

International Engagement and Cooperation in Nuclear Newcomer States

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ABSTRACT

The United Arab Emirates (UAE) recognized the importance of international engagement and cooperation (IE&C) at the outset of its evaluation and potential development of peaceful nuclear energy in 2009. The UAE subsequently established policy to develop any peaceful domestic nuclear power capability in partnership with the Governments and firms of responsible nations.

In addition to existing legally binding international treaties that govern nuclear safety, security, safeguards and nuclear non-proliferation, States often establish formal bilateral nuclear cooperation agreements, supporting administrative arrangements and a range of other structured interactions to facilitate more practical, efficient and effective cooperation. In the area of safeguards and nuclear non-proliferation, IE&C serves to strengthen the nuclear non-proliferation regime and underpin States' obligations to facilitate the fullest possible exchange of equipment, materials, and technological information for the peaceful uses of nuclear energy. The efficient and effective implementation of IE&C requires strategic consideration and planning in order to prioritize objectives, identify suitable partnerships, coordinate resources and gain the necessary funding.

This paper identifies the significant domestic and global benefits of IE&C that should motivate State or regional authorities responsible for safeguards implementation (SRAs) to develop IE&C objectives. The paper further highlights how failure to adopt an active and coordinated strategy towards IE&C can compromise transparency, affect the international community's perception of a State and ultimately constrain its peaceful nuclear energy ambitions.

INTRODUCTION

International engagement and cooperation (IE&C) is an integral component of the nuclear non-proliferation regime and essential in establishing a domestic peaceful nuclear energy program. The near universality, and indeed success, of the Nuclear Non-Proliferation Treaty (NPT) has been built upon the promotion of the fullest possible international exchange of scientific information between States to further the development of atomic energy for peaceful purposes. In the global effort to fulfil the objectives of the NPT it is important to create opportunities and establish methods to strengthen national safeguards infrastructures, develop nascent export control systems and prevent the spread of nuclear weapons. These methods must provide a fertile environment to facilitate the exchange of ideas, experiences and best practices between States, international organizations (such as the IAEA)

and other entities. In practice, States often engage with one another by concluding nuclear cooperation agreements (NCAs) and memoranda of understandings (MOUs). They also join conventions, participate in symposia and conferences, and work together in both formal and informal networks to ensure their nuclear power programs are demonstrably peaceful and compliant with their international obligations. The United Arab Emirates (UAE) has unmistakably benefited from its policy to work directly with the IAEA, collaborate with the Governments and firms of responsible nations and doing so by operationalizing a variety of IE&C methods. This paper discusses lessons learned and provides ideas and recommendations for nuclear newcomer States that will maximize the return on investment from their international relations.

Engagement & Cooperation with the IAEA

The active engagement of member States with the IAEA at an early stage of introducing or expanding a nuclear power program, especially in the field of safeguards, is a vital step in realizing the highest standards of nuclear non-proliferation and a commitment to operational transparency. The IAEA's Milestones approach establishes a roadmap for developing national nuclear infrastructure for introducing nuclear power and provides a systematic approach for cooperation with, and gaining support from, the IAEA. The Milestones Approach addresses 19 infrastructure areas from legislation, safeguards, stakeholder involvement and human resources through to physical aspects such as the quality of the national electricity grid and site availability. The IAEA's support for nuclear power programme development also includes peer review missions such as the Integrated Nuclear Infrastructure Review (INIR) and the IAEA Safeguards Advisory Service Mission (ISSAS). These reviews and services provide evaluation and assessment of States' safeguards systems, which can be followed-up with further missions and integrated work plans to assist member states in addressing weaknesses.

An IAEA ISSAS mission is important in building confidence and, when requested by the State at an appropriate time, serves as an early check for States to assess the ability of their national safeguards system to meet international obligations and support the effective and efficient implementation of IAEA safeguards. ISSAS can also assess different aspects of nuclear export control arrangements to ensure that a State does not inadvertently act as an attractive hub for proliferators to transfer nuclear material and equipment for clandestine nuclear weapons programs. This independent and expert audit helps to establish and strengthen a strong working relationship with the IAEA and propagate best international practices. It can also assure a State that it has an adequate and independent regulatory authority, an effective SSAC system, and is an excellent way of identifying any gaps in the safeguards system. States can benefit from various confidential suggestions offered by the mission team that can help ensure consistency of national legislation with safeguards agreements, sufficient staffing and effective coordination with national authorities and the nuclear operator. Subsequently, a follow-up action plan can be developed in association with the IAEA and executed to implement suggestions and eliminate weaknesses in a systematic manner.

