promote partnerships with the private sector and industry to support the objectives of the resolution.

In April 2012, UNODA and Germany co-organized the first Conference of International, Regional and Sub-Regional Industry Associations on Resolution 1540, which was held in Wiesbaden, Germany. This event launched the Wiesbaden Industry Process, which includes sustained outreach to key industry and private sector actors aimed at facilitating their contribution to national implementation efforts. I wish to express my appreciation to Germany for its continuing active support for this process and for its willingness to co-host additional industry focused events on a regular basis.

UNODA has also reached out to the financial sector and last week, together with the Union of Arab Banks, co-organized a special session on Resolution 1540 at the International Arab Banking Summit.

Another major United Nations instrument in this area, as you are aware, is the International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT). Yet, while this convention now forms a crucial part of the nuclear security architecture, at present only 86 States have joined.

It is vital that those States that have not yet become party to the convention do so at the earliest possible date. ICSANT is among the treaties that have been highlighted by the Secretary-General for the 2013 Treaty Event. (24–26 September and 30 September – 1 October 2013).

In addition, the Terrorism Prevention Branch of the United Nations Office on Drugs and Crime (UNODC) promotes the ratification and effective implementation of the 18 international conventions and protocols against terrorism. Seven of these instruments deal, to varying extent, with nuclear terrorism, and include ICSANT and the Convention on the Physical Protection of Nuclear Material and its 2005 Amendment. Implementing these seven instruments contributes to States fulfilling some of their obligations under Resolution 1540.

The Terrorism Prevention Branch offers legal technical assistance and tailored capacity building to Member States upon request, including through: raising awareness and building capacity; drafting and reviewing of national legislation; training of criminal justice and law enforcement officials; and enhancing cooperation in criminal matters. Member States are invited to avail

themselves of UNODC's technical legal assistance programme and capacity building activities and to continue to support them.

As part of its ongoing efforts to bring the CPPNM Amendment into force and to promote the increased ratification and implementation of ICSANT, last month UNODC conducted a workshop on both instruments for selected West African countries. A similar event for countries in Central and Southern Africa will take place in October this year. Both events have been made possible thanks to the kind financial contribution of the United Kingdom.

UNODC also works closely with relevant international and regional organizations and, for example, has developed with the IAEA model criminalization provisions against nuclear terrorism in implementation of relevant international legal instruments.

The United Nations Interregional Crime and Justice Research Institute (UNICRI) also undertakes supporting activities in the area of nuclear security, specifically through its CBRN Risk Mitigation and Security Governance Programme, which was launched in 2004. The programme is based on an integrated approach incorporating all international, regional and national CBRN components into a common strategy. In this connection, all stakeholders, while operating autonomously, can establish common goals and create a security culture based on cooperation and common learning. The programme supports participating countries in improving information sharing and transferring of international best practices. It also optimizes the sharing and use of accumulated international and national experience in the area of CBRN risk mitigation.

UNICRI is partner of the European Union Chemical, Biological, Radiological and Nuclear Risk Mitigation Centres of Excellence Initiative. Launched in 2010, the initiative addresses the mitigation of and preparedness against risks related to CBRN materials and agents. The Centres of Excellence initiative seeks to boost cooperation at national, regional and international levels, and to develop a common and coherent CBRN risk mitigation policy at national and regional level. The initiative involves more than 50 countries and envisages the establishment of eight Secretariats coordinating efforts in eight regions and sub-regions of the world.

Finally, the United Nations Counter-Terrorism Implementation Task Force (CTITF), which was established by the Secretary-General in 2005, includes a Working Group on Preventing and Responding to WMD Attacks. Its mandate includes strengthening the exchange of information and knowledge among relevant United Nations entities and international organizations related to response to WMD terrorist attacks. It has formulated a work plan to assess how the United Nations and certain international organizations would engage — including the level of coordination among them — should a terrorist attack occur

involving the use of chemical, biological, radiological or nuclear weapons or material.

In one example of the United Nations system working together, CTITF worked in partnership with the IAEA, UNODC, the United Nations Office of Legal Affairs and my own Office for Disarmament Affairs to organize the Secretary-General's High-Level Meeting on Countering Nuclear Terrorism, with a Focus on Strengthening the Legal Framework. The meeting took place on 28 September 2012 and served as an important step to build upon new momentum in our efforts to prevent nuclear terrorism, a common priority in building a safer and more secure world.