The continuous engagement and cooperation with the IAEA should extend to regular safeguards technical meetings, IAEA technical visits to developing nuclear sites that can pre-empt or complement formal IAEA in-field verification activities, and seeking technical advice and clarifications by email with the IAEA Country Officer. Arranging technical visits for the IAEA to nuclear facility construction sites can be important to the successful design and implementation of IAEA containment and surveillance systems. Newcomer States should take advantage of such assistance from, and cooperation with, the IAEA and establish the necessary framework to support such cooperation – e.g. by establishing joint plans for safeguards implementation, and a schedule and budget for regular technical meetings to track progress and foster close alignment. It is important to establish and document the communication channels between the State and the IAEA and capture technical discussions in meeting minutes for knowledge management purposes.

The IAEA offers a variety of safeguards trainings at international, regional and State level that can significantly reduce the time and resources required to develop safeguards staff. The Safeguards Traineeship Programme is one example of such training. The objective of this traineeship is to increase the number of qualified candidates from Member States for Safeguards Inspector positions in the IAEA or in their respective SRAs. The program enhances the technical skills and competence of the trainees and it provides the participants with opportunities to broaden their knowledge about safeguards objectives, approaches and implementation on a facility/State level.

At a State level, the UAE benefitted from IAEA experts who visited the country and provided training on the use of portable gamma spectrometers that enabled the State's safeguards inspectors to effectively verify nuclear material.

The IAEA is also able to provide assistance and participation in national safeguards workshops to accelerate safeguards compliance and understanding of newly introduced safeguards requirements among the community that possess and handle nuclear material or conduct nuclear fuel cycle R&D. The physical presence of IAEA experts that are able to explain the IAEA safeguards system and requirements adds to the credibility and effectiveness of such workshops. Their presence also allow stakeholders (e.g. future licensees and other national competent authorities that will support successful implementation of the Safeguards Agreement and Additional Protocol) to seek clarifications and address concerns at an early stage of implementation, and ideally before the IAEA conduct formal safeguards verification activities in the State.

State engagement with the IAEA for the early integration of safeguards measures at the design stage of nuclear facilities (Safeguards by Design), even as early as the procurement process, reduces costs and implementation time and minimizes interference with the operators' construction and commissioning activities. Ensuring that any Small Quantities Protocol (SQP) has a schedule and process for being rescinded, and that arrangements for the issuance of multiple entry/exit visas for IAEA inspectors are also important aspects to coordinate with the IAEA. Ultimately, the early and effective implementation of safeguards measures and arrangements to facilitate IAEA safeguards implementation supports the IAEA in reaching a timely broader conclusion that all declared nuclear material in the State is used exclusively for peaceful purposes and that there is no evidence of

undeclared nuclear material or activities. Such a conclusion is an important independent confidence-building measure for the international community.

As a State gathers maturity in implementing safeguards, establishes a cadre of safeguards professionals and an a community of technical and R&D organisations, the State may be able to consider a more advanced and formalized level of cooperation with the IAEA under the auspices of a “Member State Support Program (MSSP)”. A MSSP can augment monetary contributions and more directly contribute to meeting the IAEA’s strategic needs. A MSSP could allow the IAEA to use the State’s facilities for training their safeguards inspectors, use State resources to develop verification and analysis techniques, or to study aspects of the nuclear fuel cycle that are relevant to developing new or more efficient IAEA safeguards approaches. MSSPs can be mutually supportive – supporting the IAEA’s mandate while advancing safeguards knowledge and expertise within the State.

In order to maximize the effectiveness of cooperation between the State and the IAEA, it is important for States to consider the many modes of interaction with the IAEA and establish a comprehensive policy and roadmap for engagement. However, a nuclear newcomer State needs to ensure that its plans for developing and acquiring safeguards competencies are commensurate with its ambitions to engage with the IAEA and to ultimately support the work of the IAEA at a more strategic and advanced level.

State-to-State Engagement & Cooperation

While close cooperation with the IAEA is essential, it is also important for States to support each other and to share their successes, challenges and best practices. States may establish nuclear cooperation agreements (NCAs) to formalize their cooperation. In some States, bringing an NCA into force may be a legal prerequisite for the commencement of strategic nuclear trade and cooperation. NCAs are common between States supplying nuclear material, equipment and technology for a nuclear power project in another State and require the parties to implement IAEA safeguards. NCAs typically contain primary provisions to ensure that the transfer of nuclear wherewithal, and special fissionable material derived from such wherewithal, is used exclusively for peaceful purposes. However, NCAs typically contain secondary provisions that provide an opportunity for States to establish cooperation that can support nuclear non-proliferation enhancement efforts. For example, NCAs may provide a basis to conduct joint research, exchange personnel, provide training, and organize joint symposia, seminars and workshops. Operationalizing these secondary provisions can be particularly useful for facilitating the transfer of knowledge to develop the safeguards systems in nuclear newcomer States. MOUs can also be established to provide a similar and potentially more focused basis for cooperation.