Excellencies, Ladies and Gentlemen, This conference will likewise be crucial in determining how to carry forward many of the goals set in recent years in the area of nuclear security. As always, the United Nations will continue to support the efforts of Member States and to cooperate with the IAEA in carrying out this important work.

I wish you every success in your work. Thank you.

INTRODUCTORY STATEMENT

DOMINIQUE RISTORI
Director General, European Commission Joint Research Centre

Ladies and Gentlemen,

First of all, please allow me on behalf of the European Union to thank the IAEA for holding this conference on nuclear security.

The EU considers that nuclear security, as well as nuclear safety, are absolute priorities and it is strongly committed to their further enhancement.

Today, I would like to use this opportunity of the IAEA Nuclear Security Conference to stress three points:

— First, the unique role of the EU in the nuclear field;
— Second, the progress in strengthening nuclear security inside and outside Europe; and
— Third, the importance of international cooperation, in particular cooperation with the IAEA.

In the field of nuclear, the EU is a unique example because:

— We have a Euratom Treaty establishing a complete legal framework covering all nuclear activities from research to international aspects.
— In the EU, the nuclear fuel cycle is fully represented. The nuclear facilities and their related activities, the stocks of nuclear material and advanced technology represent a formidable task for the full implementation of the highest level of safety and security, including safeguards.
— The EU has its own supranational Euratom safeguards system, with those safeguards being fully implemented not only in EU non-nuclear-weapon States (NNWS) but also in EU nuclear weapon States (NWS). The two on-site laboratories in the two reprocessing plants in France and UK are good examples of safeguards implementation in Europe.
— At the same time, while ensuring safeguarding, the EU implements a concept of assurance of fuel supply through its Euratom Supply Agency.

Therefore, within the Euratom Treaty, the two key factors for successful functioning of the multilateral nuclear arrangements (MNA) are effectively implemented, that is to say the assurance of non-proliferation and the assurance of fuel supply.

Let me say a few words about nuclear safety.

In the field of nuclear safety, the EU and its Member States have developed common frameworks. Following the adoption of the EU nuclear safety directive in 2009 (which is currently being revised) and of new legislation on spent fuel and radioactive waste management in 2011, the EU framework for radiation protection is currently being revised in view of fully integrating the regulatory control of radioactive sources. The key aim is to align the provisions with the IAEA Code of Conduct, particularly in respect of high level sources.

Moreover, following the tragic earthquake and following tsunami which struck the Japanese east coast, the EU in cooperation with its Member States and national regulators has launched a comprehensive programme for reassessment (called stress tests) of all the nuclear power reactors in the EU to ensure that they are not at risk from extreme events. The EU stress tests had two tracks, a safety track and a security track:

— The safety assessments include an objective peer review process in order to validate the findings. The output from these stress tests yielded important lessons which are taken into account both by the Member States in the development of their safety improvement National Action Plans and by the Commission in the context of the revision of the nuclear safety directive. The EU neighbouring countries operating nuclear power plants have also performed similar stress tests.
— A specific working group of the Council of the EU was established in July 2011 to deal with the nuclear security aspects of post Fukushima. The Ad Hoc Group on Nuclear Security made recommendations aiming at improving general security principles and contributing to ensuring the highest possible level of nuclear security in the EU.

The European experience gained with this process is of benefit to nuclear safety and security worldwide.

Ladies and Gentlemen, this brings me to stress the progress recently achieved to reinforce nuclear security both within the EU and at international level.

Inside Europe, the responsibility to respond to radiological or nuclear threats lies with Member States, many of which are fairly well equipped to coordinate actions nationally. To support this process, in 2009 the EU developed the European action plan on CBRN security, which covers radiological and nuclear hazards but also chemical and biological risks. Based on an all-hazard approach, the action plan's overall goal is to reduce the threat of, and damage from, CBRN incidents of accidental, natural and intentional origin, including terrorist acts. The action plan contributes to the implementation of the EU Counter Terrorism Strategy. More than a hundred of actions covering the areas

of prevention, detection and responses are being implemented by the European Commission and Member States. The Commission's Joint Research Centre is very much involved in this process as we are implementing an important number of actions together with our Member States.

As example of actions, I would like to mention the establishment by the JRC of the European Nuclear Security Training centre (EUSECTRA) inaugurated last April 2013. EUSECTRA will provide training to front line officers in the field of detection and response including nuclear forensics.

Another example is the Illicit Trafficking Radiation Assessment Program (ITRAP) which aims at testing the performance and limits of all the technologies used in Europe and the USA for the detection of radioactive and nuclear material. This project is carried out jointly with our partners from the USA.

Another action being implemented is the support to the IAEA on improving the Illicit Trafficking Database.

Outside its borders, the EU has developed two years ago among other programmes the so called EU CBRN Risk Mitigation Centres of Excellence (CoE). This initiative is funded by the EU Instrument for Stability. Around €100 million for the 2007–2013 period are dedicated to the implementation of this initiative. It promotes a culture of security and safety in the CBRN domains at regional level. It offers a coherent and comprehensive approach covering legal, regulatory, enforcement and technical issues. Eight regions are so far part of the initiative, more than 44 countries are partners and 34 projects are being implemented in the different regions.

The EU's Joint Research Centre and the United Nations Interregional Crime and Justice Research Institute (UNICRI) are jointly implementing this initiative.

Ladies and Gentlemen, nuclear safety and security are global issues which require strong international cooperation.

International cooperation was clearly at the centre of the Seoul Nuclear Security Summit in 2012, where both Presidents Barroso and Van Rompuy underlined the importance the EU attaches to nuclear security and its international dimension.

In the EU, we are committed to further strengthen the coordination of our activities and to work closely with key partners in this field, to encourage the adoption of the highest nuclear safety and security standards across the world.

A new US–Euratom agreement has been signed in 2010 covering safeguards and security. The Euratom–Japan Atomic Energy Agency has been extended recently, cooperation with China will be strengthened within the implementation of the China–Euratom agreement signed in 2008; with the Russian Federation several projects are ongoing in the field of safeguards and security.

Our cooperation with the IAEA is stronger than ever. The IAEA continues to receive an important EU financial and technical support and also in kind.

Since 2004, EU supports the IAEA with about €105 million in the field of nuclear safety, safeguards, security and technical cooperation. This includes a significant contribution to the new IAEA Nuclear Material Laboratory in Seibersdorf, enhancing the IAEA's analytical capabilities in nuclear safeguards and security and support to the Low Enriched Uranium Bank for the Utilization of Nuclear Energy.

The EU has also continued to provide important technical support to the IAEA in the field of nuclear safeguards through the European Commission Cooperative Support Programme, which is operated by the Joint Research Centre.

We also continue our support to the 1540 United Nations Security Council Resolution. In this context, a new Council Decision in support to 1540 will be adopted very soon with a financial volume of close to €1 million.

The EU is actively involved in the activities of the Global Initiative to Combat Nuclear Terrorism Implementation and Assessment Group, in the areas of nuclear detection and response mechanisms, including nuclear forensics, as well as the newly established working group on response and mitigation. The Joint Research Centre has hosted in 2012 the meetings of the forensic and response and mitigation working groups at our facilities in Ispra, Italy.

Ladies and Gentlemen,

In conclusion, I would like to underline once again that the EU considers nuclear security as well as nuclear safety as absolute priorities and is pushing forward their further enhancement. The numerous initiatives, actions and programmes implemented by the EU in the field, inside and outside its borders demonstrate clearly our full commitment to promote the highest level of nuclear safety and security.

We firmly believe that international cooperation is key to address the challenges imposed by the international dimension of nuclear safety and security.

With this objective in mind, I would like to invite you to an initiative that the European Commission and the European External Action Service will launch on the occasion of the next Nuclear Security Summit in March 2014 on 'international cooperation for enhancing worldwide nuclear security culture'.

This initiative will provide the opportunity to debate and share views on lessons learnt as well as on future initiatives and means to strengthen nuclear security culture worldwide.

More details on this conference will be provided to all of you very soon.

Finally, I would like to congratulate once again the IAEA for the organization of this conference which with no doubt reinforce the international community determination to achieve our common goal of 'a nuclear safe and secure world'.

Thank you Mr. Chairman, Ladies and Gentlemen. I wish you very fruitful discussions throughout the conference.