States are encouraged to use NCAs and MoUs to engage in joint research/studies related to the development of their safeguards systems and regulatory approaches. The objective of these studies can range from identifying best nuclear non-proliferation practices in the partner State to building safeguards competencies and capabilities. The former contributes to the continuous and practical

improvement of regulatory systems in both States, whereas the latter could support the development of young safeguards professionals through their contribution towards academic-style papers and research-oriented engagements.

Both MOUs and NCAs, and the Administrative Arrangements that underpin their practical implementation, should be considered as useful methods for building strategic ties in the areas of trade controls, R&D, emerging technologies and best practices in nuclear non-proliferation and safeguards implementation. Maintaining a schedule of meetings is important to realize the potential benefits of NCAs and MoUs. Annual steering meetings can be effective in reviewing engagement outcomes and for developing work plans for future engagements. More regular technical meetings, some of which can be conducted virtually, are effective for sharing regulatory practices, conducting visits to nuclear facilities and streamlining administrative matters.

In addition, member States of the United Nations must fully cooperate with the United Nations (UN) personnel responsible for the implementation of UN Security Council Resolutions (UNSCR) and have the technical capacity to fulfil the obligations laid out in UNSCR 1540. This also applies to all other export-control committees/groups that the State is party to. States need to develop technical/administrative competencies and strong cooperation with the 1540 Committee and other States, as well as with relevant national authorities (customs, etc.), to report any sanctioned activities or entities and enforce effective nuclear non-proliferation measures.

Ad-hoc Engagements and Informal Networks

In order to establish an international presence and develop safeguards systems and personnel, States can participate in a variety of major international nuclear non-proliferation gatherings (e.g. IAEA, INMM and ESARDA gatherings). Presenting papers and participating in panel discussions alongside other international experts and representatives from IAEA member States provides opportunities to identify and share innovative approaches and best practices that support and further strengthen global nuclear regulation. These interactions not only serve to demonstrate transparency and the State's commitment to nuclear non-proliferation, but also open opportunities for innovation that will increase the efficiency and effectiveness of the safeguards regime.

As part of their IE&C strategy, States may endeavor to join an existing international or regional safeguards network, or even study the merits of establish a new one in their region. These networks aim to promote nuclear non-proliferation and collectively enhance safeguards practices in the region. States with mature nuclear programs should seek to assist regional partners and newcomer States in developing their safeguards systems, and collectively work to address regional challenges. These networks ultimately support sustainable safeguards capabilities, promote regional cooperation, and coordinate the provision of technical assistance. Additionally, they provide fora for sharing knowledge on safeguards and can ultimately provide regional support networks for safeguards practitioners.

SRA's can also usefully identify opportunities to collaborate with academic institutions that specialize in nuclear non-proliferation, safeguards, and nuclear export controls. For instance, academic cooperation can support the development of safeguards systems and approaches and deliver mutually beneficial training. SRA's can deliver training and briefings on industry practices and approaches. The academic institutions can share their research into emerging proliferation trends and sensitive technologies that can subsequently feed into SRA policies and practices.

Conclusion

A State's IE&C can be legalistic (based on international agreements), informal (meetings and networks) and ad-hoc (opportunistic and short-term) in nature. Each type of engagement, if properly planned and executed, can result in an extensive support network, positive international exposure, and fruitful and long-lasting partnerships.

Although outcomes are unique to individual interactions, IE&C often supports capacity building by creating opportunities for SRA staff to engage with international experts and share best practices with select entities within the international community. It provides opportunities for career development and for staff to engage in interesting projects and become internationally recognized experts. In addition, IE&C supports the continuous improvement in regulatory performance through benchmarking, adoption of best practices and through collaborative R&D.

However, the strategic objectives for the conduct of IE&C must be clearly identified at an early point to ensure a nuclear newcomer State can benefit from a wholesome and effective partnership with international counterparts. Sufficiently competent staff will be required to develop such objectives, to create an IE&C plan and effectively link it to the State's nuclear fuel cycle activities, safeguards obligations and the SRA's vision, mission and operational/training plans. This is vital for a State to successfully leverage the unquestionable potential benefits of IE&C and to engage with the right partners at the right time.

Well-managed IE&C has the power to transform the safeguards capabilities, credentials, trust and performance in nuclear newcomer States. Ultimately, by working together with the IAEA and other entities, States can actively demonstrate their complete commitment to the exclusively peaceful uses of nuclear energy and further strengthen the effectiveness and efficiency of the nuclear non-proliferation regime.

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