CLOSING REMARKS

YUKIYA AMANO
Director General, IAEA

Thank you, Mr. President.

It has been a long week for us all, but a very successful one. This Conference has been an important milestone for nuclear security. The Ministerial Statement, from an inclusive global forum, sends a strong message that nuclear security is recognized as a priority by Governments.

That political commitment is crucial to all of us in developing the policies, strategies and systems to strengthen nuclear security, nationally, regionally and globally. The participation of representatives from 125 States, and 21 intergovernmental and non-governmental organizations, sends a very strong message that nuclear security is recognized as a worldwide priority in response to a global threat.

The central role of the IAEA in supporting States' efforts to strengthen nuclear security has been recognized.

Over the next few weeks, we in the Secretariat will draw upon the conclusions and recommendations of this Conference as we consult with our Member States to finalize our draft *Nuclear Security Plan for 2014–2017*. The Plan will be considered by the Board of Governors and *General Conference* in September. It will guide the IAEA's work for the next four years.

We will publish the Conference proceedings as soon as we can. In the meantime, the main outcomes of the Conference, as well as national statements from the Ministerial Sessions, and the presentations from the Main and Technical Sessions, will be available on-line.

Finally, I wish to thank His Excellency János Martonyi, Minister of Foreign Affairs of Hungary, for his leadership as Conference President.

I also thank both the Governor and Ambassador of Hungary, Pál Kovács and Bálazs Csuday, for filling in so ably for the President.

I am grateful to Ambassador Csuday and his fellow Coordinator Ambassador Laércio Vinhas of Brazil, for their sensitive and skilful handling of the negotiation of the *Ministerial Declaration*.

Last but not least, I warmly thank all of the speakers, session chairs, panellists, rapporteurs, poster presenters, exhibitors, every member of the staff of the IAEA involved in the Conference, and of course all of you, the participants, who all contributed to a really successful conference.

Thank you.

Appendix II:

OUTLINE CONFERENCE PROGRAMME

CONFERENCE PROGRAMME

Sunday, 30 June 2013

15:00–18:30	Registration	
17:00–19:00	Welcome reception hosted by the IAEA Office of Nuclear Security	

Monday, 1 July 2013

08:00	Registration (continued)	
10:00–13:00	Ministerial Session	(Conference Room M1)
	Lunch break	
13:00–15:00	Luncheon for ministers and other heads of delegation	(VIC Restaurant)
15:00–17:00	Ministerial Session (continued)	(Conference Room M1)
17:00–17:30	Adoption of a Ministerial Declaration	
17:30–19:30	Ministerial Session (continued)	(Conference Room M1)

Tuesday, 2 July 2013

09:00–12:00	Ministerial Session (continued)	(Conference Room M1)
09:00–10:50	Technical Session TA2: Information and Cyber Security Co-chairs: M. Caspers (Germany), S. Parulkar (India)	(Boardroom A)
09:00–10:50	Technical Session TB5: Safety–Security Interfaces Co-chairs: R. Awad (Canada), J. Lolich (Argentina)	(Conference Room M2)
	Coffee break and poster viewing	
11:30–12:30	Technical Session TA2: Information and Cyber Security Co-chairs: M. Caspers (Germany), S. Parulkar (India)	(Boardroom A)

11:10–13:00	Technical Session TB5: Safety–Security Interfaces Co-chairs: R. Awad (Canada), J. Lolich (Argentina)	(Conference Room M2)
12:00–13:00	Main Session M2: Introduction	(Conference Room M1)
	Lunch break	
14:00–18:00	Main Session M3: Implementing and Enhancing the International Nuclear Security Framework Co-chairs: G. Berdennikov (Russian Federation), A. Harrington (USA)	(Conference Room M1)
14:00–15:50	Technical Session TA3: Enhancing Nuclear Security Regimes II Co-chairs: N. Uetake (Japan), L. Bloomfield Torres (Brazil)	(Boardroom A)
14:00–15:50	Technical Session TB3: Threat Characterization and Assessment Co-chairs: N. Fragoyannis (USA), As Natio Lasman (Indonesia)	(Conference Room M2)
	Hosted coffee break and poster viewing	
16:20–17:30	Technical Session TA3: Enhancing Nuclear Security Regimes II Co-chairs: N. Uetake (Japan), L. Bloomfield Torres (Brazil)	(Boardroom A)
16:30–17:50	Technical Session TB3: Threat Characterization and Assessment Co-chairs: N. Fragoyannis (USA), As Natio Lasman (Indonesia)	(Conference Room M2)

Wednesday, 3 July 2013

09:00–12:30	Main Session M4: Nuclear Material and Nuclear Facilities Co-chairs: J. Esteves dos Santos (Brazil), Liu Daming (China)	(Conference Room M1)

09:00–10:50	Technical Session TA4: Security of Radioactive Sources Co-chairs: A. Mastauskas (Lithuania), L.A. Betancourt Hernandez (Cuba)	(Boardroom A)
09:00–10:50	Technical Session TB4: Education and Training Co-chairs: O. Reistad (Norway), M. Beaudette (Canada)	(Conference Room M2)
	Coffee break and poster viewing	
11:30–12:30	Technical Session TA4: Security of Radioactive Sources Co-chairs: A. Mastauskas (Lithuania), L.A. Betancourt Hernandez (Cuba)	(Boardroom A)
11:30–12:30	Technical Session TB4: Education and Training Co-chairs: O. Reistad (Norway), M. Beaudette (Canada)	(Conference Room M2)
	Lunch break	
14:00–18:00	Main Session M5: Radioactive Sources and Associated Facilities Co-chairs: G. Emi-Reynolds (Ghana), B. Nsouli (Lebanon)	(Conference Room M1)
14:00–15:50	Technical Session TA5: Structured Capacity Building Co-chairs: A. Habib (Pakistan), A. Koteng (Kenya)	(Boardroom A)
14:00–15:50	Technical Session TB2: Enhancing Nuclear Security Regimes Co-chairs: B. Dal (Netherlands), C. Price (UK)	(Conference Room M2)
	Hosted coffee break and poster viewing	
16:30–18:00	Technical Session TA5: Structured Capacity Building Co-chairs: A. Habib (Pakistan), A. Koteng (Kenya)	(Boardroom A)

16:30–18:00	Technical Session TB2: Enhancing Nuclear Security Regimes Co-chairs: B. Dal (Netherlands), C. Price (UK)	(Conference Room M2)

Thursday, 4 July 2013

09:00–12:30	Main Session M6: International Cooperation and Assistance, and the Role of the IAEA Co-chairs: T. Countryman (USA), A. Farhane (Morocco)	(Conference Room M1)
09:00–10:30	Technical Session TA6: Detection and Response Architecture Co-chairs: M. Wittrock (USA), A. Ortiz Olmo (Spain)	(Boardroom A)
09:00–10:50	Technical Session TB6: Nuclear Security at Nuclear Facilities Co-chairs: R. Kesvani (India), A. Izmaylov (Russian Federation)	(Conference Room M2)
	Coffee break and poster viewing	
11:10–12:40	Technical Session TA6: Detection and Response Architecture Co-chairs: M. Wittrock (USA), A. Ortiz Olmo (Spain)	(Boardroom A)
11:30–12:30	Technical Session TB6: Nuclear Security at Nuclear Facilities Co-chairs: R. Kesvani (India), A. Izmaylov (Russian Federation)	(Conference Room M2)
	Lunch break	
14:00–18:00	Main Session M7: Building and Sustaining a Nuclear Security Culture Co-chairs: M. Senzaki (Japan), E. Bonnevie (France)	(Conference Room M1)

14:00–15:30	Technical Session TA7: Nuclear Forensics Co-chairs: N. Shinohara (Japan), B. Garrett (USA)	(Boardroom A)
14:00–15:50	Technical Session TB7: Detection and Response Architecture II Co-chairs: H. Toivonen (Finland), B. Ntuane (South Africa)	(Conference Room M2)
	Hosted Coffee Break & Poster Viewing	
16:10–17:30	Technical Session TA7: Nuclear Forensics Co-chairs: N. Shinohara (Japan), B. Garrett (USA)	(Boardroom A)
16:20–18:40	Technical Session TB7: Detection and Response Architecture II Co-chairs: H. Toivonen (Finland), B. Ntuane (South Africa)	(Conference Room M2)

Friday, 5 July 2013

09:00–12:30	Main Session M8: Addressing the Illicit Trafficking Threat Co-chairs: R. Duiven (Netherlands), C. Hinderstein (NTI)	(Conference Room M1)
	Lunch break	
14:00–16:00	Main Session M9: Closing Session	(Conference Room M1)

Appendix III

LIST OF INVITED PAPERS AND PANEL MEMBERS

MAIN SESSION M3: IMPLEMENTING AND ENHANCING
THE INTERNATIONAL NUCLEAR SECURITY FRAMEWORK

Invited papers

Promoting entry into force of the CPPNM Amendment
G. Terigi (Argentina)
International legal framework against nuclear terrorism
M. Requena (UNODC)
Code of Conduct on the Safety and Security of Radioactive Sources
S. McIntosh (Australia)
Strengthening the international legal framework for nuclear security
J. Herbach (Netherlands)
Building international confidence in nuclear security practices
R. Floyd (Australia)
Further strengthening the implementation and enhancement of the international nuclear security framework
L. Holgate (USA)
The IAEA's Nuclear Security Fundamentals and related Nuclear Security Series publications
I. Barraclough (IAEA)

Panel members

G. Berdennikov (Russian Federation), A. Harrington (USA), G. Terigi, M. Requena, S. McIntosh, J. Herbach, R. Floyd, L. Holgate, P. Johnson (Director, Office of Legal Affairs, IAEA), K. Mrabit (Director, Office of Nuclear Security, IAEA)

MAIN SESSION M4: NUCLEAR MATERIAL AND NUCLEAR FACILITIES

Invited papers

Achieving sustainable and effective physical protection systems
A. Freer (UK)
Role of nuclear material accounting and control for ensuring nuclear security
V. Kuchinov (Russian Federation)
Security by design
C. Bolton (UK)

Enhancing the security of nuclear material — an integrated approach
C. Quintin (France)
Security of sensitive information
J. Dally (UK)
Regulatory efforts to improve cyber security
J. Wiggins (USA)

Rapporteurs' reports from technical sessions

TA2: F. Eltawila (United Arab Emirates)
TB2: K. Horváth (Hungary)
TA3: A. Shakoor (Pakistan)
TB3: S. Repanovici (Romania)
TB5: A. Elabd (Egypt)
TB6: P. Carroll (UK)

Panel members

J. Esteves dos Santos (Brazil), Liu Daming (China), A. Freer, V. Kuchinov, C. Bolton, C. Quintin, J. Dally, J. Wiggins, K. Naito (Japan)

MAIN SESSION M5: RADIOACTIVE SOURCES AND ASSOCIATED FACILITIES

Invited papers

The Code of Conduct as a means to enhance global efforts
R. Czarwinski (Germany)
Implementing the IAEA's Recommendations for Security of Radioactive Material and Associated Facilities
A. Shakoor (Pakistan)
The value of regional cooperation for source security
A. Dela Rosa (Philippines)
Secure transport of radioactive sources
C. Elechosa (Argentina)
Managing prevention and control over radioactive sources
J.-L. Lachaume (France)
The distinctive challenges of protecting radioactive sources
F. Morris (USA)

Rapporteurs' reports from technical sessions

TB3: D. Hasted (UK)
TA4: R. Severa (Zimbabwe)
TB5: A. Elabd (Egypt)

Panel members

G. Emi-Reynolds (Ghana), B. Nsouli (Lebanon), R. Czarwinski, A. Shakoor, A. Dela Rosa, C. Elechosa, J.-L. Lachaume, F. Morris

MAIN SESSION M6: INTERNATIONAL COOPERATION AND ASSISTANCE, AND THE ROLE OF THE IAEA

Invited papers

International Cooperation: The role and activities of the IAEA
K. Mrabit (IAEA)
Multilateral initiatives: G8 Global Partnership (G8GP)
R. Hardiman (UK)
Multilateral initiatives: global initiative to combat nuclear terrorism (GICNT)
G. Berdennikov (Russian Federation)
Information sharing and collaborative approaches
H. Mattli (ENSRA)
Experience of an embarking country
S. Al Kaabi (United Arab Emirates)
Integrating or coordinating initiatives
R.A.A. Raja Adnan (Malaysia)

Rapporteurs' reports from technical sessions

TB4: J. Sterba (Austria)
TA5: I. Soufi (Morocco)

Panel members

A. Farhane (Morocco), T. Countryman (USA), K. Mrabit, R. Hardiman, H. Mattli, S. Al Kaabi, Raja Abdul Aziz Raja Adnan, S. Abousahl (European Commission), B. El Oumni (United Nations Security Council 1540 Committee), S. Limage (USA)

MAIN SESSION M7: BUILDING AND SUSTAINING
A NUCLEAR SECURITY CULTURE

Invited papers

Human capacity building in nuclear security
D. van den Berg (Netherlands)
*Dete*ction of and response to the needs in nuclear security: The roles of a nuclear resea*rch institute*
T. Fanghänel (JRC)
Nuclear security culture in practice
Khairul (Indonesia)
Nuclear security center of excellence (CoE) in north-east Asia: features and interdependent collaboration
Kwan-Kyoo Choe (Republic of Korea)
Sustainability of systems and measures
A. Harrington (USA)

Rapporteurs' reports from technical sessions

TB4: J. Sterba (Austria)
TA5: I. Soufi (Morocco)

Panel members

E. Bonnevie (France), M. Senzaki (Japan), D. van den Berg, T. Fanghänel, Khairul, Kwan-Kyoo Choe, A. Harrington

MAIN SESSION M8: ADDRESSING THE ILLICIT TRAFFICKING THREAT

Invited papers

Enhancing the IAEA incident and trafficking database programme
R. Wesley (IAEA) and M. Wallenius (JRC)
Legal and regulatory framework in the context of prevention of illicit trafficking
T. Matikas (Greece)
International cooperation framework for law enforcement
A. King (INTERPOL)
Developing effective border control
E. Melamed (USA)

Management of expectations in nuclear forensics
K. Mayer (European Commsiison/JRC)
Interagency coordination
M. Curry (USA)

Rapporteurs' reports from technical sessions

TA6: Mohd bin Baharom (Malaysia)
TA7: S. Fendrich (USA)
TB7: M. Reinhard (Australia)

Panel members

C. Hinderstein (NTI), R. Duiven (Netherlands), R. Wesley, M. Wallenius, T. Matikas, A. King, E. Melamed, K. Mayer, M. Curry

Annex

STATEMENT BY THE HEAD OF DELEGATION OF THE RUSSIAN FEDERATION

STATEMENT BY THE HEAD OF DELEGATION OF THE RUSSIAN FEDERATION AMBASSADOR-AT-LARGE GRIGORY BERDENNIKOV AT THE IAEA INTERNATIONAL CONFERENCE ON NUCLEAR SECURITY: ENHANCING GLOBAL EFFORTS

RESERVATION AT THE ADOPTION OF THE OUTCOME DOCUMENT OF THE INTERNATIONAL CONFERENCE ON NUCLEAR SECURITY

Vienna, 1 July 2013

Honorable Mr. President,

Ensuring due nuclear security on its territory is a responsibility of every state. A linkage of nuclear security and international cooperation in this area with dynamics in the sphere of nuclear disarmament is unfounded and counterproductive. It leads to emergence of artificial hurdles to strengthening nuclear security. Moreover, the Russian delegation stresses that nuclear disarmament is not mentioned neither among objectives, nor among functions of the Agency, listed in the Statute of the IAEA.

We also note that questions of nuclear security of nuclear materials and facilities used for military purposes are outside of the scope of the IAEA competence.

With those reservations we did not object to reaching consensus on this document.

CONTENTS OF CD-ROM

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The International Conference on Nuclear Security: Enhancing Global Efforts was convened at the IAEA headquarters in Vienna on 1–5 July 2013. The conference attracted more than 1300 registered participants from 125 IAEA Member States, 34 of which were represented at ministerial level, and 21 intergovernmental and non-governmental organizations. The conference provided a forum where experiences and lessons learned could be discussed and ideas exchanged to identify emerging trends and to consider medium and long term objectives for international nuclear security efforts, as well as to inform the development of the IAEA Nuclear Security Plan 2014–2017.

INTERNATIONAL ATOMIC ENERGY AGENCY
VIENNA
ISBN 978–92–0–101514–3
ISSN 0074–1884